

India

**Bihar Aquaculture and Livestock Improvement Project
Project Design Report**

Main report and annexes

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Abbreviations and Acronyms

AOS	Annual Outcome survey
AWPB	Annual Work Plan and Budget
BCR	Benefit cost ratio
B2C	Business to consumer
BFEOs	Block Fisheries Extension Officers and Supervisors
BLDA	Bihar Livestock Development Agency
BMGF	Bill Melinda Gates Foundation
BVOs	Block Veterinary Officers
BYP	Backyard poultry
CAAA	Aid, Accounts and Audit Division
C&AG	Controller and Auditor General of India
CFs	Community Facilitators
CLF	Cluster level federation
CoE	Centre of Excellence
COSOP	Country Strategic Opportunities Programme
CPE	Country Programme Evaluation
DPCC	District Project Coordination Committee
DWs	Direct Small Livestock Health Associate (DISHA workers)
DFIT	District Fisheries Implementation Unit
DioAH	Directorate of Animal Husbandry
DioF	Directorate of Fisheries
DLIT	District Livestock Implementation Unit
DoAFR	Department of Animal and Fish Resources
EMBRAPA	Empresa Brasileira de Pesquisa Agropecuária which translates into the Brazilian Agricultural Research Corporation
ERR	Economic rate of return
FIT	Fisheries Implementation Team
FLEs	Fisheries Lead Entrepreneurs
FM	Finance Manager
FO	Finance Officer
FPO	Farmer Producer Organization
FS	Finance Specialist
FTAs	Fisheries Transformation Agents
GDP	Gross Domestic Product
GIS	Geographic Information System
GoB	Government of Bihar
GoI	Government of India
GSDP	State Gross Domestic Product
HH	Households

ICO	India Country Office
IFAD	International Fund for Agricultural Development
IRR	Internal rate of return
LIT	Livestock Implementation Team
M&E	Monitoring and Evaluation
MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
MPI	Multidimensional poverty index
MPOWER	Mitigating Poverty in Western Rajasthan Project
NGO	Non-governmental Organization
NPV	Net present value
OCC	Opportunity cost of capital
PIM	Project implementation manual
PG	Producer Group
PMC	Project Management Committee
PSC	Project Steering Committee
PSU	Project Support Unit
PTSLP	Post Tsunami Livelihood Programme
RIMS	Results and Impact Management System
SBD	Standard bidding documents
SC/ST	Scheduled caste and Scheduled tribe
SDGs	Sustainable Development Goals
SHG	Self Help Group
SLE	Small Livestock Lead Entrepreneur
SECAP	Social, Environmental and Climate Assessment Procedures
SO	Strategic Objectives
SoE	Statement of expenditure
USD	United States Dollar
VO	Village Organization
WA	Withdrawal application

In line with IFAD11 mainstreaming commitments, the project has been validated as:

Gender transformational Youth sensitive Nutrition sensitive Climate finance

IFAD Adaptation Finance	\$28,259,000
IFAD Mitigation Finance	N/A
Total IFAD Climate-focused Finance	\$28,259,000

Executive Summary

Context and rationale: India is the world's largest democracy, second most populous country and the third largest economy in purchasing power parity terms. Despite strong economic performance gains, growth and poverty reduction have been uneven. Productivity in the agriculture and livestock sector, the main livelihood of rural population, remains a key challenge. Since 2005, Bihar has been one of the fastest growing states and one of the strongest agricultural states but with fifth lowest per capita income. About 88 percent of the population in Bihar still live in villages and depend on agriculture. The Government of India's (GoI) Doubling Farmer's Income Report, 2018, recognises livestock and fisheries sectors as the engines of high agricultural growth, acknowledging that fisheries comprise the most profitable category. Government of Bihar (GoB) intends to focus on small livestock and fisheries sectors that are the core livelihood activities of marginal castes, and women with potential to substantially increase their incomes to help achieve the development goals of the state.

Special aspects relating to IFAD's corporate mainstreaming priorities. This project will address poverty, gender, youth, climate and nutrition related priorities of IFAD. Rearing small livestock is a promising pathway out of poverty for rural farmers in developing countries. This activity self-selects resource poor, marginal and socially disadvantaged groups and largely remains in the domain of women, putting income in their hands. The service delivery model of this project that creates community cadres for delivering extension and animal health services, will be youth inclusive. The project's climate focussed interventions include: fodder development aiming at increasing the forage for goat feeding, goat housing to adapt to climate change events, as well as inlet and outlet rehabilitation of ox-bow lakes to reduce the impact of floods. The project's activities such as introduction of small carps that breed in confined waters, integrated farming, kitchen gardening will foster nutrition security.

Rationale for IFAD involvement: GoI aims to double farmers' income by 2022 and recognizes the need for income diversification with focus on livestock and fishery sectors. Small livestock and fisheries interventions fit well within this policy paradigm. This project concept is an outcome of a grant agreement between IFAD and the Bill and Melinda Gates Foundation (BMGF) and GoB took keen interest in developing a concept note for funding by IFAD and obtained clearances from the Department of Economic Affairs, GoI. The project is in consonance with the Livestock Master Plan and the Road Map for the Fisheries Sector of GoB. It is also aligned with IFAD's COSOP 2018-2024, which focuses on supporting the national objective of doubling farmers' income and developing models and services for remunerative, sustainable and resilient smallholder food and agriculture production systems, in economically weaker and rainfed areas of India.

Lessons Learned: This project design has taken into account the recommendations of the Country Programme Evaluation (CPE), 2016 and the Country Strategic Opportunities Programme (COSOP) 2018-2024. International best practices and lessons learned from various projects of IFAD within India and abroad, and the NGO sector have been considered. This includes: (i) small livestock rearing self-selects resource poor households; (ii) small ruminants not only contribute to livelihood and nutrition security of households, but also act as a hedge against livelihood losses and other adversities; (iii) substantial reduction in mortality rates of goats with the introduction of Pashu Sakhi model of grassroots community level animal health service providers; (iv) poly-culture systems with small indigenous fish significantly improve nutritional status of households; forming producers into groups and collectives provide easy entry points for introducing good practices, access to inputs and trainings as well as convergence with Government schemes; groups, especially when aggregated at a cluster level, strengthen collective negotiation and more remunerative prices for producers; for successfully marketing livestock and fish, there is need to understand the market demands especially concerning quality and volumes, and promote consequently a standard package of practice to ensure that farmers respond to market requirements in terms of volume and quality and get optimal profit.

Project goal and objectives: The goal of the project is to contribute to the doubling of the income of poor rural households and to improve nutrition security. The development objective is to improve the resilience of rural households through intensified small livestock and inland fisheries production systems and improved performance of value chains. This implies building and operationalizing grassroots level service delivery, coupled with entrepreneur-led extension, access to financial resources, and facilitating market linkages. This is expected to enhance production and productivity while simultaneously building climate resilient small livestock and fisheries production systems.

Geographic areas of intervention: The project will be implemented in 12 districts of Bihar that were selected based on the following key criteria: (i) among the poorest as per the socio economic indicators; (ii) with potential for building small livestock and fishery value chains; (iii) do not overlap with existing externally-aided projects in the state; and (iv) with higher levels of vulnerability to climate change events. The districts proposed are: Aurangabad, Banka, Kaimur, Katihar, Khagharia, Kisanganj, Newada, Rohtas, West Champaran, East Champaran, Sitamarhi and Madhubani. In addition, two Centres of Excellence are proposed - one each on fisheries and goats to be managed by the respective Directorates - which may be outside of these districts. On an average it is expected that 2-5 blocks per district will be identified for small livestock and fisheries activities each with possibilities of overlap. The number of blocks to be covered in each district will be worked out by DoAFR depending on the total number of blocks in each district, geographic area and number of households. Smaller districts may cover fewer blocks (2) under each sector while larger districts may cover more blocks (4-5) for each sector ensuring that the total number of blocks being covered by the project do not exceed 64 for each sector. The project will saturate the selected blocks. Block selection criteria would also take into account the poverty situation, potential for development and contiguity, and exclude blocks/villages that are ecologically sensitive and part of forest buffer zone areas.

Targeting and target groups: The main target group would comprise resource-poor farmers and rural households raising goats, backyard poultry or involved in fisheries. Goat, backyard poultry and small ponds fish culture will target subsistence-based landless, marginalized and small livestock rearing households and small fish farmers. Special attention would be given

to women, including vulnerable women-headed households, youth, and members of Scheduled caste and Scheduled tribe (SC/ST) households.

Project Components/Outcomes: The project will have three components: (i) Small livestock promotion; (ii) Inland fisheries promotion; and (iii) Project Management, M&E and Policy Support. Both project components adopt a unified extension and outreach strategy while catering to two different sub-sectors. Goat rearing and fish rearing HHs in the state are largely distinct and serviced by different input suppliers, engaging different market channels and requiring distinct and specialised technical guidance provided by two different Directorates which come under one Department

Under the Small livestock promotion component, the project will build capacity of the Block Veterinary Officers (BVOs) and Community Facilitators (CFs) to train and build capacity of a new cadre of community workers comprising DISHA workers (DWs) and Small Livestock Lead Entrepreneurs (SLEs) to deliver sustainable animal health, extension and market linkage services. The project will support improving infrastructure of veterinary dispensaries and also building a Centre of Excellence for Small Ruminants. The project will mobilize Producer Groups (PGs) and Farmer Producer Organizations (FPOs) and roll out animal health services, digital extension covering technical, market, climate and women empowerment related messages and conventional extension through demonstration units with SLEs.

The project will support goat health management, fodder production, breed improvement, housing interventions and a mutual insurance and will establish a small matching grant mechanism to largely support ultra-poor households to increase their herd size for better returns. With regards backyard poultry, the project will support on-going Government efforts by establishing mother units for supply of chicks (an entrepreneurial activity), and help poultry rearers to access veterinary care and to benefit from Government schemes for construction of poultry sheds. Under marketing related activities, the project will promote sale of goats by weight and support building/upgrading of goat market infrastructure, model meat stalls, training of butchers, slaughter points and mobile slaughter vans. The project will establish a start-up search engine to scout for start-ups and investors and will support feasibility studies by the interested start-ups and investors. The project will facilitate convergence of interested start-ups and investors with GoB's regular industrial promotion and other convergence programmes.

Under the Inland fisheries promotion component, the project will build capacity of the Block Fisheries Extension officers/supervisors (BFEOs) through training and exposure visits who will in turn build capacity of community cadre comprising practicing fish farmers as Fisheries Transformative Agents (FTAs) and Fisheries Lead Entrepreneurs (FLEs). Standard operating protocols will be implemented in these farms to promote them as training and demonstration units for the fish farmers. The project will also promote extension services through the community cadre covering both digital and conventional extension and will support construction of a Centre of Excellence for Fisheries. The project will support aquaculture through rejuvenation and/or construction of backyard ponds and small ponds. PGs and FPOs will be promoted, and a matching grant support will be provided to implement climate resilient and nutrition focussed intensification of fish culture. The project will support, brood stock replacement, species diversification, provision of better practice kit and integrated farming kit. The project will facilitate flow of credit to fish farming.

The project will engage a reputed technical agency to provide commercially oriented technical assistance for improving the hatcheries operating sub-optimally, promoting nursery clusters and for species diversification[1]. Capture fisheries ecosystem comprising ox-bow lakes will be developed in convergence with “Jal Jeevan Haryali” programme of GoB and the project will support nursery development and ranching in ox-bow lakes. Under marketing related activities, the project will support building market infrastructure, rural haats and model fish stalls. The project will support the innovative live fish transport trade and alternate energy powered fish chilling boxes by sourcing technology and piloting the interventions. The project will establish a start-up search engine to scout for start-ups and investors and will support feasibility studies by the interested start-ups and investors. The project will facilitate convergence of interested start-ups and investors with GoB’s regular industrial promotion and other convergence programmes.

Under the Project Management, M&E and Policy Support component, the project will support incremental staff, procurement of office equipment and furniture, internal and external audit, reviews, committee meetings and operating costs. The project will support establishment of a M&E unit within PSU and each of the Directorate level implementation teams. The project will also fund establishment of a computerised and GIS linked Management Information System (MIS). Allocations for knowledge generation and dissemination, thematic studies, baseline survey, end-line survey and project completion report will be made. The project will support development of goat sector policy, regulations to bring fisheries on par with agriculture and municipal regulations for hygienic slaughtering and sale of meat and fish products. Research and studies for promotion of goat breeds and climate resilient feed resources best suited for the state and for undertaking Hazards, Risks and Vulnerability studies will be supported.

Theory of Change: Agriculture growth sustainability in India is in serious doubt and the livestock sector contributes the highest in total agricultural GDP and serves as a lifeline to two-third of rural community. Livestock, in particular small ruminants, and fisheries sectors in Bihar offer opportunities to resource poor households for diversifying income sources. GoB is keen on promoting small livestock and fisheries that are the core livelihood activities of women and marginal groups. Low productivity, inadequate access to inputs and services, lack of market infrastructure and marketing support and lack of sector policies and strategies are the main challenges. These challenges will be addressed through capacity building, improving access to inputs, services and markets and will result in increased production and productivity and resultant increase in household income.

Alignment, ownership and partnership: The project through small livestock and fisheries interventions intends to contribute to doubling of farm incomes of women groups and socially disadvantaged rural households with in built nutrition security activities. Expansion of fodder tree cultivation, construction of goat housing for small livestock, introduction of alternate energy based fish cooling units and rehabilitation of inlet and outlet of ox-bow lakes enhance the ability of households to adapt to climate change events. These strategies of the project will contribute significantly to the achievement of SDG 1 - end poverty; SDG 2 - zero hunger; SDG 5 - gender equality; and SDG 13 - combat climate change and its impacts. At corporate level, the project is aligned with IFAD policies for mainstreaming gender, youth and climate and well aligned with IFAD's Gender Action Plan (2019-2021). The project will converge with all the ongoing schemes of GoB and other donors.

Project costs and financing: Estimated project cost of this six year project is US\$146.3 million comprising IFAD financing of US\$58.0 million in loan and US\$2.0 million in grant, GoB participation of US\$31.8 million (inclusive of US\$7.8 million equivalents in taxes and US\$12.0 million in the form of staff salaries), convergence funding of US\$29.1 million, loans from financial institutions of US\$5.1 million, private sector US\$1.0 million and beneficiary participation of US\$19.3 million.

Benefits and Economic Analysis: The total outreach of the project will be 1.00 million households reaching 5.4 million individuals. These beneficiary households will include smallholder farmers and member-farmers of the community institutions and other disadvantaged households. Cost-benefit analysis yields an overall IRR of 43 percent. The estimated NPV for a 7.5 percent discount rate is INR 44,980 million and the BCR of 1.97. A positive NPV under the current opportunity cost of capital (OCC) of 7.5 percent indicates that the project investments are sound and robust. Under a scenario of costs increase by 25 percent and benefits decline by 25 percent over the base-case, a 18 percent IRR with a NPV of INR 10,636 million is expected confirming the robustness and soundness of the project investments. The switching value analysis indicates that the project is capable of sustaining a 97 percent increase in costs and 48 percent decline in benefits.

Exit strategy: The project's exit strategy is founded on three core elements of project design: (i) development of a community cadre of workers comprising DWs and FTAs with adequate training and continuous backstopping to provide fee based services to the goat and fish farmers to emerge as sustainable service providers before project completion; (ii) provision of Lead Entrepreneur led and market oriented extension and training services and development of symbiotic relationships between the entrepreneurs and the producers; and (iii) establishment of PGs at the village/panchayat level and FPOs at the block level to empower the community to take their own decisions related to the sector.

Sustainability: Sustainability of activities implemented under the project is embedded into the design. DWs and FTAs will provide fee based service with the vision to withdraw project support after two years to drive sustainability. The B2C relationship between the Lead Entrepreneur and producers will provide backward and forward linkages to the producers related to input and output aggregation and marketing. Productive investments proposed under the project in both the small livestock and fisheries value chains are profitable. In addition, the community led goat mutual insurance will further reduce the risks in goat farming. The project will support promotion of PGs and FPOs to enhance sustainability.

Project Risks: The overall project risk probability is rated "High-Medium (H-M)" and the risk impact on project implementation is rated "Low to Medium-Low (M- L)" with the implementation of mitigation measures. The political and governance risk, macroeconomic risk and sector strategy and policies related risks are "Low". The risks related to technical design of the project is "Medium". The risks related to institutional capacity for implementation and sustainability are considered "High" on account of human resource capacity of the project implementing partners. The financial management and procurement risks are "High". These risks reduce to "Medium" with implementation of mitigation measures.

Environment and social category: The environmental and social category for the project is "B". The project activities, which entail increased production of livestock and inland fisheries, may generate moderate, site-specific adverse environmental risks and impacts.

These likely risks and impacts, which pertain specifically to goats, are reversible in nature, and will be mitigated by known measures outlined in the ESMP (SECAP Review Note Annex 5). The project design has excluded blocks/villages that are ecologically sensitive and located near forest buffer zone.

Climate risk classification: The preliminary risk category for this project is rated as Projected climate scenarios for mid-century indicate increase in temperature and rainfall variability which may impact fodder and feed supply. Intervention to mitigate these risks include support to local breed development, scientific management practices including stall feeding and fodder development, construction of flood shelter, insurance for goat rearers, and rejuvenation of existing water bodies including ox-bow lakes to reduce the impact of flood.

Organisational Framework: Department of Animal and Fish Resources (DoAFR) will be the Lead Implementation Agency and the project will be implemented through its Directorate of Animal Health (DioAH) and Directorate of Fisheries (DioF). The project will use the existing fund flow mechanism through Bihar Livestock Development Agency (BLDA) being used by DoAFR under its central sector projects. A Project Support Unit (PSU) will be established

with responsibility for overall financial management, compliances and other crosscutting issues. The PSU will report to the Project Director who is the Director of both DioAH and DioF. The Project Director will report to the Mission Director who is the Secretary, DoAFR.

The project will establish a Livestock Implementation Team (LIT) within DioAH and a Fisheries Implementation Team (FIT) within DioF headed by a Project Coordinator who is the Technical Head of the respective Directorate. These teams will be responsible for implementing project activities by harmonising them with the existing district and block level structures. The District Officers of the DioAH and DioF will be the District Project Managers. The project will establish a three tier coordination mechanism comprising a **Project Steering Committee** (PSC) chaired by the Chief Secretary/Development Commissioner, a Project Management Committee (PMC) chaired by the Secretary, DoAFR and a **District Project Co-ordination Committee** (DPCC) chaired by the District Magistrate.

Financial Management (FM), Procurement and Governance:

The PSU will be responsible for the overall financial management. The LIT and FIT of the respective Directorate will be responsible and accountable for the implementation of project activities of their respective sector and finance related functions. AWPB will be consolidated at the PSU and incorporated into the budget of DoAFR as a separate budget line for this project. The DoAFR, in order to pre-finance project activities, will release the approved budget to PSU as grant in aid so that it will not lapse at the end of the fiscal year. The PSU will release budget to LIT and FIT for implementation of project activities.

GoI shall open a Designated Account for the loan and the grant separately with the Reserve Bank of India (RBI) to receive IFAD funds. All project units will open separate project bank accounts in a bank acceptable to DoAFR. The project accounting will be computerized and customized. Retroactive financing and Start-up advance will be provided. Independent internal and statutory auditors will be engaged to ensure compliance to GoB and IFAD requirements. Procurement of goods, works and services shall be undertaken as per the

provisions of IFAD Procurement Guidelines and IFAD Procurement Handbook, as amended from time to time. The independent and competent authority responsible for receiving, reviewing and investigating allegations of fraud and corruption will be the Additional Secretary, Vigilance Department, GoB.

Planning, M&E, Knowledge management and Communication: PSU will be responsible for the preparation of consolidated Annual Work plan and Budget (AWPB) which shall be based on the AWPB of the LIT-DioAH and FIT-DioF. The project will establish MIS at both the Directorates to monitor physical and financial progress, achievement towards output targets and will build on the existing GIS based technology backbone. Annual outcome surveys (AOSs) will be conducted to assess achievement of outcome targets. The project will also conduct a baseline, impact assessment and thematic studies. The project will generate and disseminate knowledge through regular knowledge products, creation of a website for uploading knowledge generated. Participatory methods will be used during M&E to assess community engagement in and satisfaction with project activities.

Innovations and Scaling up: The main innovations that have been considered in this project design include: (i) entrepreneur led training and extension; (ii) barefoot animal health workers linked to Veterinary Dispensaries; (iii) digital Extension delivery; (iv) mutual insurance; (v) ox-bow lake ranching; and (vi) species diversification in fisheries.

Implementation plans: All activities under the project will be implemented by the officials of the respective Directorate assisted by technical assistance teams, consultants with commercial orientation and technical service providers contracted through an open and transparent procedure, and calls for proposals. The project will develop an entrepreneurial community cadre who will implement grassroots level project activities. The project will build on the existing community institutions and develop value chain specific PGs and FPOs who will be the direct partners in implementing project activities. The activities related to markets and marketing will be largely private sector oriented and will be implemented through them. This project implementation will be spread over six years.

Supervision, Mid-terms review and completion plans: This project will be directly supervised by IFAD and annual Supervision Missions will be conducted. A mid-term review (MTR) by the end of the third year of the project to review project achievements and implementation constraints. Close to the project completion point, the project will prepare a draft Project Completion Report and IFAD and GoB will then carry out a Project Completion Review.

1. Context

A. National context and rationale for IFAD involvement

a. National Context

With a population of more than 1.3 billion, India is the world's largest democracy, second most populous country and the third largest economy in purchasing parity terms. It is expected to grow at well over 7 percent per year and long-term GDP growth is expected to become more stable, diversified, and resilient. [2] India took a few giant strides forward and became the sixth largest economy. The current account deficit remained within manageable levels and foreign exchange reserves rose to all-time highs. The monthly headline inflation

has always remained within the band (2-6 percent) except for one month.^[3] Despite strong economic performance gains, growth and poverty reduction have been uneven, with greater progress in states and social groups that were already better off. India faces the challenge of increasing poverty reduction's responsiveness to growth. India's success is central to the world's collective ambition of ending extreme poverty, promoting shared prosperity, and achieving the 2030 Sustainable Development Goals (SDGs) ^[4]

Poverty (SDG 1), food security and nutrition (SDG 2), and smallholder agricultural and rural development context: India has made substantial progress in reducing multidimensional poverty as measured by Multidimensional Poverty Index (MPI), virtually halving the incidence of MPI poverty in 10 years between 2005-06 and 2015-16, climbing down from 55 percent to 27.5 percent. However, the country still has the largest number of people living in MPI poverty in the world (364 million people). In 2015-16, the four poorest states – Bihar, Jharkhand, Uttar Pradesh, and Madhya Pradesh – were still home to about 200 million poor people. Of them, *Bihar is the poorest state with the MPI at 0.246*^[5] and proportion of poor population in Bihar is 52.2 percent, of them, 22.1 percent come under severely poor population.

Over the past six decades, India has come a long way from being a famine-prone country to comfortably producing food for 1.3 billion people, but crop yields are still relatively low by global and regional standards. India has made rapid strides in lowering the incidence of under- and malnutrition; stunting in children below five years declined from 48 to 38 percent between 2006 and 2016.^[6] However, India continues to have one of the world's highest child under-nutrition rates. To address this, the GoI is working on mission mode towards the vision of "Kuposhan Mukta Bharat" or Malnutrition free India.^[7]

State context: Bihar is a revenue surplus state with decline in the primary deficit from INR 82.89 billion in 2016-17 to INR 52.51 billion in 2017-18. Bihar has been one of the fastest growing states with annual growth of Gross State Domestic Product (GSDP) of 11.3 percent in 2017-18, increasing from 9.9 percent a year before compared to national growth rate of 7 percent. Bihar is one of the strongest agricultural states with 73 percent of population employed in agricultural production, which is much higher than the national average. The share of agriculture to the GSDP of Bihar is 9.8 percent.^[8] Bihar's per capita income is the fifth lowest across all states and per capita agricultural income is about half that of India.

The high poverty rate in Bihar has been attributed to low asset holding (MOSPI, 2017). Indeed, the percentage of landless households is close to 70% (see annex 5). Furthermore, the percentage of households who own ruminant livestock (cattle and buffalo) is lower in Bihar (according to the last national livestock census) than comparable states (Ministry of Agriculture, 2014 and 2010). Bihar has a large goat population (ranked third in India), and most goats are held by marginal castes and women, as well as landless and marginal households, so goat rearing is particularly important in poverty-reduction strategies and activities, as underscored in the Bihar Livestock Master Plan covering the period 2018/19 to 2022/23. It has the potential to increase the income of women and marginal groups, with low levels of investment. Bihar has abundant freshwater resources, with around 3.76 percent (352.37 thousand hectares) of its total geographical area endowed with water resources. The production and productivity remains low with considerable scope for expansion.

National and State Strategies: Agriculture continues to be the primary source of livelihood for nearly 50 percent of the Indian population although its contribution to GDP remains low

at 12 percent. Doubling Farmer's Income Report, 2018 of GoI, recognises livestock and fisheries sectors as the main engines of high agricultural growth acknowledging that fisheries comprise the most profitable category.^[9] GoB has prepared a Bihar Livestock Master Plan and a Road Map for the Fisheries Sector. The main aim of these efforts is to increase production and productivity of these two sectors and as a result contribute to doubling of farmers' income. GoB has launched four small livestock schemes comprising supply of 3 free goats to SC/ST families and other goat schemes of various unit sizes with 50 percent subsidy. Similarly, schemes for construction of fish ponds with 40-90 percent subsidy and also schemes for supply of fish feed and seed are being implemented.

Key actors and institutional arrangements. The key actors in the development of small livestock and fisheries sectors are: (i) DoAFR and its DioAH and DioF and their district level offices; (ii) The Agha Khan Foundation which implements a project for small livestock promotion using a service delivery approach with support from BMGF; (iii) Jeevika, the Rural Livelihoods Society of GoB which promotes a service delivery approach and also supports the implementation of DoAFR's small livestock schemes; and (iv) private sector entrepreneurs comprising, fish hatchery owners, fish feed suppliers, and goat breeders and traders.

b. Special aspects relating to IFAD's corporate mainstreaming priorities

Development of the livestock and fisheries sectors in Bihar has significant potential for being a source of round the year employment, supplementing income and providing high protein nutritional sources especially for households living below the poverty line and those who lack sufficient agricultural land to sustain themselves. Goats are an integral part of rural economy in Bihar, as 94% of the goat population is held by marginal, small and medium households. More specifically, nearly 74% of the goats are held by marginal farmers (67% in India on 0.4 ha in average, and 6% by the landless representing 3% in India). Goat rearing is playing a significant role in providing livelihood and nutrition for the landless, marginal holders, Scheduled castes, Scheduled tribes, backward and women headed families spread over 0.5 million villages in India. Over 90.2% of them are living in poverty and for 35% of them, goat husbandry is the main source of livelihood. Women play a pivotal role in goat rearing but their role differs from State to State. The income generated by goat rearing activities is key to reduce women's economic vulnerability and help them cope with shocks and crises. The livestock interventions are particularly relevant in the drought-flood prone, hilly, and tribal areas where crop production is not adequate to provide income and/ or nutrition security round the year. The multifaceted scope of livestock and fisheries activities includes - sufficient and sustainable wealth generation for rural people, creation of self-employment opportunity for landless women and unemployed youth and animal protein availability for local consumption. This project will integrate gender, youth, climate and nutrition related priorities of IFAD.

Gender transformative : India ranked 95 out of 129 countries in a new index that measures global gender equality looking at aspects such as poverty, health, education, literacy, political representation and equality at the workplace. Agriculture sector holds a central position in Bihar's economy and within agriculture, the livestock sector in the state employs more than 78 percent women. Within India, the state of Bihar ranks 12th among States with regards progress against SDG 5 Gender equality and women's empowerment. According to the profile on gender prepared by the World Bank for the State of Bihar, the state's performance in closing gender gaps is still mixed. Adult women are twice as likely to be illiterate than

adult men. The state has the lowest rate of female labor force participation in the country. Though Bihar's child sex ratio is more favorable than the national average, it is declining. Although the rate of crimes against women is comparatively low (28 per 100,000 women), the data on violence against women and the girl child are high. On a positive note, gender gaps in elementary schooling have narrowed, and maternal mortality is declining. Although few women work, women workers have the same types of jobs as their male counterparts. Women earn about 82% of men's wages for the same job performed. Bihar also performs well in terms of women representation in the state legislative, at 11.5%. The State Rural Livelihoods Mission in Bihar, also called Jeevika, aims to achieve women social, economic and political empowerment through financial inclusion and livelihood development. The current outreach of Jeevika is 9.2 million women.

Agriculture sector holds a central position in Bihar's economy and within agriculture, the livestock sector in the state employs more than 78 percent women. The role of this sector in adopting gender transformation will not only help in providing income and productivity gains for livestock keepers but will also contribute to women's enhanced participation in the decision making structures and venturing into new areas of work. Rearing small livestock has been established as a promising economic empowerment pathway out of poverty for rural farmers in general and women. The Bihar Livestock Master Plan addresses gender mainstreaming as a cross cutting theme in all investments. As per the Plan, women control 63% of the revenues from goats.

In addition to mainstreaming gender into BAaLI activities, the project will undertake the following steps towards gender transformation: (i) further enhance revenues from livestock as well as fisheries for women to reduce their vulnerabilities to shocks and enhance their role in decision making. Experience from livelihood projects show that with women increased economic empowerment, men take up additional duties for family care; (ii) lay special emphasis on engaging women as Small Livestock Lead Entrepreneurs and Small Fisheries Lead Entrepreneurs where possible, so that they emerge as community leaders and become positive role models for other women; (iii) engage women on priority as DISHA workers to help build the image of women as certified para professionals at the grassroots level; and (iv) engage with the government for an enabling policy environment to support equal women and men participation in the increased commercialization of the small livestock and fisheries sectors.

Youth focussed: Youth account for almost a third of India's population. GoI has formulated a National Youth Policy (2014) and a National Policy for Skill Development and Entrepreneurship (2015) to provide an umbrella framework for youth development and skilling activities and to link skilling with demand centres. A large number of young unskilled persons in the country in general and in the state of Bihar migrate as labour to other parts of the country. These are both seasonal and long term owing to lack of local income opportunities and loss of livelihoods during flood/ drought. As livestock and fisheries promotion has the scope for creating round the year income for them, this may help reduce distress migration of the youth. Creation of a cadre of entrepreneurs, community cadre for animal health workers and fisheries agents as "transformation drivers" will open avenues for local youths to: (i) diversify their income and invest in the local economy; and (ii) attract back youth who have migrated to the cities.

Climate focussed: India is among the countries most vulnerable to climate change. It has one of the highest densities of economic activity in the world, and very large numbers of poor

people who rely on the natural resource base for their livelihoods, with a high dependence on rainfall for agriculture. *By 2020, pressure on India's water, air, soil, and forests is expected to become the highest in the world.* India's Nationally Determined Contributions under Paris Agreement set three major goals- increase non fossil fuels to 40 percent of total electricity generation capacity, reduce emission intensity of the economy by 33-35 percent by 2030 (from 2005 levels) and create additional carbon sink of 2.5-3 billion tonnes of CO₂. As an emerging economy, India's greenhouse gas emissions are set to rise by as much 85 percent. As the third largest emitter in the world, India accounts for 6.65 percent of global emissions. However, the government has set clear and bold targets including 175 GW of renewable energy by 2022 and Indian industries and businesses are stepping up their efforts in line with policy signals . As a result, India is on track to overachieve its Paris targets after adopting its final National Electricity Plan in 2018 as per Climate Action Tracker.

The project will enhance climate resilience of households by focusing on promotion of small livestock who are recognised to be (i) more water-efficient than large ruminants such as cattle and buffaloes; (ii) versatile animals that readily adapt to a changing climate and more suited to small farming systems; (iii) emit less enteric methane (CH₄) than all other domestic ruminant animals per unit body weight; and (iv) are an affordable asset which can be easily relocated in case-for instance-of flooding. The project will also focus on maximizing water conservation approaches through rejuvenation/construction of ponds and tanks and flood control measures by rejuvenating ox-bow lake ecosystems. Potential increase in pressure on natural resources and biodiversity due to the expected growth in goat number under the project will be mitigated through the promotion of: (i) stall feeding systems coupled with intensified fodder production combining the use of drought tolerant forage varieties and diversified feed and fodder resources; and (ii) more effective marketing system with the establishment of organized aggregation points for traders to collect animals and digitized market information systems. The fisheries interventions promote rejuvenation and new construction of ponds and tanks and will promote water conservation and inlet and outlet rehabilitation of ox-bow lakes will preserve this ecosystem and thereby reduce the impact of floods.

Nutrition sensitive: Despite implementing the world's largest programme on Food Security and Nutrition, the nutrition status in the country is still poor. In Bihar, the situation is very grim. As per the National Family Health Survey (4), 43.9 percent of under-five children in Bihar are underweight, 15.2 percent severely underweight and 20.8 percent wasted. Anaemia affects nearly two thirds of women and children and about one third of men. According to the National Family Health Survey-4, the prevalence of anaemia in the year 2015 was 60.3% among women in the reproductive age, 63.5% among children and 32.2% among men. Given alarming rates of malnutrition, the Government of Bihar formulated the State Nutrition Action Plan for the period 2019-2024. The project will mainstream nutrition through three broad sets of activities: (i) increase profitability of goat rearing and fisheries activities leading to increased purchasing power of resource poor farmers; (ii) including backyard poultry meat and eggs, and fish in the diet of smallholder families; and (iii) educating families on the importance of diversifying household diets through digital extension and through convergence with government schemes and services such as Anganwadi Centres, Village Health and Nutrition Day, ASHA workers, etc. The project's activities such as introduction of small carps and other fish species that breed in confined waters, backyard poultry, integrated farming and kitchen gardening are nutrition pathways addressing the nutritional security of households whereas the food security concerns are met by the Government's public distribution system. In conclusion, the nutrition sensitive activities address increase in

disposable income for nutrition, reducing deficiency in iron and other micronutrients through adding animal protein to the diet, better knowledge among women and men about balanced diets.

c. Rationale for IFAD involvement

This project concept is an outcome of a grant agreement between IFAD and the BMGF whereby a scoping intervention was undertaken to demonstrate that the goat subsector in India has great potential to contribute to poverty alleviation. The project is also an integral part of the Livestock Master Plan (2018-19 to 2022-23) that GoB has prepared with support from the BMGF and the International Livestock Research Institute. IFAD's portfolio in India focuses on improved agriculture productivity and incomes in economically weaker and rainfed areas and this is fully aligned with the objectives of this project.

Overall, the rationale for IFAD's involvement in this project, is related to (i) IFAD's extensive and successful experience of working with smallholder farmers on promotion of small ruminants in India to generate sustained income; (ii) ability to leverage global/technical expertise on small ruminants and fisheries to strengthen the capacities in the state; (iii) IFAD's ongoing partnership with National Rural Livelihoods Mission and Women Development Corporations in the country that has enabled leveraging the strength of community organisations for developing group response models; (iv) alignment with geographic targeting identified in the Country Strategic Opportunities Programme (COSOP) namely the eastern states of India; (v) IFAD's overarching commitment to GoI's strategic goal of doubling farmers' incomes (by 2022); and (vi) opportunity to create livestock based response models that can be replicated in other states through the newly created dedicated Ministry on Livestock, Fisheries and Dairying. GoI's Doubling Farmer's Income Report, 2018, recognises fishery sector as one of the engines of high agricultural growth acknowledging that fisheries comprise "the most profitable category within the livestock segment".^[10] The report also identifies the need to allocate special focus on livestock sub sector to benefit the large population of small and marginal farmers who rely on small ruminants for livelihood.

B. Lessons learned

Lessons from best practices: The project will take into account the lessons learned from various projects of IFAD within India and abroad, as well as the lessons from the NGO sector operating in India including Bihar. Pertinent lessons include: (i) free distribution of animals to households leads to reduced sense of ownership resulting in increased mortality and premature sale of the animals; (ii) there is substantial reduction in mortality rates of goats and backyard poultry with the introduction of *Pashu Sakhi*^[11] model of grassroots community level animal health service providers; (iii) introduction of mineral blocks and azolla culture improve the health of goats; (iv) introduction of goat sale by live weight increases price realization for goat farmers; (v) introduction of firm arrangements between banks and projects on identification of beneficiaries, training and support, loan delivery and repayment will greatly enhance credit access of farmers; (vi) introduction of *carp-mola* fish and other species breeding in confined water into village ponds will have great impact on nutrition security of the households. With regards project implementation and management, the following lessons are pertinent: (i) Government's partnership with high quality service providers enables effective community mobilization, training and capacity building of producer organizations; (ii) contiguous project area facilitate efficiency in implementation;

(iii) smooth flow of counterpart funds is essential for unhindered implementation; and (iv) a dedicated project management unit with continuity of leadership contributes to successful implementation.

Empowerment of women is key to sustainable family well-being: Small livestock is an important tool for empowering women, who are generally disadvantaged compared to men of their own class and ethnicity. Experience from IFAD supported projects in India like Tejaswini, MPOWER, ILSP and PTSLP, demonstrate the socio-economic empowerment potential of goat rearing: the expansion of the goat units with credit from SHGs or Joint Liability Groups, acquisition of new skills, formation of new collectives/FPOs for input supply, acquisition of know-how in shed improvement, and adoption of improved feeding practices and breeding have demonstrable potential to enhance the income of households. The weight based sale of animals facilitate appropriate price realization, and organisation of farmers in groups helps in compelling buyers to abide by this practice once farmers decide to adopt it. Women play an active role as *Pashu Sakhis* (animal health workers) which is a non-conventional role for women and experience shows that households are willing to pay for the services they obtain in terms of feed supply, veterinary care, breeding services, etc.

Producers' groups formation. The project is expected to promote first tier organization of producers, first at village level then aggregated at block level. The project is adopting this approach in absence of organized producer organizations. There are useful lessons from projects like ILSP which has two tier organisations (Producer Groups and Livelihood Collectives) and Tejaswini which has three tier institutions (SHGs, Village Level Organisations and Cluster level Federations or CMRCs). These groups provide easy entry points for introducing good practices, access to inputs and trainings etc. This not only reduces the cost of services/ trainings but also helps to introduce peer to peer learning and support. Groups, especially when aggregated at a cluster level, also strengthen collective negotiation and adoption of uniform good practices (eg sale of goats by live birth weight). Access to finance and convergence with government schemes is also facilitated through formation of collectives. The project will learn from the experience of these projects in forming and aggregating community groups/ clusters. .

Market linkages. The key lesson in marketing of livestock and fisheries is the need to understand the market demands especially concerning quality and volumes. Lessons from MPOWER and ILSP where significant work is done on goat promotion have demonstrated the need to adopt a standard package of practice to ensure that farmers respond to market requirements and get optimal profit. The other important lesson from Tejaswini, ILSP and LAMP is that enhancing production to create volumes is essential to attract buyers to remote areas. Access to decent market infrastructure for sale of produce (fish, meat, poultry) has been highlighted in projects such as Megha LAMP. Finally, asymmetry of information about prices between producers and traders needs to be bridged. Based on these lessons, the project proposes planned fattening of goats for festivals, aggregation of sales through goat fairs where animals are sold based on live weight. In MPOWER and ILSP, this has led to 10-20% increase in prices to the producers organised at village level. Bringing the markets closer to the producers will be pursued through the market platforms where buyers and sellers meet to understand supply requirements of traders of live meat and of by-products, butchers, processors, and production capacity of producers and input/service providers to meet such demand. These platforms have a successful track record in the IFAD assisted portfolio globally and resulted in win-win public- private – producers partnerships.

Leveraging government resources through convergence. Strengthening the linkages with public programmes and collaboration with sub-state and local government entities (“convergence”) is particularly relevant in a Lower Middle Income Country like India where government investments for developmental activities are significant and where IFAD finances play a catalytic role.

Policy engagement. The Government of India set up an independent Ministry of Animal Husbandry, Dairying and Fisheries in mid-2019. The Ministry expressed interest in non-conventional approaches to transform the small livestock and fisheries sectors and tap their high growth potential. The BAaLI project provides a good platform to pilot new approaches, especially the entrepreneur led model for extension and business development, market interventions for live fish, promotion of certified DISHA and FTAs providing fee based services to producers, digital extension for goat and poultry rearing as well as fisheries. Furthermore, the State Government of Bihar requested IFAD support to develop a policy for development of goat production and marketing. In order to share state level innovations with the national policy framework, the project has budgeted for periodic knowledge events/ policy consultations for sharing good practices between the State and the Ministry.

Lessons will also be drawn from donor funded projects such as Project Mesha being implemented by Aga Khan Foundation with BMGF support in Bihar, Integrated Fish Farming Model under UPNRM supported by German Development Corporation, WorldFish project in Bangladesh linking small fish and nutrition, etc.

2. Project Description

C. Project objectives, geographic area of intervention and target groups

Project Goal and Objectives:

The goal of the project is to contribute to the doubling of income of poor rural households and to improve nutrition security. The development objective is to improve the resilience of rural households through intensified small livestock and inland fisheries production systems and improved performance of value chains. This implies building and operationalizing grassroots level service delivery, coupled with entrepreneur-led extension, access to financial resources, and facilitating market linkages. This is expected to enhance production and productivity while simultaneously building climate resilient small livestock and fisheries production systems.

Geographic areas of intervention

The project will be implemented in 12 districts of Bihar that were selected based on the following key criteria: (i) among the poorest as per the socio economic indicators; (ii) with potential for building small livestock and fishery value chains; (iii) do not overlap with existing externally-aided projects in the state; and (iv) with higher levels of vulnerability to climate change events. The districts proposed are: Aurangabad, Banka, Kaimur, Katihar, Khagharia, Kisanganj, Newada, Rohtas, West Champaran, East Champaran, Sitamarhi and Madhubani. In addition, two Centres of Excellence (CoEs) are proposed - one each on fisheries and goats to be managed by the respective Directorates- which may be outside of these districts. Location of these CoEs will be selected based on availability of land/ basic infrastructure with the Department, ease of access, potential to attract large number of

visitors, etc. These CoEs will serve as demonstration sites for best practices in fisheries and goats related practices in the state, provide venue for knowledge fairs and trainings and be a repository of knowledge on goats and fisheries.

On an average it is expected that 2-5 blocks per district will be identified for small livestock and fisheries activities each with possibilities of overlap. The number of blocks to be covered in each district will be worked out by DoAFR depending on the total number of blocks in each district, geographic area and number of households. Smaller districts may cover fewer blocks (2) under each sector while larger districts may cover more blocks (4-5) for each sector ensuring that the total number of blocks being covered by the project do not exceed 64 for each sector. The project will saturate the selected blocks. Block selection criteria for small livestock development interventions would include: (i) high percentage of SC/ST and other underprivileged classes; (ii) high percentage of below poverty line households; (iii) highest number of goat rearing households; and (iv) contiguity of blocks for operational ease. Block selection criteria for fisheries development interventions would include: (i) high percentage of SC/ST and other underprivileged classes; (ii) high percentage of below poverty line households, and (iii) highest number of ponds, lakes and ox-bow lakes; and (iv) contiguity of blocks for operational ease. *The project will exclude blocks/villages that are ecologically sensitive and part of forest buffer zone areas.*

Targeting and target groups

The total outreach of the project will be 1.00 million households reaching 5.4 million individuals.[\[12\]](#) The main target group would comprise resource-poor farmers and rural households raising goats, backyard poultry or involved in fisheries - both capture and culture-who would be supported to upgrade productivity, production and marketing and/or processing and to enhance their ability to become climate resilient and as a result increase income levels, while applying adequate farm management practices for small livestock/fisheries. Goat and backyard poultry interventions self-select resource poor households and the focus on small ponds, backyard ponds and ox-bow lakes will target poor fish farmers and fisher folks. The project will support two specific groups of smallholders: (i) subsistence-based landless, marginalized and small livestock rearing households; and (ii) goat keepers and fish rearing households who have the entrepreneurial energy, aptitude and basic input availability to become commercially oriented and with interest to support the poor households. Special attention would be given to women, including vulnerable women-headed households, youth, and members of SC/ST households.

D. Components/outcomes and activities

The project intends to address the production and productivity constraints of both the small livestock and fisheries value chains through climate resilient[\[13\]](#) enterprise led extension, sustainable service delivery and market linkages. This project will have 3 components: (i) Small livestock promotion focusing majorly on goats; (ii) Inland Fisheries Promotion; and (iii) Programme Management, M&E and Policy Support. The expected impact and outcome from this project include: (i) 90 percent of the households reporting doubling of income from small livestock and fisheries; (ii) 90 percent of women reporting improved quality of diet; (iii) 80 percent of the households reporting adoption of practices promoted by the project; (iv) 20 percent increase in average goat live weight at the time of sale; (v) reduction in goat kid mortality rate to 8 percent; (vi) 90 percent increase in fish yield per Ha. Detailed project description is provided in Chapter II of the Project Implementation manual (PIM) in annex 8

and the implementation arrangements and terms of reference are provided in Chapter III, IV, V and VI of the PIM. Both project components adopt a unified extension and outreach strategy while catering to two different sub-sectors. Goat rearing and fish rearing HHs in the state are largely distinct and serviced by different input suppliers, engaging different market channels and requiring distinct and specialised technical guidance provided by two different Directorates which come under one Department. The overall cohesive implementation of the project will be ensured by (i) the Project Steering Committee (PSC) acting as the apex Governing body; (ii) the Project Management Committee (PMC); (iii) the District Project Co-ordination Committee (DPCC) and the Project Support Unit (PSU) under the DoAFR.

Component 1: Small livestock promotion

This component will have three sub-components: (i) capacity strengthening; (ii) production and productivity enhancement; and (iii) market development and value addition. The project has allocated USD 67.2 million out of the total project outlay of USD 146.25 million for this component.

- **Sub-component 1.1 : Capacity strengthening**

The project will build capacity of the extension staff (112) of DioAH in best practices related to goat and backyard poultry, as well as community mobilization aspects and formation of producer groups. The project will also develop a community cadre comprising 64 block level Small Livestock Entrepreneurs (SLEs) and 4,608 Direct Small Livestock Health Associate (DISHA workers) for sustainable service delivery. The breeding farms of SLEs will emerge as the demonstration farm for training the goat producers and provide business linkage and extension service to the goat producers. DISHA workers will be the grassroots level community animal health and extension workers who will be trained and supported to provide paid service to goat producers, and will be linked to DioAH Block level veterinary officers. The project will support building/rejuvenating critical block level Veterinary hospital/dispensary infrastructure. Capacity building will be done by engaging reputed research and training institutions as well as team of experts based on need (for details please refer to PIM)

As part of capacity building to DioAH staff, the project will support DioAH to convert existing extension materials into user friendly communication / training aids. The project will also support the establishment of a Centre for Excellence (COE) for small ruminants. The project will support the DoAFR to develop strategic partnerships with global institutions (such as EMBRAPA in Brazil for example) as part of South-South and Triangular (SSTC) programmes to facilitate knowledge exchange and training in the COE.

- **Sub-component 1.2 : Production and productivity enhancement**

The project will support development of both conventional and digital extension service delivery. The digital extension and advisory services will be in the form of SMS and voice messages for the small livestock sector with a view to achieve cost effectiveness. A service provider will be engaged for supporting DioAH (and DoAFR) in undertaking this activity. The project will support formation of Producer Group (PGs) in all the project villages (9,216) and a Farmer Producer Organization (FPO) in each block (64). This will be the medium for delivery of conventional extension. Goat farmers (92,160) will be trained in the demonstration units of SLEs. DWs will train goat farmers (18,432) within the villages on

management practices (especially breeding), azolla culture, mineral mixture and feed and fodder systems. Quality breeding stock (9,216), universal vaccination, fodder production by leasing private lands by PGs (9,216), stall feeding systems and goat housing (396,000) will be supported. The project will pilot a goat insurance modality in one district, and based on learning, it will scale up the insurance. Backyard poultry mother units (48 units including solar artificial incubators) will be promoted, to supply chicks to rearers of backyard poultry. The project will also provide a small fund on a matching grant basis to 9,216 Producer Groups (PGs), to support the ultra-poor to start goat and poultry rearing activities.

- **Sub-component 1.3 : Market development and value addition**

The project will support activities for market development and value addition which include establishing goat aggregation points at block level, which will be supplied with weighing scales and training to PGs (9,216), training of butchers (320), construction of goat market sheds (24), organizing of goat fairs (320), establishing model meat stalls (12), slaughter points (12) and mobile slaughter vans (2). Value Chain Platforms will be established for identifying potential for linkages with processors, exporters and retailers. The project will engage a technical team or a service provider to operationalize a “start-up search engine” which will scout for start-up enterprises interested in investing in the livestock and fisheries sectors in Bihar. The project will support interested start-ups (6) in undertaking feasibility studies and facilitate convergence for investment support.

Component 2: Inland Fisheries Promotion

This component will have three sub-components: (i) capacity strengthening; (ii) production and productivity enhancement; and (iii) market development and value addition. The project has allocated USD 72.75 million out of the total project outlay of USD 146.25 million for this component.

- **Sub-component 2.1: Capacity Strengthening**

The project will build capacity of the extension staff (112) of DioF in technical, leadership and PG and FPO mobilization aspects in order to develop a community cadre comprising 64 block level Fisheries Lead Entrepreneurs (FLEs) and 1,152 panchayat level Fisheries Transformative Agent (FTA) for sustainable service delivery. The fish farms/hatcheries of FLEs will emerge as the demonstration farm for training the fish farmers and provide business linkage and extension service to the fish farmers. FTAs will be the grassroots level fisheries workers who will be trained and supported to provide paid service to fish farmers. The project will also support establishment of a COE for fish culture. The project will support the DoAFR to develop strategic partnerships with global institutions (such as WorldFish for example) to facilitate knowledge exchange and training in this COE.

- **Subcomponent 2.2: Production and productivity expansion**

The project will support training of fish farmers (4,992 batches) in using standardized production enhancement protocols and communication materials. The project will establish digital extension delivery system and business led extension. A credit innovation fund will be established to enhance flow of credit to the fish farmers. The project will support rejuvenation of backyard ponds, farm ponds, small and seasonal ponds of less than 0.5 acre size (16,000) and new small pond construction (4,800). DioF will hire specialized technical

assistance for hatchery revitalization, nursery cluster development and species diversification in three districts. Dysfunctional inlet and outlet of the ox-bow lakes will be desilted in convergence with *Jal, Jeevan, Haryali* (Water, Life and Greenery) programme of GoB which will improve climate resilience of fish farmers and enable them to adapt to climate change events and the project will support nursery development and ranching in 50 ox-bow lakes.

- **Sub-component 2.3 : Market Development and value addition**

The project will support construction of fish wholesale markets (16) using convergence funds, and model rural haats (12) and model fish stalls (12) using project funds. To capitalize on the uniqueness of the Bihar's live fish trade, the project will support live fish transportation activities (12) to new markets. This will include new technology acquisition, pilot testing and promotion. In addition, alternate energy technologies for chilled fish transport (64) will also be promoted. The project will establish a start-up search engine to scout for start-ups in the fisheries sector (see para 31 for similar effort in small livestock). The project will also provide support for training and for conducting feasibility studies by 12 selected entrepreneurs/start-ups, and additional convergence support will be mobilized for these start-ups.

Component 3: Project Management, M&E and Policy Support

The project will establish a Project Support Unit (PSU) within DoAFR and separate implementation teams within DioAH and DioF. District level implementation teams will be established within the district offices of DioAH and DioF. The project has allocated USD 6.3 million out of the total project outlay of USD 146.25 million for this component (it is worth mentioning that budget allocation for district and block level staff is USD 7.3 million for small livestock under sub-component 1.1 and USD 4.3 million for inland fisheries under sub-component 2.1 respectively). The project will support incremental staff, procurement of office equipment and furniture, internal and external audit, reviews, committee meetings and operating costs. The project will support establishment of M&E units within PSU and the implementation teams. The project will also fund establishment of a computerised and GIS linked Management Information System (MIS).

Participatory monitoring: Beneficiaries participation in project monitoring will be ensured through three primary tools: (i) community feedback during supervision: focus group discussions and consultations will be done with livestock rearers and fisher group members during supervision missions to get their feedback on the quality and extent of services being provided, the extent of their engagement etc. (ii) annual outcome surveys to assess impact of activities on beneficiaries and their satisfaction with services. (iii) making communities aware of the robust grievance redressal mechanism in the state which they can use to redress their concerns. The Govt of Bihar offers five major platforms for grievance redressal. These include : Grievance receiving counters established at Sub-Division, District and State HQ level; online web portal lokshikayat.bihar.gov.in; Call centre through toll free number; mobile App 'Jan Samadhan', and email (info-lokshikayat-bih@gov.in)

Project has made allocations for knowledge generation and dissemination, thematic studies, baseline survey and end-line survey incorporating Pro-WEIA, as well as start-up workshop, mid term review and project completion report. Allocation have also been made in the budget to allow to work towards fostering an enabling policy environment for promotion of commercially oriented small livestock and fisheries in the state, which will involve

participation and inputs from the line Ministry of Animal Husbandry, Dairying and Fisheries of the Government of India. The activities include: (i) support for goat sector policy development; (ii) preparation for facilitating regulations to bring fisheries on par with agriculture; (iii) municipal regulations for hygienic slaughtering and sale of meat and fish products; and (iv) research and studies for promotion of goat breeds and climate resilient feed resources best suited for the state. The project will also make allocations for Hazards, Risks and Vulnerability studies.

E. Theory of Change

Livestock sector contributes the highest in total agricultural GDP which is around 26.1 percent[14]. Overall livestock contributes 16 percent to the income of small farm households and provides employment to 8.8 percent of the population which largely comprises landless and unskilled population[15]. The DFI Report, 2018, also recognises livestock and fisheries sectors as the engines of high agricultural growth with fisheries rated among the most profitable category. Having made significant progress in the dairy sector, Government of Bihar is keen on promoting small livestock and fisheries that are the core livelihood activities of women and marginal groups with potential to substantially increase income with low levels of investment.

The project accordingly prioritizes goat rearing, backyard poultry and aquaculture, as pathways out of poverty, for women and marginal groups. These 3 production systems make business sense: according to the Bihar Livestock Master Plan, interventions in the backyard poultry sector are likely to contribute to bridging shortfall in demand for egg and meat which are estimated at 83% and 82% respectively; similarly, in the goat sector, shortfall in demand is currently 70%. The Bihar Livestock Master Plan has identified the main investment areas to transform the otherwise subsistence activities into remunerative businesses, and addressed gender and social inclusion as a cross-cutting theme. The present project addresses the investment requirements, while ensuring that project interventions are gender transformative, nutrition sensitive, youth focused and climate focused.

For these sectors to emerge as the major contributor to the household incomes, major challenges that need to be addressed in Bihar are: (i) low productivity, (ii) inadequate access to inputs and services including extension, animal health, and credit; (iii) lack of market infrastructure and marketing support; and (iv) lack of updated regulatory and policy framework. Low productivity is associated with poor management practices, deficient feeding practices, low genetic potential, inadequate technical knowledge and small volume of production. High mortality (40 percent in kids and 20 percent in adults) is the major constraint faced by the producers. The main reasons for high mortality is due to lack of timely vaccination, deworming and lack of awareness on disease control. Limited access to inputs and services are linked to limited access to training, advisory and extension services, animal health services, financial services and other support services such as availability of quality feed. Poor access to markets is associated with limited access to market infrastructure and lack of organized markets. Low price realization is linked to limited access to market information, inadequate focus on quality and limited value addition.

These challenges, in both small livestock and fisheries sector, will be addressed through: (i) enhancing farmers' knowledge and creating an enabling environment by improving their capacity and management practices; (ii) delivering inputs and services through entrepreneurs' led extension and a cadre of para-professionals; (iii) organizing producers into FPOs for

better access to input and output markets; (iv) improving market access and marketing infrastructure; (v) facilitating formulation of policy, related to markets and an enabling framework for the growth of the DISHA occupation, and the Small Livestock Lead Entrepreneurs, and their equivalent in aquaculture sector.

Three themes will be cutting across all investments: gender transformative approach; nutrition sensitive agriculture and climate focused investments. The project is described as gender transformational as it will (i) further enhance revenues from livestock as well as fisheries for women to reduce their vulnerabilities to shocks and enhance their role in decision making; (ii) lay special emphasis on engaging women as Small Livestock Lead Entrepreneurs and Small Fisheries Lead Entrepreneurs where possible, so that they emerge as community leaders and become positive role models for other women; (iii) engage women on priority as DISHA workers to help build the image of women as certified para professionals at the grassroots level; (iv) facilitate women participation in the management of the producer groups supported by the project; (v) engage with the government to advocate for an enabling policy environment to support equal women and men participation in the increased commercialization of the small livestock and fisheries sectors; and (vi) help women manage their workload. Simulations of the production models for goat rearing and inland fisheries indicate that there is no or very limited additional workdays respectively (see annex 4). Experience from livelihood projects show that as a result of women increased economic empowerment, men take up additional duties for family care, and women increase their adoption of labour saving machines and equipment for productive and household work (see impact assessment of the Tejaswini Maharashtra project, 2018). The project is considered nutrition sensitive, as it promotes production and consumption of animal protein, better knowledge about balanced diets, increasing the nutritional outcomes through convergence with government schemes. In addition, the project is expected to increase the share of income that can be spent on more nutritious food through enhancement in women's incomes and livelihoods. The value of incorporating egg, meat and fish in the diet will be part of the extension work. Finally, the project is climate focused as it adopts a number of measures to mitigate the effect of the project in terms of GHG emissions: for goat rearing, increase the off-take rate, and promote fodder crops and trees, as well as stall feeding. In terms of climate change adaption, the project will be promoting drought tolerant fodder crops, low cost and effective shelters for livestock, and piloting insurance. For fisheries, the ponds and tanks will incorporate flood control measures. Aquaculture will be developed in areas where farmers already have access to water/ ponds.

The project interventions are expected to generate outcomes, which include improved capacity of community institutions, improved access to services (animal health, credit and insurance, marketing, quality breeding stock, feed and forage); operationalization of sustainable and cost effective extension models; and increased women's agency. This will result in increased production and productivity due to adoption of sustainable and climate resilient production and management practices and consequently, increase household income and improved participation of women and improved diet of the family. These outcomes will contribute to the project goal of supporting the doubling of household income and improved nutrition security.

F. Alignment, ownership and partnerships

Alignment with SDGs. The project through small livestock and fisheries interventions intends to contribute to doubling of farm incomes of rural households with in built nutrition

security activities. The project will largely work with the women groups in general and poor and socially disadvantaged in particular. The project will also support introduction of carp-mola and other fish varieties for enhancing nutrition security, and expansion of fodder tree cultivation, introduction of alternate energy based fish cooling units and construction of goat housing for small livestock to adapt to climate change events. The project will also work on rehabilitating the inlet and outlet for ox-bow lakes to allow substantial water flow into these lakes to reduce the effect of flood waters in the rivers. These strategies of the project will contribute significantly to the achievement of SDG 1 - end poverty; SDG 2 - zero hunger; SDG 5 - gender equality; and SDG 13 - combat climate change and its impacts.

Alignment with IFAD policies and corporate priorities. At corporate level, the project is aligned with IFAD policies for mainstreaming gender, youth, nutrition and climate. The project places substantial emphasis on addressing the gender concerns and proposes a gender transformative pathway specific to small livestock and fisheries. The project will enhance women's access to resources through promotion of women focussed cadre of DISHA workers and also PGs and FPOs in small livestock activities. The project is therefore, well aligned with IFAD's Gender Action Plan (2019-2021). Finally, the project contributes to the Youth Action Plan by increasing the opportunities for business development and rural employment by supporting youth to become animal health service providers and transformation agents. The project also proposes a Lead Entrepreneur led model of extension and service delivery which will be largely directed to youth. At country level, the project is aligned with the COSOP 2018-24 for India, smallholder food and agriculture production systems are remunerative, sustainable and resilient.

Ownership. DoAFR will be the lead implementing agency for the project. The project through the Project Steering Committee (PSC), Project Management Committee (PMC) and implementation teams at the Directorate level will expand the project ownership to the respective line Directorate and also to other agencies such as Lead Banks, service providers and the private sector. DoAFR will be responsible for project management and has undertaken all the preparatory activities related to project design.

Partnerships. The project's approach and implementation modalities are in harmony with the vision and strategies of GoB and the DoAFR, and also the agenda of the GoI to double farmers' income. The project will converge with the ongoing schemes of the government, especially with the Rural Development Department and Banks to bring maximum benefits to the communities. The project will make use of the existing village level platforms of the SHGs and Federations and other community institutions created under the Jeevika. The project will draw from the lessons and experiences of the World Bank funded Bihar Kosi Basin Development Project and also the BMGF funded activities being implemented by the Aga Khan Foundation. The project will strive to collaborate with BMGF initiatives supporting DoAFR, to develop common extension/policies/business facilitation in favour of the goat sector in Bihar.

G. Costs, benefits and financing

a. Project costs

Estimated project cost of this six year project is US\$146.3 million comprising IFAD financing of US\$58.0 million in loan and US\$2.0 million in grant, GoB participation of US\$31.8 million (inclusive of US\$7.8 million equivalents in taxes and US\$12.0 million in

the form of staff salaries), convergence funding of US\$29.1 million, loans from financial institutions of US\$5.1 million, private sector US\$1.0 million and beneficiary participation of US\$19.3 million. In the tables below, GoB and Convergence funding were clubbed under Borrower; private sector and financial institutions' contribution was clubbed under Domestic co-financing.

Table 1: Project components and financiers

		IFAD Loan		IFAD Grant		Domestic Cofinancing		Borrower		Beneficiaries		Total	
		Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
A. Small livestock promotion													
	Capacity strengthening	11 936	52%	-	-	112	0%	11 086	48%	-	-	23 134	16%
	Production and productivity expansion	22 599	53%	62	-	110	0%	19 763	46%	162	-	42 696	29%
	Market development and value addition	1 033	75%	-	-	91	7%	151	11%	98	7%	1 373	1%
Subtotal		35 568	53%	62	-	313	0%	31 000	46%	259	-	67 203	46%
B. Inland fisheries promotion													
	Capacity strengthening	6 700	38%	-	-	13	-	7 726	44%	3 100	18%	17 539	12%
	Production and productivity expansion	11 100	22%	1 590	3%	5 200	10%	15 731	32%	15 941	32%	49 561	34%
	Market development and value addition	342	6%	93	2%	573	10%	4 699	82%	-	-	5 707	4%
Subtotal		18 142	25%	1 683	2%	5 786	8%	28 155	39%	19 041	26%	72 807	50%
C. Project management													
	Project management unit	3 670	69%	-	-	-	-	1 617	31%	-	-	5 287	4%
	Knowledge management and M&E	620	62%	255	25%	-	-	128	13%	-	-	1 003	1%
Subtotal		4 290	68%	255	4%	-	-	1 746	28%	-	-	6 291	4%
Total		58 000	40%	2 000	1%	6 100	4%	60 900	42%	19 300	13%	146 300	100%

The IFAD total climate finance for this project is USD 28.3 million or 47% of the total IFAD financing (calculated as per MDB methodologies for tracking climate adaptation and mitigation finance). The share of finance for climate change adaptation represents 100% of the IFAD total climate finance.

The expenditure categories under BAaLI project are set in accordance with the procedures set by IFAD. The expenditure categories of the BAaLI Project are given in Table 2 below.

Table 2: Project costs by expenditure category and financier

(Thousands of United States dollars)

		IFAD Loan		IFAD Grant		Domestic Cofinanciers		Borrower		Beneficiaries		Total	
		Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%
I. Investment Costs													
	A. Civil works	5 266	13%	-	-	660	2%	20 480	50%	14 535	36%	40 941	28%
	B. Office equipment and materials	560	90%	-	-	-	-	60	10%	-	-	620	-
	C. Training, capacity building & workshop	5 558	89%	-	-	40	1%	620	10%	-	-	6 218	4%
	D. Goods, inputs and services	20 793	41%	90	-	200	-	25 671	51%	3 450	7%	50 204	34%
	E. Technical assistance, consultancies, studies	860	26%	1 910	58%	-	-	500	15%	8	-	3 278	2%
	F. Subsidies, grant and credit	21 540	74%	-	-	5 200	18%	1 044	4%	1 307	4%	29 091	20%
Total Investment Costs		54 577	42%	2 000	2%	6 100	5%	48 375	37%	19 300	15%	130 352	89%
II. Recurrent Costs													
	A. Salaries and allowances	1 793	13%	-	-	-	-	11 991	87%	-	-	13 784	9%
	B. Office operating costs	1 307	90%	-	-	-	-	145	10%	-	-	1 452	1%

	C. Operating costs	323	45%	-	-	-	-	388	55%	-	-	711	-
Total Recurrent Costs		3 423	21%	-	-	-	-	12 525	79%	-	-	15 948	11%
Total		58 000	40%	2 000	1%	6 100	4%	60 900	42%	19 300	13%	146 300	100%

Table 3: Project costs by component and subcomponent and project year (PY)

(Thousands of United States dollars)

			<i>PY1</i>	<i>PY2</i>	<i>PY3</i>	<i>PY4</i>	<i>PY5</i>	<i>PY6</i>	<i>Total</i>
			<i>Amount</i>						
A. Small livestock promotion									
	Capacity strengthening		2 726	6 289	7 456	2 891	1 840	1 932	23 134
	Production and productivity expansion		40	6 006	10 883	13 938	11 809	19	42 694
	Market development and value addition		-	160	384	349	340	139	1 373
Subtotal			2 766	12 455	18 723	17 178	13 989	2 090	67 201
B. Inland fisheries promotion									
	Capacity strengthening		2 082	5 498	5 555	1 658	1 352	1 399	17 544
	Production and productivity expansion		1 098	10 885	12 780	12 055	12 711	16	49 544
	Market development and value addition		-	1 256	1 445	1 503	1 506	-	5 709
Subtotal			3 180	17 639	19 779	15 215	15 568	1 415	72 797
C. Project management									
	Project management unit		959	843	885	895	914	807	5 303

	Knowledge management and M&E	494	83	102	96	92	133	1 000
Subtotal		1 452	926	988	991	1 006	940	6 302
Total		7 398	31 020	39 490	33 384	30 563	4 444	146 300

b. Project financing/co-financing strategy and plan

The IFAD loan will be on ordinary terms. The project activities will converge with the central sector schemes, and GoB schemes including MGNREGS. Beneficiary contributions are in the form of labour and cash. IFAD grant will finance goat mutual insurance, specialized technical assistance for the fisheries sector, alternate energy focussed fish container and climate related studies. IFAD loan and grant will not finance taxes. The project management costs (US\$ 6.3 million) appear low as they only reflect the set up at state level. The project management costs at district and block levels are allocated under component 1 (US\$ 7.3 million) and component 2 (US\$ 4.3 million) and the costs are primarily borne by the Government of Bihar.

Retro-active financing: At the request of the GoB, a sum equivalent to USD 0.5 million is provisioned as retro-active financing for meeting the following specific expenditures that are related to the project: (i) undertaking all preparatory works such as staff recruitment, recruitment of services providers and TA services of Worldfish; (ii) goat policy development; (iii) purchasing of critical office equipment for the PSU, LIT and FIT in Patna; (iv) engagement of a consultant as start-up facilitator at PSU; (v) preparatory activities related to engagement of a service provider for conducting baseline surveys, surveys of existing hatcheries and block level veterinary hospitals and oxbow lakes in the project area districts; (vi) identification of agencies for developing and installing software for MIS, digital extension, etc.; (vii) identification of candidates for DISHA and FTA by the respective Directorate and preparation of the training manual and training materials for DISHA workers; and (viii) capacity building of DioAH and DioF staff. Expenditures for retroactive financing, to be pre-financed by government, should be preauthorized by IFAD and will only be eligible from 1 November 2019. PSU will have to submit a separate withdrawal application for all such eligible expenditures that are incurred between 1 November 2019 and date of signing of the financing agreement.

c. Disbursement

GoI shall open a Designated Account for the loan and the grant separately with the Reserve Bank of India (RBI) in USD to which IFAD will disburse initial advance and thereafter reimburse eligible expenditures on submission of WA. The PSU in BLDA will open a separate bank account for the purpose of the project in a bank acceptable to DoAFR. The LIT/FIT and DPITs will also open separate bank accounts for the project in the same banks where PSU maintains bank account for ease of fund transfer. The LIT/FIT and DPITs will open zero balance bank account linked to PSU bank account where in an automatic drawdown system from PSU bank account to settle payment transactions of LIT/FIT and DPITs will be authorized. This arrangement will reduce funds lying idle in the bank accounts of LIT/FIT and DPITs. The LIT/FIT shall have arrangement with the banks to view bank

accounts of DPITs so that LIT/FIT can manage their funds, check any large payments and confirm reported expenditures with payments made by the banks.

d. Summary of benefits and economic analysis

Beneficiaries: The project will benefit a total of about 1.00 million households directly and thus a total of 5.4 million individuals. The main beneficiaries will include resource-poor farmers and rural households that are raising goats, backyard poultry or involved in fisheries- both capture and culture- who would be supported to enhance productivity, production and marketing while applying adequate farm management practices for small livestock and fisheries. Special attention will be given to women, including vulnerable women-headed households, youth, and members of Scheduled Tribes and Castes smallholder farmers. Table 5 below gives an estimate of the cumulative number of beneficiaries by year.

Table-5: Number of Benefited Households by year, cumulative

<i>Beneficiary categories</i>	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>	<u>Year 6</u>
<i>Goat keeping households</i>	0	92,000	322,000	598,000	921,000	921,000
<i>Backyard poultry households</i>	0	23,000	46,000	69,000	92,000	92,000
<i>Fishery households</i>	500	9,728	19,484	29,241	38,941	38,941
Total beneficiaries	<u>500</u>	<u>124,728</u>	<u>387,484</u>	<u>696,241</u>	<u>1,051,941</u>	<u>1,051,941</u>

The immediate benefits from the project are significant reduction in mortality rates among goats and kids, overall improvement in vet services and improved extension services through DWs for goat and poultry and FTAs for fisheries. This is resulting in increased production and household incomes of the target group farmers. On an average, a household's production benefits increase by: (i) a modest estimate of 5 goats per household; and (ii) some 375 kg of incremental fish due to improved farming practices. On an average the incremental income per household is estimated at INR 12,490 as against the current income of INR - 7,738/household after costing fodder and labour. The proposed project interventions are not labour intensive as there is hardly any increase in labour inputs; say no more than 2 person-days per household. Broadly women take care of the maintenance of goats and poultry including feeding and the men for marketing and vet services. In fishery sector, mostly men are involved.

Other benefits: Additional benefits also come from the project's capacity building interventions. First, all participating households and PGs have the benefit and advantages of the services of SLEs, FLEs, DWs and FTAs. Secondly, women from the poor groups would participate in and manage their social and economic development in goat-keeping and backyard poultry and would have access to inputs and marketing of their products. Thirdly, various infrastructure support facilities provided by the project would trigger the demand for quality farm products and thereby premium prices for their product. All these benefits have not been quantified and hence are excluded in the EFA.

Project Performance Indicators: Cost-benefit analysis yields an overall IRR of 43 percent. The estimated NPV for a 7.5 percent discount rate is INR 44,980 million and the BCR of 1.97. A positive NPV under the current Opportunity Cost of Capital (OCC) of 7.5% indicated that the project investments are sound and robust[16]. A sensitivity analysis of the project is presented in the Annex 4 is summarised in Table 6 below.

Table-6: Project performance indicators

Indicator	scenario				
	Base Case	Cost Increases by		Benefits down by	
		15%	20%	15%	20%
NPV on discounted cash flows (million INR)	44,980	38,051	35,741	31,304	26,745
BCR on discounted cash-flow	1.97	1.72	1.64	1.68	1.58
IRR %	43%	36%	34%	35%	32%

Sensitivity analysis: If benefits delayed by two years (in effect, if the project's future production activities take longer to become fully developed or established) then the IRR declines to 30 percent and yet yielding a NPV of INR 35,044 million. Under a scenario of costs increase by 25 percent and benefits decline by 25 percent over the base-case, a 18 percent IRR and a NPV of INR 10,636 million is obtained. The switching value analysis indicates that the project is capable of sustaining a cost increase of 97 percent and decline in overall benefits by 48 percent. This analysis further confirms the robustness of the project investments.

e. Exit Strategy and Sustainability

The project's **exit strategy** is founded on three core elements of project design. First, the project will develop a cadre of animal health workers (DWs) with adequate training and continuous backstopping through link ups with the block level veterinary dispensaries to provide fee based services to the goat rearing farmers. The project support to these DWs workers will be phased out in two years to ensure that they emerge as sustainable service providers before project completion. Second, the project will establish entrepreneur led and market oriented extension and training services. These services will be based on the symbiotic relationships established between the entrepreneurs and the producers making exit seamless at project completion. Third, the project will establish PGs at the village/panchayat level and FPOs at the block level to empower the community to take their own decisions related to the sector. This institution building and self-financing modality will create the institutional framework for project exit.

Sustainability: Sustainability of activities implemented under the project is embedded into the design. The DWs will provide fee based service to the goat rearers and do not become dependent on project support. It is expected that most of the DWs will emerge as private entrepreneurs by project completion. The B2C relationship between the Lead Entrepreneur and Producers will provide backward linkages to the producers and the forward linkages related to aggregation and marketing are expected to emerge. This strategy when successfully implemented will become a sustainable service delivery model and reduce the stress on the government sector to continue providing extension service. Productive investments proposed under the project in the small livestock and fisheries value chains are profitable. In addition, the community led goat mutual insurance will further reduce the risks in goat farming. The project will support promotion of PGs and FPOs to further enhance sustainability.

3. Risks

H. Project risks and mitigation measures

The overall project risk probability is rated “High-Moderate (H-M)” and the residual risk for project implementation is rated “Moderate-Low (M- L)” with the implementation of mitigation measures as detailed in Annex 9. The political and governance risk, macroeconomic risk and sector strategy and policies related residual risks are “Low”. The risks related to technical design of the project is “Low”. The project has only two components and with clear demarcation and synergy of activities between the implementing Directorates. The project complements existing schemes of the Government of Bihar, and builds on successfully tested practices such as breeding farms and hatcheries operated by entrepreneurs, community animal health workers, transport of live fish, etc... For areas where new approaches are promoted such as digital extension, scouting for start-ups interested in business linkages with producer organizations for marketing and value addition, the project will be hiring specialized expertise already available in India.

The risks related to institutional capacity for implementation and sustainability are considered “High”. The human resource capacity of the project implementing partners, remains an issue. There are substantial number of vacancies in both DioAH and DiOF. Although, DoAFR has completed initial round of recruitment, it has agreed to recruit required staff for implementation at the block level. The project has built in budget allocation for capacity building for the newly hired staff of both the Directorates to mitigate this risk.

The financial management risk is rated “High”. These include challenges related to fund flow, reporting, audit and eligibility of expenditures due to dispersed nature of the project. The mitigation strategies include: (i) detailing of financial management procedures, making PSU responsible for consolidation and reporting of financial statements; (ii) training of project finance staff; and (iii) external and internal audit through Chartered Accountancy firms and the hiring of qualified staff for PSU and implementation teams.

Overall weak procurement capacity in procurement planning, processes, standard documents for bidding and contracts and complaint redressal mechanism are the main procurement risks and is rated “High” These are mitigated by: (i) annual procurement plan with flexibility to review and revise as per requirement/ implementation; (ii) standard Bidding Documents (SBD) including contract templates embedding the bid process, clarifications, evaluation and complaint handling mechanism, policy on preventing fraud and corruption and dispute resolution; (iii) preparation and adoption of procurement manual; (iv) incorporating measures to establish strong contract management processes; (v) conducting initial procurement training and refresher trainings; and (vi) engagement of a Procurement Specialist and two Procurement Officers. These mitigation measures will reduce the risk to “Substantial”.

The overall project risk probability is rated High-Medium and the impact of these risks is rated as Medium-Low. The risk probability from political and governance, macro-economic, sector strategies related issues are rated Low. The risk probability from technical design of the project, and stakeholder related issues are rated Medium whereas the risk probability from institutional capacity for implementation and sustainability, financial management, procurement, and environment and social issues are rated High. Necessary mitigation measures have been built to address these risks. Concerning the financial management, the mitigation measures include the recruitment of qualified staff, providing a separate budget line for the project in the State budget, installing Tally accounting software and hiring a Chartered Accountancy firm to perform internal audit. Once implemented, the financial management risk will reduce to medium.

I. Environment and Social category

The environmental and social category for the project is “B”. The project activities, which entail increased production of livestock and inland fisheries, may generate moderate, site-specific adverse environmental risks and impacts. These likely risks and impacts, which pertain specifically to goats, are reversible in nature, and will be mitigated by known measures outlined in the ESMP (SECAP Review Note Annex 5). The project design has excluded blocks/villages that are ecologically sensitive and located near forest buffer zone.

The project districts are expected to have hotter and drier future. Increased temperature, changes in daytime/night-time temperatures, changes in seasons (e.g., start date of rainy season), increased/decreased/more variable rainfall, and more severe and/or more frequent extreme events may impact agriculture and livestock productivity. Some of the anticipated impacts of climate change and variability include reduced availability of feed and fodder, reduction in productivity and shortage in fodder availability due to heat stress, shortage of feed, etc. The major environmental risks emanate from flooding in north and drought in south Bihar. Recurring flood results in degradation of soil health and deterioration of water quality. Damage to life and properties is integral part of flooding. Human and livestock health impacts post floods are of concern. The social risks are related to high percentage of SC/ST population, largest landless population, skewed sex ratio, low levels of female literacy rate, high rates of child labor and high levels of malnutrition. About 58 percent of the households are below poverty and are socially vulnerable.

The project intends to address some of these potential risks with mitigation measures such as focus on socially disadvantaged groups, delivery of animal health services, support for goat housing, and rejuvenation of existing water bodies including ox-bow lakes to reduce the impact of flood. The project is set to engage in a number of environment friendly activities such as expanding area under fodder production (dual purpose food/ fodder crops, fodder trees and shrubs, etc..), and will set up clear mechanism for disposal of silt from the rejuvenation works in ox-bow lakes, and disposal of waste from fish/goat markets and abattoir/slaughter facilities, and recycling of the waste in agricultural inputs (such as fishmeal). The project is incorporating an insurance mechanism especially for goat rearers. The project will carry out Hazards, Risks and Vulnerability Assessment (HVRA) studies and the TOR is available in annex 5. The project targeting strategy will ensure greater engagement of SC/ST and landless population and women, and activities will address issues related to malnutrition. The risk of child labor was assessed as law and the project will adhere to prevailing national legislation and state strategy on elimination of child labor (see annex 5 for more detail).

J. Climate Risk classification

The risk category for this project is rated as **High**. An in-depth climate risk analysis was carried out and projected climate scenarios for mid-century (see Annex 5) indicate that heat wave conditions are likely to increase resulting in additional stress on humans and livestock. Though not much change in precipitation is projected in the future, spatial and temporal variability makes the project districts more vulnerable. Warm spell duration indicator (WSDI) is projected to increase for all the districts, Extreme rainfall (1 day and 5 day maximum) is projected to increase, which is likely to exacerbate flood threat. Consecutive dry days (CDD) and Consecutive wet days (CWD) are projected to increase (low confidence) resulting increasing likelihood of drought and flood.

It is estimated that annual carbon balance will be 3,204,048 tCO₂eq for the project or 230 tCO₂eq/ha per year based on the EX-ACT tool developed by FAO in 2011 for measuring the GHG (greenhouse gas such as carbon dioxide, methane, nitrogen oxide, etc.). As the value is positive, the project interventions such as goat-keeping are the main sources of the GHG emissions. Details of this analysis are provided in Annex 4. The project will incorporate an inventory of proven measures to adapt to climate change and reduce greenhouse gas emissions. Main measures include support to local breed development as they are better adapted to local conditions, scientific management practices including stall feeding and fodder development through agro-forestry interventions, construction of flood shelter for livestock. Similarly, soil erosion control measures including agro-forestry on bunds and de-silting and construction of ponds and ox-bow lake rejuvenation to conserve water will be undertaken.

4. Implementation

K. Organizational Framework

a. Project management and coordination

The project intends to build the capacity of the existing structures of the DoAFR comprising the DioAH and the DioF. The proposed management structure is built around the core competencies of these Directorates which will enable integration of the project activities into the regular government structures. DoAFR will be the Lead Implementation Agency through its two Directorates (DioAH and DioF). DoAFR uses BLDA a society under its aegis for flow of funds from the central sector and state sector projects and programmes to two of its directorates. This fund flow structure through the BLDA will be retained under this project for ensuring fund flow to the Directorates.

A PSU under the DoAFR will be responsible for overall financial management, compliance requirements of the project comprising consolidated AWPB and procurement plan preparation, consolidated M&E and MIS, preparation of withdrawal application, Audit and procurement guidance and support. PSU will report to the Project Director who is the Director of both the Animal Husbandry and Fisheries Directorates. The Project Director will report to the Mission Director who is the Secretary, DoAFR. The project will establish a Livestock Implementation Team (LIT) within DioAH, and a Fisheries Implementation Team (FIT) within DioF. The LIT and FIT will be responsible for implementing project activities of the respective sector by harmonising them with the existing district and block level structures of each Directorate.

PSU will be supported with staffing related to overall financial management, Planning and M&E, Procurement and Knowledge management. The support to PSU will include: (i) Finance Specialist; (ii) Planning and M&E Specialist; (iii) Knowledge Management Manager; and (v) Procurement Specialist. These professionals will report to the Project Director. LIT in DioAH and FIT in DioF will be responsible and accountable for the implementation of the project in the respective sectors and the achievement of its results. LIT and FIT will be headed by the Technical Head of the Directorates who will be designated as the Project Coordinator. The staffing for the LIT in DioAH shall include: (i) Technical Support Specialist – Extension; (ii) Technical Support Specialist – Small Ruminants; (iii) Planning and M&E Manager; (iv) Finance Manager; and (v) Training, Institutions and Gender Manager. The staffing for FIT in DioF shall include: (i) Technical Support Specialist

– Aquaculture; (ii) Technical Support Specialist - Hatchery Management; (iii) Technical Support Specialist – Diversification; (iii) Planning and M&E Manager; (iv) Finance Manager; and (v) Training, Institutions and Gender Manager. All contractual staff recruitments will be on a competitive basis in compliance with IFAD guidelines. The contractual staff engaged under this project will be either sourced from a service provider or through individual contracts.

District Project Implementation Teams: The project would establish a District Livestock Implementation Team (DLIT) District Fisheries Implementation Team (DFIT) within each of the district offices of the Directorates in the project area. The DLITs and DFITs will be headed by the District Officer of the respective Directorate and will be designated as District Project Managers. The DLITs of DoAH will have: (i) Senior Veterinary Officer – 2 positions; (ii) Training, Institutions and Gender Officer; (iii) Accounts Officer; and (iv) Planning and MIS Officer. The DFITs of DioF will have: (i) Senior Fisheries Extension Officer; (ii) Training, Institutions and Gender Officer; (iii) Accounts officer; and (iv) Planning and MIS Officer. At the block level, DoAH will appoint a Block Veterinary Officer to provide support and implement the project at the field level. DioF will appoint BFEOs to implement fisheries sector related activities.

Coordination

Project Steering Committee (PSC) would function as the apex Governing body. The Chief Secretary/Development Commissioner would be the Chairperson and the Secretary, DoAFR would be the Secretary of the PSC. The proposed members of the PSC are: the Principal Secretary, Finance Department, the Principal Secretary, Planning Department, the Principal Secretary, Rural Development Department, and the Principal Secretary, Water Resources Department. Technical Experts of repute may be invited to participate in the PSC meetings. The main functions of the PSC are providing strategic and policy guidance and supporting the project in achieving convergence with other departments. Detailed functions of PSC are provided in Chapter VII of the PIM.

Project Management Committee (PMC) would be the main body to deal with implementation of project activities by the respective Directorate. This committee will be chaired by the Secretary, DoAFR and the Director, DoAFR will be the Secretary. The CEO of Jeevika, the Project Coordinator-LIT and the Project Coordinator – FIT, Project Coordinator –PSU, the Regional Directors of the Regional Directorates covering project districts and the representative of NABARD will be the members. PMC would invite the Chairpersons of District Project Coordination Committees (DPCC) on a rotation basis or as needed to address the implementation challenges. The committee will convene in Patna quarterly and the main responsibilities include review and support for project implementation, review and approval of AWPB, and fund flow and financial management. The Mission Director is authorised to increase the frequency of PMC meeting. Detailed functions of PMC are provided in Chapter VII of the PIM

District Project Co-ordination Committee (DPCC) will be established in each project district and will be headed by the District Magistrate of the district. DPCC will have the following members: the District Animal Husbandry Officer, the District Fisheries Officer, the Project Manager, Jeevika, and the Project Director, ATMA. One of the two district officers of DoAH and DoF will be designated by the Director, DoAFR will be the Secretary of this committee. The Chairperson of DPCC will have the right to appoint new members on the

DPCC. The DPCC will meet quarterly to provide field level support and convergence. Detailed functions of DPCC are provided in Chapter VII of the PIM.

b. Financial Management, Procurement and Governance

The PSU will report to the Project Director and will be accountable to the Mission Director and PMC for the overall financial management, preparation of consolidated AWPB, procurement plan, consolidated M&E and MIS, WAs and consolidated financial reports, and compliance requirement of internal and external audit. The FIT and LIT will be responsible and accountable for the implementation of project activities of their respective sector, preparation of their AWPB, statement of expenditures (SoEs) for WA and financial reports, and safeguard of project assets and resources. The initial financial management risk assessment of this project is assessed as high due to use of BLDA for flow of funds, newly established PSU within BLDA for the project, implementation teams separately with DioAH and DioF and 24 DPITs (12 with DioAH and 12 with DioF) with varying financial management capacities. DioF has experience in implementing the Bihar Kosi Basin Development Project funded by the World Bank. However, the risk would reduce to medium with the implementation of mitigating controls.

Finance unit organization: The PSU shall have one Finance Specialist (FS), LIT and FIT will have one Finance Manager (FM) each and each DPIT will have one Finance Officer (FO) on contract basis for the project period. The job description of the FS, FM and FO is given in the PIM. Appointment of FS and FM shall be subject to IFAD No Objection.

Budgeting: The LIT and FIT shall submit their AWPB to PSU which will review and consolidate the AWPB and submit to the Project Director for submission to the PMC headed by the Mission Director for approval. After PMC approval, the AWPB will be submitted to IFAD for no objection before 31 January of each year and to the Finance Department through DoAFR for budget provision in the state budget by creating a separate budget line under the DoAFR. The DoAFR will release the approved budget to BLDA as grant in aid so that it will not lapse at the end of the fiscal year. The PSU will release budget to the LIT and FIT for implementation of project. The LIT/FIT will allocate annual budget among DPITs and release budget to the districts based on approved AWPB. The PSU and LIT/FIT will monitor the status of fund utilization of each DPIT on a quarterly basis based on SoEs and fund utilization certificates. The budget can be revised with an approval of the PMC within the limit of the approved annual budget.

Counterpart funds: The GoB will pre-finance the yearly project expenditures. The DoAFR will transfer the amount of approved budget including the government counterpart funds for project expenses, except salaries to the government staff to the bank account of PSU. PSU will authorize yearly draw down limits to the bank accounts of LIT, FIT and DPITs in line with the approved budget and fund availability. The LIT, FIT and DPITs will issue cheques to the banks for payments towards expenditure. The PSU, LIT, FIT and DPITs may pay advance to the staff for petty expenses under petty cash imprest system. The payment to the beneficiaries will be directly made by the DPITs through electronic transfer. The disbursement arrangements and budget release process are detailed in the PIM.

Accounting systems, policies, procedures and financial reporting: PSU, LIT, FIT and DPITs will maintain separate accounts of the project following double entry government cash basis of accounting system using accounting software. Accounts shall be maintained based on

charts of accounts by category, component, funding source and activity. The BLDA and DioF are currently using Tally Accounting software for the scheme/projects being implemented by them. The off-the-shelf ERP Tally Accounting software will be purchased and customized to account financial transactions of the project to generate financial statements showing expenditures by category, component and funding source and to meet accounting and reporting requirement of IFAD. The contribution made in cash by the beneficiaries shall be recorded to expenditures by the DPITs based on incurred expenditures. In-kind contributions will be quantified and disclosed in the notes to accounts. The advance provided to the project staff shall be accounted on receipt of SoEs with the supporting documents.

Financial reporting: The DPITs will submit monthly financial statements and SoEs required for preparation of WA to the concerned LIT and FIT. The LIT and FIT will prepare consolidated monthly financial statements and SoEs for WA preparation and submit to PSU. PSU will prepare quarterly interim financial reports in the prescribed format for submission to IFAD within 45 days of end of each quarter and prepare and submit WA to CAAA. PSU will prepare annual Project financial statements in the prescribed format within four months of end of each financial year.

Internal Audit: PSU will engage a firm of Chartered Accountants to conduct internal audit of the project based on terms of reference and in accordance with the Standards on Internal Audit (SIA) prescribed by the Institute of Chartered Accountants of India (ICAI) on six monthly basis. The internal audit reports will be submitted to the Mission Director. The copy of the respective part of the internal audit report will be submitted to the PSU, LIT and FIT for taking necessary action to resolve audit observations and avoid recurrence. The internal audit report along with the actions taken to resolve audit observations shall be submitted to the PMC and made available to IFAD missions upon request.

External Financial Audit: The project shall hire a chartered accountant firm empanelled with C&AG based on competitive process to carry out the audit of PSU LIT and FIT in accordance with IFAD's General Conditions and the IFAD Handbook for Financial Reporting and Auditing of IFAD-financed projects, which, inter alia, requires public disclosure. The audit report shall be submitted to the Mission Director and PMC for review of the audit report and audit observations reported in the management letter. The audited consolidated project financial statements and management letter along with management response have to be submitted to IFAD within six months of end of each financial year during the project implementation period and by the financing closing date for the last year of the project to comply with the deadline for submission of the audit report. The audit of the Designated Account shall be conducted by Office of C&AG. The auditor will also conduct audit of the matching grant award process to ensure compliance with grant guidelines.

Procurement

Procurement of goods, works and services (including Consultancy and non-consultancy services) under the project shall be undertaken as per the provisions of IFAD Procurement Guidelines and IFAD Procurement Handbook, as amended from time to time.

Assessment of the capacity of the LPA for undertaking procurement: A rapid assessment of the procurement capacity of the BLDA and the DioAH and DioF was carried. Some of the results of the assessment are: (i) Non-existence of a separate procurement unit or procurement staff; (ii) two envelope system for goods contract; (iii) funds for civil works

transferred to a different department, resulting in time delays, and quality issues; (iv) bid documents not compliant to IFAD Procurement Guidelines and other donor-funded projects; (v) very long bid validity period up to 2 years; (vi) No independent complaint/grievance redressal mechanism; (vii) lack of advance payment mechanism; (viii) price preference to units/organizations from the State of Bihar; and (ix) inadequate document management of procurement and contract management.

The inherent risk rating at design using Procurement Risk Matrix (PRM) is 1.76 (High Risk). With the full compliance of the mitigation measures recommended, the Net Risk Rating is 2.63 (Medium risk). The inherent risk and other deficiencies are proposed to be mitigated adopting the measures detailed in the below table:

Table 1: Procurement Risk Mitigation Measures

Risk Factor	Initial Risk	Mitigation measures	Residual risk
No dedicated procurement unit or staff with qualifications and experience	High	Procurement Specialist and Procurement Officers will be engaged on full time basis, and the appointment of Procurement Specialist will require “no-objection” from IFAD.	Medium
No uniform procedures or SBD, contract templates	High	IFAD Procurement Guidelines and Procurement Handbook will be adopted. IFAD Standard Bidding documents and contract templates will be prescribed for compliance to the project. A Procurement Manual will be developed. IFAD will also undertake capacity building measures for the procurement staff.	Low
Inconsistency of procurement and selection methods with IFAD Guidelines	Moderate	Letter to the Borrower to indicate the methods and the threshold values.	Low
Inadequate contract management	High	Contract Registers and Payment Monitoring Form will be introduced.	Medium
Fraud and corruption risks	High	Policy on Fraud and Corruption to be applicable; disclosure of contract awards	Medium

Procedures related to procurement plan, project specific IFAD prior review requirements, use of IFAD NOTUS portal and other procurement implementation arrangements will be detailed in the Letter to the Borrower.

Country Context: The overall country inherent financial management (FM) risk is assessed as medium based on the 2018 Transparency International Corruption Perception Index score of 41 and the 2018 Rural Sector Performance Score (RSP) score of 4.40. The last disclosed Public Expenditure and Financial Accountability (PEFA) assessment dates back to 2010. The August 2018 International Monetary Fund Article IV consultation in India noted that there is limited fiscal space. India’s debt is high with a Debt-to-GDP ratio at around 70 percent, but the debt path is sustainable.

Disbursement arrangements and flow of funds: GoI shall open a Designated Account for the loan and the grant separately with the Reserve Bank of India (RBI) in USD to which IFAD will disburse initial advance and thereafter reimburse eligible expenditures on submission of WA. The PSU in BLDA will open a separate bank account for the purpose of the project in a bank acceptable to DoAFR. The LIT, FIT, DLITs and DFITs will also open separate bank accounts for the project in the same bank where PSU maintains bank account for ease of fund transfer. The LIT, FIT, DLITs and DFITs will open zero balance bank account linked to PSU bank account where in an automatic drawdown system from PSU bank account to settle payment transactions between LIT/FIT and DLITs/DFITs will be authorized. This arrangement will reduce funds lying idle in the bank accounts of LIT/FIT and DLITs/DFITs. The LIT and FIT shall have arrangement with the banks to view bank accounts of DLITs/DFITs so that LIT and FIT can manage their funds, check any large payments and confirm reported expenditures with payments made by the banks.

The GoB will pre-finance the yearly project expenditure. DoAFR will transfer the amount of approved budget including the government counterpart funds for project expenses, except salaries to the government staff to the bank account of PSU. PSU will authorize yearly draw down limits to the bank accounts of LIT, FIT, DLITs and DFITs in line with the approved budget and fund availability. The LIT, FIT, DLITs and DFITs will issue cheques to the banks for payments towards expenditure. The PSU, LIT, FIT, DLITs and DFITs may pay advance to the staff for petty expenses under petty cash imprest system. The payment to the beneficiaries will be directly made by the DLITs and DFITs through electronic transfer. The disbursement arrangements and budget release process are detailed in the PIM.

Investigative Authority: Under IFAD's Policy on Preventing Fraud and Corruption [\[17\]](#), the independent and competent authority responsible for receiving, reviewing and investigating allegations of fraud and corruption will be the Additional Secretary, Vigilance Department, GoB -Tel 0612-2217544.

L. Planning, M&E, Learning, KM and Communication

a. Planning, M&E, Learning, Knowledge Management and Communication

Planning: AWPB is the key planning document for BAaLI and will serve as the instrument for identifying specific targets and activities and in relating these to project outcomes and objectives. AWPB and activity calendars, based on the design report and informed by operational experiences and supervision missions, will constitute the project planning framework. Each year a draft sectoral district level AWPBs will be prepared by the DLITs and DFITs. These district level AWPBs will be consolidated at the state level LIT and FIT respectively and submitted to the PSU which will consolidate and share with IFAD for concurrence and then get the same approved by PMC. The approved AWPB will have to be incorporated into the state budget. PSU may propose adjustments or revision in the AWPB during the project year. The approved AWPB would be used as a key document when reviewing performance and progress during the Supervision Missions.

Monitoring and evaluation: The project's M&E system will measure performance against the project logframe as well as showing the contribution of project outcomes to the government's strategic objectives for the animal husbandry and fisheries sectors. The M&E system will offer comprehensive and reliable information to improve planning and decision-making for results-based management. Considering the extent to which impact is linked with

access to technology and services, and on sustainable linkages with value chain integrators, the system will be participatory and decentralized, actively involving target groups. The M&E system will also provide evidence of the results in terms of IFAD's objectives at the country level, with data disaggregated by gender and by age to show impact on women and youth. The M&E system will also be a learning tool to provide information for critical reflection on project strategies and operations.

The logical framework will constitute the basis for results-based M&E. The M&E system will have a three-tier structure: (i) output monitoring with focus on physical and financial inputs, activities and outputs; (ii) outcome monitoring for the use of outputs and measurement of benefits at household and community levels; and, (iii) impact assessment evaluating project impact for the target groups in comparison with objectives. All M&E data, analysis, and reporting will be disaggregated by gender and will isolate highly vulnerable scheduled tribes and castes and youth.

- Output monitoring will measure the progress of activities and achievement of outputs against annual targets in AWPB for each project component. Information on the progress of the annual work plan will be measured against indicators. This can be linked to the financial expenditure on the concerned activities, and data may be stored and reported via a computerised MIS. Data would be collected by grassroots level workers (DWs and FTAs) and consolidated using a computerised MIS system.
- Outcome monitoring measures the immediate changes coming about as a result of project interventions. The project would conduct Annual Outcome Surveys (AOS), interviewing a sample of 600 farmers/households from each sector to gather data on outcome indicators. Related to outcome monitoring is process monitoring, which involves monitoring the processes leading to outputs and outcomes. Specific areas where process monitoring will be useful include: provision of animal health services by DWs, digital extension delivery, and last mile service delivery by FTAs. Information on these may be gathered using Participatory M&E tools which are also useful in getting feedback from participating households on the delivery of project outputs and in empowering communities to take ownership of key processes.
- Impact evaluation is the process which will assess achievement of the overall goal of the project. The main tool for impact evaluation will be baseline and end-of-project surveys. These will be conducted by engaging a reputed agency with specific expertise in such assessments. In addition, economic studies of farm households to calculate increases in farm income and household labour inputs will be undertaken.
- RIMS indicators: The Results and Impact Monitoring System of IFAD generates annual report tables on a number of first and second level results indicators that correspond to the output and outcome indicators. IFAD has recently revised its list of these indicators, some which will apply to this project. Prior to mid-term review, the project will report on only the first level results (corresponding to outputs), but after the mid-term review it will reports on second level indicators (corresponding to outcomes).
- Management Information System (MIS): The project will establish an MIS system in the first year of project implementation. The MIS would generate, monthly, quarterly and annual progress reports on physical and financial progress and on project outputs and outcomes. DioF is in the process of developing a GIS based inventory of water resources. The project will build on this and develop GIS tagging for ascertaining the ownership and other details. PSU will engage an agency to provide assistance in the process of drawing up a system specification and also in developing a computerized

MIS. This MIS will have a separate Animal Husbandry and Fisheries modules managed by the Directorates and a consolidation module at the PSU level for project level reporting.

- As a part of computerized MIS, use of tablet computers for field data collection and monitoring will be implemented. A major part of the job for the MIS staff at the district level will be helping these people enter accurate and complete data, and checking on data quality. The project will employ a Specialist to monitor the performance of the system, and take a lead in adapting and refining the system so that it works better and meets the needs of project management.
- Reporting: The project will develop a reporting system, with some reports used internally and for reporting to its partner agencies within the states, and others to external stakeholders – GoB and IFAD. Progress reports for GoB and IFAD will be produced at six-monthly intervals.

Learning and knowledge management: The project operations are expected to create valuable knowledge on key development themes of relevance for other States in India. It will be important for the PSU to document the emerging experiences, lessons and best practices and share them widely with public entities and development partners. The availability of verified quantitative and qualitative information on the project's results will be essential for scaling up the model to other States in India.

The PSU will be supported with technical assistance in managing knowledge and producing knowledge products. It will partner with organizations advocating for goat and fisheries development, and will organize a series of workshops on relevant themes jointly with partners. The PSU will also disseminate knowledge and experiences with the wider community of livestock and fisheries development practitioners in Asia through the IFAD Asia knowledge management portal as well as through practitioners' international networks and publications.

b. Innovation and scaling up

The project will bring innovations to address constraints in production and productivity enhancement of both small livestock and fisheries sectors. These include issues related to animal health, extension, feed and forage development and breed improvement in respect of small livestock sector and fish seed production, extension, production intensification and species diversification for fisheries sector. Lessons learned from other IFAD supported projects and also best practices lessons have been considered to formulate innovative strategies for this project. These include:

Entrepreneur led training and extension: The project proposes an entrepreneur led training and extension modality. This modality will supplement the last mile delivery capabilities of the respective Directorate. It also creates a mutually dependable relationship between the Lead Entrepreneur and the producers which is expected to transform both production and marketing.

Barefoot animal health workers linked to Veterinary Dispensaries: Many projects and also NGOs have effectively put in place barefoot animal health workers and this innovation will be scaled up in this project. This project intends to introduce two aspects that are vital to sustainably deliver services to the producers and missing in most of the existing programmes. They are: (i) standardized training of animal health workers and certification; and (ii)

supervision by the Veterinary Officers and regular consultation with the animal health workers.

Digital Extension delivery: Extension delivery to the smallholders remains a major challenge for the line departments. This will be addressed by developing user friendly technology. Producer relevant extension message will be generated and sent to the farmers and community extension workers (DWs, SLEs, FLEs and FTAs) through phones and tablets and will be reinforced during meetings with the project officials.

Mutual Insurance: Insurance of small livestock is not practiced by the producers due to the difficulties involved in settlement of claims by the insurers. Low level of claim settlement is due to high prevalence of bogus claims from the producers. As a result, large number of disciplined producers are not able to access insurance service. The project intends to develop an insurance mechanism within the PGs and FPOs managed for the members and by the members.

Ox-bow lake ranching: Ox-bow lakes are the largest water resources in many parts of Bihar that are slowly degrading due to closure of inlet and outlets and silting. This apart, the existing ecosystem is not fully harnessed using scientific fish culture techniques. This project intends to rejuvenate the ox-bow lakes through opening of inlet and outlet in convergence with Jal Jeevan Haryali programme and ranching of these water-bodies through in situ nursery development and stocking of the water body with diversified fish species using project support.

Species diversification in fisheries: The fisheries sector in Bihar currently focuses on Indian Major Carps, Chinese Carps and Pangasius. There is a need to diversify the species used for fish culture particularly in the small backyard ponds and other small water bodies with smaller and self-propagating fish varieties which will address both income enhancement and nutrition security requirements of the rural households.

M. Implementation plans

a. Supervision, Mid-term Review and Completion plans.

All activities under the project will be implemented by the officials of the respective Directorate assisted by service providers, technical assistance teams and Consultants procured using an open and transparent procedure, and calls for proposals. The project will develop an entrepreneurial community cadre who will implement grassroots level project activities. The project will build on the existing community institutions and develop value chain specific PGs and FPOs who will be the direct partners in implementing project activities. The activities related to markets and marketing will be largely private sector oriented and will be implemented through them.

This project implementation will be spread over six years. All the capacity building efforts will be front loaded. The project will start regular implementation during the financial year 2020-21. The DoAFR has shown its keenness for a rapid start-up and has set up a core team to be part of the detailed design mission.

Implementation readiness: The activities required to be completed to comply with the readiness requirements of GoI and IFAD include:

- Engagement of a team of two Consultants for preparing Goat Policy for the state and prepare a draft policy framework by 30 January 2020: this process has already been initiated, and the costs will be reimbursed as a part of retroactive financing.
- Obtain approval of the Cabinet of GoB to implementing this project by 31 January 2020.
- Allocation of INR 00 Crore to DoAFR for start-up activities during 2019-20 in the supplementary budget for 2019-20 and release the same to BLDA by 31 January 2020.
- Creation of an Externally Aided Project budget line for this project under DoAFR for 2020-21 and request for a budget allocation based on first year AWPB.
- Issuance of a notification nominating the Secretary, DoAFR as the Mission Director, the Director, DoAFR as the Project Director and the technical heads of DioAH and DioF as the Project Coordinators.
- Amend the Memorandum of Association article 5.17 and bylaw 8 a (17) of BLDA as under:
 1. It will also serve as the state implementation agency, **when needed**, to encourage, promote and carry out viably all activities to improve the breeding and management of other livestock like sheep, goat, pig, poultry, etc., **and fish** so as to enhance livestock and **fish** production and productivity throughout the territory of Bihar State leading to higher farm incomes and better quality of life of farmers.
- Include a new article into the Memorandum of Association bearing number 5.20 and also into the bylaws of BLDA bearing number 8 a (20) as under:

It may establish separate Project Support Units or Implementation Units for each of the projects/programmes and nominate an officer as Project Director reporting to the Chairperson.

- Identifying and selecting 5-6 project blocks for each sector (small livestock and fisheries) in each project district (in total 64 blocks for each sector) using the agreed selection criteria and communicating the same to IFAD.
- Engagement/allocation of 64 Block Veterinary Officers and 64 Block Fisheries Extension Officers/Supervisors for each project Block and also fill up the vacancies of Junior Engineers in all the project districts using GoB funds before 29 February 2020.
- Identifying institutions and making plans for training of BVOs and FEOs.
- Identify a team of Consultants or start preparations to engage a service provider to conduct ToT to Block Veterinary Officers train DISHA workers.
- Finalize terms of reference, procurement modality and initiate the process for engaging contractual staff on PSU, LIT, FIT, DLITs and DFITs.
- Finalizing terms of reference and Request for Proposals for baseline survey.
- Obtaining relevant GoB approvals for engaging qualified organization for provision of technical assistance in the fisheries sector as described under sub-component 2.2 above.
- Preparation and approval of implementation plan and project readiness check list and submission of the same to DEA by 15 February 2020.
- Constitution of a state delegation authorised by the Chief Secretary to negotiate and initial the negotiated text of the financing agreement on behalf of GoB by 10th March, 2020.

Start-up Plans: IFAD will support DoAFR to organize a start-up workshop. This opportunity will be used to provide training to the staff of PSU, LIT, FIT, DLITs and DFITs on project implementation modalities, IFAD's financial management and procurement procedures, AWPB and M&E. IFAD will provide backstopping to the PSU, LIT and FIT during the first 18 months on project implementation through required technical assistance, comprising experts in small stock development and fisheries in order to streamline implementation modalities. Special attention will be provided to establish a robust financial management, procurement system, and planning, M&E and MIS systems.

Supervision, Mid-term Review and Completion plans

Supervision: The project will be directly supervised by IFAD. Annual Supervision Missions will be conducted and the first supervision mission will take place towards the end of the first year from entry to enforce the project. It will include specialists in animal husbandry and fisheries, financial management and procurement.

Mid Term Review: IFAD in cooperation with GoB will undertake a mid-term review (MTR) by the end of the third year of the project to review project achievements and implementation constraints. In particular, it will review: (i) performance of the Directorates in project implementation, (ii) impact of project interventions on production and productivity, (iii) progress in enterprise led training and support modality; (iv) progress in animal health service delivery by DWs and their sustainability in terms of earnings from service delivery; (v) management and fiduciary performance of the project. The findings and recommendations of the MTR will be used to adjust project design and improve exit strategy and sustainability of the project.

Project Completion Review: As the project reaches completion point, the PSU in collaboration with LIT and FIT will be required to prepare a draft Project Completion Report. IFAD and GoB will then carry out a Project Completion Review based on the information provided in the Project Completion Report and other data.

Footnotes

[1] In this regard discussions were held with the World Fish which is a CGIAR organisation.

[2] Source: India home page, The World Bank, updated on 2 April 2019

[3] Economic survey 2018-19, Volume I, Government of India, Ministry of Finance, Department of Economic Affairs, Economic Division, North Block, New Delhi-110001

[4] Source: India home page, The World Bank, updated on 2 April 2019

[5] Global MPI 2018 Report: Oxford Poverty and Human Development Initiative and UNDP; MPI reflects both the proportion of people suffering from poverty as well as the degree to which they are deprived.

[6] Source: Nutrition and Food Security, United Nations in India

[7] NITI Aayog. Nourishing India. National Nutrition Strategy. Government of India. 2017.

[8] Bihar Economic Survey 2018-19, Finance Department, Government of Bihar

[9] Ibid page 10

[10] Ibid pg 10

[11] Community level trained animal health workers providing fee based services.

[12] Average family size of 5.4 in Bihar as per National health and family welfare survey, 2015-16.

[13] Refer to para 12 for details of climate resilient features.

[14] Report of the committee of Doubling Farmers' Income, Volume I, Committee on doubling of farmers' income, Department of Agriculture, Cooperation and Farmers' Welfare

[15] **Role of Livestock in Doubling the Farmer's Income- National Perspective, [Dr. Priyanka Lal](#), Ph. D, National Dairy Research Institute, ABC of Agri, <https://abcofagri.com/role-of-livestock-in-doubling-the-farmers-income-national-perspective/>**

[16] Refer Tables and charts in Annex-4 for further details

[17]<https://www.ifad.org/en/document-detail/asset/40189695>

India

**Bihar Aquaculture and Livestock Improvement Project
Project Design Report**

Annex 1: Logframe

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Bihar Aquaculture and Livestock Improvement Project

Logical Framework

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
Outreach	1.b Estimated corresponding total number of households members				Project Monitoring	Annual	PSU	
	Household members		2100000	5400000				
	1.a Corresponding number of households reached				Project Monitoring	Annual	PSU	
	Women-headed households							
	Non-women-headed households							
	Households		400000	1000000				
	1 Persons receiving services promoted or supported by the project				Project Monitoring	Annual	PSU	
	Females			750000				
	Males			250000				
	Young							
	Not Young							
	Indigenous people			40000				
	Non-Indigenous people			960000				
	Total number of persons receiving services		400000	1000000				
	Persons receiving goat services promoted/ supported by project				Project monitoring	Annual	PSU	
Number		322000	922000					

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Persons receiving poultry services promoted/supported by project				Project monitoring	Annual	PSU	
	Number		46000	92000				
	Persons receiving fisheries services promoted/ supported by project				Project monitoring	Annual	PSU	
	Number		19484	38941				
Outreach Corresponding number of ST/SC Households Reached	ST Households Number				Project Monitoring	Annual	PSU	
	ST Households Number			40000				
	SC Households Number				Project Monitoring	Annual	PSU	
	SC Households			200000				
Project Goal Contribute to doubling of income of rural poor households and nutrition security	Percentage of households reporting 100% increase in income from livestock and fisheries				Impact assessment	At baseline, midterm and completion	PSU	Sustained Government policies in favour of small livestock and fish farmers' incomes and welfare
	Households		40	90				
	Percentage of women reporting minimum dietary diversity				Impact assessment	At baseline, midterm and completion	PSU	
	Percentage of Women		50	90				
Development Objective To improve the resilience of rural households through intensified small livestock and inland fisheries production systems and improved performance of value chains	Net margin from goat rearing (annual income per household)				Impact assessment	At baseline, midterm and completion	PSU	Government's infrastructure and other development efforts converge with this project activities
	INR/HH		1790	5547				
	Net margin from inland fisheries (annual income per household)				Impact assessment	At baseline, midterm and completion	PSU	
	INR/HH		20570	46460				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	Beneficiary women report an increase in score on pro-WEAI survey				Impact assessment	At baseline and completion	PSU	
	% beneficiary women			50				
Outcome Small livestock rearers adopt inputs, technologies and practices for intensification of small livestock husbandry	Increase in average live weight at the time of sale				Annual Outcome Survey	Annually	PSU	Adequate capacity is built within the animal husbandry directorate to address needs of small livestock owners
	% of weight		10	20				
	Goat kid mortality rate				Annual Outcome Survey	Annually	PSU	
	% of mortality rate		20	8				
	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices				Annual Outcome Survey	Annually	PSU	
	Households		50	80				
Output Capacity for service delivery established , for small livestock producers	No. of animal health workers trained				Project monitoring	Quarterly	PSU/LIT	Availability of adequate financial products for goat herd expansion and investment in BYP
	Young		1608	1608				
	Males		1000	1000				
	Females		2000	2000				
	No. of producer organizations established				Project monitoring	Quarterly	PSU/LIT	
	Number of organizations		9216	9216				
	No. of mother units established for production of chicks				Project monitoring	Quarterly	PSU/LIT	
	Number of units		24	48				
	Number of rural producers accessing production inputs and/or technological packages (goat and poultry)				Project monitoring	Quarterly	PSU/LIT	
	Young							
	Males		100000	200000				
	Females		300000	700000				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks				Project monitoring	Quarterly	PSU/LIT	
	Groups supported		9216	9216				
Output Activities targeting nutrition are operational	1.1.8 Households provided with targeted support to improve their nutrition				Project Monitoring	Annual	PSU/LIT	Nutrition services (training, awareness raising, extension and type of food produced and consumed) are relevant to target group
	Males		250000					
	Females		750000					
	Indigenous people		40000					
	Non-Indigenous people		960000					
Outcome Fish rearers adopt inputs, technologies and practices for intensification of inland fisheries	% Increase in yield/Ha				Annual outcome survey	Annual	PSU	Adequate capacity is built within the fisheries directorate to address needs of fish farmers and fisher folk.
	Percentage increase in yield		50	90				
	3.2.2 Households reporting adoption of environmentally sustainable and climate-resilient technologies and practices				Annual outcome survey	Annual	PSU	
	Households		50	90				
Output Capacity for service delivery established , for inland fisheries	No. of FTA's trained				Project monitoring	Quarterly	PSU/FIT	Availability of adequate financial products for fish pond construction
	Young		400	400				
	Females		152	152				
	Males		600	600				
	Number of rural producers accessing production inputs and/or technological packages (inland fisheries).				Project monitoring	Quarterly	PSU/FIT	
	Young		4000	8000				
	Females		4000	8000				
	Males		7500	18200				

Results Hierarchy	Indicators				Means of Verification			Assumptions
	Name	Baseline	Mid-Term	End Target	Source	Frequency	Responsibility	
	3.1.1 Groups supported to sustainably manage natural resources and climate-related risks				Project monitoring	Quarterly	PSU/FIT	
	Groups supported		1152	1152				
Outcome Enabling policy developed	Policy 3 Existing/new laws, regulations, policies or strategies proposed to policy makers for approval, ratification or amendment				Project monitoring	Annual	PSU	Commitment of government to create an enabling environment for fisheries/ small livestock.
	Number			2				
Output Policy relevant knowledge products drafted	Policy 1 Policy-relevant knowledge products completed				Project monitoring	Annual	PSU	Knowledge products are effective and relevant to policy makers
	Number		4					



Investing in rural people

India

Bihar Aquaculture and Livestock Improvement Project

Project Design Report

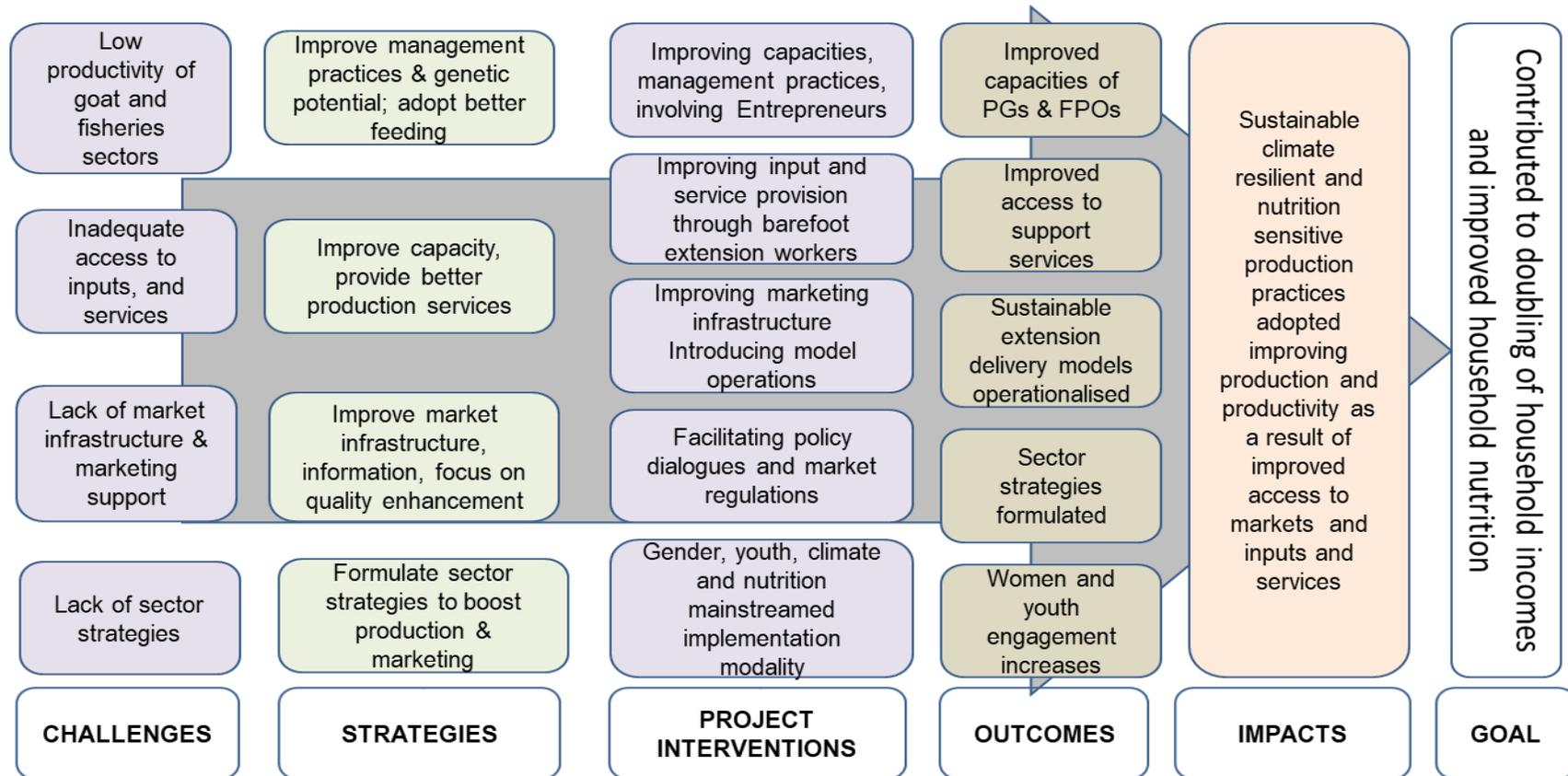
Annex 2: Theory of change

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 2: Theory of change

THEORY OF CHANGE: BAaLI



India

Bihar Aquaculture and Livestock Improvement Project Project Design Report

Annex 3: Project cost and financing: Detailed costs tables

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Project No. 2000002417
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Asia and the Pacific Division
Programme Management Department

Annex 3: Project cost and financing

1. **Assumptions:** Key assumptions used in estimating the project costs include (i) price contingencies assumed at 5% and applied on all items, except for Grant and Subsidies Credit category, financed by IFAD; (ii) exchange rate at INR 72 per USD; (iii) taxes as prevailing at the time of design i.e. during August 2019 and broadly based at 10%; (iv) a six year implementation phase and the project starting in April 2020; (v) all unit costs are input in Indian Rupees, i.e. INR and contingencies provided to cushion the inflation between Design and the Project start; and (vi) taxes excluded from IFAD financing rules.

2. **Costab accounts:** Basic costab accounts are: (i) procurement accounts, (ii) disbursement accounts and (iii) expenditure accounts. Following accounts have been created in accordance with the project expenditure patterns and the proposed financing arrangements:

Procurement accounts (PA) a/	Disbursement accounts (DA)	Expenditure accounts (EA)
<i>Civil works CW_PA</i>	<i>Civil works CW_DA</i>	<i>Civil works CW_EA</i>
<i>Equipment & materials OEM_PA</i>	<i>Equipment & materials OEM_DA</i>	<i>Equipment & materials OEM_EA</i>
<i>Training, capacity building TCW_PA</i>	<i>Training, capacity building TCW_DA</i>	<i>Training, capacity building TCW_EA</i>
<i>Goods, services, inputs GSI_PA</i>	<i>Goods, services, inputs GSI_DA</i>	<i>Goods, services, inputs GSI_EA</i>
<i>Technical assistance TA_PA</i>	<i>Technical assistance TA_DA</i>	<i>Technical assistance TA_EA</i>
<i>Subsidies, grant, credit SGC_PA</i>	<i>Subsidies, grant, credit SGC_DA</i>	<i>Subsidies, grant, credit SGC_EA</i>
<i>Salaries and allowances SAA_PA</i>	<i>Salaries and allowances SAA_DA</i>	<i>Salaries and allowances SAA_EA</i>
<i>Office operating costs OOC_PA</i>	<i>Office operating costs OOC_DA</i>	<i>Office operating costs OOC_EA</i>
<i>Operating costs OC_PA</i>	<i>Operating costs OC_DA</i>	<i>Operating costs OC_EA</i>
a/ in Summary and Detailed tables, these accounts will end up with PA, DA & EA respectively		

3. **BAaLI Project accounts:** The project has three expenditure components including the project management and 6 sub-components. Cost Tables have according organised, prepared and provided in following pages (i) first Detailed Tables for each sub-component and (ii) several Summary Tables.

4. **Detailed Tables:** Each Detailed Table contains the following data and information relating to the project interventions and activities. These are description of an activity, unit, physical quantities by year, unit cost in INR, base costs in INR thousand INR currencies, total costs including contingencies in thousand INR or USD, disbursement account, financing rule (i.e. % of financing by Government, IFAD loan, IFAD Grant, convergence, beneficiaries etc. In addition, there is several other information such as tax rate, contingency rate, financing by financiers etc. But these information and data can be seen and referenced from the excel file provided. Tables are presented in fiscal year basis

Components	Sub-components	Cost Table reference #
Small livestock promotion	Livestock: Capacity strengthening	1.1
	Livestock: Production and productivity expansion	1.2
	Livestock: Market development and value chain	1.3
Inland fisheries promotion	Fisheries: Capacity strengthening	2.1
	Fisheries: Production and productivity expansion	2.2
	Fisheries: Market development and value chain	2.3
Project management	Project management unit	3.1
	Knowledge management and M&E	3.2

Tab file source: BAaLI6.tab

Summary tables

Disbursement Accounts by Financiers

INDIA BAaLI Disbursement Accounts by Financiers (US\$ '000)																		
	Govt		IFAD Loan		IFAD Grant		Convergence		Financing institutions		Private sector		Beneficiaries		Total		Duties & Taxes	
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%		
1. Civil works	12,499.3	30.5	5,265.5	12.9	-	-	7,988.0	19.5	-	-	-	664.6	1.6	14,532.7	35.5	40,950.2	28.0	3,339.8
2. Office equipment and materials	62.2	10.0	560.0	90.0	-	-	-	-	-	-	-	-	-	-	-	622.2	0.4	62.2
3. Training, capacity building and workshops	1,119.8	7.9	7,431.5	52.6	-	-	2,508.1	17.8	-	-	17.7	0.1	3,045.9	21.6	14,123.1	9.7	1,119.8	
4. Goods, inputs and services	3,999.3	9.3	18,686.1	43.5	92.7	0.2	18,507.2	43.1	-	-	172.4	0.4	1,517.7	3.5	42,975.4	29.4	2,454.0	
5. Technical assistance, consultancies, studies	661.7	13.6	2,257.4	46.3	1,910.9	39.2	-	-	-	-	39.1	0.8	8.0	0.2	4,877.2	3.3	651.8	
6. Subsidies, grant and credit	932.7	3.5	20,384.7	76.2	-	-	111.1	0.4	5,056.4	18.9	112.0	0.4	153.6	0.6	26,750.5	18.3	-	
7. Salaries and allowances	11,992.4	87.0	1,794.1	13.0	-	-	-	-	-	-	-	-	-	-	13,786.4	9.4	-	
8. Office operating costs	145.2	10.0	1,307.2	90.0	-	-	-	-	-	-	-	-	-	-	1,452.5	1.0	106.5	
9. Operating costs	388.3	54.6	322.8	45.4	-	-	-	-	-	-	-	-	-	-	711.1	0.5	71.1	
Total PROJECT COSTS	31,801.1	21.7	58,009.4	39.7	2,003.6	1.4	29,114.4	19.9	5,056.4	3.5	1,005.7	0.7	19,258.0	13.2	1,46,248.6	100.0	7,805.3	

Components by Financiers

INDIA BAaLI Components by Financiers (US\$ '000)																	
	Govt		IFAD Loan		IFAD Grant		Convergence		Financing institutions		Private sector		Beneficiaries		Total		Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
A. Small livestock promotion																	
Capacity strengthening	8,300.4	35.9	11,936.3	51.6	-	-	2,785.2	12.0	-	-	112.0	0.5	-	-	23,134.0	15.8	1,403.7
Production and productivity expansion	1,326.8	3.1	22,599.2	52.9	62.2	0.1	18,435.8	43.2	-	-	108.1	0.3	161.6	0.4	42,693.7	29.2	386.9
Market development and value addition	151.4	11.0	1,032.6	75.2	-	-	-	-	-	-	91.2	6.6	97.9	7.1	1,373.2	0.9	138.7
Subtotal	9,778.6	14.6	35,568.2	52.9	62.2	0.1	21,221.0	31.6	-	-	311.3	0.5	259.5	0.4	67,200.8	45.9	1,929.2
B. Inland fisheries promotion																	
Capacity strengthening	5,068.4	29.0	6,702.1	38.3	-	-	2,657.2	15.2	-	-	17.7	0.1	3,045.9	17.4	17,491.4	12.0	1,013.3
Production and productivity expansion	15,133.5	30.5	11,108.3	22.4	1,593.8	3.2	597.4	1.2	5,056.4	10.2	103.4	0.2	15,952.6	32.2	49,545.3	33.9	4,442.6
Market development and value addition	59.9	1.0	344.1	6.0	92.7	1.6	4,638.8	81.3	-	-	573.4	10.0	-	-	5,708.8	3.9	59.9
Subtotal	20,261.8	27.9	18,154.5	25.0	1,686.4	2.3	7,893.4	10.9	5,056.4	7.0	694.5	1.0	18,998.5	26.1	72,745.5	49.7	5,515.9
C. Project management																	
Project management unit	1,632.2	30.8	3,670.5	69.2	-	-	-	-	-	-	-	-	-	-	5,302.7	3.6	248.5
Knowledge management and M&E	128.4	12.8	616.3	61.6	255.0	25.5	-	-	-	-	-	-	-	-	999.7	0.7	111.8
Subtotal	1,760.6	27.9	4,286.8	68.0	255.0	4.0	-	-	-	-	-	-	-	-	6,302.4	4.3	360.2
Total PROJECT COSTS	31,801.1	21.7	58,009.4	39.7	2,003.6	1.4	29,114.4	19.9	5,056.4	3.5	1,005.7	0.7	19,258.0	13.2	1,46,248.6	100.0	7,805.3

Tab file source: BAaLI6.tab

Expenditure accounts by financiers

INDIA BAaLI Expenditure Accounts by Financiers (US\$ '000)																	
	Govt		IFAD Loan		IFAD Grant		Convergence		Financing institutions		Private sector		Beneficiaries		Total		Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	Amount	%	
I. Investment Costs																	
A. Civil works	12,499.3	30.5	5,265.5	12.9	-	-	7,988.0	19.5	-	-	664.6	1.6	14,532.7	35.5	40,950.2	28.0	3,339.8
B. Office equipment and materials	62.2	10.0	560.0	90.0	-	-	-	-	-	-	-	-	-	-	622.2	0.4	62.2
C. Training, capacity building & workshop	621.9	10.0	5,557.8	89.4	-	-	-	-	-	-	39.1	0.6	-	-	6,218.8	4.3	621.9
D. Goods, inputs and services	4,655.5	9.3	20,793.3	41.5	92.7	0.2	21,015.3	41.9	-	-	190.0	0.4	3,408.1	6.8	50,155.0	34.3	3,110.1
E. Technical assistance, consultancies, studies	503.5	15.3	868.3	26.4	1,910.9	58.1	-	-	-	-	-	-	8.0	0.2	3,290.8	2.3	493.6
F. Subsidies, grant and credit	932.7	3.2	21,540.2	74.1	-	-	111.1	0.4	5,056.4	17.4	112.0	0.4	1,309.2	4.5	29,061.6	19.9	-
Total Investment Costs	19,275.1	14.8	54,585.3	41.9	2,003.6	1.5	29,114.4	22.3	5,056.4	3.9	1,005.7	0.8	19,258.0	14.8	1,30,298.6	89.1	7,627.7
II. Recurrent Costs																	
A. Salaries and allowances	11,992.4	87.0	1,794.1	13.0	-	-	-	-	-	-	-	-	-	-	13,786.4	9.4	-
B. Office operating costs	145.2	10.0	1,307.2	90.0	-	-	-	-	-	-	-	-	-	-	1,452.5	1.0	106.5
C. Operating costs	388.3	54.6	322.8	45.4	-	-	-	-	-	-	-	-	-	-	711.1	0.5	71.1
Total Recurrent Costs	12,525.9	78.5	3,424.1	21.5	-	-	-	-	-	-	-	-	-	-	15,950.1	10.9	177.6
Total PROJECT COSTS	31,801.1	21.7	58,009.4	39.7	2,003.6	1.4	29,114.4	19.9	5,056.4	3.5	1,005.7	0.7	19,258.0	13.2	1,46,248.6	100.0	7,805.3

Project cost summary

INDIA BAaLI Components Project Cost Summary			
	(INR '000)	(US\$ '000)	% Total Base Costs
	Total	Total	
A. Small livestock promotion			
Capacity strengthening	14,77,044.0	20,514.5	16
Production and productivity expansion	28,43,140.0	39,488.1	30
Market development and value addition	83,715.2	1,162.7	1
Subtotal	44,03,899.2	61,165.3	47
B. Inland fisheries promotion			
Capacity strengthening	11,32,484.0	15,728.9	12
Production and productivity expansion	31,62,553.3	43,924.4	33
Market development and value addition	3,54,250.0	4,920.1	4
Subtotal	46,49,287.3	64,573.4	49
C. Project management			
Project management unit	3,31,670.0	4,606.5	4
Knowledge management and M&E	65,720.0	912.8	1
Subtotal	3,97,390.0	5,519.3	4
Total BASELINE COSTS	94,50,576.5	1,31,258.0	100
Physical Contingencies	-	-	-
Price Contingencies	10,79,325.0	14,990.6	11
Total PROJECT COSTS	1,05,29,901.4	1,46,248.6	111

Expenditure accounts project cost summary

INDIA BAaLI Expenditure Accounts Project Cost Summary		(INR '000)	(US\$ '000)	% Total Base Costs
		Total	Total	
I. Investment Costs				
A. Civil works		25,54,350.0	35,477.1	27
B. Office equipment and materials		42,027.0	583.7	-
C. Training, capacity building & workshop		4,01,315.2	5,573.8	4
D. Goods, inputs and services		31,43,944.0	43,665.9	33
E. Technical assistance, consultancies, studies		2,27,875.0	3,164.9	2
F. Subsidies, grant and credit		20,92,433.3	29,061.6	22
Total Investment Costs		84,61,944.5	1,17,527.0	90
II. Recurrent Costs				
A. Salaries and allowances		8,54,568.0	11,869.0	9
B. Office operating costs		90,000.0	1,250.0	1
C. Operating costs		44,064.0	612.0	-
Total Recurrent Costs		9,88,632.0	13,731.0	10
Total BASELINE COSTS		94,50,576.5	1,31,258.0	100
Physical Contingencies		-	-	-
Price Contingencies		10,79,325.0	14,990.6	11
Total PROJECT COSTS		1,05,29,901.4	1,46,248.6	111

Project cost summary: IFAD financing %

INDIA BAaLI Project Cost Summary (US\$ '000)		Cost Including Contingencies	% of Total	IFAD Loan Financing	% Financing
A. Small livestock promotion					
Capacity strengthening		23,134.0	15.8	11,936.3	51.6
Production and productivity expansion		42,693.7	29.2	22,599.2	52.9
Market development and value addition		1,373.2	0.9	1,032.6	75.2
Subtotal		67,200.8	45.9	35,568.2	52.9
B. Inland fisheries promotion					
Capacity strengthening		17,491.4	12.0	6,702.1	38.3
Production and productivity expansion		49,545.3	33.9	11,108.3	22.4
Market development and value addition		5,708.8	3.9	344.1	6.0
Subtotal		72,745.5	49.7	18,154.5	25.0
C. Project management					
Project management unit		5,302.7	3.6	3,670.5	69.2
Knowledge management and M&E		999.7	0.7	616.3	61.6
Subtotal		6,302.4	4.3	4,286.8	68.0
Total PROJECT COSTS		1,46,248.6	100.0	58,009.4	39.7

Expenditure accounts by components

INDIA									
BAaLI									
Expenditure Accounts by Components - Totals									
(US\$ '000)									
	<u>Small livestock promotion</u>			<u>Inland fisheries promotion</u>			<u>Project management</u>		Total
	Capacity strengthening	Production and productivity expansion	Market development and value addition	Capacity strengthening	Production and productivity expansion	Market development and value addition	Project management unit	Knowledge management and M&E	
I. Investment Costs									
A. Civil works	3,378.2	-	674.3	313.9	31,171.8	5,411.9	-	-	40,950.2
B. Office equipment and materials	361.8	-	-	40.4	-	-	125.7	94.2	622.2
C. Training, capacity building & workshop	4,688.3	828.5	102.5	247.0	2.9	9.2	170.6	169.9	6,218.8
D. Goods, inputs and services	7,116.5	21,334.7	569.4	10,272.4	10,439.1	198.5	224.2	-	50,155.0
E. Technical assistance, consultancies, studies	14.2	94.2	26.9	22.8	1,875.0	89.2	599.4	569.0	3,290.8
F. Subsidies, grant and credit	257.8	20,436.3	-	2,311.1	6,056.4	-	-	-	29,061.6
Total Investment Costs	15,816.9	42,693.7	1,373.2	13,207.7	49,545.3	5,708.8	1,119.9	833.2	1,30,298.6
II. Recurrent Costs									
A. Salaries and allowances	6,605.9	-	-	4,283.7	-	-	2,730.3	166.6	13,786.4
B. Office operating costs	-	-	-	-	-	-	1,452.5	-	1,452.5
C. Operating costs	711.1	-	-	-	-	-	-	-	711.1
Total Recurrent Costs	7,317.1	-	-	4,283.7	-	-	4,182.8	166.6	15,950.1
Total PROJECT COSTS	23,134.0	42,693.7	1,373.2	17,491.4	49,545.3	5,708.8	5,302.7	999.7	1,46,248.6
Taxes	1,403.7	386.9	138.7	1,013.3	4,442.6	59.9	248.5	111.8	7,805.3

Project components by year –baseline costs

INDIA BAaLI Project Components by Year -- Base Costs (US\$ '000)		Base Cost					
	20/21	21/22	22/23	23/24	24/25	25/26	Total
A. Small livestock promotion							
Capacity strengthening	2,660.0	5,852.6	6,612.2	2,436.6	1,476.6	1,476.6	20,514.5
Production and productivity expansion	38.9	5,766.3	10,254.7	12,747.9	10,664.2	16.1	39,488.1
Market development and value addition	-	148.9	340.1	294.0	273.2	106.5	1,162.7
Subtotal	2,698.9	11,767.8	17,207.0	15,478.5	12,413.9	1,599.2	61,165.3
B. Inland fisheries promotion							
Capacity strengthening	1,999.5	5,165.4	4,956.3	1,453.0	1,085.0	1,069.7	15,728.9
Production and productivity expansion	1,087.4	10,210.7	11,549.0	10,385.9	10,676.6	14.8	43,924.4
Market development and value addition	-	1,166.7	1,278.5	1,266.7	1,208.3	-	4,920.1
Subtotal	3,086.9	16,542.8	17,783.8	13,105.6	12,969.9	1,084.5	64,573.4
C. Project management							
Project management unit	935.1	783.5	783.5	754.3	733.5	616.7	4,606.5
Knowledge management and M&E	489.2	76.7	90.6	80.8	73.9	101.7	912.8
Subtotal	1,424.3	860.1	874.0	835.1	807.4	718.3	5,519.3
Total BASELINE COSTS	7,210.1	29,170.8	35,864.8	29,419.2	26,191.2	3,402.0	1,31,258.0
Physical Contingencies	-	-	-	-	-	-	-
Price Contingencies							
Subtotal Price Contingencies	137.0	1,849.3	3,625.6	3,964.8	4,371.5	1,042.4	14,990.6
Total PROJECT COSTS	7,347.1	31,020.0	39,490.4	33,384.0	30,562.7	4,444.3	1,46,248.6
Taxes	504.7	2,042.1	2,282.7	1,538.9	1,254.0	182.9	7,805.3

Project components by year –total including contingencies

INDIA							
BAaLI							
Project Components by Year -- Totals Including Co							
(US\$ '000)							
	Totals Including Contingencies						
	20/21	21/22	22/23	23/24	24/25	25/26	Total
A. Small livestock promotion							
Capacity strengthening	2,726.4	6,288.9	7,456.3	2,891.1	1,839.6	1,931.6	23,134.0
Production and productivity expansion	39.9	6,006.1	10,882.6	13,937.9	11,808.6	18.7	42,693.7
Market development and value addition	-	160.2	384.4	348.9	340.4	139.3	1,373.2
Subtotal	2,766.3	12,455.2	18,723.3	17,177.9	13,988.6	2,089.6	67,200.8
B. Inland fisheries promotion							
Capacity strengthening	2,029.5	5,498.3	5,554.7	1,657.8	1,351.8	1,399.4	17,491.4
Production and productivity expansion	1,098.9	10,885.2	12,779.9	12,054.5	12,711.1	15.6	49,545.3
Market development and value addition	-	1,255.6	1,444.8	1,503.0	1,505.5	-	5,708.8
Subtotal	3,128.5	17,639.1	19,779.4	15,215.2	15,568.3	1,415.0	72,745.5
C. Project management							
Project management unit	958.5	843.2	885.4	895.0	913.8	806.7	5,302.7
Knowledge management and M&E	493.9	82.5	102.3	95.9	92.1	133.0	999.7
Subtotal	1,452.4	925.7	987.7	990.9	1,005.9	939.7	6,302.4
Total PROJECT COSTS	7,347.1	31,020.0	39,490.4	33,384.0	30,562.7	4,444.3	1,46,248.6

Project components by year –investment and recurrent costs

INDIA
BAaLI

Project Components by Year -- Investment/Recurrent
(US\$ '000)

	Totals Including Contingencies						Total
	20/21	21/22	22/23	23/24	24/25	25/26	
A. Small livestock promotion							
Capacity strengthening							
Investment Costs	1,650.7	5,159.4	6,270.3	1,645.8	532.1	558.7	15,816.9
Recurrent Costs	1,075.7	1,129.5	1,186.0	1,245.3	1,307.6	1,372.9	7,317.1
Subtotal	2,726.4	6,288.9	7,456.3	2,891.1	1,839.6	1,931.6	23,134.0
Production and productivity expansion							
Investment Costs	39.9	6,006.1	10,882.6	13,937.9	11,808.6	18.7	42,693.7
Recurrent Costs	-	-	-	-	-	-	-
Subtotal	39.9	6,006.1	10,882.6	13,937.9	11,808.6	18.7	42,693.7
Market development and value addition							
Investment Costs	-	160.2	384.4	348.9	340.4	139.3	1,373.2
Recurrent Costs	-	-	-	-	-	-	-
Subtotal	-	160.2	384.4	348.9	340.4	139.3	1,373.2
Subtotal	2,766.3	12,455.2	18,723.3	17,177.9	13,988.6	2,089.6	67,200.8
B. Inland fisheries promotion							
Capacity strengthening							
Investment Costs	1,399.7	4,837.0	4,860.4	928.7	586.3	595.6	13,207.7
Recurrent Costs	629.8	661.3	694.3	729.0	765.5	803.8	4,283.7
Subtotal	2,029.5	5,498.3	5,554.7	1,657.8	1,351.8	1,399.4	17,491.4
Production and productivity expansion							
Investment Costs	1,098.9	10,885.2	12,779.9	12,054.5	12,711.1	15.6	49,545.3
Recurrent Costs	-	-	-	-	-	-	-
Subtotal	1,098.9	10,885.2	12,779.9	12,054.5	12,711.1	15.6	49,545.3
Market development and value addition							
Investment Costs	-	1,255.6	1,444.8	1,503.0	1,505.5	-	5,708.8
Recurrent Costs	-	-	-	-	-	-	-
Subtotal	-	1,255.6	1,444.8	1,503.0	1,505.5	-	5,708.8
Subtotal	3,128.5	17,639.1	19,779.4	15,215.2	15,568.3	1,415.0	72,745.5
C. Project management							
Project management unit							
Investment Costs	342.7	184.9	194.2	169.3	177.7	51.2	1,119.9
Recurrent Costs	615.9	658.3	691.2	725.8	736.1	755.5	4,182.8
Subtotal	958.5	843.2	885.4	895.0	913.8	806.7	5,302.7
Knowledge management and M&E							
Investment Costs	469.4	56.8	75.3	67.6	62.3	101.7	833.2
Recurrent Costs	24.5	25.7	27.0	28.3	29.8	31.3	166.6
Subtotal	493.9	82.5	102.3	95.9	92.1	133.0	999.7
Subtotal	1,452.4	925.7	987.7	990.9	1,005.9	939.7	6,302.4
Total PROJECT COSTS	7,347.1	31,020.0	39,490.4	33,384.0	30,562.7	4,444.3	1,46,248.6
Total Investment Costs	5,001.3	28,545.2	36,891.8	30,655.6	27,723.8	1,480.9	1,30,298.6
Total Recurrent Costs	2,345.9	2,474.8	2,598.5	2,728.5	2,838.9	2,963.4	15,950.1

Expenditure accounts by year

INDIA BAaLI Expenditure Accounts by Years -- Totals Including Contingenci (US\$ '000)		Totals Including Contingencies					
	20/21	21/22	22/23	23/24	24/25	25/26	Total
I. Investment Costs							
A. Civil works	213.5	9,765.0	11,451.9	9,829.4	9,690.3	-	40,950.2
B. Office equipment and materials	303.9	149.0	156.4	4.1	4.3	4.5	622.2
C. Training, capacity building & workshop	577.3	2,050.6	2,175.0	1,197.2	116.5	102.3	6,218.8
D. Goods, inputs and services	1,923.4	11,452.2	14,884.6	11,279.5	9,330.1	1,285.2	50,155.0
E. Technical assistance, consultancies, studies	1,178.8	835.8	859.6	178.0	169.6	69.0	3,290.8
F. Subsidies, grant and credit	804.4	4,292.6	7,364.3	8,167.5	8,413.0	19.8	29,061.6
Total Investment Costs	5,001.3	28,545.2	36,891.8	30,655.6	27,723.8	1,480.9	1,30,298.6
II. Recurrent Costs							
A. Salaries and allowances	2,027.8	2,140.8	2,247.9	2,360.2	2,452.3	2,557.5	13,786.4
B. Office operating costs	213.5	224.2	235.4	247.2	259.6	272.5	1,452.5
C. Operating costs	104.6	109.8	115.3	121.0	127.1	133.4	711.1
Total Recurrent Costs	2,345.9	2,474.8	2,598.5	2,728.5	2,838.9	2,963.4	15,950.1
Total PROJECT COSTS	7,347.1	31,020.0	39,490.4	33,384.0	30,562.7	4,444.3	1,46,248.6

INDIA

BAaLI

Financing of Investment/Recurrent Costs and Financial Charges by Year

(US\$ '000)

	Financing						Total
	20/21	21/22	22/23	23/24	24/25	25/26	
I. Investment Costs							
The Government	522.1	4,591.3	5,191.8	4,603.7	4,215.7	150.5	19,275.1
IFAD Loan	3,196.9	12,232.8	15,930.5	12,384.0	9,522.8	1,318.4	54,585.3
IFAD Grant	786.3	544.0	611.9	61.5	-	-	2,003.6
Convergence	-	5,710.1	8,763.6	7,606.6	7,034.1	-	29,114.4
Financing institutions	-	239.6	959.5	1,442.3	2,403.0	12.0	5,056.4
Private sector	-	268.5	277.0	251.7	208.5	-	1,005.7
Beneficiaries	496.1	4,959.0	5,157.5	4,305.7	4,339.7	-	19,258.0
Total Investment Costs	5,001.3	28,545.2	36,891.8	30,655.6	27,723.8	1,480.9	1,30,298.6
II. Recurrent Costs							
The Government	1,841.6	1,934.9	2,031.6	2,133.2	2,237.3	2,347.4	12,525.9
IFAD Loan	504.2	539.9	566.9	595.3	601.7	616.1	3,424.1
IFAD Grant	-	-	-	-	-	-	-
Convergence	-	-	-	-	-	-	-
Financing institutions	-	-	-	-	-	-	-
Private sector	-	-	-	-	-	-	-
Beneficiaries	-	-	-	-	-	-	-
Total Recurrent Costs	2,345.9	2,474.8	2,598.5	2,728.5	2,838.9	2,963.4	15,950.1
Total Financing of Costs	7,347.1	31,020.0	39,490.4	33,384.0	30,562.7	4,444.3	1,46,248.6

Detailed cost tables

Table 1.1: Livestock Capacity Strengthening

INDIA																		
BAaLI																		
Table 1.1. Livestock: Capacity strengthening																		
Detailed Costs																		
	Unit	Quantities						Unit Cost (INR)	Totals Including Contingencies (US\$ '000)						Other Accounts			
		20/21	21/22	22/23	23/24	24/25	25/26		Total	20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule
I. Investment Costs																		
A. Institutional capacity building																		
1. Staff training																		
Staff training /a	person	112	-	-	-	-	-	112	25,000	39.9	-	-	-	-	-	39.9	TCW_DA	IFAD (90%)
Exposure visits /b	person	50	-	-	-	-	-	50	60,000	42.7	-	-	-	-	-	42.7	TCW_DA	IFAD (90%)
Supply of Tablets /c	each	132	-	-	-	-	-	132	10,000	18.8	-	-	-	-	-	18.8	TCS_DA	IFAD (90%)
Subtotal										101.4	-	-	-	-	-	101.4		
2. Training on community mobilisation																		
Training on community mobilisation /d	perssons	112	-	-	-	-	-	112	7,500	12.0	-	-	-	-	-	12.0	TCS_DA	IFAD (90%)
Orientation training to Community facilitators /e	perssons	32	32	-	-	-	-	64	5,000	2.3	2.4	-	-	-	-	4.7	TCS_DA	IFAD (90%)
Subtotal										14.2	2.4	-	-	-	-	16.6		
3. Communication strategy																		
Communication expert	pers_month	2	-	-	-	-	-	2	250,000	7.1	-	-	-	-	-	7.1	TCS_DA	IFAD (90%)
Livestock domain expert	pers_month	2	-	-	-	-	-	2	250,000	7.1	-	-	-	-	-	7.1	TCS_DA	IFAD (90%)
Roll out of communication strategy	lumpsum	1	1	0.5	0.5	0.5	0.5	4	400,000	5.7	6.0	3.1	3.3	3.5	3.6	25.2	GSI_DA	IFAD (90%)
Subtotal										19.9	6.0	3.1	3.3	3.5	3.6	39.4		
4. Centre for Excellence for goats																		
Centre for excellence for goat	centre	-	-	1	-	-	-	1	20,000,000	-	-	313.9	-	-	-	313.9	CW_DA	IFAD (50%), CON (50%)
5. Infrastructure development																		
Improvement of Block level vet dispensary	each	-	32	32	-	-	-	64	1,000,000	-	478.3	502.3	-	-	-	980.6	CW_DA	CON (50%), IFAD (50%)
Construction of new vet hospitals	each	-	8	8	-	-	-	16	8,500,000	-	1,016.5	1,067.3	-	-	-	2,083.7	CW_DA	CON (100%)
Subtotal										-	1,494.8	1,569.5	-	-	-	3,064.3		
6. Office equipment																		
Laptops /f	each	48	-	-	-	-	-	48	70,000	47.8	-	-	-	-	-	47.8	OEM_DA	IFAD (90%)
Portable printers /g	each	48	-	-	-	-	-	48	10,000	6.8	-	-	-	-	-	6.8	OEM_DA	IFAD (90%)
Photocopier	each	12	-	-	-	-	-	12	100,000	17.1	-	-	-	-	-	17.1	OEM_DA	IFAD (90%)
Office air-conditioners	each	12	-	-	-	-	-	12	45,000	7.7	-	-	-	-	-	7.7	OEM_DA	IFAD (90%)
Subtotal										79.4	-	-	-	-	-	79.4		
Subtotal										215.0	1,503.2	1,886.6	3.3	3.5	3.6	3,615.1		
B. Service delivery support																		
1. Small livestock Lead entrepreneur support (Model farmers)																		
Technical training of SLEs	SLEs	64	-	-	-	-	-	64	5,000	4.4	-	-	-	-	-	4.4	SAG_DA	IFAD (90%)
Training in mobilisation of PG & FPO	SLE	64	-	-	-	-	-	64	1,000	0.9	-	-	-	-	-	0.9	TCS_DA	IFAD (90%)
Supply of tablets to SLEs	LE	-	64	-	-	-	-	64	10,000	-	8.9	-	-	-	-	8.9	SAG_DA	IFAD (90%), PS (10%)
Supply of equipment including techning aids to SLEs	Lumpsum	-	32	32	-	-	-	64	25,000	-	11.1	11.1	-	-	-	22.2	SAG_DA	IFAD (90%)
Supply of 20+1 goat unit to each LE	LE	-	32	32	-	-	-	64	250,000	-	111.1	111.1	-	-	-	222.2	SAG_DA	CON (50%), PS (50%)
Subtotal										5.4	131.1	122.2	-	-	-	258.7		
2. PG leaders training /h	persons	-	9,216	9,216	-	-	-	18,432	1,000	-	137.8	144.6	-	-	-	282.4	TCS_DA	IFAD (90%)
3. DISHA workers capacity building																		
TA for TOT /i	lumpsum	1	-	-	-	-	-	1	2,000,000	28.5	-	-	-	-	-	28.5	TCW_DA	IFAD (90%)
Printing of 4 training modules# /j	books	5,000	-	-	-	-	-	5,000	500	35.6	-	-	-	-	-	35.6	TCW_DA	IFAD (90%)
Preparation of guidelines for PG/PO mobilisatic	lumpsum	20,000	-	-	-	-	-	20,000	50	14.2	-	-	-	-	-	14.2	TCW_DA	IFAD (90%)
Goat/poultry health calendars # /k	000 #	500	500	-	-	-	-	1,000	35,000	249.1	261.6	-	-	-	-	510.7	GSI_DA	IFAD (90%)
Process of selection of DISHA workers /l	persons	2,304	2,304	-	-	-	-	4,608	2,000	65.6	68.9	-	-	-	-	134.5	TCW_DA	IFAD (90%)
Training of DISHA workers in community mobilisation Module 1#	persons	2,304	2,304	-	-	-	-	4,608	5,000	164.0	172.2	-	-	-	-	336.2	TCW_DA	IFAD (90%)
Exposure visits to DISHA workers	person	-	2,304	2,304	-	-	-	4,608	1,000	-	34.4	36.2	-	-	-	70.6	TCW_DA	IFAD (90%)
DISHA workers training modules 2,3 and 4 # /r	persons	-	2,304	2,304	-	-	-	4,608	15,000	-	516.6	542.4	-	-	-	1,059.0	TCW_DA	IFAD (90%)
Certification of DISHA training	Lumpsum	-	-	1	-	-	-	1	200,000	-	-	3.1	-	-	-	3.1	TCW_DA	IFAD (90%)
Honorarium for DISHA workers /n	person	-	2,304	4,608	2,304	-	-	9,216	18,000	-	619.9	1,301.8	683.5	-	-	2,605.2	TCW_DA	IFAD (90%)
Subtotal										557.0	1,673.6	1,883.6	683.5	-	-	4,797.7		

Table-1.2: Livestock Production and Productivity expansion

INDIA BAaLI Table 1.2. Livestock: Production and productivity enhancement																		
Detailed Costs																		
Unit	Quantities							Unit Cost (INR)	Totals Including Contingencies (US\$ '000)							Other Accounts		
	20/21	21/22	22/23	23/24	24/25	25/26	Total		20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule	
I. Investment Costs																		
A. Direct-to-farmer services																		
1. Digital extension service																		
Service provider contract	year	-	1	-	-	-	-	1	1,000,000	-	14.9	-	-	-	-	14.9	TCW_DA	IFAD (90%)
Setting up of hardware and software systems	lumpsum	1	-	-	-	-	-	1	2,000,000	28.5	-	-	-	-	28.5	TCW_DA	IFAD (90%)	
Knowledge generation and conversion to voice messages	lumpsum	1	-	-	-	-	-	1	500,000	7.1	-	-	-	-	7.1	TCW_DA	IFAD (90%)	
Annual operating costs	year	1	1	1	1	1	1	6	300,000	4.3	4.5	4.7	4.9	5.2	5.5	29.0	TCW_DA	IFAD (90%)
Subtotal										39.9	19.4	4.7	4.9	5.2	5.5	79.6		
2. Extension materials production																		
Extension materials production	lumpsum	-	1	1	1	1	1	5	300,000	-	4.5	4.7	4.9	5.2	5.5	24.8	TCS_DA	IFAD (90%)
3. Training of farmers by DISHA workers																		
Training of farmers in village by DISHA workers	village	-	9,216	-	9,216	-	-	18,432	1,000	-	137.8	-	151.9	-	-	289.6	TCS_DA	IFAD (90%)
Training at LE farm	persons	-	46,080	-	46,080	-	-	92,160	300	-	206.6	-	227.8	-	-	434.5	TCS_DA	IFAD (90%), PS (10%)
Subtotal										-	344.4	-	379.7	-	-	724.1		
Subtotal										39.9	368.3	9.4	389.6	10.4	10.9	828.5		
B. Scaling up of small livestock activities																		
1. Producer group mobilisation																		
Consultation with VO & formation of PG	PG	-	3,072	3,072	3,072	-	-	9,216	1,000	-	45.9	48.2	50.6	-	-	144.8	GSI_DA	IFAD (90%)
Interface activity: PG fund	PG	-	3,072	3,072	3,072	-	-	9,216	17,000	-	780.6	819.7	860.7	-	-	2,461.0	GSI_DA	IFAD (100%)
Subtotal										-	826.6	867.9	911.3	-	-	2,605.7		
2. Goat rearing support																		
Small livestock fund for internal lending (Livestock fund)	PG	-	920	2,300	2,766	3,230	-	9,216	75,000	-	958.3	2,395.8	2,881.3	3,364.6	-	9,600.0	SAG_DA	IFAD (100%)
Supply of vegetable seed kits /a	PG	-	920	2,300	2,766	3,230	-	9,216	5,000	-	63.9	159.7	192.1	224.3	-	640.0	SAG_DA	IFAD (90%)
Supply of breeding bucks	PG	-	920	2,300	2,766	3,230	-	9,216	12,000	-	153.3	383.3	461.0	538.3	-	1,536.0	SAG_DA	IFAD (90%), BEN (10%)
Support to goat-shed construction /b	000 hh	-	20	50	60	54	-	184	2,500,000	-	694.4	1,736.1	2,083.3	1,875.0	-	6,388.9	SAG_DA	IFAD (90%)
Construction of goat-shed under convergence	000 hh	-	40	100	136	120	-	396	2,500,000	-	1,494.8	3,923.8	5,603.2	5,191.2	-	16,213.1	GSI_DA	CON (100%)
Goat vaccination	goat	-	15,000,000	15,000,000	15,000,000	-	-	45,000,000	5	-	104.2	104.2	104.2	-	-	312.5	SAG_DA	IFAD (90%)
Support to fodder production /c	PG	-	3,072	3,072	3,072	-	-	9,216	15,000	-	640.0	640.0	640.0	-	-	1,920.0	SAG_DA	IFAD (90%)
Annual awards for DISHA workers, PG and LE, /d	entity	-	112	112	112	112	112	560	5,000	-	7.8	7.8	7.8	7.8	7.8	38.9	SAG_DA	IFAD (90%)
Subtotal										-	4,116.7	9,350.8	11,972.8	11,201.2	7.8	36,649.3		
Subtotal										-	4,943.3	10,218.7	12,884.1	11,201.2	7.8	39,255.1		
C. Goat mutual insurance																		
1. Technical assistance																		
Selection and engaging service provider /e	lumpsum	-	1	1	1	-	-	3	1,000,000	-	14.9	15.7	16.5	-	-	47.1	TCS_DA	GRANT (100%)
Model implementation in one district	Block	-	-	6	-	-	-	6	300,000	-	-	28.3	-	-	-	28.3	TCS_DA	GRANT (50%)
Insurance fund support	Block	-	-	6	-	-	-	6	200,000	-	-	18.8	-	-	-	18.8	TCS_DA	GRANT (50%), BEN (50%)
Subtotal										-	14.9	62.8	16.5	-	-	94.2		
D. Backyard poultry support																		
1. Supporting Backyard poultry for household nutrition																		
Mother unit for supply of chicks (an Entrepreneur activity)	lumpsum	-	8	16	24	-	-	48	200,000	-	23.9	50.2	79.1	-	-	153.2	GSI_DA	IFAD (50%), PS (50%)
Vaccination for poultry birds fund to DISHA workers	DISHA	-	4,680	-	-	-	-	4,680	2,000	-	139.9	-	-	-	-	139.9	GSI_DA	IFAD (90%)
Poultry sheds for 10 birds unit /f	each	-	23,000	23,000	23,000	23,000	-	92,000	1,500	-	515.7	541.5	568.6	597.0	-	2,222.7	GSI_DA	CON (100%)
Subtotal										-	679.5	591.7	647.7	597.0	-	2,515.9		
Total										39.9	6,006.1	10,882.6	13,937.9	11,808.6	18.7	42,693.7		

/a for kitchen gardens

/b at the rate of INR 2500 per household for 20% households supply of seeds and seedlings

/d 3 DISHA workers, 3 PGs, and 1 LE per district

/e for TOT, developing guidelines for goat mutuals and training of PG leaders

/f for materials

Table-1.3: Livestock Market development

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Table 1.3. Livestock: Market development and value addition

Detailed Costs

	Unit	Quantities						Unit Cost (INR)	Totals Including Contingencies (US\$ '000)						Other Accounts			
		20/21	21/22	22/23	23/24	24/25	25/26		Total	20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule
I. Investment Costs																		
A. Marketing support																		
1. Marketing support																		
Training in goat marketing to PG leaders	persons	-	-	2,304	2,304	2,304	2,304	9,216	200	-	-	7.2	7.6	8.0	8.4	31.2	TCW_DA	IFAD (90%)
Supply of weighing scales	PG	-	-	2,304	2,304	2,304	2,304	9,216	2,000	-	-	72.3	75.9	79.7	83.7	311.7	GSI_DA	IFAD (90%)
Value-chain platform /a	event	-	-	2	2	2	2	8	500,000	-	-	15.7	16.5	17.3	18.2	67.6	TCW_DA	IFAD (90%)
Market assessment study	study	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	TCW_DA	IFAD (90%)
Subtotal												95.3	100.0	105.0	110.3	410.5		
2. Market infrastructure support																		
Goat market sheds (design, specification, preparation of BOQ)	district	-	12	12	-	-	-	24	100,000	-	17.9	18.8	-	-	-	36.8	CW_DA	IFAD (75%)
Construction of model goat market sheds	district	-	-	-	12	12	-	24	1,000,000	-	-	-	197.8	207.6	-	405.4	CW_DA	IFAD (75%), PS (25%)
Goat fair support to PGs	Block	-	64	64	64	64	64	320	25,000	-	23.9	25.1	26.4	27.7	29.1	132.2	GSI_DA	IFAD (90%)
Subtotal											41.9	43.9	224.1	235.3	29.1	574.3		
3. Facilities for hygienic meat production																		
Preparation of guidelines for slaughter points	lumpsum	-	1	-	-	-	-	1	300,000	-	4.5	-	-	-	-	4.5	TCS_DA	IFAD (85%)
Training of butchers in hygienic meat production /b	Persons	-	160	160	-	-	-	320	750	-	1.8	1.9	-	-	-	3.7	TCW_DA	IFAD (90%)
Setting up of model meat stalls /c	Block	-	6	6	-	-	-	12	500,000	-	44.8	47.1	-	-	-	91.9	CW_DA	IFAD (50%), BEN (50%)
Slaughter points for small animals	lumpsum	-	6	6	-	-	-	12	500,000	-	44.8	47.1	-	-	-	91.9	CW_DA	IFAD (90%)
Mobile slaughter vans for small ruminants	lumpsum	-	-	2	-	-	-	2	4,000,000	-	-	125.6	-	-	-	125.6	GSI_DA	IFAD (50%), BEN (50%)
Subtotal											96.0	221.6	-	-	-	317.6		
Subtotal											137.8	360.8	324.1	340.4	139.3	1,302.5		
B. Value addition																		
Startup search engine /d	lumpsum	-	1	-	-	-	-	1	1,500,000	-	22.4	-	-	-	-	22.4	TCS_DA	IFAD (85%)
Support to identified startups for conducting feasibility studies	lumpsum	-	-	3	3	-	-	6	500,000	-	-	23.5	24.7	-	-	48.3	CW_DA	IFAD (75%)
Total											160.2	384.4	348.9	340.4	139.3	1,373.2		

\a both for goat and poultry products

\b 5 persons per Block

\c Two in each district

\d to scout for the startups

Table-2.1: Fisheries Capacity strengthening

INDIA																		
BAaLI																		
Table 2.1. Fisheries: Capacity strengthening																		
Detailed Costs																		
	Unit	Quantities						Unit Cost (INR)	Totals Including Contingencies (US\$ '000)						Other Accounts			
		20/21	21/22	22/23	23/24	24/25	25/26		Total	20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule
I. Investment Costs																		
A. Capacity building of DioF																		
1. Training /a																		
Training of FEOS & FES /b	persons	56	56	-	-	-	-	112	20,000	15.9	16.7	-	-	-	-	32.7	TCS_DA	IFAD (90%)
Training of JEs	JEs	6	6	-	-	-	-	12	20,000	1.7	1.8	-	-	-	-	3.5	TCS_DA	IFAD (90%)
Tablets to staff	each	128	-	-	-	-	-	128	10,000	18.2	-	-	-	-	-	18.2	OEM_DA	IFAD (90%)
Subtotal										35.9	18.5	-	-	-	54.4			
2. Exposure visits																		
For senior management staff /c	person	3	3	3	3	3	3	18	300,000	12.8	13.5	14.1	14.8	15.6	16.4	87.1	TCS_DA	IFAD (100%)
Exposure visits by junior management staff /d	persons	-	20	30	40	22	-	112	50,000	-	14.9	23.5	33.0	19.0	-	90.5	TCS_DA	IFAD (100%)
Subtotal										12.8	28.4	37.7	47.8	34.6	16.4	177.6		
3. Communication strategy																		
Communication expert	pers_month	2	-	-	-	-	-	2	250,000	7.1	-	-	-	-	-	7.1	TCS_DA	IFAD (85%)
Fisheries domain expert	pers_month	2	-	-	-	-	-	2	250,000	7.1	-	-	-	-	-	7.1	TCS_DA	IFAD (85%)
Roll out of communication strategy	lumpsum	1	1	0.5	0.5	0.5	0.5	4	400,000	5.7	6.0	3.1	3.3	3.5	3.6	25.2	GSI_DA	IFAD (85%)
Subtotal										19.9	6.0	3.1	3.3	3.5	3.6	39.4		
4. Centre for excellence for fisheries																		
Centre for excellence for fisheries	centre	-	-	1	-	-	-	1	20,000,000	-	-	313.9	-	-	-	313.9	CW_DA	IFAD (50%), CON (50%)
5. Office equipment																		
Laptops /e	each	48	-	-	-	-	-	48	-	-	-	-	-	-	-	-	OEM_DA	IFAD (90%)
Printers /f	each	48	-	-	-	-	-	48	10,000	6.8	-	-	-	-	-	6.8	OEM_DA	IFAD (90%)
Office air-conditioners /g	each	24	-	-	-	-	-	24	45,000	15.4	-	-	-	-	-	15.4	OEM_DA	IFAD (90%)
Subtotal										22.2	-	-	-	-	22.2			
Subtotal										90.8	52.9	354.7	51.1	38.1	20.0	607.6		
B. Last mile service delivery promotion																		
1. Fisheries lead entrepreneurs (FLE) support																		
Training of FLE /h	FLE	32	32	-	-	-	-	64	30,000	13.7	14.4	-	-	-	-	28.0	TCW_DA	IFAD (90%)
FLE support /i	FLE	-	32	32	-	-	-	64	200,000	-	95.7	100.5	-	-	-	196.1	TCW_DA	IFAD (90%), PS (10%)
Supply of Diagnostic kits	each	-	32	32	-	-	-	64	35,000	-	16.7	17.6	-	-	-	34.3	TCW_DA	IFAD (90%)
Subtotal										13.7	126.8	118.0	-	-	-	258.5		
2. Fisheries transformative agents (FTA) support																		
Preparation of training modules and for FTAs and guidelines for PG & PO mobilisation /j	pers_month	2	-	-	-	-	-	2	300,000	8.5	-	-	-	-	-	8.5	TCW_DA	IFAD (90%)
Printing of training modules and PG/PO guidelines /k	Lumpsum	1	-	-	-	-	-	1	200,000	2.8	-	-	-	-	-	2.8	TCW_DA	IFAD (90%)
FTA training /l	batches	58	58	-	-	-	-	116	10,000	8.3	8.7	-	-	-	-	16.9	TCW_DA	IFAD (90%)
Supply of diagnostic kits to FTAs	each	-	576	576	-	-	-	1,152	35,000	-	301.4	316.4	-	-	-	617.8	TCW_DA	CON (100%)
Supply of tablets to FTAs	each FTA	-	576	576	-	-	-	1,152	10,000	-	86.1	90.4	-	-	-	176.5	TCW_DA	IFAD (90%)
Support for 1 acre pond	Lumpsum	-	576	576	-	-	-	1,152	238,000	-	2,049.2	2,151.6	-	-	-	4,200.8	TCW_DA	CON (50%), BEN (50%)
Honorarium to FTAs /m	Lumpsum	-	1,152	1,152	-	-	-	2,304	54,000	-	929.9	976.4	-	-	-	1,906.3	TCW_DA	IFAD (90%)
Subtotal										19.6	3,375.2	3,534.8	-	-	-	6,929.7		
3. Producer group mobilisation																		
PG mobilisation training	FTA	1,152	-	-	-	-	-	1,152	1,000	16.4	-	-	-	-	-	16.4	TCW_DA	IFAD (90%)
Preparation of PG action plan	Lumpsum	576	576	-	-	-	-	1,152	1,000	8.2	8.6	-	-	-	-	16.8	TCW_DA	IFAD (90%)
Matching grant: Support for PG interface activities /n	Lumpsum	576	576	-	-	-	-	1,152	100,000	800.0	800.0	-	-	-	-	1,600.0	TCW_DA	IFAD (50%), BEN (50%)
Matching grant: Formation of FPO at Block level /o	Block	-	-	32	32	-	-	64	800,000	-	-	355.6	355.6	-	-	711.1	TCW_DA	IFAD (50%), BEN (50%)
Subtotal										824.6	808.6	355.6	355.6	-	-	2,344.3		
Subtotal										857.9	4,310.5	4,008.4	355.6	-	-	9,532.4		

Table-2.2: Fisheries Production and productivity expansion

INDIA
BAAL
Table 2.2. Fisheries: Production and productivity enhancement

Detailed Costs	Unit	Quantities							Unit Cost (INR)	Totals Including Contingencies (US\$ '000)							Other Accounts	
		20/21	21/22	22/23	23/24	24/25	25/26	Total		20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule
I. Investment Costs																		
A. Service for fish farmers																		
1. Training fish farmers /a																		
Communication specialist /b	pers_month	2	-	-	-	-	-	2	250,000	7.1	-	-	-	-	-	7.1	GSL_DA	IFAD (90%)
Printing of Guidelines	copies	3,00,000	-	-	-	-	-	3,00,000	10	42.7	-	-	-	-	-	42.7	GSL_DA	IFAD (90%)
Training of farmers /c	batch	4,992	-	-	-	-	-	4,992	1,000	71.1	-	-	-	-	-	71.1	GSL_DA	IFAD (90%)
Training of oxbow lake fishers	persons	100	100	-	-	-	-	200	1,000	1.4	1.5	-	-	-	-	2.9	TCW_DA	IFAD (90%)
Subtotal										122.3	1.5	-	-	-	-	123.8		
2. Extension support																		
Digital extension software development	lumpsum	1	1	-	-	-	-	2	2,000,000	28.5	29.9	-	-	-	-	58.4	GSL_DA	IFAD (90%)
Digital extension annual operation	year	1	1	1	1	1	1	6	200,000	2.8	3.0	3.1	3.3	3.5	3.6	19.4	GSL_DA	IFAD (90%)
Subtotal										31.3	32.9	3.1	3.3	3.5	3.6	77.7		
3. Business-led extension																		
Business-led extension /d	region	-	75	75	-	-	-	150	500,000	-	560.5	588.6	-	-	-	1,149.1	GSL_DA	IFAD (90%), PS (10%)
4. Credit-guarantee fund																		
Credit guarantee fund to financing institution for credit facilitation	lumpsum	-	1	1	-	-	-	2	36,000,000	-	500.0	500.0	-	-	-	1,000.0	SAG_DA	IFAD (100%)
Institutional credit leverage	lumpsum	-	0.5	2	3	5	-	10.5	34,500,000	-	239.6	958.3	1,437.5	2,395.8	-	5,031.3	SAG_DA	FI (100%)
Incentive for loan repayment /e	lumpsum	-	-	0.5	2	3	5	10.5	172,500	-	-	1.2	4.8	7.2	12.0	25.2	SAG_DA	FI (100%)
Subtotal										-	739.6	1,459.5	1,442.3	2,403.0	12.0	6,056.4		
Subtotal										153.6	1,334.5	2,051.2	1,445.6	2,406.5	15.6	7,407.1		
B. Fish-farming promotion																		
1. Fish culture in small ponds & tanks																		
Rejuvenation of small fishponds /f	0.5 acre	500	3,500	4,000	4,000	4,000	-	16,000	30,000	213.5	1,569.5	1,883.4	1,977.6	2,076.5	-	7,720.6	CW_DA	IFAD (50%), BEN (50%)
Fish seed and feed supply for rejuvenated ponds	0.5 ac	500	3,500	4,000	4,000	4,000	-	16,000	15,000	106.8	784.8	941.7	988.8	1,038.2	-	3,860.3	GSL_DA	IFAD(50%)
Construction of new ponds	1 acre	-	1,200	1,200	1,200	1,200	-	4,800	285,000	-	5,112.2	5,367.8	5,636.2	5,918.0	-	22,034.2	CW_DA	BEN (50%)
Fish seed and feed supply for new ponds	1 acre	-	1,200	1,200	1,200	1,200	-	4,800	35,000	-	627.8	659.2	692.2	726.8	-	2,706.0	GSL_DA	IFAD (40%), BEN (60%)
Improved culture practices /g	1 ac pond	-	4,500	4,500	4,500	4,500	-	18,000	5,000	-	336.3	353.1	370.8	389.3	-	1,449.6	GSL_DA	IFAD (90%)
Supply of integrated fish-farming kit /h	farmer	-	3,000	3,000	3,000	3,000	-	12,000	3,000	-	134.5	141.3	148.3	155.7	-	579.8	GSL_DA	IFAD (90%)
Subtotal										320.3	8,565.2	9,346.6	9,813.9	10,304.6	-	38,350.5		
2. Technical assistance by Worldfish																		
Technical support to existing hatcheries	year	1	1	1	-	-	-	3	22,320,000	310.0	310.0	310.0	-	-	-	930.0	TCS_DA	GRANT (100%)
Development of nursery clusters	year	1	1	1	-	-	-	3	11,160,000	155.0	155.0	155.0	-	-	-	465.0	TCS_DA	GRANT (100%)
Species diversification	year	1	1	1	-	-	-	3	11,520,000	160.0	160.0	160.0	-	-	-	480.0	TCS_DA	GRANT (100%)
Subtotal										625.0	625.0	625.0	-	-	-	1,875.0		
3. Intensifying capture fisheries ecosystem /i																		
Survey and planning	lake	-	10	20	20	-	-	50	25,000	-	3.7	7.8	8.2	-	-	19.8	CW_DA	CON (100%)
Preparation of estimates	lake	-	10	20	20	-	-	50	100,000	-	14.9	31.4	33.0	-	-	79.3	GSL_DA	CON (100%)
Inlet/outlet construction	lake	-	10	20	20	-	-	50	712,000	-	106.4	223.5	234.7	-	-	564.6	CW_DA	CON (100%)
Construction of nursery ponds /j	nur_pond	-	10	20	20	-	-	50	1,050,000	-	157.0	329.6	346.1	-	-	832.6	CW_DA	IFAD (50%)
Ranching of oxbow lake	lake	-	10	20	20	-	-	50	525,000	-	78.5	164.8	173.0	-	-	416.3	GSL_DA	IFAD (90%)
Subtotal										-	360.5	757.1	795.0	-	-	1,912.7		
Subtotal										945.3	9,550.7	10,728.7	10,608.9	10,304.6	-	42,138.2		
Total										1,098.9	10,885.2	12,779.9	12,054.5	12,711.1	15.6	49,545.3		

/a on enhancement protocol, sustainable fish harvest, etc
 /b for developing guidelines, extension materials, etc
 /c one day training on 8 or 10 locations in each block; 1562 farmers per block and INR 500 /h it includes vegetable and grass seeds, pullets, ducks etc
 /d cost inclusive of meetings and travel
 /e assumed at 0.5% of loan disbursed/recovered provided to FTAs
 /f pond size no more than 0.5 acre; desilting of 2 ft thick soil
 /g better practice kit, happa, plankton net, pond fencing net, feeding tray, cast net, pH testing kit etc
 /h it includes vegetable and grass seeds, pullets, ducks etc
 /i Approximately 50 oxbow lakes of 70 acre each are targeted
 /j each oxbow lake will have 7 acres of nursery ponds

Table-2.3: Fisheries Market Development

INDIA																		
BAaLI																		
Table 2.3. Fisheries: Market development support																		
Detailed Costs																		
Unit	Quantities							Unit Cost (INR)	Totals Including Contingencies (US\$ '000)							Other Accounts		
	20/21	21/22	22/23	23/24	24/25	25/26	Total		20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule	
I. Investment Costs																		
A. Market support																		
1. Market infrastructure																		
Support to design, construction supervisions of markets /a	pers_month	-	4	4	4	4	-	16	250,000	-	14.9	15.7	16.5	17.3	-	64.4	TCS_DA	IFAD (90%)
Construction of wholesale fish markets	each	-	4	4	4	4	-	16	20,000,000	-	1,195.8	1,255.6	1,318.4	1,384.3	-	5,154.2	CW_DA	CON (90%), PS (10%)
Construction of model rural haats fish markets /b	district	-	-	2	4	6	-	12	1,000,000	-	-	31.4	65.9	103.8	-	201.1	CW_DA	IFAD (75%), PS (25%)
Development of model fish stalls	district	-	4	4	4	-	-	12	300,000	-	17.9	18.8	19.8	-	-	56.5	CW_DA	IFAD (75%), PS (25%)
Subtotal										-	1,228.7	1,321.5	1,420.6	1,505.5	-	5,476.3		
2. Live fish transport, pilot basis																		
Technology identification	lumpsum	-	-	1	-	-	-	1	150,000	-	-	2.4	-	-	-	2.4	TCS_DA	IFAD (90%)
Piloting live fish marketing /c	district	-	-	12	-	-	-	12	200,000	-	-	37.7	-	-	-	37.7	GSI_DA	IFAD (90%)
Solar-powered fish containers /d	each	-	-	32	32	-	-	64	100,000	-	-	50.2	52.7	-	-	103.0	GSI_DA	GRANT (100%)
Subtotal										-	-	90.2	52.7	-	-	143.0		
Subtotal										-	1,228.7	1,411.8	1,473.3	1,505.5	-	5,619.3		
B. Value addition																		
Startup search engine /e	lumpsum	-	1	-	-	-	-	1	1,500,000	-	22.4	-	-	-	-	22.4	TCS_DA	IFAD (85%)
Entrepreneurs training	persons	-	6	6	-	-	-	12	50,000	-	4.5	4.7	-	-	-	9.2	TCW_DA	IFAD (90%)
Support to identified startups for conducting feasibility studies	lumpsum	-	-	6	6	-	-	12	300,000	-	-	28.3	29.7	-	-	57.9	GSI_DA	IFAD (90%)
Total										-	1,255.6	1,444.8	1,503.0	1,505.5	-	5,708.8		

^a including preparation of tendering documents
^b one in each district
^c cost only for the system excluding the cost of the transport vehicle
^d one in each Block
^e to scout for the startups

Table-3.1: Project management Investment Costs

INDIA																		
BAaLI																		
Table 3.1. Project management unit																		
Detailed Costs																		
Unit	Quantities						Unit Cost (INR)	Totals Including Contingencies (US\$ '000)						Other Accounts				
	20/21	21/22	22/23	23/24	24/25	25/26		Total	20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule	
I. Investment Costs																		
A. Office equipment																		
Laptops	each	20	-	-	-	-	20	70,000	19.9	-	-	-	-	-	19.9	OEM_DA	IFAD (90%)	
Desktop	each	10	-	-	-	-	10	75,000	10.7	-	-	-	-	-	10.7	OEM_DA	IFAD (90%)	
Printers	each	10	-	-	-	-	10	10,000	1.4	-	-	-	-	-	1.4	OEM_DA	IFAD (90%)	
Photocopiers	each	4	-	-	-	-	4	100,000	5.7	-	-	-	-	-	5.7	OEM_DA	IFAD (90%)	
UPS	each	10	-	-	-	-	10	3,000	0.4	-	-	-	-	-	0.4	OEM_DA	IFAD (90%)	
LCD projectors	each	3	-	-	-	-	3	100,000	4.3	-	-	-	-	-	4.3	OEM_DA	IFAD (90%)	
Digital camera	each	3	-	-	-	-	3	25,000	1.1	-	-	-	-	-	1.1	OEM_DA	IFAD (90%)	
Video camera	each	3	-	-	-	-	3	100,000	4.3	-	-	-	-	-	4.3	OEM_DA	IFAD (90%)	
Tablets or smart phones	each	20	-	-	-	-	20	30,000	8.5	-	-	-	-	-	8.5	OEM_DA	IFAD (90%)	
Office furniture /a	set	3	-	-	-	-	3	500,000	21.4	-	-	-	-	-	21.4	OEM_DA	IFAD (90%)	
Office air-conditioners	each	16	-	-	-	-	16	45,000	10.3	-	-	-	-	-	10.3	OEM_DA	IFAD (90%)	
Upgrading of website /b	lumpsum	1	0.2	0.2	0.2	0.2	2	500,000	7.1	1.5	1.6	1.6	1.7	1.8	15.4	OEM_DA	IFAD (90%)	
Miscellaneous equipment	set	1	1	1	-	-	3	500,000	7.1	7.5	7.8	-	-	-	22.4	OEM_DA	IFAD (90%)	
Subtotal									102.1	9.0	9.4	1.6	1.7	1.8	125.7			
B. Staff/consultant recruitment																		
HR agency for staff recruitment	lumpsum	1	-	-	-	-	1	2,000,000	28.5	-	-	-	-	-	28.5	TCS_DA	IFAD (85%)	
Startup facilitator	pers_month	2	-	-	-	-	2	250,000	7.1	-	-	-	-	-	7.1	TCS_DA	IFAD (85%)	
Subtotal									35.6	-	-	-	-	-	35.6			
C. Technical assistance (unclassified) /c																		
	pers_month	20	20	20	20	20	-	100	350,000	99.7	104.6	109.9	115.4	121.1	-	550.6	TCS_DA	IFAD (85%)
D. Audits and accounts																		
Internal audits /d	year	1	1	1	1	1	1	6	900,000	12.8	13.5	14.1	14.8	15.6	16.4	87.1	GSI_DA	IFAD (90%)
External audits	year	1	1	1	1	1	1	6	500,000	7.1	7.5	7.8	8.2	8.7	9.1	48.4	GSI_DA	IFAD (90%)
ERP customisation for accounts	year	1	-	-	-	-	-	1	1,700,000	24.2	-	-	-	-	-	24.2	GSI_DA	IFAD (90%)
Accounts software maintenance	year	1	1	1	1	1	1	6	200,000	2.8	3.0	3.1	3.3	3.5	3.6	19.4	GSI_DA	IFAD (90%)
Training in accounts software	persons	18	18	18	18	18	-	90	25,000	6.4	6.7	7.1	7.4	7.8	-	35.4	GSI_DA	IFAD (90%)
Preparation of annual finance reports	year	1	1	1	1	1	1	6	100,000	1.4	1.5	1.6	1.6	1.7	1.8	9.7	GSI_DA	IFAD (90%)
Subtotal									54.8	32.1	33.7	35.4	37.2	30.9	224.2			
E. Coordination meetings																		
PSC meetings	year	1	1	1	1	1	1	6	100,000	1.4	1.5	1.6	1.6	1.7	1.8	9.7	TCS_DA	IFAD (90%)
PMC meetings	meet	4	4	4	4	4	4	24	10,000	0.6	0.6	0.6	0.7	0.7	0.7	3.9	TCS_DA	IFAD (90%)
State level coordination meeting of all districts	year	2	2	2	2	2	2	12	200,000	5.7	6.0	6.3	6.6	6.9	7.3	38.7	TCS_DA	IFAD (90%)
District level coordination meeting	year	48	48	48	48	48	288	10,000	6.8	7.2	7.5	7.9	8.3	8.7	46.5	TCS_DA	IFAD (90%)	
Subtotal									14.5	15.2	16.0	16.8	17.7	18.5	98.8			
F. Policy support																		
Municipal regulations for slaughtering	pers_month	2	-	-	-	-	-	2	200,000	5.7	-	-	-	-	-	5.7	TCS_DA	IFAD (85%)
Support to University for R&D on goat breeding	lumpsum	1	1	1	-	-	-	3	1,000,000	14.2	14.9	15.7	-	-	-	44.9	TCS_DA	IFAD (90%)
Goat policy development	pers_month	1.5	-	-	-	-	-	1.5	350,000	7.5	-	-	-	-	-	7.5	TCS_DA	IFAD (85%)
Policy consultations	lumpsum	2	2	2	-	-	-	6	300,000	8.5	9.0	9.4	-	-	-	26.9	TCW_DA	IFAD (90%)
Subtotal									35.9	23.9	25.1	-	-	-	85.0			
Total Investment Costs									342.7	184.9	194.2	169.3	177.7	51.2	1,119.9			

Continued

Table-3.1: Project management Recurrent costs

INDIA																		
BAaLI																		
Table 3.1. Project management unit																		
Detailed Costs																		
Unit	Quantities							Unit Cost (INR)	Totals Including Contingencies (US\$ '000)							Other Accounts		
	20/21	21/22	22/23	23/24	24/25	25/26	Total		20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule	
II. Recurrent Costs																		
A. Project support unit, Patna																		
1. Salaries and allowances																		
Mission Director	pers_year	1	1	1	1	1	1	6	2,400,000	34.2	35.9	37.7	39.6	41.5	43.6	232.4	SAA_DA	GOVT
Drawing and disbursement officer																		
Project coordinator (BLDA)	pers_year	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	SAA_DA	GOVT
Finance specialist	pers_year	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	SAA_DA	IFAD (90%)
Planning and ME specialist	pers_year	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	SAA_DA	IFAD (90%)
Procurement specialist	pers_year	1	1	1	1	-	-	4	1,500,000	21.4	22.4	23.5	24.7	-	-	92.0	SAA_DA	IFAD (90%)
KM manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Marketing manager	pers_year	-	1	1	1	1	1	5	780,000	-	11.7	12.2	12.9	13.5	14.2	64.4	SAA_DA	IFAD (90%)
Subtotal										130.7	148.9	156.3	164.1	146.4	153.7	900.1		
2. Office operating costs																		
Travel allowance	year	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Vehicle hiring	year	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Office expenditure	year	1	1	1	1	1	1	6	500,000	7.1	7.5	7.8	8.2	8.7	9.1	48.4	OOC_DA	IFAD (90%)
Other facilities and utilities	year	1	1	1	1	1	1	6	500,000	7.1	7.5	7.8	8.2	8.7	9.1	48.4	OOC_DA	IFAD (90%)
Subtotal										56.9	59.8	62.8	65.9	69.2	72.7	387.3		
Subtotal										187.6	208.7	219.1	230.1	215.6	226.4	1,287.5		
B. Incremental staff and Office operating costs for LIT Small Livestock Patna																		
1. Incremental staff, Patna																		
Project Director	pers_year	0.5	0.5	0.5	0.5	0.5	0.5	3	2,000,000	14.2	14.9	15.7	16.5	17.3	18.2	96.8	SAA_DA	GOVT
Joint Director/ Project coordinator	pers_year	1	1	1	1	1	1	6	2,000,000	28.5	29.9	31.4	33.0	34.6	36.3	193.7	SAA_DA	GOVT
Livestock specialists /e	pers_year	2	2	2	2	2	2	12	1,200,000	34.2	35.9	37.7	39.6	41.5	43.6	232.4	SAA_DA	GOVT
Finance manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Procurement officer	pers_year	1	1	1	1	1	-	5	480,000	6.8	7.2	7.5	7.9	8.3	-	37.8	SAA_DA	IFAD (90%)
Training, Institutions & Gender Manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Planning and M&E Manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Data entry operators	pers_year	2	2	2	2	2	2	12	360,000	10.3	10.8	11.3	11.9	12.5	13.1	69.7	SAA_DA	IFAD (90%)
Subtotal										127.3	133.6	140.3	147.3	154.7	153.7	857.0		
2. Office operating costs, LIT																		
Travel allowances	annual	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Vehicle hiring	annual	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Office expenditure	annual	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Other facilities and utilities	annual	1	1	1	1	1	1	6	1,000,000	14.2	14.9	15.7	16.5	17.3	18.2	96.8	OOC_DA	IFAD (90%)
Subtotal										78.3	82.2	86.3	90.6	95.2	99.9	532.6		
Subtotal										205.6	215.8	226.6	238.0	249.9	253.6	1,389.5		

Table-3.1: Project management Recurrent costs

INDIA																		
BAaLI																		
Table 3.1. Project management unit																		
Detailed Costs																		
Unit	Quantities						Total	Unit Cost (INR)	Totals Including Contingencies (US\$ '000)							Other Accounts		
	20/21	21/22	22/23	23/24	24/25	25/26			20/21	21/22	22/23	23/24	24/25	25/26	Total	Disb. Acct.	Fin. Rule	
II. Recurrent Costs																		
C. Incremental staff and Office operating costs for FIT Patna																		
1. Incremental staff, Patna																		
Project Director	pers_year	0.5	0.5	0.5	0.5	0.5	0.5	3	2,000,000	14.2	14.9	15.7	16.5	17.3	18.2	96.8	SAA_DA	GOVT
Joint Director																		
Project Coordinator	pers_year	1	1	1	1	1	1	6	2,000,000	28.5	29.9	31.4	33.0	34.6	36.3	193.7	SAA_DA	GOVT
Finance manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Procurement officer	pers_year	1	1	1	1	1	-	5	480,000	6.8	7.2	7.5	7.9	8.3	-	37.8	SAA_DA	IFAD (90%)
Training, Institutions & Gender manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Hatchery development expert	pers_year	1	1	1	1	1	1	6	1,200,000	17.1	17.9	18.8	19.8	20.8	21.8	116.2	SAA_DA	IFAD (90%)
Nursery development expert	pers_year	1	1	1	1	1	1	6	1,200,000	17.1	17.9	18.8	19.8	20.8	21.8	116.2	SAA_DA	IFAD (90%)
Diversification expert	pers_year	1	1	1	1	1	1	6	1,200,000	17.1	17.9	18.8	19.8	20.8	21.8	116.2	SAA_DA	IFAD (90%)
Planning and M&E manager	pers_year	1	1	1	1	1	1	6	780,000	11.1	11.7	12.2	12.9	13.5	14.2	75.5	SAA_DA	IFAD (90%)
Data entry operators	pers_year	2	2	2	2	2	2	12	360,000	10.3	10.8	11.3	11.9	12.5	13.1	69.7	SAA_DA	IFAD (90%)
Subtotal										144.4	151.6	159.2	167.1	175.5	175.5	973.2		
2. Office operating costs, FIT																		
Travel allowances	annual	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Vehicle hiring	annual	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Office expenditure	annual	1	1	1	1	1	1	6	1,500,000	21.4	22.4	23.5	24.7	26.0	27.3	145.2	OOC_DA	IFAD (90%)
Other facilities and utilities	annual	1	1	1	1	1	1	6	1,000,000	14.2	14.9	15.7	16.5	17.3	18.2	96.8	OOC_DA	IFAD (90%)
Subtotal										78.3	82.2	86.3	90.6	95.2	99.9	532.6		
Subtotal										222.7	233.8	245.5	257.7	270.6	275.4	1,505.7		
Total Recurrent Costs																		
Total										615.9	658.3	691.2	725.8	736.1	755.5	4,182.8		
Total										958.5	843.2	885.4	895.0	913.8	806.7	5,302.7		

\a one set each for two PIUs and one PSU

\b including annual maintenance

\c Including travel, DSA, etc

\d at INR 75,000 per year per district

\e 2 Livestock Specialists

Table-3.2: Project M&E and Knowledge management

INDIA													Other Accounts					
BAaLI																		
Table 3.2. Knowledge management & ME /a																		
Detailed Costs																		
Unit	Quantities						Total	Unit Cost (INR)	Totals Including Contingencies (US\$ '000)						Disb. Acct.	Fin. Rule		
	20/21	21/22	22/23	23/24	24/25	25/26			20/21	21/22	22/23	23/24	24/25	25/26			Total	
I. Investment Costs																		
A. Office equipment																		
1. Office equipment																		
Laptops	each	3	-	-	-	-	3	70,000	3.0	-	-	-	-	-	3.0	OEM_DA	IFAD (90%)	
Desktop	each	3	-	-	-	-	3	75,000	3.2	-	-	-	-	-	3.2	OEM_DA	IFAD (90%)	
Printers	each	3	-	-	-	-	3	10,000	0.4	-	-	-	-	-	0.4	OEM_DA	IFAD (90%)	
UPS	each	3	-	-	-	-	3	15,000	0.6	-	-	-	-	-	0.6	OEM_DA	IFAD (90%)	
Video camera	each	1	-	-	-	-	1	100,000	1.4	-	-	-	-	-	1.4	OEM_DA	IFAD (90%)	
Tablets or smart phones	each	3	-	-	-	-	3	30,000	1.3	-	-	-	-	-	1.3	OEM_DA	IFAD (90%)	
Purchase of books and periodicals	lumpsum	1	1	1	1	1	1	50,000	0.7	0.7	0.8	0.8	0.9	0.9	4.8	OEM_DA	IFAD (90%)	
Subtotal									10.7	0.7	0.8	0.8	0.9	0.9	14.8			
2. MIS software installation & operation																		
MIS software & installation /b	lumpsum	2	-	-	-	-	2	2,500,000	71.2	-	-	-	-	-	71.2	OEM_DA	IFAD (90%)	
Repairs and maintenance of MIS software	annual	-	1	1	1	1	1	100,000	-	1.5	1.6	1.6	1.7	1.8	8.3	OEM_DA	IFAD (90%)	
Subtotal									71.2	1.5	1.6	1.6	1.7	1.8	79.4			
Subtotal									81.9	2.2	2.4	2.5	2.6	2.7	94.2			
B. Studies and surveys																		
Annual outcome surveys	year	1	1	1	1	1	1	800,000	11.4	12.0	12.6	13.2	13.8	14.5	77.5	TCS_DA	IFAD (85%)	
Baseline surveys	lumpsum	1	-	-	-	-	1	3,000,000	42.7	-	-	-	-	-	42.7	TCS_DA	IFAD (85%)	
MTR survey	lumpsum	-	-	1	-	-	1	1,000,000	-	-	15.7	-	-	-	15.7	TCS_DA	IFAD (85%)	
Endline survey	lumpsum	-	-	-	-	-	1	3,000,000	-	-	-	-	-	54.5	54.5	TCS_DA	IFAD (85%)	
Thematic studies	lumpsum	2	2	2	2	2	10	500,000	14.2	14.9	15.7	16.5	17.3	-	78.7	TCS_DA	IFAD (85%)	
Subtotal									68.3	26.9	43.9	29.7	31.1	69.0	269.0			
C. Workshop and annual Reports																		
Project start up workshops	event	1	-	-	-	-	1	500,000	7.1	-	-	-	-	-	7.1	TCS_DA	IFAD (90%)	
Performance review workshops	event	3	3	3	3	3	18	150,000	6.4	6.7	7.1	7.4	7.8	8.2	43.6	TCS_DA	IFAD (90%)	
MIS reports	year	1	1	1	1	1	6	200,000	2.8	3.0	3.1	3.3	3.5	3.6	19.4	TCS_DA	IFAD (90%)	
Annual Progress Reports	year	1	1	1	1	1	6	200,000	2.8	3.0	3.1	3.3	3.5	3.6	19.4	TCS_DA	IFAD (90%)	
Subtotal									19.2	12.7	13.3	14.0	14.7	15.4	89.4			
D. Knowledge management																		
1. Studies																		
Feasibility of cage culture for smallholders	lumpsum	-	1	1	-	-	2	200,000	-	3.0	3.1	-	-	-	6.1	TCS_DA	IFAD (90%)	
Impact of co-manangement of oxbow lakes	lumpsum	-	-	-	1	-	1	500,000	-	-	-	8.2	-	-	8.2	TCS_DA	IFAD (90%)	
Success stories	lumpsum	-	2	2	2	2	10	200,000	-	6.0	6.3	6.6	6.9	7.3	33.0	TCS_DA	IFAD (90%)	
Thematic vedio films	lumpsum	-	2	2	2	2	10	200,000	-	6.0	6.3	6.6	6.9	7.3	33.0	TCS_DA	IFAD (90%)	
Subtotal									-	14.9	15.7	21.4	13.8	14.5	80.4			
2. Hazards, risks, vulnerability assessment																		
assessment	lumpsum	1	-	-	-	-	1	21,600,000	300.0	-	-	-	-	-	300.0	TCS_DA	GRANT (100%)	
Subtotal									300.0	14.9	15.7	21.4	13.8	14.5	380.4			
Total Investment Costs									469.4	56.8	75.3	67.6	62.3	101.7	833.2			
II. Recurrent Costs																		
A. Staff salaries of KM & ME																		
1. Staff salaries /c																		
M&E Specialist	pers_year	1	1	1	1	1	1	6	-	-	-	-	-	-	-	SAA_DA	IFAD (90%)	
KM manager	pers_year	1	1	1	1	1	1	6	-	-	-	-	-	-	-	SAA_DA	IFAD (90%)	
Project Assistants	pers_year	2	2	2	2	2	2	12	360,000	10.3	10.8	11.3	11.9	12.5	13.1	69.7	SAA_DA	IFAD (90%)
Subtotal									10.3	10.8	11.3	11.9	12.5	13.1	69.7			
2. Office operating costs																		
Travel and allowances	annual	1	1	1	1	1	1	6	200,000	2.8	3.0	3.1	3.3	3.5	3.6	19.4	SAA_DA	IFAD (90%)
Vehicle hiring	annual	1	1	1	1	1	1	6	500,000	7.1	7.5	7.8	8.2	8.7	9.1	48.4	SAA_DA	IFAD (90%)
Office expenditure	annual	1	1	1	1	1	1	6	300,000	4.3	4.5	4.7	4.9	5.2	5.5	29.0	SAA_DA	IFAD (90%)
Subtotal									14.2	14.9	15.7	16.5	17.3	18.2	96.8			
Total Recurrent Costs									24.5	25.7	27.0	28.3	29.8	31.3	166.6			
Total									493.9	82.5	102.3	95.9	92.1	133.0	999.7			

/a to be housed within PSU, Patna

/b One each for Livestock and Fisheries

/c staff salaries for ME specialist and KM managers are provided in Table 3.1

India

Bihar Aquaculture and Livestock Improvement Project Project Design Report

Annex 4: Economic and Financial Analysis

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 4: Ex-ante Economic and Financial Analysis (EFA)

A. Introduction

1. The BAaLI project will commence implementation in April 2020 and expected to be completed by 2026 covering 12 districts from Bihar. The project is expected to provide support to 922,600 small livestock households, 92,000 households in backyard poultry interventions, 16,000 households with rejuvenating existing fishery ponds, some 4,800 households with new fishery ponds, some 18,000 households with culture fishery activities and 140 households with oxbow lake fishery support. All these facilities are provided covering some 9,616 villages. In all some 1,052,940 direct households would be the project beneficiaries. With the implementation of BAaLI interventions, there would be significant changes in production patterns, incomes and overall well-being of the participating households. These aspects are examined under the economic and financial analysis (EFA).

2. **Approach and methodology for EFA:** The appraisal started with the organisation of resources used for livestock and aquaculture systems and the physical production obtained. Thereafter follows the valuation of resources and physical production within the farm household system, taking into account the presence or absence of markets for resources and production¹.

3. Cost-benefit analysis method was used for carrying out the economic and financial analysis of the project at ex-ante. All incremental investment costs were adjusted to April 2020 prices. Incremental benefits were estimated based on estimated physical outputs and likely chances of building up of incremental benefits during the project life period. Farm data were obtained from the field and prices were collected for all inputs and commodities and these were adjusted to farm-gate prices using the standard conversion factor. Commodity prices are the mean values of the year 2019. Data relating to fisheries development are obtained from the Directorate of Fisheries and its field units. Using these data, (i) production type or activity models for each commodity or product were developed; (ii) from these production models to the next level household models, (iii) followed by aggregated Subproject models and (iv) finally the project models applying the FARMOD software.

Project area

4. The project will be implemented in 12 districts of Bihar based on the following key selection criteria: (i) among the poorest as per the socio economic indicators; (ii) have potential for building the small livestock and fishery value chains; and (iii) do not overlap with existing externally-aided projects in the state. The districts proposed for intervention include, Aurangabad, Banka, Kaimur, Katihar, Khagharia, Kisanganj, Newada, Rohtas, West Champaran, East Champaran, Sitamarhi and Madhubani.

5. The project will cover in total 64 Blocks for small livestock development and 64 Blocks for fisheries development which may not necessarily overlap and these are to be selected by the Government. The project aims to saturate the selected Blocks².

¹ According to HAJ Moll, "The benefits derived from the functions of livestock in insurance, finance and status display are to be considered as benefits" but in this working paper, only direct and tangible benefits are considered and accounted for". Also Behnke in 1985 expands the economic analysis to include the consequences of the institutional environment of livestock keepers. The outcome is the combination of cash income, non-cash income, and intangible benefits instead of profitability as a single parameter. Insurance function of livestock is reflected from the methodology adopted wherein all animals, sold and retained are valued at farm gate prices and accounted for in the EFA.

² Block selection criteria for small livestock development interventions would include: (i) high percentage of SC/ST and other underprivileged classes: (ii) high percentage of below poverty line households, and (iii) highest number of goat rearing households. Block selection criteria for fisheries development interventions would include: (i) high percentage of SC/ST and other underprivileged classes: (ii) high percentage of below poverty line households, and (iii) highest number of ponds, lakes and ox-bow lakes

Agro-economically, the region falls under, "humid subtropical climate with extreme summers, heavy rains during monsoon and mild winters".

6. Major interventions under the project are given in Table-4.1 below.

Table-4.1: Interventions and households reached out

Interventions	# of villages	# of PGs	# of DISHA workers and FTAs 1/	# of Lead farmers (SLE for goat and FLE for fisheries) 2/	# of households reached	Average herd size (#/hh) or and pond size (ha/hh) 3/
Goat farming	9,616	9,616	4,608 DISHA	64 SLE	922,000	4.9 #/hh
Backyard poultry					92,000	
Pond rejuvenation			1152 FTA	64 FLE	16,000	0.75 ha/hh
New pond fishery					4,800	
Culture fishery					18,000	
Oxbow lake fishery					141	
<i>Total direct beneficiary hh</i>					<u>1,052,941</u>	
<i>1/ for providing grass-roots extension services; 2/ for the purposes of providing business-led extension services and technical know-how including training and capacity-building; 3/</i>						

B. Financial Analysis

(i) Assumptions

- In all more than one million households receive the project services and are directly benefited. These include 922,000 households of smallholder goat keepers, 92,000 households of backyard poultry and 38,941 fishery households. These participating households respond to the introduction of new packages of technologies that are introduced to them in field.
- Smallholder Goats: Over 90% of households are small and marginal farmers and for over 35% of them, the goat-keeping is the major source of income; average herd size is 5 goats.
- The households organised into producer groups (FPOs) are participating in project implementation. On an average a FPO has 100 members and most of them are smallholder farmers.
- At present more than 90% of goat-keepers use the stray bucks for services and only less than 5% go for improved services available with the private sector.
- More than 50% of household stall-feed their animals and over 90% of them feed dry and green fodder and although more than 80% of households provide feed concentrates but the quantity is much less than the required amount.
- In order to improve the herd sizes and quality of animals, the participating households would avail and access various facilities created under the project such as the services of lead farmers, DISHA workers for the grass-roots extension services, improved vet clinic at Block centres, etc.
- Nearly 80 to 85% of the goat-keepers do not check the prevailing market prices at the time of selling their goats. They accept much lower prices than the fair prices from the traders who are their traditional buyers.
- At present more than 80% goats are sold at farm gate and only 20% at village or nearby markets.
- Current mortality rates are high, ranging from 16% to 30% and with the introduction of the project facilities the mortality rates will be reduced significantly.

- Women provide most of the labour required for the goat-keeping, some 95% and the remaining 5% labour is provided by men.
- On an average a household spends some 5 hours in grazing its herd;
- Shortage of fodder and non-availability of grazing area are the major constraints of the goat sector. The participating smallholders do not have fodder plots due to limited landholdings, and food crops being their priority.
- Goats are mostly marketed in village markets, or Block or district markets and large terminal markets. Other than village markets the goats are transported either by motor cycles, auto rickshaw, pickup vans or large trucks, etc.
- Many sell their animals at young stage; say when they are around 10 months old weighing no more than 10 kg as they are unable to maintain them for want of feed and fodder and shelter. They thus maintain a small herd sizes of around 5 to 7 animals;
- Average farm gate price of INR 200/kg of live weight.
- Fishery: Fish productivity is much lower in comparison to its potential: for example fish production from wetland is 250 kg/ha, tanks 400 kg/ha and pond 500 kg/ha as against their potential of 1,500 kg/ha, 3,000 kg/ha and 4,000 kg/ha respectively
- At present, overall fish productivity is estimated at 550 kg/ha/year
- Survival rate of fingerlings is 80%.
- Fish retail prices vary across the project area districts and for the purposes of EFA a value of INR 200/kg is assumed for the local fish species and whereas the fish imported from other states like Andhra Pradesh and Odhisa sold at much lower prices as shown in Table 4.2 below:

Fish value chain (price INR/kg)	AP fish	Native IMC	Local CC	Cat fish & minor carps
At Mirzapur town	120	-	-	-
Whole sale large	125	-	-	-
Whole sale local	135	175-200	125 to 150	275
Retail price	150 to 160	200 to 250	150 to 200	300-400

- Fish feed and seeds are available and there is adequate number of hatcheries for the production of fish seeds; but nearly 50% of existing fish hatcheries is functioning at sub-optimal level. Remaining hatcheries are maintained well and have good business and these hatcheries are able to maintain quality.
- There is considerable potential for introducing pen culture for raising seeds for ranching them into oxbow lakes. But at present these are left to the local cooperatives but their management is far from satisfactory; most of the oxbow lakes are not stocked regularly.
- Fish is aggregated by the local fish aggregator (called *Paikar*), who supply them to the transporters or traders (who are vendors).
- In all there are more than 40,000 fish farm sites, 700 aggregators, 1200 vendors and more than 50,000 consumer points in Bihar.
- Consumers prefer native fish even though the prices are higher than the fish brought in from other states and thus there is potential for marketing live local, native fish.
- Rural wage rate: An average wage rate of INR 150/person/day for both male and female labour has been assumed although the farm-wages tended to vary between

the districts. As recommended by the IFAD EFA Guidance Notes, a wage rate of INR 150/day has been assumed for “proxy labour under without project situation” for such new interventions under project such as post-harvest processing, etc.

7. **Production models:** Following six production (activity) models, which are indicative, are developed based on the indicative investments under the cost-tables for the purposes of ex-ante EFA (Refer Table 4.3):

Production models	Key features
1. Goat-keeping (5 does and one buck model)	5 does and one buck model is assumed, rearing under semi-intensive system and free-grazing; deworming, health care and grassroots extension support provided to all target households; selected poor households given goat-sheds
2. Backyard poultry (poultry shed for 50 chicks/household)	10 chicks unit with a five production cycle is assumed; poultry shed and vaccination etc are supported by the project
3. Rejuvenation of ponds (0.5 acre per household)	Existing ponds of 0.5 acre sizes supported with desilting and excavation and inputs supply for one year provided under the project
4. New ponds (one acre pond size per household)	Targeted farmers provided support for digging new ponds and supplied one year fisheries inputs by the project
5. Culture fishery (one acre pond size per household)	Existing ponds provided support for improving the productivity with the supply of fingerlings
6. Oxbow land fishermen (one ha water spread area per household)	Selected oxbow lakes developed and fishermen provided support for desilting, pen construction for seeds raising and ranching and these facilities are provided by the project

8. **Activity or area models:** Using all the above-mentioned production models, AREA and HOUSEHOLD models were developed with a view to estimating the project “expected impacts” on the incomes, and use of household labour adopting improved practices. There are (i) two household models under goat-rearing and (ii) four models under fishery development. These are described briefly:

9. **Goat household model:** This is a 5 goats and one buck model and this is based on the average herd size of the project area. The buck services will be available from the project facilities. At full development 4 adult goats and 25 kids are sold annually. Each animal is fed 220 kg of dry and 400 kg of green fodder in addition to 20 kg of concentrate. The unit is maintained on semi-intensive basis and the herd is taken out for open grazing for at least 5 hrs a day (or about 75 days per year). Green fodder consists of stalks of maize, sorghum, etc. Goats are also fed with crop residue with salt, water, jaggery and green foliage mixed with it.

10. **Backyard poultry (BYP) household model:** This is a 50 chicks unit with five cycles a year. The project provides only poultry-shelter and technical support and training. Facilities are also provided for vaccination at INR 5 per bird and poultry feed at INR 100/bird. Mortality has been assumed at 5%. Kitchen wastes also form part of poultry feed. Beneficiaries carry out this activity in addition to their other occupations.

11. **Pond rejuvenation fishery model:** Existing fish ponds that are silted up are provided project assistance for de-silting or excavation of no more than 0.5 acre pond area and depth of excavation not exceeding 2 feet at an estimated cost of INR 40,000. Support also provided for seedlings and fish feed for one year (2,000 fingerlings and 75 kg of fish feed). Estimated harvest is 900 kg per annum per pond.

12. **New pond fishery model:** This is a one acre pond model and the project support is restricted to the supply of inputs for the year one. Estimated cost of INR 280,000 is supported by the convergence. Cattle dung and other manure like urea and SSP are applied. It is assumed that existing annual crops like paddy, maize or wheat are replaced by the new fish pond. Annual production is assumed at 1,500 kg per one acre pond.

13. **Culture fisheries model:** A one acre fish pond model has been assumed. Under the project the identified beneficiaries are provided training and capacity building and supplied with a set of fish production support materials. This contains lime, net etc. Productivity increases is assumed at 10% of base yield and in the range of 1400 and 1500 kg/pond. Facilities are also provided for planting of vegetables, fruit trees, etc along the bund so that the falling foliage add nutrients to the pond.

14. **Oxbow lake fisheries model:** Existing oxbow lakes are identified for fisheries development with by involving the existing user groups. Under the proposal, each beneficiary is allotted one ha area on lease and the user group is provided support for de-silting, some 20% of the area and clearance of weed in some 30% of the area. De-silting is carried out once in five year and life of the fish pen is 3 years. The user groups rear their seedlings in nets (pens) within the water spread area. A one ha area of pen and seedling produced within would be adequate to stock a 20 ha area of an oxbow lake. Government will provide support for inlet excavation and the construction of outlets. Some 2,000 earlings will be stocked in one ha water spread area. Annual yield is estimated at 1,000 kg/ha.

15. **Assessment of the models:** Goat household model suffers due to low live weight at the time of sale and this is in turn due to shortage of fodder and lack of shelter for housing the increasing herd. The goat-keeping households therefore, dispose of their animals too early as they are unable to tend large herd sizes. Poultry model is adversely impacted by high cost of feed and it should not be supported under the project as the beneficiaries are unable to earn adequate incomes. But it is financially viable if household labour is excluded and this could be one of the incentives why the households may want to take up this activity.

16. All fishery models show very high returns on account of low production costs including labour and access to markets and favourable prices. But both pond rejuvenation and new pond fishery can not take of without significant capital support for excavation of ponds and supply of inputs for the first year of operation. There is no incremental labour for culture fishery but inputs are provided in year one. Ox-bow lake fishery is operated by the cooperative and year 1 inputs are provided

17. Gross incomes, labour input, total production costs and net returns under "without project and with project" situations are presented in Table 4.4 below and detailed in Annex-3:

Particular	Gross income (INR) a/		Labour inputs (INR) b/		Production cost (INR) c/		Incremental Net income (INR)		IRR %	BCR ratio	NPV @ 12%
	WOP	WP	WOP	WP	WOP	WP	WOP	WP			
Goat farming	21.6	66.6	15.0	15.0	40.2	61.1	-22.3	20.6	97%	2.36	100.41
Backyard poultry	-	14.4	0	3.8	0	7.7	0	2.9	-8%	0.88	6.87
Pond rejuvenation	40.0	180.0	6.5	14.3	3.1	7.8	30.4	158.0	high	7.1	181.21
New pond fishery	-	300	-	29.5	-	16.2	-	254.0	58	3.18	1262.60
Culture fishery	288.0	300.0	-	-	16.2	16.2	248.0	264.0	-	-	196.20
Oxbow lake fishery	50.0	200.0	9.5	22.0	16.0	16.0	40.5	162.0	130	3.5	696.98

a/ at full development stage; b/ including family labour; c/ labour value excluded; Poultry model is with project situation

(iii) Sub-project Models

18. Area and activity models when grouped and aggregated are called "sub-project models" and these are required in order to assess the overall project performance indicators. Implementation phasing of these subproject will start from the year 2 or later. *It is assumed that overall about 50% of the participating households continue to adopt the practices that are introduced to them.*

19. **Goat-farming subproject:** This subproject model includes a total of 922,000 households participating in the technology upscaling programme in a gradual manner as shown in Table-4.5 below:

Table 4.5 Implementation phasing of Goat farming units & households participating 1/					
Intervention	Year 2	Year 3	Year 4	Year 5	Year 6
# of goat units supported, cumulative	92,000	322,000	598,000	921,000	921,000
# of participating households, cumulative	46,000	161,000	299,000	460,400	460,400
1/ assuming a global average herd size of 5+1 although herd sizes vary between districts in the project area					

20. This sub-project model generates an annual financial incremental income of INR 10,609 million a year and an NPV of INR 53,555 million and IRR of 116% for a 20 year financial cash flow stream. Aggregate Financial and economic budgets of this model are presented in Annex-2.1 & 2.2.

21. **Backyard poultry subproject:** This subproject model includes a total of 92,000 targeted households starting from year 2. It has been assumed that in all, 50% of household will adopt the practices introduced to them. This subproject generates an NPV of INR -375.63 million for a 20 year financial cash-flow stream due to high feed costs. Aggregate of financial and economic budgets of this model are presented in Annex-2.3 & 2.4.

Table 4.6 Implementation phasing of backyard poultry units & households participating					
Technology	PY 2	PY 3	PY 4	PY 5	PY 6
Backyard poultry units supported #	23,000	46,000	69,000	92,000	92,000
Backyard poultry households participating #	11,500	23,000	34,500	46,000	46,000

22. **Fisheries subproject:** This subproject includes the following fisheries interventions: (i) rejuvenation of fish ponds, (ii) construction of new fish ponds, (iii) culture fisheries and (iv) the Oxbow lake fisheries. In all 38,940 households are participating in this subproject. For pond fisheries, about 70% adoption rate has been assumed and for the remaining two, 50% of adoption rates. This subproject generates an annual financial income of INR 1,912.5 million, an NPV of INR 13,678 million and a very high IRR of 110%. Aggregate financial and economic budgets of the sub-project are shown in Annex-2.5 & 2.6

Table 4.7 Implementation phasing of fisheries interventions & households participating					
Interventions	PY 2	PY 3	PY 4	PY 5	PY 6
Rejuvenation of existing ponds (0.5 acre size) #	4,000	8,000	12,000	16,000	16,000
Construction of new ponds (1 acre size) #	1,200	2,400	3600	4800	4,800
Culture fisheries (one acre size) #	4,500	9,000	13,500	18,000	18,000
Oxbow lake fisheries (one ha size) #	28	84	141	141	141
Total number of households supported #	9,728	19,484	29,241	38,941	38,941

23. **Assessment of the subproject results:** Results of analysis of these THREE subprojects in terms of incremental incomes, production costs, labour and input etc are provided in Annex-2 and are summarised in Table 4.8 below:

Table 4.8 Gross incomes, production costs and net incomes of subprojects (financial, INR million)							
Subproject (amount in million INR)	Gross income		Production cost 1/		Net income		Incremental net income
	WOP	WP	WOP	WP	WOP	WP	
Goat subproject	10,137.6	27,463.7	15,217.9	21,934.1	-5,080.3	5,529.6	10,609.9
Poultry subproject	-	662.4	-	524.4	-	138.0	138.0
Fisheries subproject	2,843.6	4,964.2	488.2	696.4	2,355.3	4,267.8	1,912.5

24. It is concluded that the goat sector has constraints in terms of short supply of fodder leading to the goat-farmers selling off of their stock at early stage, say at 9 or 10 months of age. Secondly even if the mortality rates in the kids reduced, the feed and fodder constraint persists. This may call for increasing the area under fodder crops substantially and this could be at the cost of reducing the area under food crops, which is detrimental to the food security situation. Thirdly over 95% of farmers are small landholders and they do not have other resources for expanding the area under fodder. There is not much scope for common pasture management concept in the project area for two reasons: non availability of land for common pastures as cattle is given priority by the communities and two not all smallholders willing to come together for the common resources management as they are few and scattered. It is the reason as why the average herd size is small as the capacity of goat-keepers by combining free-grazing and securing fodders as by-products from cereal and grains cultivation.

25. The backyard poultry sector suffers due to increased feed and labour costs. However it is economically viable if the household labour is excluded. As the labour inputs for the management and maintenance is marginal, a household would be able to sustain these operations.

26. The inland fisheries sector offers significant returns due to favourable farm gate prices for the native fishes and low recurrent costs.

C. Economic analysis

(i) Assumptions

- A twenty year analysis period has been assumed, which included 6 year project investment period.
- All farm inputs and outputs that are traded are valued at prices as of August 2019.
- Economic investment costs are net of taxes, credit in the form of recurrent investments, price contingencies, investments from convergence, etc. All costs directly associated with the incremental production are included in full, including incremental inputs, labour and wages and salaries.
- A standard conversion factor (SCF) of 0.80 is applied to both traded and non-traded items for adjusting financial prices.
- The analysis includes only direct on-farm and off-farm benefits that are attributed to the BAaLI investments.
- All costs and benefits are relating to investments made on targeted project area households and the resultants benefits.
- No significant changes or shifts in farming practices are assumed but the key assumptions have been adoption of appropriate improved technologies and practices through extension support and creating access to inputs and markets.
- Overall adoption rate has been assumed at 50%
- The analysis employs an Opportunity Cost of Capital (OCC) at 7.5%, which is the current long-term bond rate in India.

(ii) Costs - Benefits Streams and Analysis

27. Implementation duration and adoption rates: Although the total duration of the project is six years, the activities are phased and implemented in different time slices: (i) goat and BYP activities are implemented in a four year period starting in year 2, (ii) rejuvenation of fishery ponds is implemented in 5 year period as its identification and selection is easy and are ongoing activity, and (iii) other fishery activities are started in year 2 and completed in year 5. Key question here is given the implementation trends with the IFAD India projects, which picks up momentum after two or three years, would this implementation schedule is realistic? As the overall rate of adoption is assumed at 50% and all EFA calculations are based on this assumption, any possible delay or incomplete targets may not affect the EFA estimates. Refer Annex-4 showing the implementation phasing.

28. The project economic costs were direct expenditures after adjusting for taxes and inflation and all investments from convergence, subsidies and credit funds. Recurrent costs for continued operations and maintenance have been included in full. Economic prices for inputs and output models were estimated by applying the conversion factors on the financial prices. Commodity prices were collected from various sources: respective state govt directorate of Livestock and Fisheries, GOI website on Agricultural Marketing and Prices and by the mission during the field visits (Prices assumed in EFA are listed in Annex-1.3).

29. Production Benefits: The incremental farm productions are direct output from the respective sub-project models. These are 1.84 million goats, 9.67 million kids, 2.7 million goat herd stocks, 14.28 ton of fish and 2.2 million poultry birds. Improved farming and management practices resulted in productivity increases ranging between 100% and 200% at full development stage (Annex-1.5).

30. According to HAJ Moll³, "the benefits derived from the functions of livestock in insurance, finance and status display are to be considered as benefits". But in this working paper, only direct and tangible benefits are considered and accounted for. Insurance function is reflected from the methodology adopted wherein all animals, sold and retained are valued at farm gate prices and accounted for in the EFA⁴. The finance function is reflected in purchases and sales of livestock animals and the inputs but the status display function has been hard to account for. The EFA is, however in line with the Behnke's⁵ expansion of the economic analysis of livestock programmes to include the consequences of the institutional environment of livestock keepers, namely the combination of cash income, non-cash income, and intangible benefits instead of profitability as a single parameter.

31. Environmental Effects: Key environmental benefits have been increased rural employment, social mobilisation and effective participation of rural poor and rural youth and women, Scheduled Tribe and Scheduled Caste, linkages with rural economy and markets and overall reduction in vulnerability of the participating farmers. There are marginal increases in the use of inorganic fertilisers but their use is gradually tapering off with the planting of trees and vegetables along the bunds of the ponds. Wet land is developed and used as wet land for fisheries only. With the continued stocking of oxbow lakes their fauna and flora are protected. Only the negative impact is the increased demand for fodder due to increased growth of goat sector. This is marginally offset with the planting of fodder trees and crops by the participating households.

³ Source: H A J Moll, "Costs and benefits of livestock systems and the role of market and non-market relationship, Agricultural Economics 32, 2005

⁴ The function of finance livestock is noticeable under three phenomenon: the purchasing of animals when income exceeds consumption requirement, the investment of embodied production and the sale of animals predominantly for immediate consumption or investment. The third parameter, the function of livestock in providing status to their owners is related to the presence or absence of other means to display wealth. Although it is true with the project area context, it is difficult to assign a benefit factor.

⁵ Source: Behnke R H, "measuring the benefits subsistence versus commercial livestock production in Africa, Agricultural Systems 16

32. EX-ACT Carbon balance analysis⁶: The EX-ACT tool developed by FAO in 2011 for measuring the GHG (green house gas such as carbon dioxide, methane, nitrogen oxide etc) emission per unit of land in agriculture production systems can be employed. It is estimated that annual carbon balance will be 3,204,048 tCO₂eq for the project or 230 tCO₂eq/ha per year. As the value is positive, the project interventions such as goat-keeping and fisheries are the sources of the GHG emissions. Please refer to Annex-H. The value of tCO₂eq is USD 10 per ton and this has not been included in EFA.

33. Project Performance Indicators (Conventional scenario): Cost-benefit analysis yields an overall IRR of 43%. The estimated NPV at a 7.5% discount rate is INR 44,980 million and the BCR of 1.97. A positive NPV under the current Opportunity Cost of Capital (OCC) of 7.5% indicated that the project investments are sound and robust. See Annex-A to G for details.

Table-4.9: Project performance indicators

Indicator	scenario				
	Base Case	Cost Increases by		Benefits down by	
		15%	20%	15%	20%
NPV on discounted cash flows (million INR)	44,980	38,051	35,741	31,304	26,745
BCR on discounted cash-flow	1.97	1.72	1.64	1.68	1.58
IRR %	43%	36%	34%	35%	32%

34. Sensitivity analysis: A sensitivity analysis of the project is presented in Table 4.9 above and details in Annex-1.1 & 1.2 and also in Annex-E. If benefits delayed by two years (in effect, if the project's future production activities take longer to become fully developed or established) then the IRR declines to 30% and yet yielding a NPV of INR 35,044 million. Under a scenario of costs increases by 25% and benefits decline by 25% over the base-case, an 18% IRR and a NPV of INR 10,636 million INR is obtained. The switching value analysis indicates that the project is capable of sustaining a cost increase of 97% or a decline in overall benefits by 48%. Details are presented in Annex-1.2

35. Project Performance Indicators (Alternate scenario): Based on the IFAD projects in India that the pace of project implementation picks up late ie after two or more year, the project performance indicators are examined. The results are: IRR 40%, NPV 34,046 million and BCR 1.91 using the discount rate of 7.5% assuming FOUR investment years. If benefits delayed by two years then the IRR declines to 28% and yet yielding a NPV of INR 26,516 million. Under a scenario of costs increases by 25% and benefits decline by 25% over the base-case simultaneously, a 15% IRR and a NPV of INR 6,812 million INR is obtained. The switching value analysis indicates that the project is capable of sustaining a cost increase of 91% or a decline in overall benefits by 48%. Details are presented in Annex-1.3

D. Benefits and Beneficiaries

36. Beneficiaries: The Project will benefit a total of about 1,052,940 households directly and thus a total of 5.78 million individuals. The main beneficiaries would include resource-poor farmers and rural households raising goats, backyard poultry or involved in fisheries- both capture and culture- who would be supported to enhance productivity, production and marketing while applying adequate farm management practices for small livestock and fisheries. Special attention is given to women, including vulnerable women-headed households, youth, and members of Scheduled Tribes and Castes smallholder farmers. Table below gives an estimate of

⁶See Annex-H for the summary results of EX-ACT analysis

the cumulative number of beneficiaries by year. Also refer Annex-D showing the implementation phasing and adoption rates.

<i>Beneficiary categories</i>	<i>Year 1</i>	<i>Year 2</i>	<i>Year 3</i>	<i>Year 4</i>	<i>Year 5</i>	<i>Year 6l</i>
<i>Goat keeping households</i>	0	92,000	322,000	598,000	922,000	922,000
<i>Backyard poultry households</i>	0	23,000	46,000	69,000	92,000	92,000
<i>Fishery households</i>	500	9,728	19,484	29,241	38,941	38,941
Total beneficiaries	500	124,728	387,484	696,241	1,052,941	1,052,941

37. The immediate benefits from the project are significant reduction in mortality rates among goats and kids, overall improvement in vet services and improved extension services through DISHA workers for goat and poultry and FTAs for fisheries. This is resulting in increased production and household incomes. On an average, a household’s production benefits (i) increase by a modest estimate of 5 goats per household and (ii) 375 kg of fish due to improved practices. On an average the incremental income per household is estimated at INR 12,490 as against the “without project scenario” of INR (-7,736/household). There is hardly any increase in labour inputs, which are no more than 2 person-days per household.

38. There are also benefits in terms of positive social and environmental impacts. The social benefits accrue mainly as a result of greater social cohesion among the target group communities due to greater interaction with PGs, SHGs, and the producers and increased recognition and participation of the role of women and provision of capacity building and training opportunities and access to financial service for a range of off-farm activities to the participating households.

39. Other benefits: Additional benefits also came from the project’s capacity building interventions. First, all participating households and PGs have the benefit and advantages of the services of SLE, FLE, DISHA workers and FTAs which were capacitated and provided fund support for various social and commercial developments. Secondly, women from the poor groups would participate in and managing their social and economic development in goat-keeping and backyard poultry and will have access to inputs and marketing of their products. Thirdly various infrastructure support facilities provided by the project would trigger the demand for quality farm products and thereby premium prices. All these benefits have not been quantified and hence are excluded in the EFA.

E. Risks and sustainability

40. Sustainability: Most of the activities under the goat sector are sustainable even after the closure of the project except the backyard poultry as shown in Table-4.11 below.

	Interventions	Year when positive cash occurs	Whether cash flow gradually increasing
1	Household goat-keeping	2	Yes
2	Household level BYP	nil	Nil
3	Household fish pond rehabilitation	2	yes
4	Household level new pond fishery	2	yes
5	Household level culture fishery	1	yes
6	Group level ox-bow lake fishery	2	yes

41. The goat production units continue to show positive cash flows even after the project closure as extension services and support provided by DISHA workers and SLEs continue their services as these are offered to the communities on payment basis. So is the case with the livestock clinic at Block levels. Producer groups are self-sustaining and using the service charges they receive from the members they are able to manage their activities in particular the buck services. In the case of backyard poultrys, as the feed costs are high, it is unlikely that the beneficiaries would continue after the project closure.

42. With regard to fisheries, these activities will continue even after the project closure as they show very positive cash flows. Project support for fish-tank rehabilitation, new construction of fish-tanks and supply of inputs and fish feed for the culture fishery is one time facilities and the beneficiaries are able to manage these activities thereafter. Ox-bow lake fishery development will continue as these are handed over to the user groups, who produce the required fingerlings for stocking. Existing and new hatcheries will continue to operate as these are managed by the private sector and fish-farmers source their fingerlings on cost basis. Fisheries Lead Entrepreneurs provide extension services on commercial basis. FTAs are the lead contact person to maintain pond specific MIS in their respective Panchayat. They will also facilitate farmers' linkages with DioF scheme. The project supports their honorarium during the first two years and thereafter the FTAs are encouraged to charge service fee to PG/ FPOs. All said and done, overall adoption rate will be about 50%.

43. Incremental labour: New interventions do not increase the work load of women and they continue to take care of the goat-keeping activities. As a household tends to maintain the herd size within its holding capacity, there are no additional demands for labour. With regard to fishery interventions, which are looked after by men, there are incremental labour needs for manure application, fingerlings stocking, watch and ward, pond maintenance and fish harvesting. Overall, there is an incremental labour demand of 2 person-days per year per household. Without and with project labour demands are given in Table-4.12 below

INDIA BAaLI Project Summary LABOR BUDGET (In Units '000)	Unit	Without Project		WP Increments						
		1 to 20	6 to 20	1	2	3	4	5	6 to 20	
Labor Requirements										
weed clearance	INR/day	0.7	1.4	-	0.1	0.4	0.7	0.7	0	
Manure application	INR/day	90.0	235.6	3.5	36.4	72.8	109.2	145.6	145	
Stocking	INR/day	146.0	180.0	-	8.5	17.0	25.6	34.0	34	
Watch and ward	pers_day	1,181.4	1,799.6	8.8	154.4	309.3	464.1	618.1	618	
Pond maintenance	pers_day	90.0	235.6	3.5	36.4	72.8	109.2	145.6	145	
Herding	pers_day	46,080.0	46,080.0	-	-	-	-	-	-	
Pen construction	INR/day	-	0.4	-	0.1	0.2	0.4	0.4	0	
Fish harvesting	INR/day	563.8	789.6	-	43.8	98.4	155.1	211.8	225	
Sub-Total Labor Requiren		48,151.9	49,322.0	15.8	279.7	570.9	864.2	1,156.1	1,170	

44. Risks: There were a number of risks associated with the project. These were relating to farm technology, reluctance on the part of the farmers to continue the new technology post demonstrations, inadequate extension and market linkages and poor price margins, lack of institutional credit, lack of service providers and poor

coordination and institutional support and policy risks. These issues and risks are expected to be addressed during the implementation of the programme as described below:

Risks	Risk description	Probability of occurrence post-project	Mitigation measures adopted by the project	Had no corrective measures adopted, project performance would have been as below
Institutional	Delay in technology transfer/lack of quality inputs slowing down the uptake rates and production	Medium	Extensive training and demonstrations, exposure visits etc are taken up	Benefits lag by 2 years: IRR= 30% NPV= 35,044 million INR BCR= 1.24
	Lack of financial capacity to invest in high value farm interventions	High to Medium	PGs are facilitating credit supply;	Decline in benefits by 20%: IRR=32 % NPV= 26,745 million BCR= 1.158
Market	Inadequate profit margins due to poor access, lack of transport and of market information	High to medium	Market information strengthened and market access improved	Decline in benefits and increases in cost by 10%: IRR= 33% NPV= 31,243 million BCR=1.61
	Lower market prices for commodities	Medium	Diversified production, primary value addition	
Policy	Slowing down funds flow to the project (delayed and partial release of funds to project)	Medium	Govt attaching priority to farmers' welfare and incomes and recognize producers' groups as an effective vehicle for remunerative farming systems	Farm operating costs increase by 20%: IRR=34% NPV=35,741 million BCR=1.64
Others	Remoteness of villages and difficulty of access during rainy season for processed products	Medium	Promotion of products that combine high margin for small volumes and easy to transport are emphasised and supported	Decline in benefits by 15%: IRR=35% NPV=31304 million BCR=1.68
	Climate change risks of delayed and abnormal rainfall, drought, floods, frosts, etc	Medium	Training farmers on climate resilient aspects and provisions of goat sheds and poultry sheds to safe guard livestock and safety nets to fishery ponds from floods	

Ex-ante EFA framework for BAaLI Project, India

INDIA BIHAR BAALI PROJECT DETAILED DESIGN

A)		Net incremental benefits of Farm and Activity subproject models (amount in 000 INR)					
	Goat	Poultry	Fisheries				
PP1	0	0	0	0	0	0	0
PP2	-4,61,150	-77,625	-1,80,550	-	-	-	-
PP3	-6,07,885	-86,250	-90,438	0	0	0	0
PP4	4,07,888	94,875	3,20,334	-	-	-	-
PP5	16,47,877	-1,03,500	-1,03,500	0	0	0	0
PP6	51,03,238	-34,500	14,42,363	0	0	0	0
PP7	54,06,368	-34,500	18,87,260	0	0	0	0
PP8	69,19,020	-34,500	19,09,818	0	0	0	0
PP9	83,72,300	-34,500	19,10,565	0	0	0	0
PP10	1,02,22,320	-34,500	19,12,513	0	0	0	0
PP11	1,08,09,920	-34,500	19,12,513	0	0	0	0
PP12	1,08,09,920	-34,500	19,11,963	0	0	0	0
PP13	1,08,09,920	-34,500	19,11,393	0	0	0	0
PP14	1,08,09,920	-34,500	19,11,353	0	0	0	0
PP15	1,08,09,920	-34,500	19,12,513	0	0	0	0
PP16	1,08,09,920	-34,500	19,12,513	0	0	0	0
PP17	1,08,09,920	-34,500	19,11,953	0	0	0	0
PP18	1,08,09,920	-34,500	19,11,393	0	0	0	0
PP19	1,08,09,920	-34,500	19,11,353	0	0	0	0
PP20	1,08,09,920	-34,500	19,12,513	0	0	0	0
NPV (INR, 000)	3,38,32,267	-3,75,629	70,76,285	0	0	0	0
NPV (USD 000)	4,89,892.6	-5,217.1	98,287.8	0.0	0.0	0.0	0.0
FIRR	116%	#DIV/0!	110%	#NUM!	#NUM!	#NUM!	#NUM!

B) PROJECT COSTS AND INDICATORS FOR LOGFRAME						
TOTAL PROJECT COSTS (in million USD)						
	146.26	Base costs	131.27	PMU	6.3	
Number of Beneficiaries	10,52,941 Households	Villages/ Pcs	9,216	# of DISHA	4,608	# of FLE
				# of FTAs	1,152	64
				# of SLE		
Cost per beneficiary (FAD resources= \$60.00 million)	57 USD/ household	Outreach	10,52,941	Adoption rates	50%	
Components						
	Cost USD M	Outcomes	Indicators			
Small livestock promotion	67.22	some 921,600 households reached out	household herd size increased two fold			
Inland fishery promotion	72.74	some 38,940 households reached out	fish production increased by 100%			
Project Management	6.30	all staff are in position through the project	WA submitted and audits conducted on time			
Total	146.26					

C) MAIN ASSUMPTIONS & SHADOW PRICES ¹						
FINANCIAL	Output, production	Incremental value (%)	Price (in NPR)	Input prices	Price (NPR)	
	Goat herd size	100%	Goat: INR 200/kg	Fingerlings	2/#	
	# of kids	500%	Kids: 1000/#	Earrings	8/#	
	Poultry birds	14%	Bird: 12,500/kg	organic jmanure, dung	12/kg	
ECONOMIC	Increased fish production	100%	poetry bird 300/#	Rural wage rate, pers, day	150/day	
			Fish 200/kg native	Breadable doe	3000/#	
			Goat: INR 2400/#	Chicks	28/#	
	Official Exchange rate, August 2019	72	Discount rate (opportunity cost of capital)	7.5%		
Shadow Exchange rate	72	Long term bond rate, Central Bank rate	7.5%			
Standard Conversion factor	1.00	Output conversion factor a/	0.80			
Labour Conversion factor	0.75	Input Conversion factor a/	0.83			

¹All prices expressed in INR Currency. a/ estimated from data generated using farmod

D) BENEFICIARIES, PHASING BY INTERVENTION AND ADOPTION RATES							
Project year Interventions	Project Implementation period, cumulative					Total	Adoption rates
	2020/21	2021/22	2022/23	2023/24	2024/25		
# of Goat keeping households (adopting hb)	0	92,400	2,30,000	2,76,600	3,23,000	0	9,22,000
# of BYP households (adopting hb)	0	46,200	1,15,000	1,38,300	1,61,500	0	4,61,000
# of Rejuvenated pondfishery households (adopting hb)	500	3,500	4,000	4,000	4,000	0	16,000
# of New Pond fishery households (adopting hb)	250	1,750	2,000	2,000	2,000	0	8,000
# of culture fishery farmers (adopting hb)	0	600	600	600	600	0	2,400
# of oxbow lake fishermen (adopting hb)	0	2,250	2,250	2,250	2,250	0	9,000
(adopting hb)	0	28	56	57	0	0	141
	0	14	28	29	0	0	71
Total # of participating households	500	1,24,628	2,62,756	3,09,357	3,65,700	0	10,52,941
Total # of adopting households	250	62,314	1,31,378	1,54,679	1,77,850	0	5,26,471

F) SENSITIVITY ANALYSIS (SA)				
	Δ%	Link with the risk matrix	IRR	NPV 1/
Basecase scenario			43%	44,980
Project benefits	-10%		38%	35,862
Project costs	10%			
Project benefits	10%		33%	31,243
2 years lag in benefits			30%	35,044
Project benefits	-20%	climate risks, frost, drought, floods, etc.	32%	26,745
Input prices	10%	lack of policy commitment	38%	40,380

1/ NPV is in million INR discounted at 7.5%

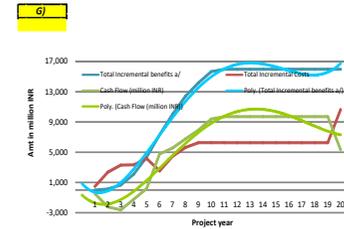
E) NET INCREMENTAL BENEFITS (INR million)							NET INCREMENTAL COSTS (INR million)			Cash Flow (million INR)
Project year	Goat keeping households	BYP households	Fishery households	Proxy labour	Total incremental benefits a/	Economic investment Costs	Economic recurrent Costs	Total Incremental Costs		
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	482.8	-482.8	
2	0.00	36.06	182.5	-82.7	0.00	0.00	136.1	827.7	-2,393.2	
3	272.32	197.86	280.8	64.7	0.00	0.00	678.3	1,768.8	-2,821.3	
4	1,210.77	577.04	897.4	97.0	0.00	0.00	2,085.2	1,421.7	-1,230.0	
5	2,945.75	1,002.52	529.9	-129.4	0.00	0.00	4,348.8	1,289.0	132.0	
6	5,504.34	1,388.52	529.9	-129.4	0.00	0.00	7,293.4	231.8	4,768.4	
7	7,941.39	1,678.52	529.9	-129.4	0.00	0.00	10,020.5	0.00	5,560.3	
8	10,293.15	1,696.52	529.9	-129.4	0.00	0.00	12,390.2	0.00	6,793.8	
9	12,070.77	1,696.52	529.9	-129.4	0.00	0.00	14,167.8	0.00	7,907.2	
10	13,550.79	1,696.52	529.9	-129.4	0.00	0.00	15,647.8	0.00	9,280.7	
11	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,599.8	
12	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,692.2	
13	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,696.4	
14	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,698.8	
15	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,699.8	
16	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,699.2	
17	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,698.4	
18	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,698.4	
19	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	9,699.8	
20	13,860.86	1,696.52	529.9	-129.4	0.00	0.00	15,957.9	0.00	5,309.4	

NPV at 7.5% (million) 44,893
BCR 1.97
EIRR 43%

Long term Bond rate applied as Discount rate

91,092

46,196



Annex-A NET INCREMENTAL BENEFITS OF SUBPROJECTS, FINANCIAL

INDIA BIHAR BAALI PROJECT DETAILED DESIGN

A)		Net incremental benefits of Farm and Activity subproject models (amount in 000 INR)							
FINANCIAL ANALYSIS		Goat	Poultry	Fisheries					
	PY1	0	0	0	0	0	0	0	0
	PY2	- 4,61,150	- 77,625	- 1,80,550	-	-	-	-	-
	PY3	-6,07,085	-86,250	-90,439	0	0	0	0	0
	PY4	4,07,888	- 94,875	3,20,334	-	-	-	-	-
	PY5	16,47,877	-1,03,500	-1,03,500	0	0	0	0	0
	PY6	51,03,236	-34,500	14,42,363	0	0	0	0	0
	PY7	54,06,368	-34,500	18,87,090	0	0	0	0	0
	PY8	69,19,020	-34,500	19,09,818	0	0	0	0	0
	PY9	83,72,300	-34,500	19,10,565	0	0	0	0	0
	PY10	1,02,22,320	-34,500	19,12,513	0	0	0	0	0
	PY11	1,06,09,920	-34,500	19,12,513	0	0	0	0	0
	PY12	1,06,09,920	-34,500	19,11,953	0	0	0	0	0
	PY13	1,06,09,920	-34,500	19,11,393	0	0	0	0	0
	PY14	1,06,09,920	-34,500	19,11,353	0	0	0	0	0
	PY15	1,06,09,920	-34,500	19,12,513	0	0	0	0	0
	PY16	1,06,09,920	-34,500	19,12,513	0	0	0	0	0
	PY17	1,06,09,920	-34,500	19,11,953	0	0	0	0	0
	PY18	1,06,09,920	-34,500	19,11,393	0	0	0	0	0
	PY19	1,06,09,920	-34,500	19,11,353	0	0	0	0	0
	PY20	1,06,09,920	-34,500	19,12,513	0	0	0	0	0
NPV (INR, 000)	3,38,32,267	-3,75,628	70,75,285	0	0	0	0	0	
NPV (USD 000)	4,69,892.6	-5,217.1	98,267.8	0.0	0.0	0.0	0.0	0.0	
FIRR	116%	#DIV/0!	110%	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	

Annex-B PROJECT COSTS AND INDICATORS FOR LOGFRAME

PROJECT COSTS AND INDICATORS FOR LOGFRAME						
TOTAL PROJECT COSTS (in million USD)		146.26	Base costs	131.27	PMU	6.3
Number of Beneficiaries	10,52,941 Households	Villages/ PGs	# of DISHA	# of FTAs	# of SLE	# of FLE
		9,216	4,608	1,152	64	64
Cost per beneficiary (IFAD resources= \$60.00 million)	57 USD/ household		Outreach	10,52,941	Adoption rates	50%
Components	Cost USD M	Outcomes		Indicators		
Small livestock promotion	67.22	some 921,600 households reached out		household herd size increased two fold		
Inland fishery promotion	72.74	some 38,940 households reached out		fish production increased by 100%		
Project Management	6.30	all staff are in position through the project		WA submitted and audits conducted on time		
<i>Total</i>		146.26				

Annex-C MAIN ASSUMPTIONS AND SHADOW PRICES

c)		MAIN ASSUMPTIONS & SHADOW PRICES ¹				
FINANCIAL	Output, production	Incremental value (%)	Price (in NPR)		Input prices	Price (NPR)
	Goat herd size	100%	Goat	INR 150/kg	Fingerlings	2/#
	# of Kids	500%	Kids	1000 /#	Earlings	8/#
	Poultry birds	14%	Buck	12,000/#g	organic /manure, dung	2/kg
	increashed Fish production	100%	poltry bird	300/#	Rural wage rate, pers_day	150/day
			Fish	200/kg native	Breadable doe	3000/#
		Goat	INR 2400/#	Chicks	28/#	
ECONOMIC	Official Exchange rate, August 2019	72		Discount rate (opportunity cost of capital)	7.5%	
	Shadow Exchange rate	72		Long term bond rate, Central Bank rate	7.5%	
	Standard Conversion Factor	1.00		Output conversion factor a/	0.80	
	Labour Conversion factor	0.75		Input Conversion factor a/	0.83	

¹ All prices expressed in INR Currency.

a/ estimated from data generated using farmod

Annex-D BENEFICIARIES, PHASING BY INTERVENTION AND ADOPTION RATES

D)

BENEFICIARIES, PHASING BY INTERVENTION AND ADOPTION RATES									
Project year →	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	Total		
Interventions	Project Implementation period, cumulative								Adoption rates
# of Goat keeping households <i>(adopting hh)</i>	0	92,400	2,30,000	2,76,600	3,23,000	0	0	9,22,000	
# of BYP households <i>(adopting hh)</i>	0	46,200	1,15,000	1,38,300	1,61,500	0	0	4,61,000	50%
# of Rejuvenated pondfishery households <i>(adopting hh)</i>	0	23,000	23,000	23,000	23,000	0	0	92,000	
# of New Pond fishery households <i>(adopting hh)</i>	0	11,500	11,500	11,500	11,500	0	0	46,000	50%
# of culture fishery farmers <i>(adopting hh)</i>	500	3,500	4,000	4,000	4,000	0	0	16,000	
# of oxbow lake fishermen <i>(adopting hh)</i>	250	1,750	2,000	2,000	2,000	0	0	8,000	50%
# of New Pond fishery households <i>(adopting hh)</i>	0	1,200	1,200	1,200	1,200	0	0	4,800	
# of culture fishery farmers <i>(adopting hh)</i>	0	600	600	600	600	0	0	2,400	50%
# of oxbow lake fishermen <i>(adopting hh)</i>	0	4,500	4,500	4,500	4,500	0	0	18,000	
# of oxbow lake fishermen <i>(adopting hh)</i>	0	2,250	2,250	2,250	2,250	0	0	9,000	50%
# of oxbow lake fishermen <i>(adopting hh)</i>	0	28	56	57	0	0	0	141	
# of oxbow lake fishermen <i>(adopting hh)</i>	0	14	28	29	0	0	0	71	50%
<i>(adopting hh)</i>									
<i>(adopting hh)</i>									
<i>(adopting hh)</i>									
<i>(adopting hh)</i>									
Total # of participating households	<u>500</u>	<u>1,24,628</u>	<u>2,62,756</u>	<u>3,09,357</u>	<u>3,55,700</u>	<u>0</u>	<u>0</u>	<u>10,52,941</u>	
Total # of adopting households	<u>250</u>	<u>62,314</u>	<u>1,31,378</u>	<u>1,54,679</u>	<u>1,77,850</u>	<u>0</u>	<u>0</u>	<u>5,26,471</u>	50%

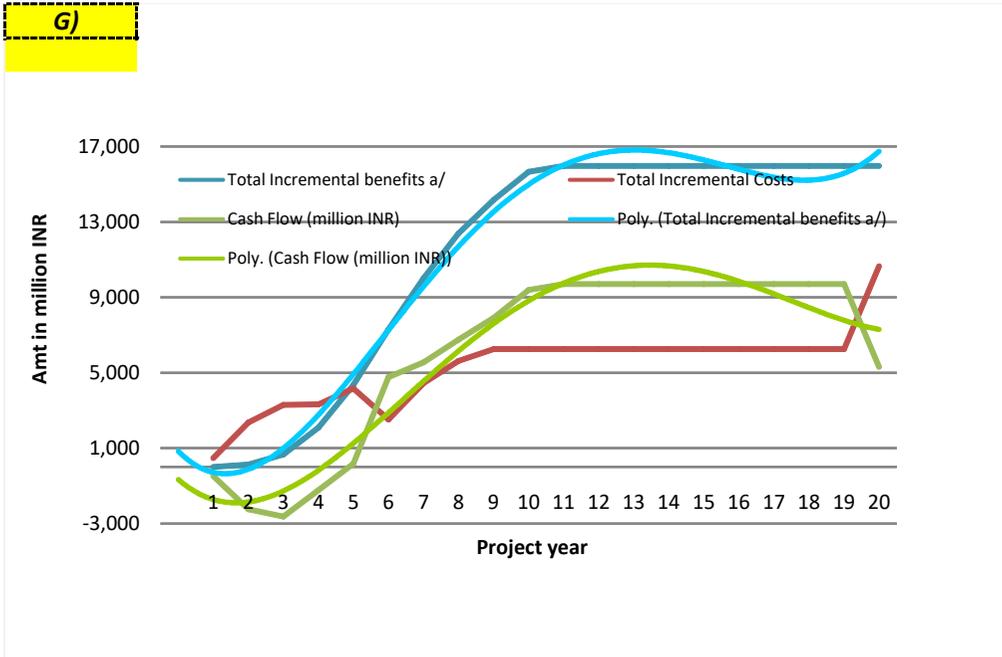
Annex-E: NET INCREMENTAL BENEFITS & IRR

ECONOMIC ANALYSIS	E)	NET INCREMENTAL BENEFITS (INR million)							NET INCREMENTAL COSTS (INR million)			Cash Flow (million INR)		
	Project year	Goat keeping households	BYP households	Fishery households	Proxy labour				Total Incremental benefits a/	Economic investment Costs	Economic recurrent Costs		Total Incremental Costs	
1	0.00	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	482.8	0.0	482.8	-482.8	
2	0.00	36.00	132.5	-32.3	0.0	0.0	0.0	0.0	136.1	1,542.1	827.2	2,369.3	-2,233.2	
3	272.32	197.68	265.0	-64.7	0.0	0.0	0.0	0.0	670.3	1,750.9	1,540.6	3,291.5	-2,621.3	
4	1,210.72	577.04	397.4	-97.0	0.0	0.0	0.0	0.0	2,088.2	1,421.7	1,896.5	3,318.2	-1,230.0	
5	2,945.78	1,002.52	529.9	-129.4	0.0	0.0	0.0	0.0	4,348.8	1,289.0	2,877.3	4,166.3	182.5	
6	5,504.34	1,388.52	529.9	-129.4	0.0	0.0	0.0	0.0	7,293.4	231.8	2,293.0	2,524.8	4,768.6	
7	7,941.39	1,678.52	529.9	-129.4	0.0	0.0	0.0	0.0	10,020.5	0.0	4,460.2	4,460.2	5,560.3	
8	10,293.15	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	12,390.2	0.0	5,630.4	5,630.4	6,759.8	
9	12,070.77	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	14,167.8	0.0	6,260.1	6,260.1	7,907.7	
10	13,550.78	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,647.8	0.0	6,258.2	6,258.2	9,389.7	
11	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9	0.0	6,258.2	6,258.2	9,699.8	
12	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,258.7	6,258.7	9,699.2	
13	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,259.3	6,259.3	9,698.6	
14	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,259.3	6,259.3	9,698.6	
15	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,258.2	6,258.2	9,699.8	
16	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,258.7	6,258.7	9,699.2	
17	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,259.3	6,259.3	9,698.6	
18	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,259.3	6,259.3	9,698.6	
19	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		6,258.2	6,258.2	9,699.8	
20	13,860.86	1,696.52	529.9	-129.4	0.0	0.0	0.0	0.0	15,957.9		10,648.5	10,648.5	5,309.4	
		<u>NPV at 7.5% ('million)</u>			44,895	Long term Bond rate applied as Discount rate								
		<u>BCR</u>			1.97					91,092			46,196	
		<u>EIRR</u>			43%									

Annex-F SENSITIVITY ANALYSIS

F) SENSITIVITY ANALYSIS (SA)				
	Δ%	Link with the risk matrix	IRR	NPV 1/
Basecase scenario			43%	44,980
Project benefits	-10%		38%	35,862
Project costs	10%			
Project benefits	10%		33%	31,243
2 years lag in benefits			30%	35,044
Project benefits	-20%	climate risks, frost, drought, floods, l etc	32%	26,745
Input prices	10%	lack of policy commitment	38%	40,380
1/ NPV is in million INR discounted at 7.5%				

Annex-G: GRAPH SHOWING INCREMENTAL BENEFITS, COSTS AND NET INCOME



Green Trend line denotes “cash flow or net incremental incomes”
 Blue Trend lines denotes “total incremental benefits”

Annex-H: EX-ACT CARBON BALANCE FOR THE BAaLI PROJECT

E
X
A
C
T

The EX-Ante Carbon-balance Tool (EX-ACT)

Start

Description

Land Use Change

Crop production

Grassland Livestock

Management Degradation

Coastal Wetlands

Inputs Investments

Fisheries Aquaculture

Detailed Results

Project Name	BAaLI	Climate	Tropical (Moist)			Duration of the Project (Years)	20					
Continent	Asia (Indian subcontinent)	Regional Soil Type	Wetland Soils			Total area (ha)	15750					
Components of the project	Gross fluxes			Share per GHG of the Balance					Result per year			
	Without	With	Balance	All GHG in tCO ₂ eq			N ₂ O	CH ₄	Without	With	Balance	
Positive = source / negative = sink												
Land use changes												
Deforestation	0	0	0	0	0	0	0	0	0	0	0	0
Afforestation	0	0	0	0	0	0	0	0	0	0	0	0
Other LUC	0	66,368	66,368	9,711	56,374	282	0	0	0	3,318	3,318	0
Agriculture												
Annual	0	0	0	0	0	0	0	0	0	0	0	0
Perennial	0	0	0	0	0	0	0	0	0	0	0	0
Rice	0	0	0	0	0	0	0	0	0	0	0	0
Grassland & Livestocks												
Grassland	0	0	0	0	0	0	0	0	0	0	0	0
Livestocks	1,15,86,156	7,55,99,667	6,40,13,511	0	0	3,54,49,261	2,85,64,250	5,79,308	37,79,983	32,00,676	0	0
Degradation & Management												
Coastal wetlands	0	0	0	0	0	0	0	0	0	0	0	0
Inputs & Investments	1,334	2,221	887	0	0	179	708	67	111	44	0	0
Fishery & Aquaculture	234	427	192	0	0	0	192	12	21	10	0	0
Total	1,15,87,724	7,56,68,682	6,40,80,958	9,711	56,374	179	3,54,50,444	2,85,64,250	5,79,386	37,83,434	32,04,048	0
Per hectare	736	4804	4,069	0.6	3.6	0.0	2250.8	1813.6	36.8	240.2	203.4	0
Per hectare per year	36.8	240.2	203.4	0.0	0.2	0.0	112.5	90.7	36.8	240.2	203.4	0

21

PROJECT PERFORMANCE INDICATORS AND SENSITIVITY ANALYSIS

Annex-1.1: Project performance indicators (IRR, NPV & BCR)

ECONOMIC ANALYSIS: BAaLI																				
Country:	INDIA										Discount rate:DR	0.075	7.5%							
Project:	BAALI PDR																			
(amount in million INR)																				
	Project Year																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Incremental benefits																				
Incremental benefits	0.0	136.1	670.3	2088.2	4348.8	7293.4	10020.5	12390.2	14167.8	15647.8	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	16325.5
Total Incremental benefits	0.0	136.1	670.3	2088.2	4348.8	7293.4	10020.5	12390.2	14167.8	15647.8	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	15957.9	16325.5
Incremental costs																				
Investment costs	482.8	1542.1	1750.9	1423.7	1289.0	231.8														
Operating costs, inputs & labour	0.0	827.2	1540.6	1896.5	2877.3	2293.0	4460.2	5630.4	6260.1	6258.2	6258.2	6258.7	6259.3	6259.3	6258.2	6258.7	6259.3	6259.3	6258.2	10648.5
Incremental costs	482.8	2369.3	3291.5	3320.2	4166.3	2524.8	4460.2	5630.4	6260.1	6258.2	6258.2	6258.7	6259.3	6259.3	6258.2	6258.7	6259.3	6259.3	6258.2	10648.5
Incremental net benefits	-482.8	-2233.2	-2621.3	-1232.0	182.5	4768.6	5560.3	6759.8	7907.7	9389.7	9699.8	9699.2	9698.6	9698.6	9699.8	9699.2	9698.6	9698.6	9699.8	5677.0
	-500.9	-2452.2	-2811.3	-1851.8	-1296.5	2945.0	2661.7	3284.6	4634.0	5496.3	7715.8	7696.9	7155.4	7070.9	5806.4	7715.8	7696.9	7155.4	7070.9	5806.4
Basecase results discounted:	7.5%																			
NPV of benefit streams discounted at	7.5%	91,178	Benefits lagged by 2 year DR at		7.5%		NPV of benefit streams discounted at		7.5%	81,242										
NPV of costs stream discounted at	7.5%	46,198	NPV of costs stream discounted at		7.5%	46,198	NPV of project discounted at		7.5%	35,044										
NPV of project discounted at	7.5%	44,980	BCR- discounted benefits & costs at		7.5%	1.76	IRR		30%											
BCR- discounted benefits & costs at	7.5%	1.97	IRR		43%															

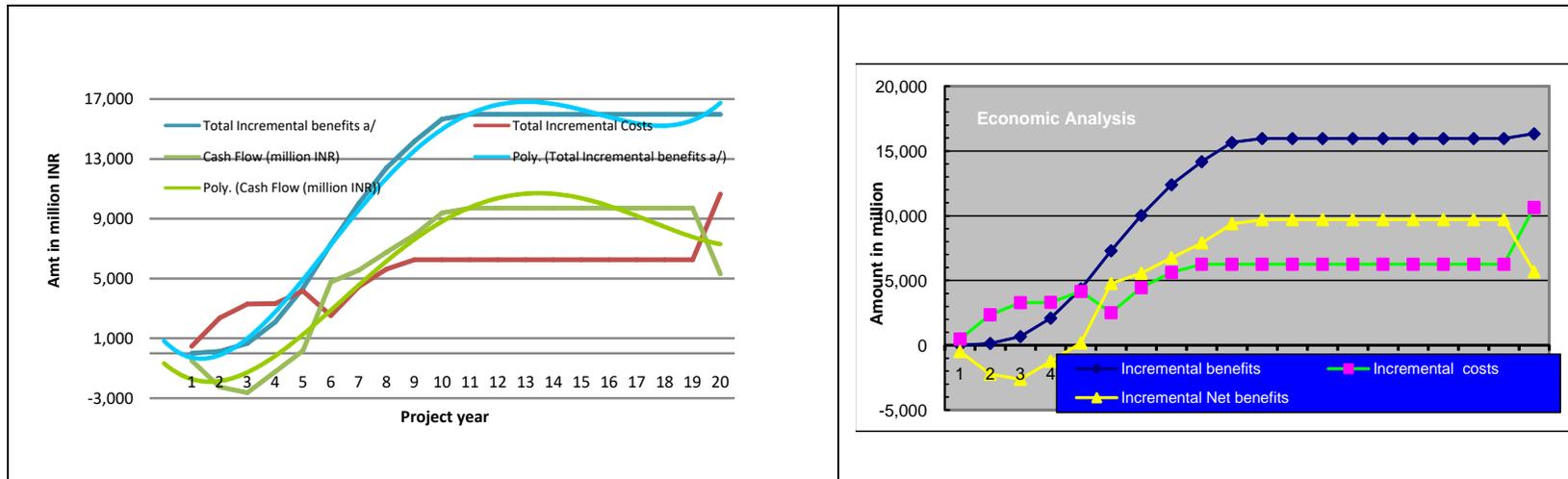
Annex-1.2: Project sensitivity analysis (Switching values etc...)

Results of Sensitivity Analysis:

Project Performance indicators		Costs increased by				Benefits down by				Both cost increase & benefits down			
		10%	15%	20%	25%	10%	15%	20%	25%	10%	15%	20%	25%
NPV of at discount rate of	7.5%	40,360	38,051	35,741	33,431	35,862	31,304	26,745	22,186	31,243	24,374	17,505	10,636
BCR at discount rate of	7.5%	1.79	1.72	1.64	1.58	1.78	1.68	1.58	1.48	1.61	1.46	1.32	1.18
IRR		38%	36%	34%	32%	38%	35%	32%	29%	33%	28%	23%	18%

Switching Value Analysis:

Switching Value:	Appraisal	Switching value	% change
Total Benefits at 7.5% DR	91,178	46,198	-49
Total Costs at 7.5% DR	46,198	91,178	97



Annex-1.3: Project performance indicators ...assuming 4 year investments and 3 year benefits

ECONOMIC ANALYSIS: BAaLI

Country:	INDIA	Discount rate:DR	0.075	7.5%
Project:	BAALI PDR			
(amount in million INR)				

	Project Year																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
Incremental benefits																						
Incremental benefits	0.0	101.7	744.0	2134.2	4118.4	6118.9	8324.6	10355.2	11324.6	11612.3	11906.7	12348.3	12497.4	11612.3	11612.3	11906.7	12348.3	12497.4	11612.3	11612.3		
Total Incremental benefits	0.0	101.7	744.0	2134.2	4118.4	6118.9	8324.6	10355.2	11324.6	11612.3	11906.7	12348.3	12497.4	11612.3	11612.3	11906.7	12348.3	12497.4	11612.3	11612.3		
Incremental costs																						
Investment costs	482.8	1542.1	1750.9	1423.7																		
Operating costs, inputs & labour	18.1	1020.9	1709.5	1945.9	986.3	2744.2	4221.4	5466.8	5697.9	4314.9	4314.9	4775.4	5466.0	5697.9	4314.9	4314.9	4775.4	5466.0	5697.9	4314.9		
Incremental costs	500.9	2563.1	3460.4	3369.6	986.3	2744.2	4221.4	5466.8	5697.9	4314.9	4314.9	4775.4	5466.0	5697.9	4314.9	4314.9	4775.4	5466.0	5697.9	4314.9		
Incremental net benefits	-500.9	-2461.3	-2716.4	-1235.3	3132.1	3374.7	4103.2	4888.4	5626.7	7297.4	7591.8	7572.9	7031.4	5914.4	7297.4	7591.8	7572.9	7031.4	5914.4	7297.4		
	-500.9	-2452.2	-2811.3	-1851.8	-1296.5	2945.0	2661.7	3284.6	4634.0	5496.3	7715.8	7696.9	7155.4	7070.9	5806.4	7715.8	7696.9	7155.4	7070.9	5806.4		
Basecase results discounted:		7.5%	Benefits lagged by 2 year DR at																		7.5%	
NPV of benefit streams discounted at	7.5%	71,493	NPV of benefit streams discounted at																		7.5%	63,962
NPV of costs stream discounted at	7.5%	37,446	NPV of costs stream discounted at																		7.5%	37,446
NPV of project discounted at	7.5%	34,047	NPV of project discounted at																		7.5%	26,516
BCR- discounted benefits & costs at	7.5%	1.91	BCR- discounted benefits & costs at																		7.5%	1.71
IRR		40%	IRR																			28%

Results of Sensitivity Analysis:

Project Performance indicators	7.5%	Costs increased by				Benefits down by				Both cost increase & benefits down			
		10%	15%	20%	25%	10%	15%	20%	25%	10%	15%	20%	25%
NPV of at discount rate of	7.5%	30,302	28,430	26,558	24,685	26,898	23,323	19,748	16,174	23,153	17,706	12,259	6,812
BCR at discount rate of	7.5%	1.74	1.66	1.59	1.53	1.72	1.62	1.53	1.43	1.56	1.41	1.27	1.15
IRR		35%	33%	31%	29%	35%	32%	29%	26%	30%	25%	20%	15%

Switching Value Analysis:

Switching Value:	Appraisal	Switching value	% change
Total Benefits at 7.5% DR	71,493	37,446	-48
Total Costs at 7.5% DR	37,446	71,493	91

Annex-1.3: Project economic costs (From costab)

INDIA							
BAaLI							
Expenditure Accounts by Years -- Base Costs	Base Cost (INR '000)						Total
	20/21	21/22	22/23	23/24	24/25	25/26	
I. Investment Costs							
A. Civil works	15,000.0	6,53,270.0	7,29,640.0	5,96,440.0	5,60,000.0	-	25,54,350.0
B. Office equipment and materials	21,345.0	9,966.0	9,966.0	250.0	250.0	250.0	42,027.0
C. Training, capacity building & workshop	40,550.0	1,37,186.0	1,38,574.8	72,642.8	6,730.8	5,630.8	4,01,315.2
D. Goods, inputs and services	1,35,106.0	7,66,140.0	9,48,346.0	6,84,430.0	5,39,186.0	70,736.0	31,43,944.0
E. Technical assistance, consultancies, studies	84,425.0	59,100.0	59,950.0	10,800.0	9,800.0	3,800.0	2,27,875.0
F. Subsidies, grant and credit	57,920.0	3,09,070.0	5,30,226.3	5,88,057.0	6,05,737.5	1,422.5	20,92,433.3
Total Investment Costs	3,54,346.0	19,34,732.0	24,16,703.1	19,52,619.8	17,21,704.3	81,839.3	84,61,944.5
II. Recurrent Costs							
A. Salaries and allowances	1,42,438.0	1,43,218.0	1,43,218.0	1,43,218.0	1,41,718.0	1,40,758.0	8,54,568.0
B. Office operating costs	15,000.0	15,000.0	15,000.0	15,000.0	15,000.0	15,000.0	90,000.0
C. Operating costs	7,344.0	7,344.0	7,344.0	7,344.0	7,344.0	7,344.0	44,064.0
Total Recurrent Costs	1,64,782.0	1,65,562.0	1,65,562.0	1,65,562.0	1,64,062.0	1,63,102.0	9,88,632.0
Total BASELINE COSTS	5,19,128.0	21,00,294.0	25,82,265.1	21,18,181.8	18,85,766.3	2,44,941.3	94,50,576.5
Physical Contingencies	-	-	-	-	-	-	-
Price Contingencies							
Subtotal Price Contingencies	9,865.2	1,33,149.6	2,61,040.5	2,85,468.7	3,14,751.3	75,049.7	10,79,325.0
Total PROJECT COSTS	5,28,993.2	22,33,443.6	28,43,305.5	24,03,650.5	22,00,517.6	3,19,991.0	1,05,29,901.4
Taxes	36,341.0	1,47,028.0	1,64,352.6	1,10,802.3	90,291.3	13,168.3	5,61,983.4
CALCULATION OF ECONOMIC COSTS							
TAXES	36,341.0	1,47,028.0	1,64,352.6	1,10,802.3	90,291.3	13,168.3	5,61,983.4
PRICE CONTINGENCIES	9,865.2	1,33,149.6	2,61,040.5	2,85,468.7	3,14,751.3	75,049.7	10,79,325.0
CONVERGENCE	0	411,126.6	630,976.3	547,678.3	506,455.9	0.0	2,096,237.2
CREDIT FUND			36,000.0	36,000.0			
SUBTOTAL	46,206.2	6,91,304.2	10,92,369.3	9,79,949.3	9,11,498.4	88,218.0	37,37,545.6
ECONOMIC COST	4,82,787.0	15,42,139.4	17,50,936.2	14,23,701.1	12,89,019.2	2,31,773.0	67,92,355.8

Annex-1.4: Project incremental economic “benefits and costs” streams (From FARMOD)

INDIA																				
BAaLI																				
Project Summary																				
ECONOMIC BUDGET (AGGREGATED)																				
(In INR Million)																				
	Without Project		Increments																	
	1 to 20	WP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15 to 16	17	18	19
Main Production																				
Goats	8,110	21,971	-	-	272	1,211	2,946	5,504	7,941	10,293	12,071	13,551	13,861	13,861	13,861	13,861	13,861	13,861	13,861	13,861
Inland fishery	2,275	3,971	-	36	198	577	1,003	1,389	1,679	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697	1,697
Backyard poultry	-	530	-	132	265	397	530	530	530	530	530	530	530	530	530	530	530	530	530	530
Proxy labour	129	-	-	-32	-65	-97	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129	-129
Sub-total Main Production	10,514	26,472	-	136	670	2,088	4,349	7,293	10,020	12,390	14,168	15,648	15,958							
Production Cost																				
Investment																				
Goat keeping	12,382	17,990	-	432	922	1,104	1,923	1,557	3,807	4,977	5,608	5,608	5,608	5,608	5,608	5,608	5,608	5,608	5,608	5,608
Fishery inputs	-	-	-	190	254	265	263	84	1	1	1	-	-	1	1	1	-	1	1	1
BYP inputs	-	346	-	142	228	315	401	346	346	346	346	346	346	346	346	346	346	346	346	346
Sub-total Investment Costs	12,382	18,336	-	765	1,405	1,684	2,588	1,987	4,154	5,325	5,955	5,954	5,954	5,955	5,955	5,955	5,954	5,955	5,955	5,954
Operating																				
Purchased Inputs																				
Fishery inputs	170	244	-	16	34	54	73	78	77	76	75	74	74	74	74	74	74	74	74	74
Labor																				
Labour	4,127	4,356	-	47	102	159	217	228	230	230	230	230	230	230	230	230	230	230	230	230
Sub-total Operating Costs	4,297	4,601	-	63	136	213	289	306	306	306	305	304								
Sub-Total Production Cost	16,678	22,937	-	827	1,541	1,896	2,877	2,293	4,460	5,630	6,260	6,258	6,258	6,259	6,259	6,259	6,258	6,259	6,259	6,259
Other Costs																				
BAaLI Project Investment cost	-	-	483	1,542	1,751	1,424	1,289	232	-	-	-	-	-	-	-	-	-	-	-	-
OUTFLOWS	16,678	22,937	483	2,369	3,292	3,320	4,166	2,525	4,460	5,630	6,260	6,258	6,258	6,259	6,259	6,259	6,258	6,259	6,259	6,259
Cash Flow	-6,164	3,536	-483	-2,233	-2,621	-1,232	182	4,769	5,560	6,760	7,908	9,390	9,700	9,699	9,699	9,699	9,700	9,699	9,699	9,700

IRR = 43.0%, NPV = 45,927.28

Annex-1.5: Project incremental Production

PRODUCTION AND INPUTS (Without		
(In Units '000)		Project	WP	Increment
Unit		1 to 20	20	20
Main Production				
Saleable goat	head	-	1,843.2	1,843.2
Saleable Kids	head	1,843.2	11,520.0	9,676.8
Culled buck	head	460.8	-	-460.8
Value of herd stock	head	1,843.2	4,608.0	2,764.8
Fish (mixed varieties)	kg	14,857.8	29,141.0	14,283.3
Sale of birds	bird	-	2,208.0	2,208.0
Proxy labour	INR/day	1,150.0	-	-1,150.0
Investment				
Breedable buck	head	345.6	161.5	-184.1
Breedable does	head	2,304.0	4,608.0	2,304.0
Kids born	kids	2,304.0	-	-2,304.0
Goat shed	shed	-	-	-
Equipment	goat unit	-	-	-
wheat straw	INR/goat	2,304.0	4,608.0	2,304.0
Green fodder	INR	2,304.0	4,608.0	2,304.0
Feed mixture	INR/goat	2,304.0	4,608.0	2,304.0
Vet services	head	-	4,608.0	4,608.0
Deworming	goat	-	4,608.0	4,608.0
Fish production kit	acre	-	-	-
Desilting	ha	-	-	-
Pond rejuvenation	0.5 acre	-	-	-
New Pond (one acre)	INR/acre	-	-	-
Poultry shed	shed	-	-	-
Chick	chick	-	2,300.0	2,300.0
Medicine	INR/bird	-	2,300.0	2,300.0
Feed	INR/bird	-	2,300.0	2,300.0
Kitchen wastes	INR/kg	-	2,300.0	2,300.0
Mortality	INR/bird	-	92.0	92.0
Insurance	INR/unit/year	-	46.0	46.0
Operating				
Purchased Inputs				
Fingerlings	INR/1000#	47.2	71.8	24.6
Earling	INR/#	-	142.0	142.0
Fish feed	INR/kg	1,630.0	2,604.0	974.0
Lime	INR/kg	450.0	618.0	168.0
seedlings	acre	-	-	-
Cowdung	INR/ton	10.1	16.8	6.7
Urea	INR/kg	900.0	1,684.0	784.0
SSP	INR/kg	1,080.0	2,155.2	1,075.2

Annex-1.6: Project incremental Labour

INDIA									
BAaLI									
Project Summary									
LABOR BUDGET									
(In Units '000)									
		Without	WP	Increments					
	Unit	Project	6 to 20	1	2	3	4	5	6 to 20
Labor Requirements									
weed clearance	INR/day	0.7	1.4	-	0.1	0.4	0.7	0.7	0.7
Manure application	INR/day	90.0	235.6	3.5	36.4	72.8	109.2	145.6	145.6
Stocking	INR/day	146.0	180.0	-	8.5	17.0	25.6	34.0	34.0
Watch and ward	pers_day	1,181.4	1,799.6	8.8	154.4	309.3	464.1	618.1	618.1
Pond maintenance	pers_day	90.0	235.6	3.5	36.4	72.8	109.2	145.6	145.6
Herding	pers_day	46,080.0	46,080.0	-	-	-	-	-	-
Pen construction	INR/day	-	0.4	-	0.1	0.2	0.4	0.4	0.4
Fish harvesting	INR/day	563.8	789.6	-	43.8	98.4	155.1	211.8	225.8
Sub-Total Labor Requirer		48,151.9	49,322.0	15.8	279.7	570.9	864.2	1,156.1	1,170.1

Annex-1.7: Project incremental “financial benefit stream” and household incomes

INDIA																					
BAaLI																					
Project Summary																					
FINANCIAL BUDGET (AGGREGATED)																					
(In INR Million)																					
	WOP	WP	Increments																		
	20	20	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																					
Goats	10,138	27,464	-	340	1,513	3,682	6,880	9,927	12,866	15,088	16,938	17,326	17,326	17,326	17,326	17,326	17,326	17,326	17,326	17,326	17,326
Inland fishery	2,844	4,964	45	247	721	1,253	1,736	2,098	2,121	2,121	2,121	2,121	2,121	2,121	2,121	2,121	2,121	2,121	2,121	2,121	2,121
Backyard poultry	-	662	166	331	497	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662	662
Proxy labour	173	-	-43	-86	-129	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173	-173
Sub-total Main Production	13,154	33,090	167	832	2,602	5,425	9,106	12,515	15,477	17,699	19,549	19,937									
Production Cost																					
Investment																					
Goat keeping	15,218	21,934	461	947	1,106	2,034	1,777	4,520	5,947	6,716	6,716	6,716	6,716	6,716	6,716	6,716	6,716	6,716	6,716	6,716	6,716
Fishery inputs	-	-	190	254	265	263	84	1	1	1	-	-	1	1	1	-	-	1	1	1	-
BYP inputs	-	352	157	245	333	421	352	352	352	352	352	352	352	352	352	352	352	352	352	352	352
Sub-total Investment Costs	15,218	22,286	809	1,446	1,703	2,719	2,213	4,873	6,300	7,069	7,068	7,068	7,069	7,069	7,069	7,068	7,068	7,069	7,069	7,069	7,068
Operating																					
Purchased Inputs																					
Fishery inputs	170	244	16	34	54	73	78	77	76	75	74	74	74	74	74	74	74	74	74	74	74
Hired Labor																					
Labour	5,502	5,808	63	136	212	289	304	306	306	306	306	306	306	306	306	306	306	306	306	306	306
Sub-total Operating Costs	5,672	6,053	78	170	266	361	382	383	382	381											
Sub-Total Production Cost	20,890	28,339	887	1,616	1,969	3,080	2,595	5,256	6,683	7,451	7,449	7,449	7,449	7,450	7,450	7,449	7,449	7,449	7,449	7,450	7,449
Other Costs																					
BAaLI Project Investment cost	-	-	1,542	1,751	1,424	1,289	232	-	-	-	-	-	-	-	-	-	-	-	-	-	-
OUTFLOWS	20,890	28,339	2,429	3,367	3,392	4,369	2,827	5,256	6,683	7,451	7,449	7,449	7,449	7,450	7,450	7,449	7,449	7,449	7,449	7,450	7,449
Cash Flow Before Financing	-7,736	4,751	-2,261	-2,535	-790	1,056	6,279	7,259	8,794	10,248	12,100	12,488	12,487	12,487	12,487	12,488	12,488	12,487	12,487	12,487	12,488
			-719	-784	633	2,345	6,511	7,259	8,794	10,248	12,100	12,488	12,487	12,487	12,487	12,488	12,488	12,487	12,487	12,487	12,488
IRR = 121.0%, NPV = 62,271.06																					
Average household incomes	-7736		-719	-784	633	2345	6511	7259	8794	10248	12100	12488	12487	12487	12487	12488	12488	12487	12487	12487	12488

Annex-1.8: Project implementation phasing of activities

FARM DISTRIBUTIONS (In Units '000)	Without	With Project					Increments				
	Project										
	1 to 20	1	2	3	4	5 to 20	1	2	3	4	5 to 20
Number of Farms											
Non-Participating											
Small livestock	460.8	460.8	414.8	299.8	161.5	-	-	-46.0	-161.0	-299.3	-460.8
Backyard poultry	46.0	46.0	34.5	23.0	11.5	-	-	-11.5	-23.0	-34.5	-46.0
Rejuvenated pond	11.2	10.9	8.4	5.6	2.8	-	-0.4	-2.8	-5.6	-8.4	-11.2
New Pond fishery	3.4	3.4	2.5	1.7	0.8	-	-	-0.8	-1.7	-2.5	-3.4
Improved fish culture	9.0	9.0	6.8	4.5	2.3	-	-	-2.3	-4.5	-6.8	-9.0
Ranching fishery	0.1	0.1	0.1	0.0	-	-	-	-0.0	-0.0	-0.1	-0.1
Participating											
Small livestock	-	-	46.0	161.0	299.3	460.8	-	46.0	161.0	299.3	460.8
Backyard poultry	-	-	11.5	23.0	34.5	46.0	-	11.5	23.0	34.5	46.0
Rejuvenated pond	-	0.4	2.8	5.6	8.4	11.2	0.4	2.8	5.6	8.4	11.2
New Pond fishery	-	-	0.8	1.7	2.5	3.4	-	0.8	1.7	2.5	3.4
Improved fish culture	-	-	2.3	4.5	6.8	9.0	-	2.3	4.5	6.8	9.0
Ranching fishery	-	-	0.0	0.0	0.1	0.1	-	0.0	0.0	0.1	0.1
Farm Area											
Non-Participating											
Small livestock	460.8	460.8	414.8	299.8	161.5	-	-	-46.0	-161.0	-299.3	-460.8
Backyard poultry	46.0	46.0	34.5	23.0	11.5	-	-	-11.5	-23.0	-34.5	-46.0
Rejuvenated pond	11.2	10.9	8.4	5.6	2.8	-	-0.4	-2.8	-5.6	-8.4	-11.2
New Pond fishery	3.4	3.4	2.5	1.7	0.8	-	-	-0.8	-1.7	-2.5	-3.4
Improved fish culture	9.0	9.0	6.8	4.5	2.3	-	-	-2.3	-4.5	-6.8	-9.0
Ranching fishery	0.1	0.1	0.1	0.0	-	-	-	-0.0	-0.0	-0.1	-0.1
Participating											
Small livestock	-	-	46.0	161.0	299.3	460.8	-	46.0	161.0	299.3	460.8
Backyard poultry	-	-	11.5	23.0	34.5	46.0	-	11.5	23.0	34.5	46.0
Rejuvenated pond	-	0.4	2.8	5.6	8.4	11.2	0.4	2.8	5.6	8.4	11.2
New Pond fishery	-	-	0.8	1.7	2.5	3.4	-	0.8	1.7	2.5	3.4
Improved fish culture	-	-	2.3	4.5	6.8	9.0	-	2.3	4.5	6.8	9.0
Ranching fishery	-	-	0.0	0.0	0.1	0.1	-	0.0	0.0	0.1	0.1

Annex-1.9: Prices used in the EFA, (as prevailed in August 2019) a/

INDIA			
BAaLI			
ECONOMIC AND FINANCIAL PRIC			
(In INR)			
	Unit	June-May	
		ECONOMIC	
Outputs			
Goats			
Saleable goat /a	head	1,920	2,400
Saleable goat /b	INR/goat	1,600	2,000
Saleable Kids /c	head	800	1,000
Culled buck	head	6,400	8,000
Value of herd stock	INR/animal	2,400	3,000
Goat manure	ton	1,600	2,000
Inland fishery			
Fish (mixed varieties)	kg	160	200
Fingerlings	each	2	2
Earlings	each	8	8
Backyard poultry			
Eggs	each	2.8	3.5
Sale of birds	bird	240	300
Sale of chick	#	28	28
Proxy labour			
Proxy labour	INR/day	112.5	150
Annual crops			
Paddy	ton	15,200	19,000
Maize	ton	12,800	16,000
Wheat	ton	20,000	25,000
vegetables	ton	8,000	10,000
Inputs			
Goat keeping			
Breedable buck	head	10,000	12,500
Breedable does	head	2,400	3,000
Male kid	head	800	1,000
Female kid	head	720	900
Goat shed /d	shed	6,500	6,500
Equipment	goat unit	250	250
wheat straw /e	INR/goat	704	880
Green fodder /f	INR	320	400
Feed mixture /g	INR/goat	450	450
Vaccine	dose	10	10
Vet services	head	25	25
Deworming	goat	5	5
Insurance /h	INR/year/heac	135	135
Fishery inputs			
Fingerlings	INR/1000#	2,000	2,000
Earling	INR/#	8	8
Fry	INR/1000#	250	250
Spawn	INR/1000#	15	15
Fish feed	INR/kg	35	35
Alternate feed	INR/kg	20	20
Lime	INR/kg	2	2
Rice bran	INR/kg	15	15
Fish production kit	acre	4,000	4,000
seedlings /i	acre	2,000	2,000
Cowdung	INR/ton	2,000	2,000
Urea	INR/kg	4.5	4.5
SSP	INR/kg	3	3
Pen making /j	INR/pen	53,500	53,500
Desilting /k	ha	40,000	40,000
Pond rejuvenation	0.5 acre	40,000	40,000
New Pond (one acre)	INR/acre	280,000	280,000

a/ Source: Directorates of Livestock and Fisheries and field

INDIA

BAaLl

ECONOMIC AND FINANCIAL PRIC

(In INR)

	Unit	June-May	
		ECONOMIC	
BYP inputs			
Poultry shed	shed	4,800	6,000
Chick	chick	28	28
Pullet	each	100	125
Pullet inducted	each	100	125
Cockeral	each	240	300
Medicine	INR/bird	5	5
Vaccine	bird	5	5
Feed	INR/bird	100	100
Kitchen wastes	INR/kg	2.5	5
Mortality	INR/bird	125	125
Insurance	INR/unit/year	500	500
Crops			
Vegetable cultivation	INR/acre	9,600	12,000
Paddy cultivation	INR/acre	9,200	11,500
Maize cultivation	INR/acre	6,800	8,500
Wheat cultivation	INR/acre	10,400	13,000
Labor			
Farm operations	INR/day	112.5	150
weed clearance	INR/day	112.5	150
Manure application	INR/day	112.5	150
Stocking	INR/day	112.5	150
Watch and ward	pers_day	112.5	150
Pond maintenance	pers_day	112.5	150
Herding	pers_day	112.5	150
Pen construction	INR/day	112.5	150
Fish harvesting	INR/day	150	200
Transporting	INR/day	150	200

\a average weight of 12 kg live weight

\b average live wt of 10 kg/goat

\c about 5 month old

\d enough for 5 does and one buck

\e 220 kg/goat at the rate of INR 4/kg

\f Maize, sorghum etc; at 400 kg/head

\g at 15 kg per goat at INR 30/kg

\h assumed at 5%

\i for planting along pond bunds

\j for 0.1 ha area (0.25 acre); life is 3 years

\k once in 5 year; about 20% area is desilted using bucket excavator

SUBPROJECT MODELS

Annex-2.1 Goat keeping sub-project, economic model (921,600 households)

INDIA												
BAaLI												
Goat development Subproject Model												
ECONOMIC BUDGET (DETAILED) (In INR Million)	Without											
	Project	WP	Increments									
	1 to 20	2	3	4	5	6	7	8	9	10	11 to 20	
Main Production												
Saleable goat	-	3,538.9	-	88.3	309.1	663.0	1,193.9	1,547.7	2,166.9	2,653.2	3,228.9	3,538.9
Saleable goat	737.3	-	-73.6	-257.6	-478.9	-737.3	-737.3	-737.3	-737.3	-737.3	-737.3	-737.3
Saleable Kids	1,843.2	7,372.8	73.6	331.2	773.3	1,418.6	2,008.4	2,708.5	3,721.5	4,625.2	5,529.6	5,529.6
Value of herd stock	5,529.6	11,059.2	-	110.4	607.2	1,601.5	3,039.4	4,422.5	5,142.0	5,529.6	5,529.6	5,529.6
Sub-total Main Production	8,110.1	21,970.9	-	272.3	1,210.7	2,945.8	5,504.3	7,941.4	10,293.2	12,070.8	13,550.8	13,860.9
Production Cost												
Investment												
Breedable buck	3,456.0	-	115.0	-57.5	-861.8	-1,841.0	-3,456.0	-3,456.0	-3,456.0	-3,456.0	-3,456.0	-3,456.0
Breedable does	5,529.6	11,059.2	-	110.4	607.2	1,601.5	3,039.4	4,422.5	5,142.0	5,529.6	5,529.6	5,529.6
Goat shed	-	-	299.0	747.5	899.0	1,049.8	-	-	-	-	-	-
Equipment	-	-	11.5	28.8	34.6	40.4	-	-	-	-	-	-
wheat straw	1,622.0	3,244.0	-	32.4	178.1	469.8	891.5	1,297.3	1,508.3	1,622.0	1,622.0	1,622.0
Green fodder	737.3	1,474.6	-	14.7	81.0	213.5	405.2	589.7	685.6	737.3	737.3	737.3
Feed mixture	1,036.8	2,073.6	-	20.7	113.9	300.3	569.9	829.2	964.1	1,036.8	1,036.8	1,036.8
Vet services	-	115.2	5.8	21.3	43.7	74.3	89.3	103.7	111.2	115.2	115.2	115.2
Deworming	-	23.0	1.2	4.3	8.7	14.9	17.9	20.7	22.2	23.0	23.0	23.0
Sub-total Investment Costs	12,381.7	17,989.6	432.4	922.5	1,104.4	1,923.4	1,557.1	3,807.0	4,977.4	5,607.9	5,607.9	5,607.9
Operating												
Herding	3,888.0	3,888.0	-	-	-	-	-	-	-	-	-	-
Sub-Total Production Cost	16,269.7	21,877.6	432.4	922.5	1,104.4	1,923.4	1,557.1	3,807.0	4,977.4	5,607.9	5,607.9	5,607.9
OUTFLOWS	16,269.7	21,877.6	432.4	922.5	1,104.4	1,923.4	1,557.1	3,807.0	4,977.4	5,607.9	5,607.9	5,607.9
Cash Flow	-8,159.6	93.3	-432.4	-650.2	106.3	1,022.4	3,947.2	4,134.4	5,315.7	6,462.8	7,942.8	8,252.9

IRR = 98.1%, NPV = 42,634.79

Annex-2.2 Goat keeping sub-project, financial model (921,000 households)

INDIA													
BAaLI													
Goat development Subproject Model													
FINANCIAL BUDGET (DETAILED)													
(In INR Million)													
	WOP		WP		Increments								
	20	11 to 20	2	3	4	5	6	7	8	9	10	11 to 19	20
Main Production													
Saleable goat	-	4,423.7	-	110.4	386.4	828.7	1,492.3	1,934.6	2,708.6	3,316.6	4,036.1	4,423.7	4,423.7
Saleable goat	921.6	-	-92.0	-322.0	-598.6	-921.6	-921.6	-921.6	-921.6	-921.6	-921.6	-921.6	-921.6
Saleable Kids	2,304.0	9,216.0	92.0	414.0	966.6	1,773.2	2,510.5	3,385.6	4,651.9	5,781.5	6,912.0	6,912.0	6,912.0
Value of herd stock	6,912.0	13,824.0	-	138.0	759.0	2,001.9	3,799.2	5,528.1	6,427.5	6,912.0	6,912.0	6,912.0	6,912.0
Sub-total Main Production	10,137.6	27,463.7	-	340.4	1,513.4	3,682.2	6,880.4	9,926.7	12,866.4	15,088.5	16,938.5	17,326.1	17,326.1
Production Cost													
Investment													
Breedable buck	4,320.0	-	143.8	-71.9	-1,077.2	-2,301.3	-4,320.0	-4,320.0	-4,320.0	-4,320.0	-4,320.0	-4,320.0	-4,320.0
Breedable does	6,912.0	13,824.0	-	138.0	759.0	2,001.9	3,799.2	5,528.1	6,427.5	6,912.0	6,912.0	6,912.0	6,912.0
Goat shed	-	-	299.0	747.5	899.0	1,049.8	-	-	-	-	-	-	-
Equipment	-	-	11.5	28.8	34.6	40.4	-	-	-	-	-	-	-
wheat straw	2,027.5	4,055.0	-	40.5	222.6	587.2	1,114.4	1,621.6	1,885.4	2,027.5	2,027.5	2,027.5	2,027.5
Green fodder	921.6	1,843.2	-	18.4	101.2	266.9	506.6	737.1	857.0	921.6	921.6	921.6	921.6
Feed mixture	1,036.8	2,073.6	-	20.7	113.9	300.3	569.9	829.2	964.1	1,036.8	1,036.8	1,036.8	1,036.8
Vet services	-	115.2	5.8	21.3	43.7	74.3	89.3	103.7	111.2	115.2	115.2	115.2	115.2
Deworming	-	23.0	1.2	4.3	8.7	14.9	17.9	20.7	22.2	23.0	23.0	23.0	23.0
Sub-total Investment Costs	15,217.9	21,934.1	461.2	947.5	1,105.5	2,034.3	1,777.2	4,520.4	5,947.4	6,716.2	6,716.2	6,716.2	6,716.2
Operating													
Herding	5,184.0	5,184.0	-	-	-	-	-	-	-	-	-	-	-
Sub-Total Production Cost	20,401.9	27,118.1	461.2	947.5	1,105.5	2,034.3	1,777.2	4,520.4	5,947.4	6,716.2	6,716.2	6,716.2	6,716.2
OUTFLOWS													
Cash Flow Before Financing	-10,264.3	345.6	-461.2	-607.1	407.9	1,647.9	5,103.2	5,406.4	6,919.0	8,372.3	10,222.3	10,609.9	10,609.9
IRR = None, NPV = 53,555.53													
Average household income	-11,157		-501	-660	443	1,791	5,547	5,876	7,521	9,100	11,111	11,533	11,533

Annex-2.3 Backyard poultry sub-project model, Financial (92,000 households)

INDIA								
BAaLI								
Backyard poultry Subproject Model								
FINANCIAL BUDGET (DETAILED)								
(In INR Million)								
	Without Project		Increments					
	1 to 20	WP	1	2	3	4	5	6 to 20
Main Production								
Sale of birds	-	662.4	-	165.6	331.2	496.8	662.4	662.4
Proxy labour	172.5	-	-	-43.1	-86.3	-129.4	-172.5	-172.5
Sub-total Main Production	172.5	662.4	-	122.5	245.0	367.4	489.9	489.9
Production Cost								
Investment								
Poultry shed	-	-	-	69.0	69.0	69.0	69.0	-
Chick	-	64.4	-	16.1	32.2	48.3	64.4	64.4
Medicine	-	11.5	-	2.9	5.8	8.6	11.5	11.5
Feed	-	230.0	-	57.5	115.0	172.5	230.0	230.0
Kitchen wastes	-	11.5	-	2.9	5.8	8.6	11.5	11.5
Mortality	-	11.5	-	2.9	5.8	8.6	11.5	11.5
Insurance	-	23.0	-	5.8	11.5	17.3	23.0	23.0
Sub-total Investment Costs	-	351.9	-	157.0	245.0	332.9	420.9	351.9
Operating								
Watch and ward	-	172.5	-	43.1	86.3	129.4	172.5	172.5
Sub-Total Production Cost	-	524.4	-	200.1	331.2	462.3	593.4	524.4
OUTFLOWS	-	524.4	-	200.1	331.2	462.3	593.4	524.4
Cash Flow Before Financing	172.5	138.0	-	-77.6	-86.3	-94.9	-103.5	-34.5
IRR = None, NPV = 346.56								
(375.63)								

Annex-2.4 Backyard poultry sub-project model, Economic (92,000 households)

INDIA								
BAaLI								
Backyard poultry Subproject Model								
ECONOMIC BUDGET (DETAILED)								
(In INR Million)								
	Without		Increments					
	Project	WP	1	2	3	4	5	6 to 20
	1 to 20	6 to 20	1	2	3	4	5	6 to 20
Main Production								
Sale of birds	-	529.9	-	132.5	265.0	397.4	529.9	529.9
Proxy labour	129.4	-	-	-32.3	-64.7	-97.0	-129.4	-129.4
Sub-total Main Production	129.4	529.9	-	100.1	200.3	300.4	400.5	400.5
Production Cost								
Investment								
Poultry shed	-	-	-	55.2	55.2	55.2	55.2	-
Chick	-	64.4	-	16.1	32.2	48.3	64.4	64.4
Medicine	-	11.5	-	2.9	5.8	8.6	11.5	11.5
Feed	-	230.0	-	57.5	115.0	172.5	230.0	230.0
Kitchen wastes	-	5.8	-	1.4	2.9	4.3	5.8	5.8
Mortality	-	11.5	-	2.9	5.8	8.6	11.5	11.5
Insurance	-	23.0	-	5.8	11.5	17.3	23.0	23.0
Sub-total Investment Costs	-	346.2	-	141.7	228.3	314.8	401.4	346.2
Operating								
Watch and ward	-	129.4	-	32.3	64.7	97.0	129.4	129.4
Sub-Total Production Cost	-	475.5	-	174.1	293.0	411.8	530.7	475.5
OUTFLOWS	-	475.5	-	174.1	293.0	411.8	530.7	475.5
Cash Flow	129.4	54.4	-	-73.9	-92.7	-111.4	-130.2	-75.0

IRR = None, NPV = -773.74

Annex-2.5 Fisheries sub-project economic model (38,940 households)

INDIA																				
BAaLI																				
Fishery development Subproject Model																				
ECONOMIC BUDGET (DETAILED)																				
(In INR Million)																				
	Without Project		Increments																	
	1 to 20	20	1	2	3	4	5	6	7	8	9	10 to 11	12	13	14	15 to 16	17	18	19	20
Main Production																				
Fish (mixed varieties)	2,274.8	3,971.4	-	36.0	197.7	577.0	1,002.5	1,388.5	1,678.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5	1,696.5
Production Cost																				
Investment																				
Fish production kit	-	-	-	11.9	14.9	15.4	15.4	4.0	-	-	-	-	-	-	-	-	-	-	-	-
Desilting	-	-	-	0.6	1.1	1.2	-	-	0.6	1.1	1.2	-	0.6	1.1	1.2	-	0.6	1.1	1.2	-
Pond rejuvenation	-	-	-	10.0	70.0	80.0	80.0	80.0	-	-	-	-	-	-	-	-	-	-	-	-
New Pond (one acre)	-	-	-	168.0	168.0	168.0	168.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total Investment Costs	-	-	-	190.5	254.0	264.6	263.4	84.0	0.6	1.1	1.2	-	0.6	1.1	1.2	-	0.6	1.1	1.2	-
Operating																				
Purchased Inputs																				
Fingerlings	88.0	123.2	-	5.3	13.6	22.4	31.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2	35.2
Earling	-	1.1	-	0.2	0.7	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Fish feed	54.3	77.7	-	3.6	9.8	16.5	23.1	26.6	25.8	25.0	24.2	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Lime	0.9	1.1	-	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
seedlings	-	-	-	4.5	4.5	4.5	4.5	-	-	-	-	-	-	-	-	-	-	-	-	-
Cowdung	19.6	29.2	-	1.4	3.6	6.0	8.4	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Urea	4.1	6.6	-	0.3	0.9	1.5	2.2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
SSP	3.2	5.5	-	0.3	0.8	1.4	1.9	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Sub-Total Purchased Inputs	170.0	244.5	-	15.6	34.0	53.6	72.7	77.6	76.8	76.0	75.2	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5
Labor																				
weed clearance	0.1	0.2	-	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Manure application	10.1	21.8	-	1.0	3.6	6.5	9.5	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Stocking	14.6	17.4	-	0.7	1.4	2.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Watch and ward	123.9	173.6	-	7.5	19.3	31.7	44.1	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7	49.7
Pond maintenance	10.1	21.8	-	1.0	3.6	6.5	9.5	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Pen construction	-	0.0	-	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fish harvesting	79.8	104.0	-	4.5	9.2	15.2	21.3	22.8	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3	24.3
Sub-Total Hired Labor	238.6	338.9	-	14.6	37.2	62.1	87.1	98.8	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3	100.3
Sub-total Operating Costs	408.7	583.4	-	30.2	71.1	115.7	159.8	176.4	177.1	176.3	175.5	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7	174.7
Sub-Total Production Cost	408.7	583.4	-	220.7	325.2	380.3	423.2	260.4	177.6	177.4	176.7	174.7	175.3	175.8	175.9	174.7	175.3	175.8	175.9	174.7
OUTFLOWS	408.7	583.4	-	220.7	325.2	380.3	423.2	260.4	177.6	177.4	176.7	174.7	175.3	175.8	175.9	174.7	175.3	175.8	175.9	174.7
Cash Flow	1,866.2	3,388.0	-	-184.7	-127.5	196.8	579.3	1,128.2	1,500.9	1,519.1	1,519.9	1,521.8	1,521.2	1,520.7	1,520.6	1,521.8	1,521.2	1,520.7	1,520.6	1,521.8

IRR = 107.7%, NPV = 9,373.36

Annex-2.6 Fisheries sub-project financial model (38,940 households)

INDIA																						
BAaLI																						
Fishery development Subproject Model																						
FINANCIAL BUDGET (DETAILED)																						
(In INR Million)																						
	WOP	WP	Increments																			
	20	20	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Main Production																						
Fish (mixed varieties)	2,843.6	4,964.2	-	45.0	247.1	721.3	1,253.2	1,735.7	2,098.2	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7	2,120.7
Production Cost																						
Investment																						
Fish production kit	-	-	-	11.9	14.9	15.4	15.4	4.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Desilting	-	-	-	0.6	1.1	1.2	-	-	0.6	1.1	1.2	-	-	0.6	1.1	1.2	-	-	0.6	1.1	1.2	-
Pond rejuvenation	-	-	-	10.0	70.0	80.0	80.0	80.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Pond (one acre)	-	-	-	168.0	168.0	168.0	168.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sub-total Investment Costs	-	-	-	190.5	254.0	264.6	263.4	84.0	0.6	1.1	1.2	-	-	0.6	1.1	1.2	-	-	0.6	1.1	1.2	-
Operating																						
Purchased Inputs																						
Sub-Total Purchased Inputs	170.0	244.5	-	15.6	34.0	53.6	72.7	77.6	76.8	76.0	75.2	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5	74.5
Labor																						
weed clearance	0.1	0.2	-	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Manure application	13.5	29.1	-	1.3	4.8	8.7	12.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
Stocking	19.5	23.2	-	0.9	1.8	2.8	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Watch and ward	165.2	231.5	-	10.0	25.7	42.3	58.8	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3	66.3
Pond maintenance	13.5	29.1	-	1.3	4.8	8.7	12.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6	15.6
Pen construction	-	0.1	-	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Fish harvesting	106.4	138.7	-	6.0	12.3	20.2	28.4	30.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4
Sub-Total Hired Labor	318.2	451.9	-	19.5	49.5	82.8	116.2	131.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7	133.7
Sub-total Operating Costs	488.2	696.4	-	35.1	83.5	136.4	188.9	209.3	210.5	209.7	208.9	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1	208.1
Sub-Total Production Cost	488.2	696.4	-	225.6	337.5	401.0	452.3	293.3	211.1	210.8	210.1	208.1	208.1	208.7	209.3	209.3	208.1	208.1	208.7	209.3	209.3	208.1
OUTFLOWS	488.2	696.4	-	225.6	337.5	401.0	452.3	293.3	211.1	210.8	210.1	208.1	208.1	208.7	209.3	209.3	208.1	208.1	208.7	209.3	209.3	208.1
Cash Flow Before Financing	2,355.3	4,267.8	-	-180.6	-90.4	320.3	800.9	1,442.4	1,887.1	1,909.8	1,910.6	1,912.5	1,912.5	1,912.0	1,911.4	1,911.4	1,912.5	1,912.5	1,912.0	1,911.4	1,911.4	1,912.5
IRR = None, NPV = 13,676.10																						
Averag ehousehold income	60,486	109,601	-	-4,637	-2,323	8,226	20,567	37,041	48,461	49,045	49,064	49,114	49,114	49,100	49,086	49,085	49,114	49,114	49,100	49,086	49,085	49,114

AREA AND HOUSEHOLD MODELS:

Annex-3.1: Goat keeping household model (5+1)

INDIA

BAaLI

Small livestock activity

FINANCIAL BUDGET (DETAILED)

(In INR '000)

	WOP	WP	Increments							
	20	20	1	2	3	4	5	6	7 to 19	20
Main Production										
Saleable goat	-	9.6	-	2.4	2.4	4.8	4.8	7.2	9.6	9.6
Saleable goat	2.0	-	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Saleable Kids	5.0	20.0	2.0	4.0	5.0	7.0	8.0	15.0	15.0	15.0
Value of herd stock	15.0	30.0	-	3.0	9.0	12.0	15.0	15.0	15.0	15.0
Sub-total Main Production	22.0	59.6	-	7.4	14.4	21.8	25.8	35.2	37.6	37.6
Production Cost										
Investment										
Breedable buck	9.4	-	3.1	-9.4	-9.4	-9.4	-9.4	-9.4	-9.4	-9.4
Breedable does	15.0	30.0	-	3.0	9.0	12.0	15.0	15.0	15.0	15.0
Goat shed	-	-	6.5	-	-	-	-	-	-	-
Equipment	-	-	0.3	-	-	-	-	-	-	-
wheat straw	4.4	8.8	-	0.9	2.6	3.5	4.4	4.4	4.4	4.4
Green fodder	2.0	4.0	-	0.4	1.2	1.6	2.0	2.0	2.0	2.0
Feed mixture	2.3	4.5	-	0.5	1.4	1.8	2.3	2.3	2.3	2.3
Vet services	-	0.3	0.1	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Deworming	-	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Sub-total Investment Costs	33.0	47.6	10.0	-4.5	5.1	9.8	14.6	14.6	14.6	14.6
Operating										
Herding	11.3	11.3	-	-	-	-	-	-	-	-
Sub-Total Production Cost	44.3	58.9	10.0	-4.5	5.1	9.8	14.6	14.6	14.6	14.6
OUTFLOWS	44.3	58.9	10.0	-4.5	5.1	9.8	14.6	14.6	14.6	14.6
Cash Flow Before Financing	-22.3	0.8	-10.0	11.9	9.3	12.0	11.2	20.6	23.0	23.0

IRR = 97.0%, NPV = 100.41

BAaLI

Small livestock activity

SUMMARY FINANCIAL EFFICIENCY MEASURES

(In INR '000)

	Appraisal Value	Switching Value	Percent Change
Switching values before financing at 12%			
Incremental inflows	188.7	79.8	-57.7
Incremental outflows			
Investment costs	79.8	188.7	136.4
Operating costs	-	108.9	743.5
Other Costs	-	67,184,286.4	1,165.9
Total outflows	79.8	188.7	136.4
Net Present Value = 108,913.50			
Internal rate of return = 116.39%			
Benefits cost ratio = 2.36			

Annex-3.2: Backyard poultry household models (10 chicks, 5 cycles unit)

INDIA							
BAaLI							
Backyard poultry activity							
FINANCIAL BUDGET (DETAILED)							
(In INR '000)							
	June-May						
	Without Project	With Project			Increments		
	1 to 20	1	2 to 19	20	1	2 to 19	20
Main Production							
Sale of birds	-	14.4	14.4	14.4	14.4	14.4	14.4
Proxy labour	3.8	-	-	-	-3.8	-3.8	-3.8
Sub-total Main Production	3.8	14.4	14.4	14.4	10.7	10.7	10.7
Production Cost							
Investment							
Poultry shed	-	6.0	-	-	6.0	-	-
Chick	-	1.4	1.4	1.4	1.4	1.4	1.4
Medicine	-	0.3	0.3	0.3	0.3	0.3	0.3
Feed	-	5.0	5.0	5.0	5.0	5.0	5.0
Kitchen wastes	-	0.3	0.3	0.3	0.3	0.3	0.3
Mortality	-	0.3	0.3	0.3	0.3	0.3	0.3
Insurance	-	0.5	0.5	0.5	0.5	0.5	0.5
Sub-total Investment Costs	-	13.7	7.7	7.7	13.7	7.7	7.7
Operating							
Watch and ward	-	3.8	3.8	3.8	3.8	3.8	3.8
Sub-Total Production Cost	-	17.4	11.4	11.4	17.4	11.4	11.4
OUTFLOWS	-	17.4	11.4	11.4	17.4	11.4	11.4
Cash Flow Before Financing	3.8	-3.0	3.0	3.0	-6.8	-0.8	-0.8

IRR = -7.8%, NPV = -19.96

Backyard poultry activity			
SUMMARY FINANCIAL EFFICIENCY MEASURES			
(In INR '000)			
	Appraisal Value	Switching Value	Percent Change
Switching values before financing at 12%			
Incremental inflows	79.5	90.5	13.8
Incremental outflows			
Investment costs	62.5	51.5	-17.5
Operating costs	28.0	17.1	-39.1
Total outflows	90.5	79.5	-12.1
Net Present Value = -10,959.23			
Internal rate of return = None			
Benefits cost ratio = 0.88			

Annex-3.3: Rejuvenated fish pond (o.5 acre) household model

INDIA											
BAaLI											
Rejuvenated pond activity											
FINANCIAL BUDGET (DETAILED)											
(In INR '000)											
	Without Project		June-May			With Project			Increments		
	1 to 19	20	1	2 to 19	20	1	2 to 19	20			
Main Production											
Fish (mixed varieties)	40.0	40.0	40.0	180.0	180.0	-	140.0	140.0			
Production Cost											
Investment											
Fish production kit	-	-	2.0	-	-	2.0	-	-			
Pond rejuvenation	-	-	40.0	-	-	40.0	-	-			
Sub-total Investment Costs	-	-	42.0	-	-	42.0	-	-			
Operating											
Purchased Inputs											
Fingerlings	2.0	2.0	4.0	4.0	4.0	2.0	2.0	2.0			
Fish feed	0.9	0.9	2.6	2.6	2.6	1.8	1.8	1.8			
Cowdung	0.2	0.2	0.8	0.8	0.8	0.6	0.6	0.6			
Urea	-	-	0.2	0.2	0.2	0.2	0.2	0.2			
SSP	-	-	0.2	0.2	0.2	0.2	0.2	0.2			
Sub-Total Purchased Inputs	3.1	3.1	7.8	7.8	7.8	4.7	4.7	4.7			
Labor											
Manure application	-	-	1.5	1.5	1.5	1.5	1.5	1.5			
Stocking	0.8	0.8	0.8	0.8	0.8	-	-	-			
Watch and ward	3.8	3.8	7.5	7.5	7.5	3.8	3.8	3.8			
Pond maintenance	-	-	1.5	1.5	1.5	1.5	1.5	1.5			
Fish harvesting	2.0	2.0	2.0	3.0	3.0	-	1.0	1.0			
Sub-Total Hired Labor	6.5	6.5	13.3	14.3	14.3	6.8	7.8	7.8			
Sub-total Operating Costs	9.6	9.6	21.0	22.0	22.0	11.5	12.5	12.5			
Sub-Total Production Cost	9.6	9.6	63.0	22.0	22.0	53.5	12.5	12.5			
OUTFLOWS	9.6	9.6	63.0	22.0	22.0	53.5	12.5	12.5			
Cash Flow Before Financing	30.4	30.4	-23.0	158.0	158.0	-53.5	127.5	127.5			

IRR = 193.5%, NPV = 781.21

Rejuvenated pond activity			
SUMMARY FINANCIAL EFFICIENCY MEASURES			
(In INR '000)			
	Appraisal Value	Switching Value	Percent Change
Switching values before financing at 12%			
Incremental inflows	920.7	129.7	-85.9
Incremental outflows			
Investment costs	37.5	828.5	2,109.5
Operating costs	92.2	883.2	858.2
Other Costs	-	44,399,339.2	736.6
Total outflows	129.7	920.7	610.0
Net Present Value = 791,045.70			
Internal rate of return = 238.57%			
Benefits cost ratio = 7.10			

Annex-3.4: New Pond fishery household model

New Pond fishery activity FINANCIAL BUDGET (DETAILED) (In INR '000)	June-May									
	Without Project	With Project				Increments				
		1 to 20	1	2	3 to 19	20	1	2	3 to 19	20
Main Production										
Fish (mixed varieties)	-	-	200.0	300.0	300.0	-	200.0	300.0	300.0	
Production Cost										
Investment										
Fish production kit	-	4.0	-	-	-	4.0	-	-	-	
New Pond (one acre)	-	280.0	-	-	-	280.0	-	-	-	
Sub-total Investment Costs	-	284.0	-	-	-	284.0	-	-	-	
Operating										
Purchased Inputs										
Fingerlings	-	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	
Fish feed	-	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	
Lime	-	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Cowdung	-	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Urea	-	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
SSP	-	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	
Sub-Total Purchased Inputs	-	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	
Labor										
Manure application	-	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Stocking	-	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Watch and ward	-	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0	
Pond maintenance	-	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
Fish harvesting	-	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	
Sub-Total Hired Labor	-	29.5	29.5	29.5	29.5	29.5	29.5	29.5	29.5	
Sub-total Operating Costs	-	45.7	45.7	45.7	45.7	45.7	45.7	45.7	45.7	
Sub-Total Production Cost	-	329.7	45.7	45.7	45.7	329.7	45.7	45.7	45.7	
OUTFLOWS	-	329.7	45.7	45.7	45.7	329.7	45.7	45.7	45.7	
Cash Flow Before Financing	-	-329.7	154.3	254.3	254.3	-329.7	154.3	254.3	254.3	

IRR = 58.0%, NPV = 1,262.60

New Pond fishery activity SUMMARY FINANCIAL EFFICIENCY MEASURES (In INR '000)	Appraisal	Switching	Percent
	Value	Value	Change
Switching values before financing at 12%			
Incremental inflows	1,893.3	594.6	-68.6
Incremental outflows			
Investment costs	253.6	1,552.2	512.1
Operating costs	341.1	1,639.7	380.8
Other Costs	-	44,399,339.2	736.6
Total outflows	594.6	1,893.3	218.4
Net Present Value = 1,298,630.33			
Internal rate of return = 65.18%			
Benefits cost ratio = 3.18			

Annex-3.5: Culture fisheries household model

Improved fish culture activity														
FINANCIAL BUDGET (DETAIL)														
(In INR '000)														
June-May														
	WOP		With Project						Increments					
	20	1	2 to 3	4	5	6 to 19	20	1	2 to 3	4	5	6 to 19	20	
Main Production														
Fish (mixed varieties)	280.0	300.0	300.0	310.0	310.0	310.0	310.0	20.0	20.0	30.0	30.0	30.0	30.0	
Production Cost														
Investment														
Fish production kit	-	4.0	-	-	-	-	-	4.0	-	-	-	-	-	
Operating														
Purchased Inputs														
Fingerlings	8.0	8.0	8.0	8.0	8.0	8.0	8.0	-	-	-	-	-	-	
Fish feed	5.3	5.3	5.3	5.3	5.3	4.9	4.9	-	-	-	-	-0.4	-0.4	
Lime	0.1	0.1	0.1	0.1	0.1	0.1	0.1	-	-	-	-	-	-	
seedlings	-	2.0	-	-	-	-	-	2.0	-	-	-	-	-	
Cowdung	2.0	2.0	2.0	2.0	2.0	2.0	2.0	-	-	-	-	-	-	
Urea	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	-	-	-	-	-	
SSP	0.4	0.4	0.4	0.4	0.4	0.4	0.4	-	-	-	-	-	-	
Sub-Total Purchased Input	16.2	18.2	16.2	16.2	16.2	15.8	15.8	2.0	-	-	-	-0.4	-0.4	
Labor														
Manure application	1.5	1.5	1.5	1.5	1.5	1.5	1.5	-	-	-	-	-	-	
Stocking	1.5	1.5	1.5	1.5	1.5	1.5	1.5	-	-	-	-	-	-	
Watch and ward	15.0	15.0	15.0	15.0	15.0	15.0	15.0	-	-	-	-	-	-	
Pond maintenance	1.5	1.5	1.5	1.5	1.5	1.5	1.5	-	-	-	-	-	-	
Fish harvesting	10.0	10.0	10.0	10.0	10.0	10.0	10.0	-	-	-	-	-	-	
Sub-Total Hired Labor	29.5	-	-	-	-	-	-							
Sub-total Operating Costs	45.7	47.7	45.7	45.7	45.7	45.3	45.3	2.0	-	-	-	-0.4	-0.4	
Sub-Total Production Cost	45.7	51.7	45.7	45.7	45.7	45.3	45.3	6.0	-	-	-	-0.4	-0.4	
OUTFLOWS														
Cash Flow Before Financing	234.3	248.3	254.3	264.3	264.3	264.7	264.7	14.0	20.0	30.0	30.0	30.4	30.4	

IRR = None, NPV = 196.22

Improved fish culture activity			
SUMMARY FINANCIAL EFFICIENCY MEASURES			
(In INR '000)			
	Appraisal Value	Switching Value	Percent Change
Switching values before financing at 12%			
Incremental inflows	200.1	4.0	-98.0
Incremental outflows			
Investment costs	3.6	199.6	5,489.7
Operating costs	0.4	196.5	45,271.1
Other Costs	-	44,399,339.2	736.6
Total outflows	4.0	200.1	4,896.0
Net Present Value = 196,060.49			
Internal rate of return = None			
Benefits cost ratio = 49.96			

Annex-3.6: Oxbow lake fisheries household model

Ranching fishery activity											
FINANCIAL BUDGET (DETAILS)											
(In INR '000)											
	WOP	WP	Increments								
	20	20	1	2 to 4	5	6	7 to 9	10	16	17 to 1!	20
Main Production											
Fish (mixed varieties)	50.0	200.0	-	150.0	150.0	150.0	150.0	150.0	150.0	150.0	150.0
Production Cost											
Investment											
Desilting	-	-	40.0	-	-	40.0	-	-	40.0	-	-
Operating											
Purchased Inputs											
Earling	-	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Labor											
weed clearance	1.5	3.0	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Stocking	-	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Watch and ward	3.0	7.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Pen construction	-	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Fish harvesting	5.0	10.0	-	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Sub-Total Hired Labor	9.5	22.0	7.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
Sub-total Operating Costs	9.5	38.0	23.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5	28.5
Sub-Total Production Cost	9.5	38.0	63.5	28.5	28.5	68.5	28.5	28.5	68.5	28.5	28.5
OUTFLOWS	9.5	38.0	63.5	28.5	28.5	68.5	28.5	28.5	68.5	28.5	28.5
Cash Flow Before Financing	40.5	162.0	-63.5	121.5	121.5	81.5	121.5	121.5	81.5	121.5	121.5
IRR = 130.0%, NPV = 676.98											

BAaLI			
Ranching fishery activity			
SUMMARY FINANCIAL EFFICIENCY MEASURES			
(In INR '000)			
	Appraisal Value	Switching Value	Percent Change
Switching values before financing at 12%			
Incremental inflows	986.5	282.4	-71.4
Incremental outflows			
Investment costs	74.0	778.1	951.4
Operating costs	208.4	912.5	337.8
Other Costs	-	44,399,339.2	736.6
Total outflows	282.4	986.5	249.3
Net Present Value = 704,069.67			
Internal rate of return = 190.76%			
Benefits cost ratio = 3.49			

India

**Bihar Aquaculture and Livestock Improvement Project
Project Design Report**

Annex 5: Social Environment and Climate Assessment (SECAP) Review Note

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

SECAP Review Note on India: Doubling Income through Small Livestock Promotion in Bihar (BAaLI)

I. Major landscape characteristics and Issues (Social, natural resources, and climate)

A. Development Profile

1. Doubling Income through Small Livestock Promotion in Bihar (BAaLI) is a project designed to enable smallholder producers and landless households to enhance their income and food security. The project is proposed to be implemented in 12 districts in the state of Bihar, seven of these districts have significant tribal populations and 7 districts are aspirational districts¹. The project will adopt a cluster based livestock development and marketing approach with engagement of the private sector as one of the main features. Activities include: (i) small livestock promotion; (ii) inland fisheries promotion; and (iii) project management, M&E and policy support. The detailed description of the project components is available in the Project Design Report and Project Implementation Manual (annex 8).
2. **Bihar Geography:** Bihar is a land locked state situated in the eastern part of India. Bihar's land average elevation above sea level is 53 meter. The total area of the state is 94,163 km² (2.86 percent of India's geographical area, 13th largest state) out of which 97.97 percent are rural areas and 2.03 percent are urban areas. The state is divided by river Ganga into two parts, the north Bihar with an area of 53,300 km² and the south Bihar having an area of 40,900 km². Based on physiographic, bioclimatic, soils and the length of growing period, Bihar is divided into three agro-ecological zones namely, North West Alluvial plains (Zone-I), North East Alluvial plains (Zone-II) and South Bihar Alluvial (Zone-III).
3. **Bihar Administration and Demography:** Bihar is divided into 38 districts for administrative purpose. As per census data 2011², the total population of Bihar is 104.1 million making it the third-largest state by population with decadal growth rate of 25.07 percent (India: 17.6%). Population density is 1,106 persons per km² (India: 382/km²), sex ratio is 918 females per thousand males (India: 943), literacy rate is 61.80 percent (India: 73%) in the state and poverty ratio is 33.74 percent (India: 21.92%).³ Rural and urban population is 88.71 percent and 11.29 percent of total population with literacy rate of 59.78 percent and 76.86 percent respectively.

¹ Transformation of Aspirational Districts Programme (GoI) aims to rapidly transform the districts that have shown relatively lesser progress in key social areas and have emerged as pockets of under-development, thereby posing a challenge to ensure balanced regional development. It was launched by the Prime Minister on January 5, 2018.

² Data from Census 2011 as published by Office of the Registrar General & Census Commissioner.

³ Handbook of Statistics on Indian States 2017-18, Reserve Bank of India 2017-18.

The Multi-dimensional Poverty Index (MPI⁴) stands at 0.246 and proportion of poor population in Bihar is 52.2%, of them, 22.1 percent come under severely poor population.

4. **Bihar Economy:** The economy of Bihar is largely service-oriented, but it also has a significant agricultural base. According to Bihar statistical handbook, Bihar state has 57.56 percent (financial year 2015-16) families below poverty line (BPL family).⁵ Bihar has the lowest per Capita net state domestic product at INR 35,590 (US\$560)⁶. However, Bihar has witnessed strong growth in per capita net state domestic product (NSDP). At current prices, per capita NSDP of the state grew at a CAGR (Compound annual growth rate) of 10.16 per cent (in Rs) during 2011-12 to 2017-18⁷. In 2017-18, the sectors of agriculture, manufacturing, and services contributed to 23%, 15%, and 62 percent of the State Gross Value Added (GSVA)⁸. The share of fisheries and aquaculture in agricultural GSDP was about 8.17 percent in Bihar during 2017-18. The contribution of livestock sector and fisheries to state's GSDP stood at 5.30 and 1.53 per cent, respectively during 2017-18. Bihar has about 630,000 SHGs (Self Help Groups) with 7.3 million members as of 2019 (92.3 million rural population, 16.9 million rural households)⁹.
5. **BAaLI Districts:** BAaLI project implementation is proposed to be taken up in 12 districts, namely, Aurangabad, Banka, Kaimur (Bhabua), Katihar, Khagaria¹⁰, Kishanganj, Madhubani, Nawada, West Champaran, East Champaran, Rohtas and Sitamarhi. Figure 1 shows the BAaLI districts of Bihar.

Figure 1: BAaLI Implementation Districts of Bihar

⁴ Global MPI 2018 Report: Oxford Poverty and Human Development Initiative and UNDP; MPI reflects both the proportion of people suffering from poverty as well as the degree to which they are deprived.

⁵ Bihar statistical handbook (2016). <http://dse.bih.nic.in/New-Publications/Bihar%20Statistical%20Handbook-2016.pdf>.

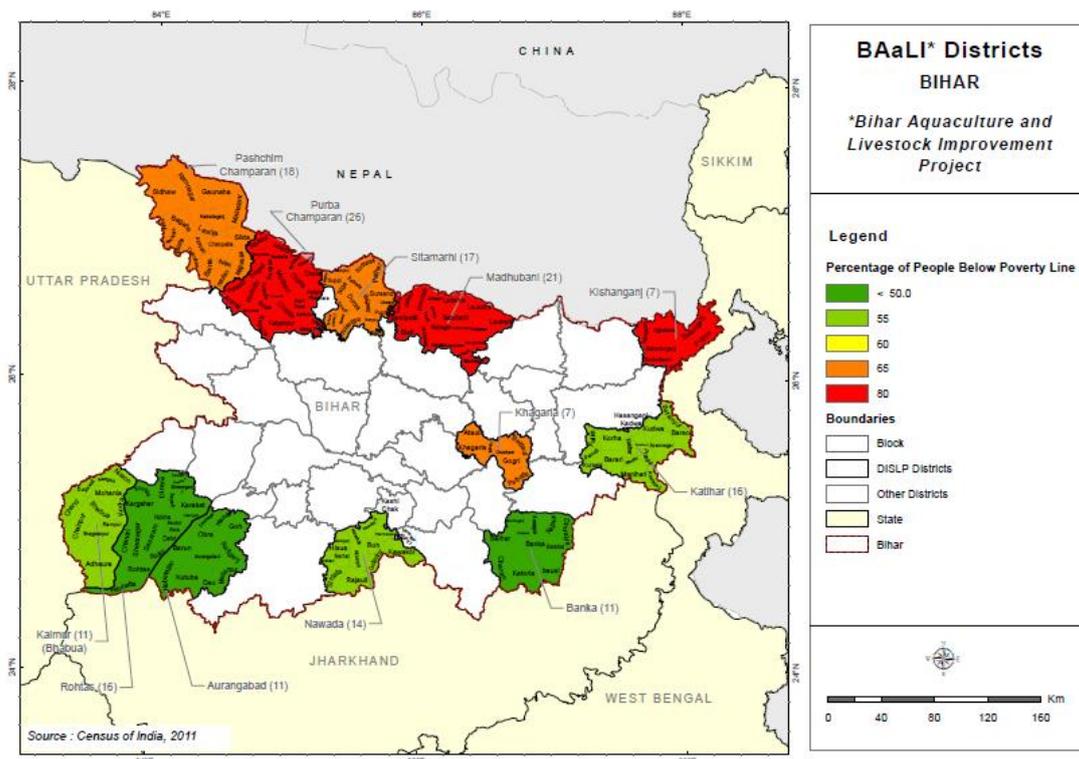
⁶ At factor cost (NSDP at current price for 2016-17 with 2011-12 as base year). Handbook of Statistics on Indian States 2017-18, Reserve Bank of India.

⁷ Central Statistics Office

⁸ Bihar Budget Analysis 2019-20, <https://www.prsindia.org/parliamenttrack/budgets/bihar-budget-analysis-2019-20>.

⁹ Ministry of Rural Development, Gol, <https://nrlm.gov.in>.

¹⁰ Khagaria is Khagharia, Kishanganj is Kisanganj, Madhubani is , Nawada is Newada, Pashchim Champaran is West Champaran, Purba Champaran is East Champaran in PPR document.

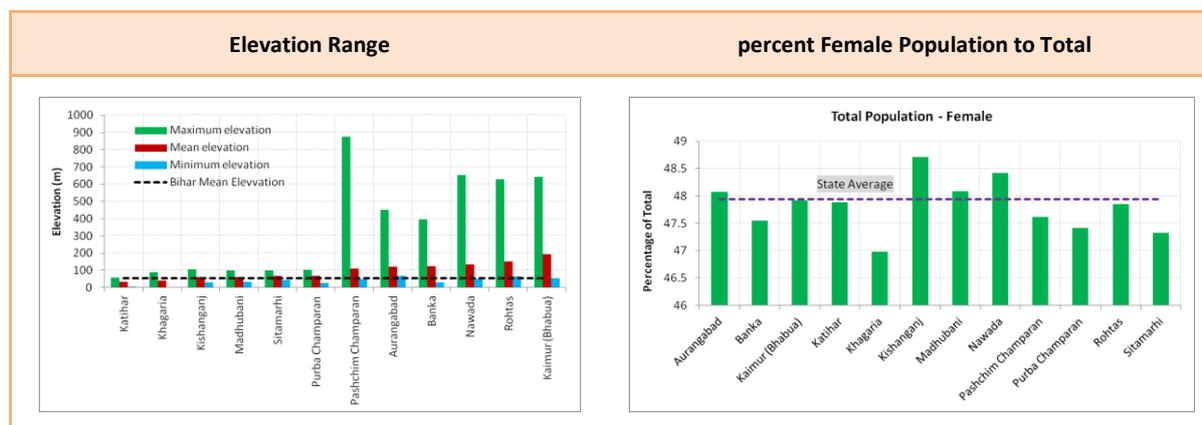


6. **BAaLI Districts' Geography:** There are two distinct regions which divide Bihar into two parts namely, north of Ganga River and south of Ganga River. Seven districts of Katihar, Khagaria, Kishanganj, Madhubani, West Champaran, East Champaran, and Sitamarhi fall in north of Ganga River region and rest five districts namely, Aurangabad, Banka, Kaimur (Bhabua), Nawada, and Rohtas fall in south of Ganga River.
7. Region north of Ganga River is alluvial plain and is densely populated with negligible forest cover and no mineral wealth. The economy of the area is based mainly on agriculture. In spite of higher yield per hectare, the per capita income of the people is the lowest in the region. Reason is mainly due to pressure of population on land, inequitable distribution of land and annual recurrence of flood. Activities under secondary and tertiary sectors of the economy are at sub optimum level.
8. The Southern Plateau region is spread from Banka in the East to Kaimur district in the West. Hard rocks such as granite, schist, and gneiss make up this region. Conical hills are present on the plateau such as Jethian hill.
9. Average elevation above sea level varies from 33 m to 194 m in the districts. Districts of West Champaran, Nawada, Rohtas and Kaimur (Bhabua) have the largest elevation differences (Figure 2).
10. **BAaLI Districts' Demography:** Total population of the 12 districts is about 35.00 million which accounts for 33 percent of total population of Bihar (as per 2011 census). East Champaran has the highest population and Kishanganj has the lowest population. East Champaran has the largest rural population (4.7 million) and Rohtas has the highest urban population (0.4 million). Percentage of female population is about 48 percent in 12 districts with highest in Kishanganj (48.7percent) and lowest in Khagaria (47percent). Average population density of 12 districts is

951 persons per km² (Bihar average is 1,106) and Kaimur (Bhabua) has the lowest of 488. Average sex ratio is 917 females per thousand males (Bihar average is 918, Kishanganj has highest sex ratio of 950 and Khagaria has lowest of 886). Average literacy rate is 60.0 percent (Bihar average is 61.8 percent, Rohtas has highest literacy rate of 73.4 percent and Sitamarhi has lowest of 52.1 percent). Scheduled Caste (SC) and Scheduled Tribes (ST) population in BAaLI districts is 16.0 percent and 2 percent of the total population respectively. Nawada has the highest percent of SC population (25.5 percent) and lowest is in Kishanganj (6.7 percent). Only districts of Banka, Kaimur (Bhabua), Katihar, Kishanganj, West Champaran and Nawada have ST population more than 3.5 percent (West Champaran has the highest percent of ST population (6.4 percent)). Women constitute about 19.3 percent of main (6.2 million) and 43.1 percent (4.2 million) of marginal workers under cultivators and agriculture labourers respectively (Figure 2). 57.8 percent of total non-working population (25.5 million, 65.4 percent of total population of BAaLI districts) are women. 66.5 percent of total household (7.2 million) do not own land and belong to landless category (Figure 2). About 91.2 percent of Bihar's farm households are marginal (holdings of less than 1 hectare), accounting for 57.7 percent of total land area in 2015-16.¹¹

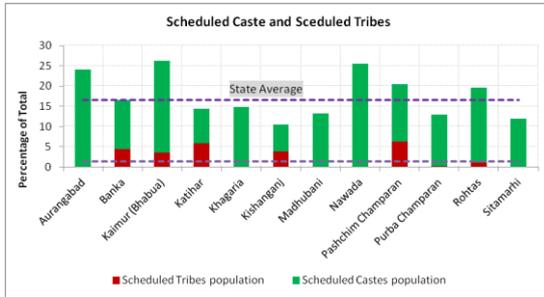
11. **BAaLI Districts' Economy:** GSDP of all the 12 BAaLI districts are below state average per capita GSDP (INR 14,574). Districts of Madhubani, Banka, Sitamarhi and Nawada have the lowest GSDP. Districts of Rohtas, Khagaria, Katihar, Jand Aurangabad are the top 5 districts having higher per capita GSDP. Based on the MPI most of the districts in north Bihar have the highest MPI and two districts with the highest MPI are Kishanganj and Sitamarhi (Figure 2). Families under below poverty level in BAaLI districts is 58 percent (Bihar average is 57.6 percent) with highest number of families under BPL in Kishanganj district (79 percent). Districts of East Champaran, Madhubani, West Champaran, Sitamarhi, and Khagaria have more than 60 percent families under BPL and all these belong to north of Ganga region in north Bihar.
12. All statistics on elevation, demography, working population, poverty, landless and economy discussed in previous paragraphs are consolidated as graphs in Figure 2.

Figure 2: BAaLI Implementations Districts at a Glance - Development profile

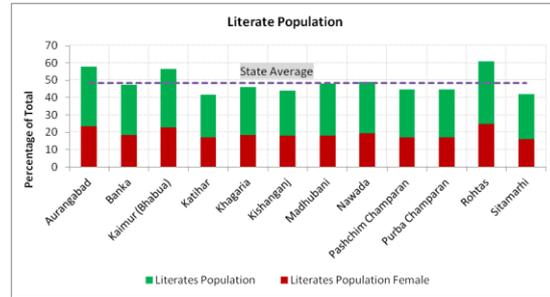


¹¹ Agriculture Census, 2015-16, Ministry of Agriculture & Farmers Welfare, GoI, 2018.

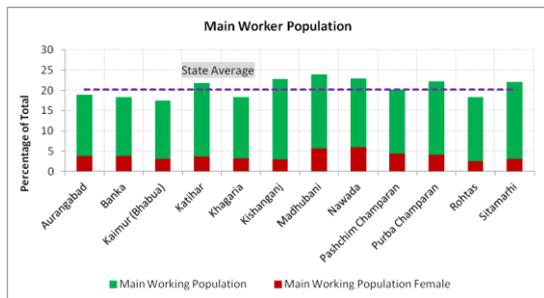
percent SC and ST Population to Total



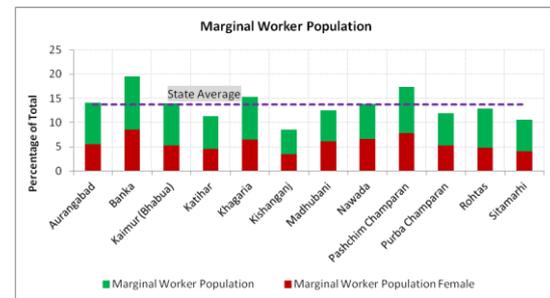
percent Literate Population to Total



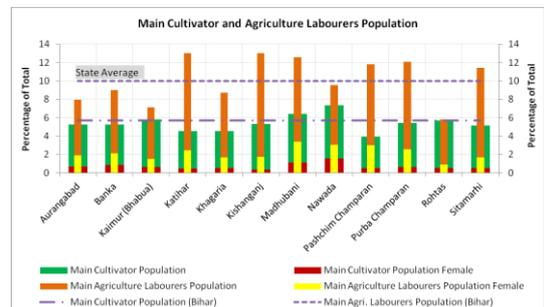
percent Main Workers to Total



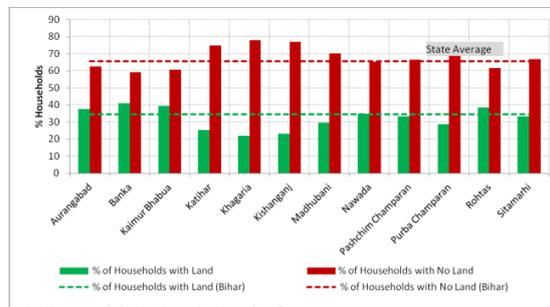
percent Marginal Workers to Total



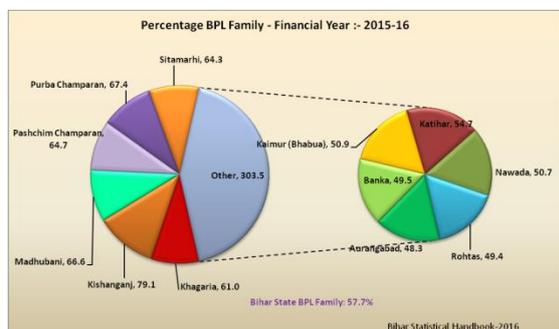
percent Main Cultivator & Agri Labour Pop to Total



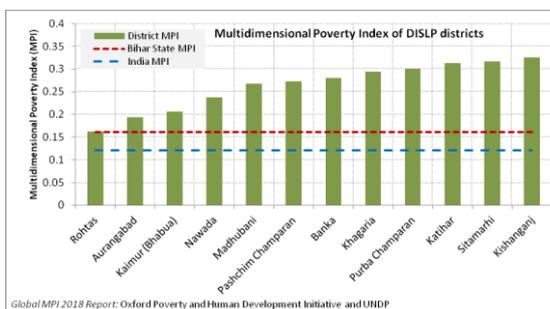
percent of Households with /without Land



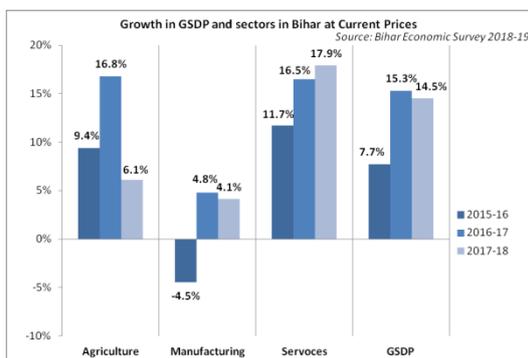
percent Below Poverty Line Families - 2015-16



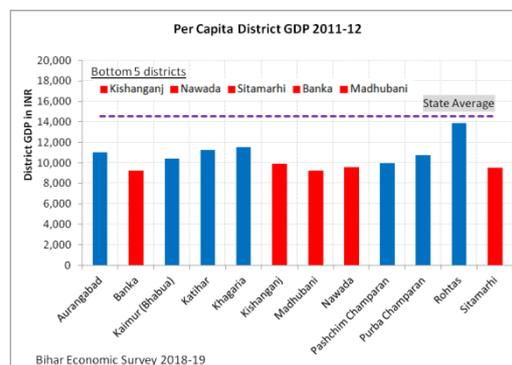
Multidimensional Poverty Index of BAaLI districts



Growth in GSDP and sectors in Bihar at Current Prices



Per Capita District GDP 2011-12 (INR)



Data Source: SRTM, of 30 m resolution <http://srtm.csi.cgiar.org>, Census 2011 as published by Office of the Registrar General & Census Commissioner, The Socio Economic and Caste Census 2011 (SECC), Bihar Economic Survey 2018-19

13. **Poverty Analysis:** Bihar is the third most populated state with per capita income the fifth lowest among all the States in India. According to World Bank, in 2012, 36 percent of the population was below the poverty line and NSSO survey of 2011 states that around 60 percent of the rural workforce is engaged in agriculture. Bihar's economy has been growing rapidly since 2005 fuelled by services sector and poverty levels have been declining. The agriculture sector contributed only 18 percent to the gross state domestic product. Like most of the country, Bihar's rural economy is largely dependent on land and agricultural activities. Supplementary incomes from animal husbandry and fisheries are also land related and not having adequate land is also the principal reasons for rural poverty in Bihar. Hence the landless and land-poor households constitute the large bulk of 'below poverty line' households throughout the state. The landholding percentage for different social group for the state includes 4.2 percent for general group, 54.2 percent for backward caste, 23.4 percent for Scheduled caste, 2.0 percent for Scheduled tribes, 15.8 percent for Muslims and 0.5 percent for others. Bihar is also marked by non-egalitarian landholding pattern and associated asymmetry in agrarian relations among different social groups. The analysis of landholding indicates that the Scheduled Castes, Scheduled Tribes and Muslims are the most disadvantaged social group in terms of land endowment and constitute the largest section of landless population. SCs and STs also constitute closer to 17 percent of the total population of Bihar. The vulnerability of rural household to poverty is a factor of both asset holding as well as social categorisation according to religion and caste.
14. The contribution of livestock sector and fisheries to state's GSDP stood at 5.30 percent and 1.53 percent in the year 2017-18. The role of the livestock and aquaculture sector in inclusive agricultural transformation will not only help in providing income and productivity gains but its contribution to women's economic empowerment and improving nutritional status of households. Both the sectors provide an alternative source of livelihood for the rural households in the State. The smallholder farmers' distress and risks of crop failures in the state can be reduced by gainful employment in the aquaculture and livestock sector along with ensuring the nutritional needs of the communities. Also, these sectors witness more

engagement of the poorest household and development of both the sector paves way for inclusive growth.

15. **Gender:** India ranked 95 out of 129 countries in a new index that measures global gender equality looking at aspects such as poverty, health, education, literacy, political representation and equality at the workplace. In India, Bihar ranks 12th among States with regards progress against SDG 5. According to the profile on gender prepared by the World Bank for the State of Bihar¹², the state's performance in closing gender gaps is still mixed. Adult women are twice as likely to be illiterate than adult men. The state has the lowest rate of female labor force participation in the country. Though Bihar's child sex ratio is more favorable than the national average, it is declining. Although the rate of crimes against women is comparatively low (28 per 100,000 women), the data on violence against women and the girl child are high¹³. On a positive note, gender gaps in elementary schooling have narrowed, and maternal mortality is declining. And although few women work, women workers have the same types of jobs as their male counterparts. Women earn about 82% of men's wages for the same job performed, and this represents a high ratio in the country. Bihar also performs well in terms of women representation in the state legislative, 11.5%. The State Rural Livelihoods Mission in Bihar, also called Jeevika, aims to achieve women social, economic and political empowerment through financial inclusion and livelihood development. The current outreach of Jeevika is 9.2 million women.
16. Agriculture sector holds a central position in Bihar's economy and within agriculture, the livestock sector in the state employs more than 78 percent women. Mostly, women are keepers of small livestock and poultry along with being primary caregivers for the family. The role of the livestock sector in inclusive agricultural transformation will not only help in providing income and productivity gains for livestock keepers but its contribution to women's economic empowerment and improving nutritional status of households are equally important. As 94 percent of the goat population is held by marginal, small and medium households, goat rearing plays a significant role in providing livelihood and nutrition for the landless, marginal holders, Scheduled castes, Scheduled tribes, backward communities and women headed families. The income generated by goat rearing activities will be key to reduce women's economic vulnerability and help them cope with shocks and crises. As a result of the importance of the livestock sector as an economic activity for women, gender considerations are fully mainstreamed in the Livestock Master Plan of the Government of Bihar developed with support of BMGF and ILRI.
17. The livestock and backyard poultry will also contribute to household food and nutrition security. Small livestock is an important tool for empowering women, who are generally disadvantaged compared to the men of their own class, caste and ethnicity. Experience from IFAD supported projects like Tejaswini, MPOWER, and PTSLP in India, demonstrate the socio-economic empowerment potential of goat rearing: access to finance, from their savings and credit from the SHGs or Joint Liability Groups, to expand the goat units; acquisition of new skills such as

¹² Document can be found here : <http://documents.worldbank.org/curated/en/673611468185929286/pdf/105834-BRI-P157572-PUBLIC-Bihar-Gender.pdf>

¹³ Source: SDG Dashbord, Niti Aayog, <https://sdgindiaindex.niti.gov.in/#/ranking>

know-how in shed improvement, improved feeding practices and breeding, and veterinary care; participation and leadership of new collectives for input supply and for marketing. Women will play an active role as entrepreneurs and certified community animal health workers, which are all non-conventional roles for women; and weight based sale of their animals through their collectives. This will not only provide economic empowerment to women but also strengthen their positions within their communities as influencers and agents of change. Experience also shows that women are willing to pay for the services they obtain from their collectives in terms of feed supply, veterinary care, breeding services, etc. The projects that protect and increase women's income and expand their role in household decision making have the strongest impacts on child nutrition and welfare.

18. Women constitute 50 percent of the workforce in fisheries and aquaculture in the world including the secondary elements such as processing and trading. Women carry out most of the work of feeding, harvesting and processing fish. The assessment of gendered tasks on productive, reproductive and community activities in India and in aquaculture technologies, indicates that women own far few resources of aquaculture and also do not get equal share of incomes and benefits. Also when aquaculture production intensifies, it increases the labour burden on women and youth, affecting their production, productivity and wellbeing. Increasing access and control over aquaculture inputs and resources to women will have a multiplier effect on fish production and household incomes along with enhanced nutritional outcomes for the household. However, care will need to be given to drudgery reduction.
19. **Youth:** Youth account for almost a third of India's population. Government of India has formulated a National Youth Policy (2014) and National Policy for Skill Development and Entrepreneurship (2015) to provide an umbrella framework for youth development and skilling activities and to link skilling with demand centres. A large number of young unskilled persons in the country in general and in the state of Bihar migrate as labour to other parts of the country. These are both seasonal and long term migrations owing to lack of local income opportunities and loss of livelihoods during flood/ drought. As livestock promotion has the scope for creating round the year income for them, this may help reduce distress migration of the youth. Creation of a cadre of a three tier animal health workers, fisheries transformation agents, establishment of nucleus farms as transformation drivers will open avenues for local youths to diversify their income and invest in the local economy instead of migrating to cities and also attract back youth who have migrated to the cities.
20. **Tribal Population:** The project will adhere to the principles of IFAD's policy on "Engagement with Indigenous people". The project's approach to engaging with indigenous people includes the free and informed consent of all its beneficiaries and that there is a focus on the principle of community-driven development, valuing local knowledge, access to markets, gender equality and promoting climate-resilient agriculture. The scheduled tribes constitute 1.3 percent for the total population of Bihar according to the Census 2011. Most of the Scheduled Tribes in Bihar are located in the rural areas (94.6 per cent of them reside in villages). District wise distribution of ST population shows that Katihar district has the highest proportion of STs (5.9 per cent) followed by Banka (4.7 per cent) and Khagaria (0.03 per cent) among the project districts. This project's activities do not envisage changes to either land ownership or land use. Hence, no separate free prior informed consent (FPIC) process is being proposed. Instead the FPIC

principles will inform the formation of producers groups and selection of Lead Entrepreneur, DISHA workers and Fisheries Transformation Agents.

21. **Nutrition:** Despite implementing the world's largest programme on Food Security and nutrition, the nutrition status in the country is poor. In Bihar, the situation is very grim. As per the National Family Health Survey-4, 43.9 per cent of under-five children in Bihar are underweight, 15.2 per cent severely underweight and 20.8 per cent wasted. The prevalence of anaemia among children below 5 years is as high as 63.5 percent. Bihar has the third highest number of malnourished children in India. In Bihar, the percentage of underweight children went up from 54.3 per cent to 58.4 per cent between the period 1999 and 2005. It is estimated that 8.33 per cent or 9,74,610 children in Bihar are severely and acutely malnourished. Anaemia affects nearly two thirds of women and children and about one third of men. According to the National Family Health Survey-4, the prevalence of anaemia in the year 2015 was 60.3% among women in the reproductive age, 63.5% among children and 32.2% among men¹⁴
22. The project will mainstream nutrition through two broad sets of activities. (i) increase profitability of goat rearing and fishery leading to increased purchasing power of resource poor farmers and educating them on the importance of diversifying household diets; (ii) including backyard poultry, meat and fish in the diet of smallholder families. The project will promote backyard poultry primarily for dietary supplement. In addition, household level fish rearing, especially the small fish would be promoted for household level consumption to improve nutrition. The project through convergence with on-going state and national level sanitation, drinking water and nutrition programmes including Poshan Abhiyaan, ICDS, NFSA, MDS, SBM etc, will ensure the target groups access and benefit from them. These government schemes address nutrition needs of the people and have the potential to improve nutritional outcomes (hygiene and sanitation, access to healthcare especially maternal and child health, social safety nets).
23. **Child labour.** The 2011 Census indicated Bihar as the state with the highest proportion of child population (46%) among all states of India, ranking 3rd in the number of children in the age group of 5-14 years engaged as workers (Bihar accounts for 10.7% of child workers). In recognition of the gravity of the situation, the Government of Bihar developed the State Action Plan for Elimination of Child Labour in June 2017. The strategy is two pronged with preventive measures related to addressing household poverty, and rehabilitative measures for working children. In addition to the constitutional prohibition of hazardous child labour, various laws in India, such as the Juvenile Justice (care and protection) of Children Act-2000, and the Child Labour (Prohibition and Abolition) Act-1986 provide a basis in law to identify, prosecute and stop child labour in India. As per the Child Labour (Prohibition and Regulation) Act, 1986, amended in 2016 ("CLPR Act"), a "Child" is defined as any person below the age of 14, and the CLPR Act prohibits employment of a Child in any employment including as a domestic help. It is a cognizable criminal offence to employ a Child for any work. The project will adhere to national regulations related to child labour. Given the existence of both a national legislation and a state strategy for elimination of child labour, this social risk is assessed as low and does not warrant

¹⁴ Bihar State Nutrition Action Plan 2019-24, Government of Bihar; <http://socialwelfare.bih.nic.in/Docs/Bihar-State-Nutrition-Action-Plan-EN.pdf>

additional mitigation measures from the project. The financing agreement will have a covenant whereby the project implementation will adhere with the legislation and strategy in force.

24. **Target groups profile:** The main target group would comprise resource-poor farmers and rural households raising goats, poultry or involved in fisheries both capture and culture who would be supported to upgrade productivity, production and marketing and/or processing and hence income, while applying adequate livestock/ fisheries management practices. Two specific groups of smallholders would be supported: (i) subsistence-based landless, marginalized and small livestock rearing households, and (ii) goat keepers and fish rearing households who have the technical capacity and basic input availability to become commercially oriented. Special attention would be given to women, including vulnerable women-headed households, youth, and members of scheduled tribes and castes. In addition, the project will also involve “transformation drivers”: these will include lead farmers and agro-enterprises who can serve as champions/models to demonstrate the viability of new approaches to increase rural resilience and provide potential development pathways for the poor (especially those who do not have access to inputs and resources for aquaculture and livestock but have been active in the sectors), including generating employment opportunities. Out of 12 project districts, seven of these districts have significant tribal populations and 7 districts are aspirational districts. The project will cover approximately 4,000 villages. The project outreach is estimated at 1 million livestock rearing households representing around 60 percent of the total population in the selected villages.

B. Natural Resources Profile

25. **Bihar Water Resources:** The Ganges is the most important river which passes through Bihar. Bihar is drained by 14 river basins namely ; (i) Ghaghra , (ii) Gandak , (iii) Burhi Gandak , (iv) Bagmati , (v) Kamla Balan , (vi) Kosi , (vii) Mahananda , (viii) Karmnasa , (ix) Sone (x) Punpun , (xi) Kiul-harhar , (xii) Badua , (xiii) Chandan , and (xiv) the main Ganga stem . All these rivers drain into the main Ganga stem. The ultimate irrigation potential, which can be created, is 11.75 million ha. Till March 2018, a potential of 2.99 million ha (Mha) has been created through 15 major and 78 medium completed schemes and 10 major and 20 medium ongoing schemes. Other irrigation potential created include, surface irrigation (0.835 Mha) and ground water irrigation (3.277 Mha). As of 2018, out of 6.08 Mha of total utilized potential, utilized irrigation potential is 2.38 Mha (39 percent from major and medium irrigation), 2.95 Mha (48.5 percent from ground water irrigation), and 0.75 Mha (12.5 percent from tanks and other sources)¹⁵. A very high dependence of irrigation on tubewells, and operation of diesel tubewell due to lack of power infrastructure in the rural areas result in high cost and inefficient irrigation¹⁶. Net annual ground water availability is 27.42 BCM and annual ground water draft is 10.77 BCM with stage of ground water development of 39 %. Currently there are no over exploitation of ground water ¹⁷ . Ground water quality issues, including arsenic, fluoride, iron, and nitrate concentrations persists in many districts.

¹⁵ Bihar Economic Survey 2018-19, Finance Department, GoB.

¹⁶ Status of Agriculture in Bihar, bameti.org/wp-content/uploads/2018/06/State-Profile.pdf.

¹⁷ Ground Water Scenario of Bihar , http://cgwb.gov.in/gw_profiles/st_Bihar.htm.

26. **Water Quality:** Ground water is the major source for drinking water in Bihar. Arsenic (greater than 50 ppm) is prevalent in 13 districts (Katihar, Khagharria), fluoride (greater than 1.5 mg/l) is prevalent in 11 districts (Aurangabad, Banka, Kaimur, Rohtas, Nawada)and iron (greater than 1 mg/l) is prevalent in 9 districts (Katihar, Khagharria, Kisanganj)¹⁸.
27. **Bihar Soil:** Types of soils found in Bihar are loam, sandy, clay, sandy loam , silty loam and clay loam. There are three major types of soil in Bihar namely, Piedmont Swamp Soil, is shallow to deep over bed rocks and pebbles, mostly clayey, rich in organic matter and neutral reaction and is found in north-western part of West Champaran district. Terai Soil, found in northern part of the state along the border of Nepal, is grey to yellow in colour and neutral to moderately acidic in reaction and is fertile. Gangetic Alluvium, found in the plain of Bihar and is mostly loamy with varying thickness, generally fertile.
28. **Bihar Land use:** The total reporting area for land utilization of the state is around 9359.57 thousand ha. The contribution of net area sown is (56.1 percent), area not available for cultivation (22.9 percent), current fallow land (9.8 percent), forest (6.6 percent), land other than current fallow land (1.3 percent), culturable wasteland (0.5 percent) and permanent pastures & other grazing lands (0.2 percent).¹⁹ Figure 3 shows land use statistics. Degraded and wastelands in Bihar account for 1,371 thousand ha (14.5% of total geographical area, TGA). Water erosion accounts for 11% (about 1,049 thousand ha) of the total area of Bihar. The worst affected districts are Kaimur (Bhabua) (114 thousand ha), Rohtas (76 thousand ha), Gaya (74 thousand ha), Bhagalpur (71 thousand ha), Samastipur (54 thousand ha) and Patna (49 thousand ha). Acidic soils occupy about 41 thousand ha in Bihar; Banka district ranks highest in area (28 thousand ha), followed by Nawada (7 thousand ha) and Jamui (6 thousand ha)²⁰.
29. **Bihar Forest:** The recorded Forest area of the State is 6,877.41 sq km which is 7.30 percent of the geographic area. The Reserved, Protected and Unclassed Forests are 10.08%, 89.91% and 0.01% respectively of the recorded forest area. Largest forest cover is found in four districts of Bihar, they include; Kaimur (Bhabua) (1071 sq km, 32.14% GA/geographical area), Pashchim Champaran (904 sq km, 17.29% GA), Rohtas (705 sq km, 18.17% GA) and Nawada (512 sq km, 20.53% GA).
30. **Bihar Agriculture:** Agriculture is the dominant land use category in the state. It accounts for about 56.1 per cent of the total geographical area of the state. Including persons dependent on plantation, more than 80 per cent (much higher than the national average of 58 per cent) of the total population of Bihar, is dependent on agriculture. Major crops produced in the state are rice, wheat, gram, barley, sugarcane, maize, oil seeds, major pulses, tobacco, potatoes, and chillies.
31. **Bihar Biodiversity:** Bihar has a notified forest area of 6,764.14 km² (7.1%) of its geographical area. State has 3,208 km² (3.41%) of Protected Forest Area and 76.30 km² of Protected Non-Forest Area. The north Bihar except West Champaran is devoid of natural forests. Natural

¹⁸ <http://phed.bih.nic.in/WaterQuality.htm>

¹⁹ Land Use Statistics, Ministry of Agriculture. GOI,2013-14.

²⁰ Degraded and Wastelands of India Status and Spatial Distribution, ICAR, 2010. <https://icar.org.in/files/Degraded-and-Wastelands.pdf>

forests are spread in the BAaLI districts of West Champaran, Kaimur (Bhabua), Rohtas, Aurangabad, Nawada, Banka. There is one national park and 12 wildlife sanctuaries²¹. Table 1 gives details of national park and wildlife sanctuaries in Bihar. Figure 3 shows protected area statistics.

Table 1 Protected Area Details in BAaLI Implementation Districts

S.No.	Name of Protected Area	Type	Area in km2
1	Valmiki NP	National Park	335.65
2	Barela S.A.Z.S. WLS	Wildlife Sanctuary	1.96
3	Bhimbandh WLS	Wildlife Sanctuary	681.99
4	Gautam Budha WLS	Wildlife Sanctuary	138.34
5	Kaimur WLS	Wildlife Sanctuary	1342
6	Kanwarjheel WLS	Wildlife Sanctuary	63.11
7	Kusheshwar Sthan WLS	Wildlife Sanctuary	29.17
8	Rajgir WLS	Wildlife Sanctuary	35.84
9	Udaypur WLS	Wildlife Sanctuary	8.87
10	Valmiki WLS	Wildlife Sanctuary	545.15
11	Vikramshila Gangetic Dolphin WLS	Wildlife Sanctuary	

Source: Biodiversity of Protected Areas in India, http://wiienviis.nic.in/Database/biodiversity_pas_8557.aspx

32. **Bihar Animal Husbandry and Dairying:** Bihar has over 32.94 million livestock. Livestock comprises of 22.05 million bovine, including 13.27 million cows and 8.78 million buffaloes. There are around 12.5 million goats (14.55 million), around 0.65 million pigs. According to Bihar Basic Animal Husbandry Statistics (2017)²², during 2016-2017, per capita milk availability in Bihar was 228 gm/day (India 340 gm/day), per capita egg availability in Bihar was 11 eggs/day (India 63 eggs/day) and per capita availability of fish protein in Bihar is 1.5 kg/ yr (India: 9.00 kg/yr). Figure 3 shows livestock and fisheries statistics.
33. **Goats:** Bihar has the third largest goat population in the country. The breed of goat is largely Black Bengal which is a meat-yielding breed, as against milk. Density of goat population (numbers/km²) is greater than 150 in Katihar, Khagaria, Kishanganj and Sitamarhi districts. Amongst BAaLI districts, West Champaran has the highest contribution of 4.9 percent to Bihar's goat population of 12.2 million. The second and third largest contributors are Katihar and Kishanganj with 4.9 percent and 3.4 percent respectively.
34. Goat rearing is self-targeted at poor households, who are either landless or marginal landholders as presented in Table 2.

Table 2 Small ruminants holding across landholding in Bihar (Source: Bihar agriculture perspective, by P C Bansal ISBN 13:978-81-8069-743-2)

Landholding in Ha	% Households with small ruminants	% share of total households
< 0.04	14.7	42.7

²¹ http://wiienviis.nic.in/Database/biodiversity_pas_8557.aspx.

²² Department of Animal Husbandry, Gov't of Bihar, 2017.

Landholding in Ha	% Households with small ruminants	% share of total households
0.04 – 1	16.1	48.2
1 – 2	9.6	7.1
2 – 4	6.1	1.8
> 4	15	0.3

35. As described in the Bihar Goat Value Chain Analysis by Intercooperation, goat rearing is women-centered economy among SC/ST and other socially and economically backward classes and the activities spread across buying, rearing and selling. Among the goat breeds, 86% are local not conforming to any breed type and 11.6 % are Black Bengal breed type. This may be the reason for low carcass yield (7.96 kg per head) as compared to national average of 10.74 kg. With an average yield of 170 ml per day, goat milk production is reported to be 182,480 tons (2012-13) which is 2.7% of the state's total milk production. Goat milk is mostly used for feeding kids and partly self-consumption. Goats are mainly reared for meat. The monthly per capita consumption of animal protein shows that fish is the most preferred animal meat followed by chicken and chevon.
36. Goat rearing households maintain an average flock size of 3-4. Traditional thatch roof shelters are made when the flock size is more than 5; if not they are kept in the house. Goats are grazed for 4-5 hours daily and supplement feed at home comprising wheat bran, wheat bhusa mixed with green leaves is common. Households sell bucks when they attain an age of 9 months with 18-20 kg weight, while does are sold after completion of 7-8 kidding. Goats are sold at the farm gate of the rearer to a known trader of acquaintance. On an average, families sell about 6-8 goats per year which includes 90% bucks and 10% does. Very few families sell goats in village markets. Goat rearing households generally breed their own stock; in case of any need for purchase, the breeder goats are purchased from known households but the percentage is less than 10%. The cost of female kid is Rs. 2500 (10-12 months) and buckling's for Rs.1800 (3-4 months). While female kids are retained for breeding purpose and male are sold at 9-months age weighing 20 kg live weight for Rs. 3800. Main costs during rearing period includes the cost of the kid, feeding, medicines, health services and labour. High mortality (40% in kids and 20% in adults) is the major constraint goat rearing households face. The main reasons for high mortality is the lack of timely vaccination, deworming and lack of awareness on disease control. The producer price at farm gate is equivalent to 87% of the butcher's price, which suggests fair margins for the producers selling live goats. The issue is that due to low input and low productivity of the herd, the net profit per goat at producer level is small, about 180 Rs per buck. Estimates from the Livestock Sector Analysis (LSA), suggests that the goat population is increasing at the rate of 3.5% annually and hence the focus of the project would be on increasing animal productivity rather than flock size. According to the LSA, meat demand projections how that despite increased production, there will still be a shortfall in demand for meat.

37. **Poultry:** Bihar is largely dependent on supplies from other states to meet its egg and poultry meat consumption needs. As per the 19th Livestock Census (2012), Bihar has 10.1 million total backyard poultry (fowls, ducks and other poultry birds). Bihar's backyard poultry shrank at the rate of 1.7 per cent CAGR in the period 2007 and 2012. District Katihar has the highest contribution of 10.8 percent to Bihar's backyard poultry population of 7.6 million. The second and third largest contributors are Kishanganj and West Champaran with 9.5 percent and 4.1 percent respectively.
38. The poultry production system in Bihar is composed of the traditional backyard systems, as well as commercial production of broilers and layers. According to the Livestock Sector Analysis of the Livestock Master Plan, there currently is an 83% and 82% shortfall of egg and chicken meat production, respectively, in terms of meeting demand. The Livestock Master Plan acknowledges that improving and increasing the number of backyard chickens (for both eggs and meat) could significantly help improve the livelihoods of women and marginal communities, as well as the nutrition of rural families. In the backyard system currently, the average number of hens per family is estimated at 1.5 hens, which feed on scavenging. The project will therefore aim to expand herd per household and improve the productivity in terms of veterinary care, feeding practices (towards semi-scavenging) and breed improvement. The backyard poultry is dominated by women for rearing and sale.
39. **Fisheries:** Fisheries serve as a productive source of livelihood for a large proportion of landless labourers and smallholders in the state. Bihar has rich inland fishery resources in the form of rivers and canals (3,200 km), reservoirs (7,200 ha), floodplain wetlands (5,000 ha of oxbow lakes and 48,000 ha of chaur) and ponds (65,000 ha)²³. Inland fish production in the state has steadily increased and production during 2018-19 touched 602.13 TMT (thousand metric tons)²⁴, 89 percent higher as compared to fish production during 2007-08. The state's fish requirement is 624 TMT.
40. The state government has initiated appointment of Fishery Extension Services Officer (FESO) in 101 subdivisions to promote fish farming by providing advisory services to fish farmers across the state. BAaLI districts of East Champaran, West Champaran, Sitamarhi, Madhubani, Katihar and Khagaria have large areal spread of ponds, high production and largest number of registered fish farmers.
41. Fisheries are an important economic activity in the state for additional employment and income generation. About 60-65% of people in the State consume fish and shell fish products. Bihar has abundant surface water resources about 3,200 km of rivers, 100,000 hectares *Chaur* or floodplain wetlands, 9,000 hectares of Oxbow lakes or *Mauns*, 7,200 hectares of reservoirs and 69,000 hectares of ponds and tanks. During last one decade, fishery sector in Bihar is constantly improving: the production during year 2007-08 was 320 TMT, which increased to 510 TMT by

²³ State-specific interventions for higher agricultural growth, ICAR, <https://icar.org.in/files/state-specific/chapter/40.htm>.

²⁴ Department of Animal Husbandry and Dairying, Ministry of Fisheries, Animal Husbandry & Dairying.

year 2016-17. Yet production falls below consumption. There is much room to improve on productivity of fisheries as explained in table below :

Table 3- Productivity gap in different water bodies

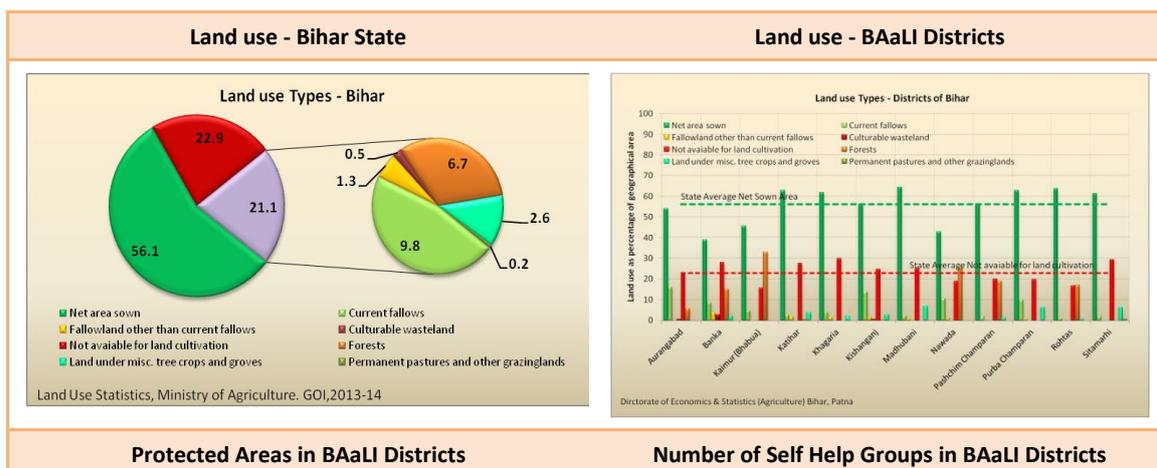
Water bodies	Present productivity (kg/ha/year)	Potential yield status with scientific management (kg/ha/year)
Small reservoirs	50-100	250-300
Floodplain wetlands	250	1500-2000
Tanks	300-500	2000-4000
Ponds	400-600	3000-5000

42. In terms of skilled resources, nearly 14% of the State's population belongs to fishermen category. They practise both fish capture and culture. For those practising fish culture, who constitute main focus of the project, fishermen lease the waterbodies, like ponds/reservoirs from the Government or operate their own ponds. In case of waterbodies leased from Government, fishermen form a cooperative to manage the fish culture. Indian major carps along with exotic carps are base of present production system. Opportunities exist for integration of minor carp and fish with local demands, like Anabas, Murrel, Freshwater prawn and Catfish to bring higher commercial value to the fisheries sector. Out of total marketed surplus, about 80% percent would be sold at harvesting site to local traders and 10% directly to local consumers from nearby village area. Market has demand for live fishes and the supply chain needs to be developed accordingly. Producers' prices currently represent 50% of consumers' prices for live fish. In all there are more than 40,000 fish farm sites, 700 aggregators, 1200 vendors and more than 50,000 consumer points in Bihar.
43. **Self Help Groups (SHG):** Large number of SHGs are formed for women's empowerment under a state-wide programme called Jeevika, co-financed by the World Bank, the state government and the national government through the National Rural Livelihood Mission. There are 2,09,090 SHGs (Bihar: 5,67,134) in BAaLI districts with 2.4 million members (Bihar:6.6 million).
44. **Disaster Profile:** Bihar is a multi-disaster prone state. Main natural hazards include floods, earthquakes, drought, cyclonic storms, hailstorms, heat wave, and cold wave.
45. **Floods:** The entire North Bihar is drained by the major rivers namely, the Ghaghra, the Gandak, the Bagmati, the Kamla-Balan, the Kosi and the Mahananda , all these finally join the Ganga on its left bank. All these rivers originate in Nepal from the Himalayas and carry large quantity of silt. Over time their carrying capacity has significantly reduced, high gradient, shifting of course, manmade embankments combined with heavy and sustained rainfall lead to floods in North Bihar. Total flood prone area of the State is 6.88 million hectares which accounts for 73.06 percent of its total geographical area (17.2 percent flood prone area of India). 28 districts of Bihar are flood-prone with major flood events occurring in 2004, 2007, 2008, 2011, 2013, 2016, and 2017²⁵. Figure 3 shows flood damage statistics.

²⁵History of Flood in Bihar, <http://fmis.bih.nic.in/history.html>.

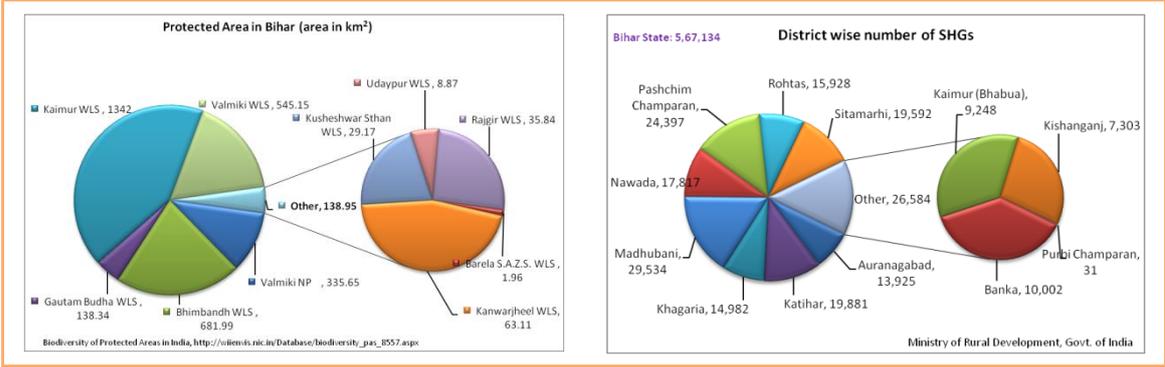
46. Out of 28 perennially flood-prone districts, Katihar, Khagaria, Madhubani, East Champaran, Sheohar and Sitamarhi districts fall under most vulnerable category, while, Kishanganj, West Champaran and Sheikhpura fall under vulnerable category.
47. **Drought:** Like flood, drought is also a recurring phenomenon in Bihar. The area of north Bihar (north to river Ganga) is of mainly flood prone while south Bihar (south of river Ganga) is drought prone. Districts are categorised into likely, prone and vulnerable category by the Bihar State Disaster Management Department²⁶. BAALI districts of Kaimur (Bhabua), Rohtas and Banka fall under likely; Aurangabad fall under prone; Nawada fall under vulnerable category. Nawada, Rohtas and Aurangabad are the known chronically drought prone areas of the state. The main reason for drought is delayed onset of monsoon and uneven spatial distribution of rainfall.
48. **Earthquake:** In Bihar, 8 districts fall in seismic zone V (very high zone) while 24 districts fall in seismic zone IV (high zone) and 6 districts in seismic zone III (moderate zone) with most districts falling under multiple seismic zones (i.e. either seismic zone V & IV or seismic zone IV & III). Entire Madhubani fall under very high zone; West Champaran and East Champaran fall under high zone; Aurangabad, Kaimur (Bhabua), Katihar, Khagaria and Rohtas fall under moderate zone. Districts of Sitamari and Kishanganj fall partially under very high and high zone while districts of Banka and Nawada fall partially under high and moderate zone.
49. **Cyclone:** 86% of the total area of Bihar is prone to high speed winds of 47 m/s intensity and only 14% of the area prone to high speed winds of lesser intensity. According to Vulnerability Atlas of India, 27 districts out of 38 districts are affected by high speed winds of 47 m/s intensity. Large parts of districts of Banka, Jehanabad, Arwal and Nalanda are prone. Other districts of South Bihar except Nawada are partly affected by high speed winds of 44 m/s. Nawada is, however, 100% affected by high speed winds of this intensity²⁷.

Figure 3: BAALI Implementations Districts at a Glance - Natural Resources

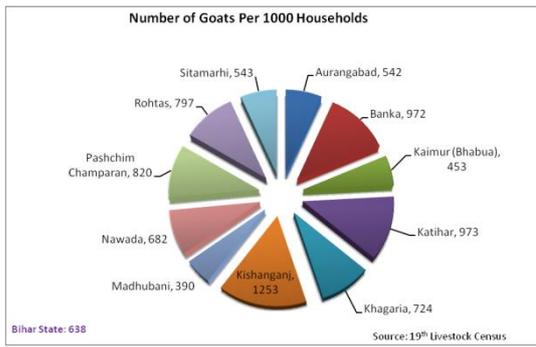


²⁶ <http://bsdma.org/Natural%20Hazards.aspx>.

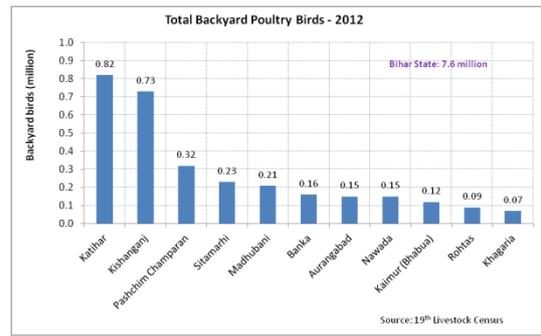
²⁷ Vulnerability Atlas of India, 3rd Edition, BMTPC, GoI, 2019



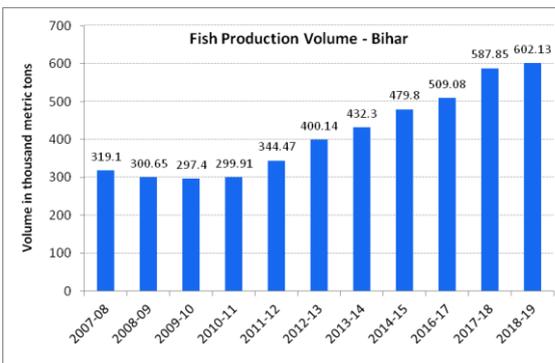
Goats per 1000 households



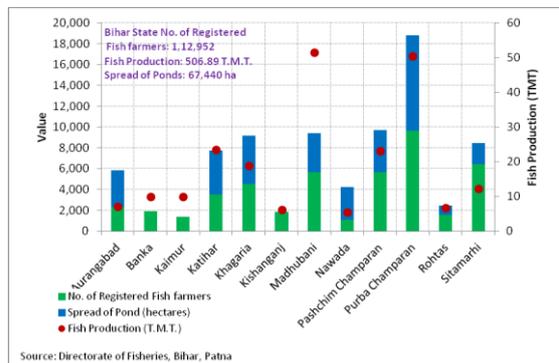
Number of Backyard Poultry Birds



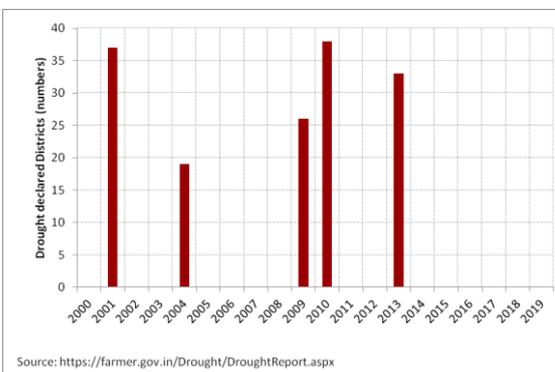
Fish Production - Bihar State



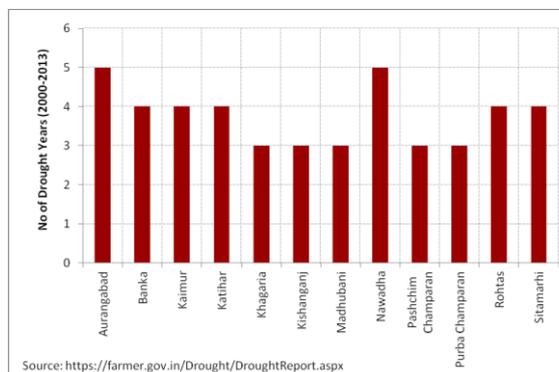
Fisheries Statistics - BAaI Districts



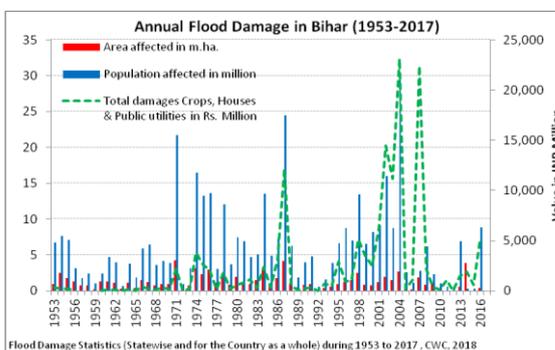
Number of Drought Declared Districts - Bihar State



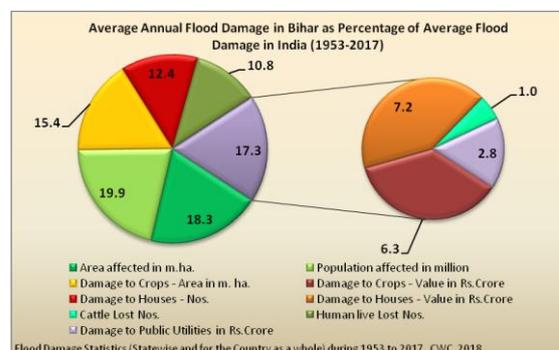
District wise number of Drought Years in Bihar State

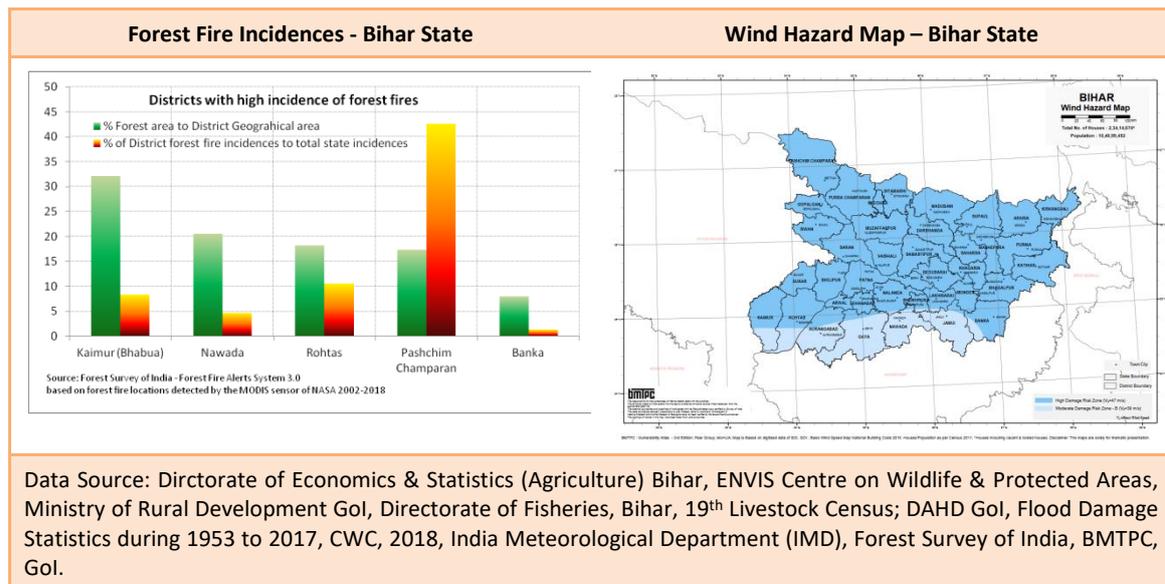


Annual Flood Damage - Bihar State



% Average Annual Flood Damage in Bihar State





C. In depth Climate Risk Analysis – Climate Profile at State level

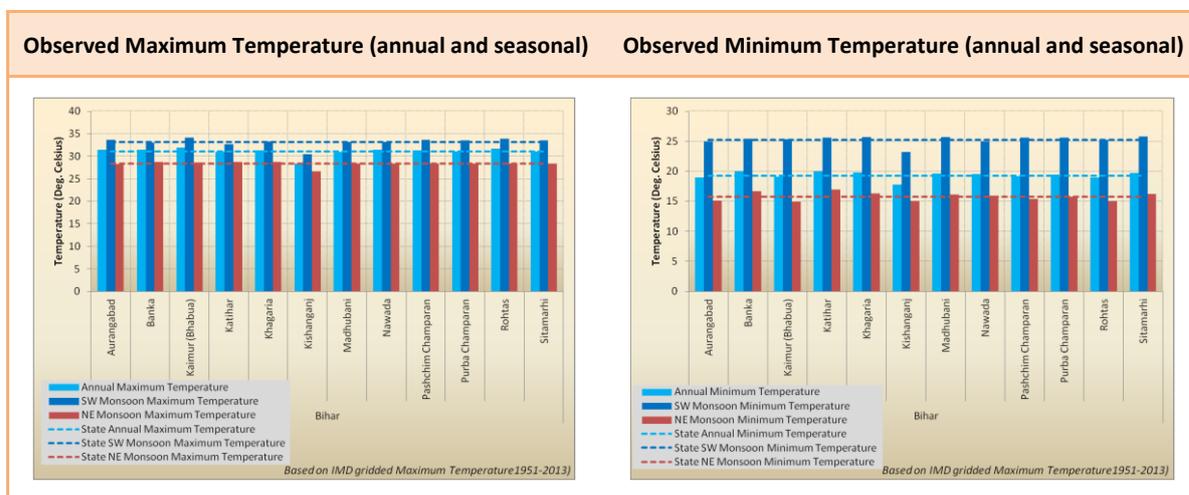
50. **Historical climate:** For purposes of this BAaLI an assessment of the historical climate variability and trends in mean climate (maximum temperature, minimum temperature and precipitation) for the BAaLI implementation districts of Bihar (High resolution maps are given in Annex) over the period 1951-2013 (63 years), using historical gridded observations from the India Meteorological Department (IMD)²⁸ has been made. Orography and landuse influence spatial distribution of rainfall and temperature. Human-induced landscapes and human activities play a key role in altering the climate at a local and regional scale. It is important to understand the variation in rainfall as well as temperature since these variations have to be kept in mind while designing appropriate interventions (conservation practices or machineries etc.). Therefore analysis has been carried out at the district level. Summary of observed temperature and rainfall for the 16 districts is presented (Figure 4).
51. **Observed Temperature:** Mean maximum temperature of 12 districts is 31.0°C (28.4 - 31.9°C) is observed (Bihar state average is 31.1°C). Mean minimum temperature of 12 districts is 19.3°C (17.8 - 20.0°C) is observed (Bihar state average is 19.3°C). Both maximum and minimum temperature attain maximum in the SW monsoon season. For annual maximum temperature the highest value is attained for Kaimur (Bhabua) district (31.9°C) while the lowest value is attained for district of Kishanganj (28.4°C). Increasing trend with low confidence for maximum temperature and decreasing trend with low confidence for minimum temperature is observed for all districts except for Banka (decreasing maximum and increasing minimum temperature trends) and Nawada (decreasing maximum and minimum temperature trends).
52. **Observed Rainfall:** Mean annual rainfall of 12 districts observed is 1297 mm (991 – 2673 mm). Bihar state average rainfall is 1207 mm. Aurangabad had the lowest (991 mm) and Kishanganj had the highest (2673 mm) rainfall. South west monsoon contributes 84 percent (1088 mm) and 6.5 percent (83 mm) of annual rainfall contribution comes from pre-monsoon months. Districts of Aurangabad, Kaimur (Bhabua), Kishanganj, Madhubani, Nawada, West Champaran, Rohtas

²⁸ www.imd.gov.in/advertisements/20170320_advt_34.pdf.

and Sitamarhi, show decreasing trend (low confidence) while districts of Banka, Katihar, Khagaria, Kishanganj and East Champaran show increasing trend (low confidence). Increase in number of rainy days (low confidence) is observed in the districts of Katihar, Khagaria and Madhubani. Out of 63 years rainfall analysis, BAaLI districts on an average had 38 normal rainfall years (Kishanganj 50 years and Sitamarhi 30 years), 12 years had excess rainfall (Katihar 16 years and Kishanganj 6 years) and 12 years had deficit rainfall (Sitamarhi 19 years and Kishanganj 7 years).

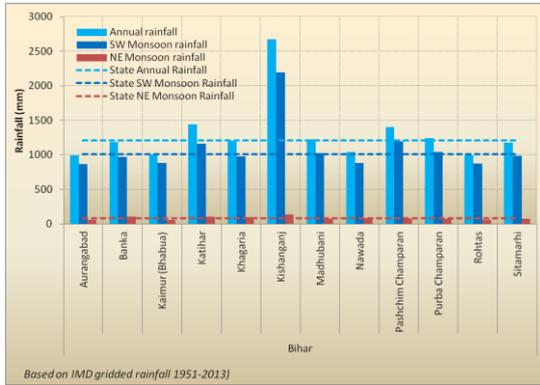
53. **Summary historical climate:** In summary, the BAaLI districts historically show an increasing trend in maximum temperature (low confidence) and minimum temperature (low confidence). Increase in maximum temperature is observed during SW monsoon and post monsoon, while minimum temperature is observed during post monsoon. Decreasing trend in annual rainfall is observed in 8 districts (low confidence) and increasing trend in 4 districts (low confidence). Decreasing trend in rainy days is observed in 8 districts (low confidence) and increasing trend in 3 districts (low confidence). Annual rainfall distribution analysis shows that majority of the 12 districts on an average had 61 percent normal rainfall years, 19 percent and 19 percent deficient and excess rainfall years²⁹. Analysis carried out at district level for seasonal temperature and rainfall is given in Annexure. Increasing trend in maximum temperature for the districts results in additional water demand (crop, human and livestock). Districts with increasing trend in temperature and decreasing trend in rainfall would likely to have water stress and drought like situation. Uneven rainfall distribution and extreme events may result in flood.

Figure 4: Historical Climate Summary for BAaLI Implementations Districts

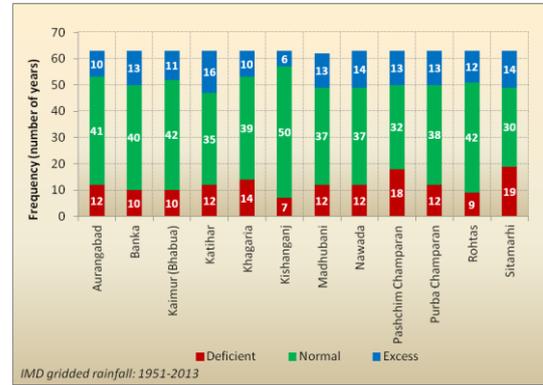


²⁹ +/-19 percent Long Period Average (LPA): Normal rainfall year, <-19 percent to -59 percent LPA: Deficient rainfall year, >+19 percent to +59%: Excess rainfall year (http://www.imdpune.gov.in/weather_forecasting/glossary.pdf).

Observed Rainfall (annual and seasonal)

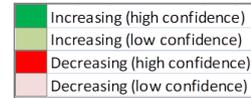


Frequency of deficient, normal and excess rainfall years



Observed Trend in Temperature and Rainfall

State	District	Rainfall		Tempe-	
		A N N	R D Y	M A X	M I N
Bihar	Aurangabad				
	Banka				
	Kaimur (Bhabua)				
	Katihar				
	Khagaria				
	Kishanganj				
	Madhubani				
	Nawada				
	Pashchim Champaran				
	Purba Champaran				
	Sitamarhi				



Data Source: India Meteorological Department (IMD) gridded temperature and rainfall.

State	District	Rainfall					Maximum					Minimum					
		J F	M A	J A	O S	A D	J F	M A	J A	O S	A D	J F	M A	J A	O S	A D	
Bihar	Aurangabad																
	Banka																
	Jamui																
	Jehanabad																
	Kaimur (Bhabua)																
	Katihar																
	Khagaria																
	Kishanganj																
	Madhubani																
	Nawada																
	Pashchim Champaran																
	Purba Champaran																
	Rohtas																
Sitamarhi																	

54. **Projected Climate:** The CORDEX South Asia modelled climate data on precipitation, maximum temperature, minimum temperature and climate extremes indices have been analysed for 16 BAaLI implementation districts (High resolution maps are given in Annex) for baseline (BL, 1981-2010) and mid-century (MC, 2021-2050). Ensemble mean of 10 RCMs at a spatial resolution of

50kmx50km has been used. The CORDEX South Asia simulations with the models indicate an all-round warming over BAaLI districts. Summary of projected temperature and rainfall for 16 BAaLI implementation districts is presented.

55. **Projected Climate for Bihar:** For the state of Bihar as whole, increase in maximum temperature is projected to increase by 1.1°C towards mid-century under IPCC AR5 RCP4.5 scenario while increase of 1.3°C towards mid-century under IPCC AR5 RCP8.5 scenario is projected. Similarly change in minimum temperature is projected to increase by 1.1°C and 1.5°C towards mid-century under IPCC AR5 RCP4.5 and RCP8.5 respectively. Projected increase in maximum temperature is higher than minimum temperature and increase is higher in pre-monsoon and winter and minimum in SW monsoon season. Average annual rainfall is projected to decrease marginally by 2 percent under both low and high emission scenarios towards mid-century as compared to the baseline. Highest decrease is likely in winter season (JF) followed by NW monsoon season (OND).
56. **Projected Climate for BAaLI Districts:** All 12 districts are likely to have increase in maximum and minimum temperatures under IPCC AR5 RCP4.5 and RCP8.5. Projected increase in maximum temperature ranges from 0.9°C (Kishanganj) to 1.4°C (Rohtas) under RCP4.5 and 1.1°C (Kishanganj) to 1.7°C (Kaimur (Bhabua)) under RCP8.5 towards mid-century.
57. Projected increase in minimum temperature ranges from 1.0°C (6 districts including Kishanganj) to 1.3°C (Rohtas, Kaimur (Bhabua) and Aurangabad) under RCP4.5 and 1.3°C (6 districts including Kishanganj) to 1.8°C (Rohtas and Aurangabad) under RCP8.5 towards mid-century.
58. Projected change in annual rainfall is negligible in all districts under RCP4.5 scenario towards mid-century. Marginal increase in rainfall is projected under RCP8.5 scenario with highest increase in districts of Kishanganj (6.5%), Katihar (4.4%), Khagaria (4%) and Madhubani (4%). Rohtas, Kaimur (Bhabua)) and Aurangabad are likely to experience marginal decrease in rainfall.
59. **Climate Extremes:** Indices representing climate extremes are developed to communicate more complex climate change impact relations in a simplified way. Mean temperature and precipitation sums can be seen as simple climate extremes indices, More complex climate extremes indices incorporate information on the sensitivity of a specific system, such as exposure time, threshold levels of event intensity etc³⁰. Six temperature indices (responsible for crop loss, infrastructure loss, heat stress, reduction in outdoor activity time, forest fire etc.) and four rainfall indices (responsible for drought, flood, erosion, infrastructure loss, etc.) which may influence the project objectives.
60. **Temperature Indices:** Cool nights (TN10P) and cool days (TX10P) are projected to decrease (low confidence) for all 12 districts while warm nights (TN90P) and warm days (TX90P) projected to increase (low confidence) for the districts. Diurnal temperature range (DTR) is likely to reduce in all districts. Warm spell duration indicator (WSDI) is projected to increase (low confidence) for all the districts. Cold spell duration indicator (CSDI) is projected to decrease (low confidence) significantly and may not occur in future.

³⁰ http://www.smhi.se/polopoly_fs/1.805!Climate%20indices%20for%20vulnerability%20assessments.pdf

61. **Rainfall Indices:** Consecutive dry days (CDD) are projected to increase for 4 districts (low confidence) and decrease for 8 districts (low confidence). Impact of increase in CDD may manifest in occurrence of drought and may impact human health. Consecutive wet days (CWD) are projected to increase for 3 districts (low confidence) and decrease for 9 districts (low confidence). Extremely wet days precipitation (R99p) and 1 day maximum precipitation (RX1DAY) are projected to increase (low confidence) for all districts under high emission scenario. Wet weather may affect standing crops, cause floods and soil erosion, emergence of pest and diseases.
62. **Heat Stress on Humans and Livestock:** Humidex (HI) and temperature-humidity index (THI) are single value depicting the integrated effects of air temperature and humidity associated with the level of heat stress in human beings and animals respectively. Though goats are more tolerant to heat stress than sheep and cows, it is also well known that high temperatures and relative humidity values significantly affect meat yield, quality and composition of small ruminants³¹. Elevated temperature and humidity as presented in THI negatively affects feed intake and altered hormone concentration leading to negatively affecting the productive and reproductive performance of farm animals³².
63. Under the projected climate THI (heat stress on livestock) is likely to increase by 13 percent and 16 percent under RCP4.5 and RCP8.5 respectively. THI in BAaLI districts of Kishanganj and West Champaran are projected to increase by 22 percent and 9 percent under RCP4.5 scenario respectively (12 percent and 26 percent under RCP8.5).
64. A study by a team of scientists from the ICAR institutions confirms that indigenous breeds are known for their survival in native tracks of their origin. The adaptive potential for each breed is assessed for different agro-ecological zones, and this information can be used to guide farmers in the selection of their breeds³³.
65. Under the projected climate, HI (human heat stress) is likely to increase by 23 percent and 29 percent under RCP4.5 and RCP8.5 respectively. HI in BAaLI districts of Kishanganj, Kaimur (Bhabua) and Rohtas is projected to increase by 35 percent and 19 percent under RCP4.5 scenario respectively (24 percent (Sitamarhi) and 43 percent (Kishanganj) under RCP8.5). Duration of out-door farm activities of agriculture labourers are likely to be affected due to many folds increase in projected heat stress. Months from April to September are significant on account of either high temperature or high humidity.
66. **Summary projected climate:** Projected climate indicate hotter and drier future for most of the selected districts. Heat wave conditions are likely to increase resulting in additional stress on humans and livestock. Though not much change in precipitation is projected in future, spatial

³¹ Silanikove N. The physiological basis of adaptation in goats to harsh environments. *Small Ruminant Research*. 2000;35:181-193. DOI: 10.1016/S0921-4488(99)00096-6.

³² Habeeb AA, Gad AE, Atta MA. Temperature-Humidity Indices as Indicators to Heat Stress of Climatic Conditions with Relation to Production and Reproduction of Farm Animals. *Int J Biotechnol Recent Adv*. 2018; 1(1): 35-50. doi: 10.18689/ijbr-1000107.

³³ Aleena J, Sejian V, Bagath M, Krishnan G, Beena V3 Bhatta R., Resilience of three indigenous goat breeds to heat stress based on phenotypic traits and PBMC HSP70 expression, *Int J Biometeorol*. 2018 Nov;62(11):1995-2005. doi: 10.1007/s00484-018-1604-5. Epub 2018 Sep 3.

and temporal variability makes these districts more vulnerable. Increase in temperature combined with rainfall variability may impact fodder and feed supply. Warm spell duration indicator (WSDI) is projected to increase for all the districts, Extreme rainfall (1 day and 5 day maximum) is projected to increase, which is likely to exacerbate flood threat. Consecutive dry days (CDD) and Consecutive wet days (CWD) are projected to increase (low confidence) resulting increasing likelihood of drought and flood.

67. District-wise analysis carried out for projected temperature and rainfall at district level is given in Annexure II.

D. In depth Climate Risk Analysis –District level Vulnerability to Climate Change

68. Climate change and variability is one of the most important matters of concern in terms of livelihood and income of farmers. At the national level, there are studies or unified documents available which assess climate change vulnerability at the district level using the new IPCC risk framework or latest climate change projects of IPCC. The Vulnerability Atlas published by NICRA in 2013 dealt with agriculture vulnerability for 572 rural districts of India³⁴.
69. Newly constituted Doubling Farmers' Income (DFI) Committee has been tasked to examine issues relating to doubling of farmers' income and recommend a strategy to achieve doubling of farmers' income in real terms by the year 2022. At present, thirteen draft volumes of 'Strategy for Doubling Farmers' Income by 2022' prepared by the Committee have been uploaded on the website for seeking public opinion³⁵. This Committee compared the 150 districts which topped under very high vulnerability status category in NICRA study, with the 150 districts having lowest income status of farmers (farm income from crops and livestock) as per NSSO-SAS survey, 2013³⁶. The report highlights that "the situation to be more grievous in 33 out of 150 districts, which on the one hand are highly vulnerable to climate change, and on the other are agriculturally undeveloped, and fall in the bottom 150 having lowest agricultural income". 9 districts out of 33 highly vulnerable districts belong to Bihar and two districts of Kishanganj and Madhubani fall in the BAaLI implementation districts. Climate change vulnerability compiled from these two literatures is summarised in Figure 5 which depicts the vulnerability category for the BAaLI implementation districts.
70. **Vulnerability for BAaLI Districts:** Based on NICRA study (2013), 2 districts in very high vulnerability, 4 districts in high vulnerability, 1 district in moderate vulnerability, 4 districts in low vulnerability and 1 district in very low vulnerability category are identified. Districts of Kishanganj and Madhubani fall under very high vulnerability category, and these two districts also figure as double stressed districts (in terms of climate vulnerability and low farm income) in DFI report. Major drivers of vulnerability identified are projected decrease in July rainfall, high net sown area, low net irrigated area and low groundwater availability. Districts of Katihar,

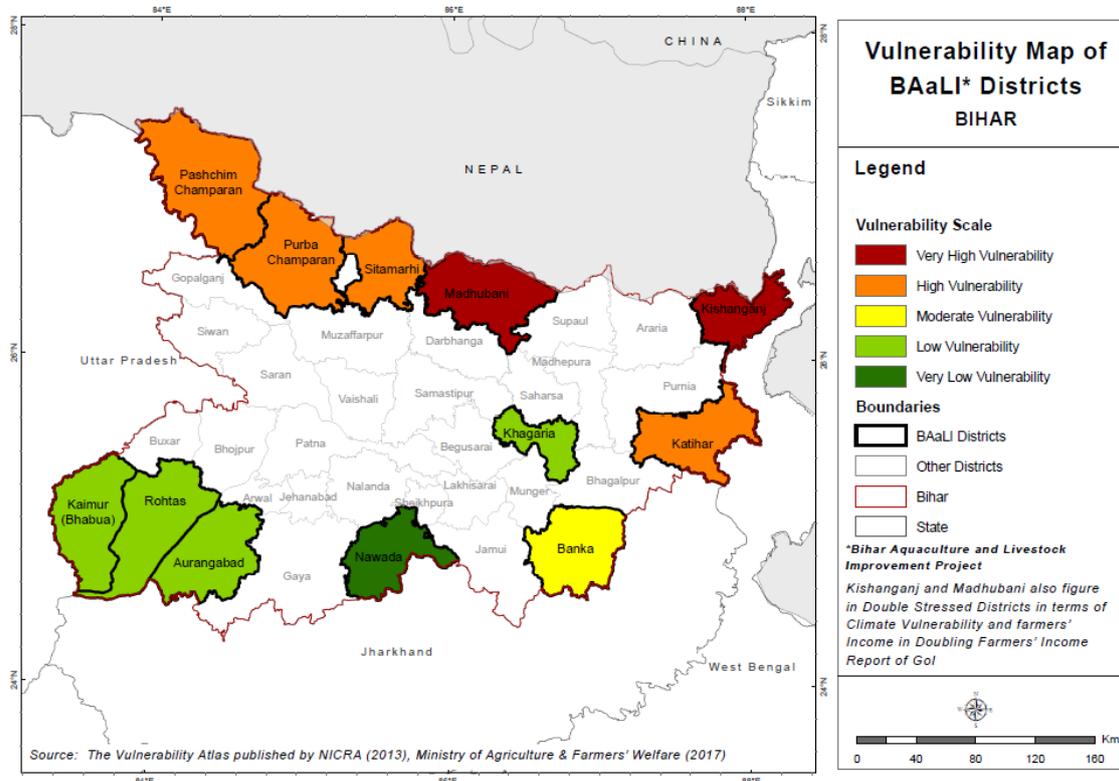
³⁴ Rama Rao C A, Raju B M K, Subba Rao A V M, Rao K V, Rao V U M, Kausalya Ramachandran, Venkateswarlu B and Sikka A K (2013). Atlas on Vulnerability of Indian Agriculture to Climate Change. Central Research Institute for Dryland Agriculture, Hyderabad.

³⁵ <http://agricoop.nic.in/doubling-farmers>.

³⁶ Income, Expenditure, Productive Assets and Indebtedness of Agricultural Households in India, NSS 70th Round; http://mospi.nic.in/sites/default/files/publication_reports/nss_rep_576.pdf.

Sitamarhi, East Champaran and West Champaran are under high vulnerability category, contributing factors are projected decrease in July rainfall, flood proneness, low net irrigated area and low groundwater availability. District of Banka falls under moderate vulnerability category. Districts of Aurangabad, Khagaria, Rohtas and Kaimur (Bhabua) are under low vulnerability and district of Nawada under very low vulnerability category.

Figure 5 Vulnerability Map for BAaLI Implementation Districts of Bihar



E. Potential project's social, environmental, and climate change impacts and risks

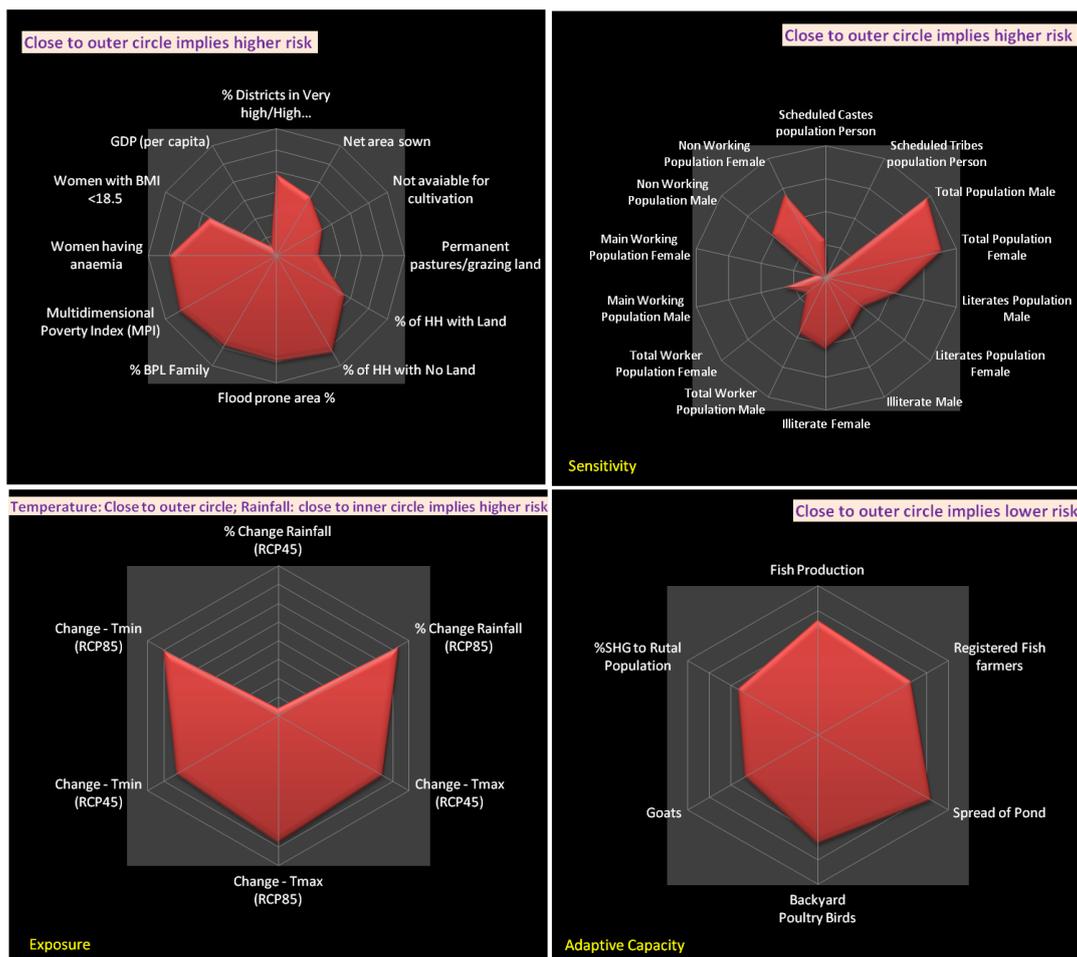
- Social Risk:** Bihar is one of the poorest states with high percentage of scheduled caste, scheduled tribes population, and largest landless population, as well as high incidence of child labour especially in 4 out of the 12 project districts (Nawada, Banka, Sitamarhi West Champaran). Skewed sex ratio and female literacy rate place women at a significant disadvantage. According to the National Family Health Survey IV, 60 percent of women are anaemic and 31 percent women are underweight³⁷. Close to 56 percent households are landless, 59 percent households are below poverty, and this makes BAaLI districts socially vulnerable. In addition to these, high percentage of non working population and below average per capita GDP, add to the vulnerability and enhance climate risks (Figure 6). All these factors contribute to low access to information, technology and capacity building in these districts.
- Environmental Risk:** Flood prone north Bihar and drought prone south Bihar, proximity to protected areas/wild life sanctuaries (man-animal conflicts), water quality, and earthquake

³⁷State Fact Sheet Bihar, http://rchiips.org/nfhs/pdf/NFHS4/BR_FactSheet.pdf.

proneness increases risk. Recurring flood results in degradation of soil health, and deterioration of water quality. Damage to life and properties is integral part of flooding. Human and livestock health impacts post floods is of concern and need to be addressed. Like floods, drought is also a recurring phenomenon in Bihar, especially in south Bihar. In addition to the flood and drought risks, another environmental concern stems from the untreated effluent and waste from slaughterhouses and abattoirs, and health/hygiene risks in fish and goat markets.

73. **Climate Risk:** It is evident from the analysis of climate scenarios that the selected districts would have hotter and drier future. Increased temperature, changes in daytime/night-time temperatures, changes in seasons (e.g., start date of rainy season), increased/decreased/more variable rainfall, and more severe and/or more frequent extreme events may impact agriculture and livestock. Crop loss, reduced availability of feed and fodder, increase in crop-water demand, emergence of new pests and diseases, increase distribution of water and vector-borne diseases, feed and water shortages may need to be addressed. In addition, duration of out-door farm activities of livestock grazing/browsing and agriculture labourers are likely to be affected due to heat stress. Reduction in livestock products (milk, meat) are also likely to be impacted due to projected increased THI (temperature humidity index): feed intake, production and reproductive efficiency of animals are affected by heat stress. Livestock is a key asset fulfilling multiple economic, social and risk management functions especially for rural poor communities, and hence the project develop strategies to prevent livestock and outdoor workers from heat stress and develop measures accordingly.

Figure 6 Social, Environmental and Climate Risk Analysis BAaLI Districts of Bihar



74. Figure 6 gives overall summary of social, environmental and climate risk. One can easily see interrelations across multi-dimensional vulnerability indicators in the radar charts plotted. A point closer to the centre on an axis indicates a lower value and vice versa. Lower values for sensitivity and exposure; higher values for adaptive capacity are desirable to achieve reduction in vulnerability.

75. Some of the potential impacts of the project activities are listed in the table.

Potential project impacts	Measures to address the impacts
Increased greenhouse gas emissions from goat rearing. Moreover, heat stress can affect the digestion and rumen fermentation pattern of goats. Diet composition, breed and environmental stresses are common factors which negatively influence	The various strategies that can be implemented to mitigate enteric CH ₄ include nutritional interventions, and selection of adapted breeds. It is expected that the project will increase GHG emissions by 3,204,048 tCO ₂ e on balance, spread over 4,000 villages in 12 districts, and over a period of 6 years. The main contributor is the increase in goat population resulting from project interventions.

Potential project impacts	Measures to address the impacts
rumen function and enteric methane (CH ₄) emission ³⁸ .	
Feed and Fodder shortage/ scarcity due to drought and flood.	<p>Potential options include : reserve feed/ fodder bank at community level (Creation of permanent fodder seed banks in all flood prone areas); feed and fodder policy; silvipasture development in the village common property; short duration varieties of fodder and cereal to meet the demand for food and fodder.</p> <p>However, as permanent pastures and grazing land are near absent in Bihar (0.2% of geographical area), projects retained the following measures to address feed and fodder availability: distribution of seeds of fodder crops and seedling of fodder trees for plantation in private lands and villages respectively. Producer groups will manage this activity.</p>
Loss of assets of poor producers, as a result of floods	<p>Potential options include : temporary shelter arrangements with provisions for proper hygiene and sanitation; trained primary veterinary health care and emergency rescue operation person/SHG; vaccination against possible outbreaks of disease; stakeholders and community capacity building, awareness building for "dos and donts".</p> <p>The project is addressing impact of floods on goat rearing through piloting an insurance product in one district, and scaling it up if successful. The impact of floods on fisheries is the silting up of ox-bow lakes where fish capture is practised; and the project will support de-siltation of the inlets and outlets of these lakes to support rejuvenation and increased fish capture.</p>
Reduced availability of common property resources) and/or fallow land for grazing, rangeland productivity reduction.	<p>Potential options include: fodder bank, cultivation of fodder tree, promotion of agro-forestry.</p> <p>The project will focus mainly on supporting producers to grow fodder and plant fodder trees.</p>
Heat Stress in livestock	<p>Potential options include: promoting indigenous livestock breeds will reduce the impact of climate change; stall feeding; water availability; management strategies to improve goat production by minimizing thermal stress on the goats in order to attain optimal animal comfort; introduction of early warning system and crisis preparedness system in context of livestock; research into better understanding of the causes and impact of climate change on livestock (science and research). For example, breeds like Black Bengal goat may be considered for increased twinning percentage; and for</p>

³⁸ Pragna, P., Chauhan, S. S., Sejian, V., Leury, B. J., & Dunshea, F. R. (2018). Climate Change and Goat Production: Enteric Methane Emission and Its Mitigation. *Animals : an open access journal from MDPI*, 8(12), 235. doi:10.3390/ani8120235

Potential project impacts	Measures to address the impacts
	backyard poultry, Vanaraja, Gramapriya, CARI Priya for 100 percent increase in egg production over baseline. As the project is focused on productivity of goat rearing, focus would be on suitable husbandry practices including design and construction of appropriate sheds and feed/water management under stall feeding conditions. The digital extension supported by the project for goat, poultry and fisheries, will provide weather advisories.
Integrated farming with positive environmental impacts	Fish - livestock farming systems which includes livestock waste obtained by rearing the livestock in the pond area is applied in pond to raise the fish crop without any other additional supply of nutrients. E.g.: Poultry-Fish Culture, Duck-Fish Culture.
Drying of ponds (fisheries) as a result of drought Flood: Ponds inundation with flood water, water contamination and changes in water quality	Potential options : Hazard, Vulnerability, Risk Assessment to guide in setting new ponds. Designing of ponds with proper heights of dykes. Regular water quality monitoring (low cost testing kits). Temporary solution by raising the height of dyke by fencing with net and bamboo poles to prevent loss of stock.
Poor hygiene/ sanitation and Untreated waste and effluents in abattoirs, slaughterhouses, markets	Potential options : design of abattoirs, slaughterhouses, markets for goat and fish taking into consideration, drainage, sanitation, waste and effluent treatment.

F. Recommended features of project design and implementation

76. **Strengths:** Project design is well suited to address impending climate risk envisaged in the selected districts highlighted in Section E. A large section of the target groups belong to the rural poor, small and marginal farmers, especially women and landless groups who are likely to be most affected by climate change, are deemed vulnerable and who may not have ready access to risk-mitigation tools. Bihar has a large goat population (ranked third in India) and most goats are held by marginal castes and women, so goats are particularly important in poverty-reduction strategies and activities. Large number of self help groups is operational in the districts under consideration which the project can take advantage of. The Project should attempt to develop innovative package of practices, skill development as large part of the population are landless, poor and have low literacy rate. In terms of social safeguards, the project will follow the procurement guidelines of IFAD which have provisions to combat child labour as well as sexual exploitation and abuse.
77. **Weakness:** Project is mainly focussed on landless and marginal farmers. Climate change impacts on livestock and agriculture sectors have implications on livestock productivity and crop production. Tagging this project initiative with other ongoing programs/policies/projects on livestock and agriculture to adopt and enhance income should be adequately addressed and BAaLI should seek to integrate itself as part of an integrated farming systems approach.

78. **Recommendations:** Value chain approach may be adopted to better understand drivers and constraints as well as stakeholders for efficient delivery of benefits. Effective mobile and ICT based advisory services with adequate training may be taken with since Bihar has third largest mobile subscriber base among all Indian states. Special emphasis on developing a cadre of women community service providers for capacity building on use of these advisory services. Finally advocacy and capacity building are required to improve nutritional requirement, value chain. Strengthening of Fisheries and aquaculture extension services may be required.

G. BAaLI Project's compliance to Climate Finance tracking requirements

79. The IFAD total climate finance for this project is USD 28.3 million or 47% of the total IFAD financing (calculated as per MDB methodologies for tracking climate adaptation and mitigation finance). The share of finance for climate change adaptation represents 100% of the IFAD total climate finance.

H. Primary beneficiary and Institutional stakeholders

80. **The key institutions:** Main implementation agency is Animal and Fisheries Resource Department, Government of Bihar. Other relevant agencies to the implementation of project include: (i) Animal Husbandry Directorate which is the administrative control of different programmes launched under animal husbandry sector; (ii) Fisheries Directorate in charge of fisheries development in the state; (iii) Bihar Animal Sciences University and State Agricultural Universities (SAUs); Indian Council of Agricultural Research (ICAR)- International Livestock Research Institute (ILRI), the Central Institute for Research on Goats (CIRG), the National Dairy Research Institute (NDRI); (iv) Agricultural Technology Management Agency (ATMA) which is a registered society of key stakeholders engaged in technology dissemination at the district level, involved in agricultural and allied activities, for its sustainable development; (v) Women Development Corporation, Bihar; (vi) Krishi Vigyan Kendras (KVKs); (vii) Fisheries and aquaculture extension services; (viii) SHGs farmers & their organisations.
81. **Legal and policy frameworks relevant to the project:** Various policies of both the central government as well as state level will come into play during the implementation of the project. With a view to improve the condition of small and marginal farmers and to double the income of farmers by 2022, Government is realigning its interventions from a production-centric approach to that of a farmers' income-centric initiatives, with focus on better and new technological solutions. The project implementation will be guided by the National livestock policy (2013), the National water policy (2012), the Draft Bihar Fisheries policies (2008) and the Livestock Master Plan of Bihar 2018-19 to 2022-23.
82. Other schemes of the Government which support agriculture and allied sector and promote integrated farming include: Pradhan Mantri Krishi Sinchai Yojana (PMKSY), Paramparagat Krishi Vikas Yojana (PKVY), Rainfed Area Development under National Mission for Sustainable Agriculture (NMSA), Pradhan Mantri Fasal Bima Yojana (PMFBY), National Agriculture Market scheme (e-NAM), National Food Security Mission (NFSM), Rashtriya Krishi Vikas Yojana (RKVY), National Mission on Agriculture Extension & Technology (NMAET) etc. In addition, farmers are provided information through Focused Publicity Campaigns, Kisan Call Centres (KCCs),

Agri-Clinics and Agri-Business Centres (ACABC) of entrepreneurs, Agri Fairs and exhibitions, Kisan SMS Portal etc.³⁹The project can be aligned to the existing policies/programs/acts. Some of the relevant policies/programs/acts are summarized in Table below:

³⁹ Information given by Minister of State for Ministry of Agriculture & Farmers Welfare, Feb, 2019, <http://pib.nic.in/newsite/PrintRelease.aspx?relid=188051>.

Table 3. Relevant National Acts/Polices/Programs

Act/Rule/Policy	Description	Relevance to the Project
Doubling Farmer's Income	The Government of India has focused its attention on doubling the farmers' income during the seven-year period from 2015–16 to 2022–23. Six major sources for increasing farmers' income, viz., improvement in crop productivity, livestock productivity, resource use efficiency or promoting savings in the cost of production, increase in cropping intensity, diversification towards high-value crops, and enhancement of the real prices received by farmers.	Highly relevant as the project is built realize the mission of DFI
Bihar Vikas Mission Agriculture Sub-Mission Agriculture Road map, Bihar.	Sub mission under BVM for effective implementation of third Agriculture Road Map (2017-2022). Relevant Schemes include: Schemes: Poultry development Scheme, Goat development scheme, Livestock health protection Program, Artificial Insemination Scheme, Scheme of training, Veterinary services and animal health schemes, Scheme of fodder production and demonstration. Programs: Murgi Gram Yojna, Buck Distribution Scheme, Mukhya Mantri Goat Distribution Scheme.	Schemes are very relevant and enabling to fulfil the objectives of the project to enhance Livestock
National Livestock Mission (NLM), commenced from 2014-15.	National Livestock Mission (NLM) provides assistance to improve availability of quality feed and fodder, risk mitigation and extension, skill development and training for livestock sector The National livestock Mission is organised into the following four sub-Missions: i. Sub-Mission on Livestock Development. ii. Sub-Mission on Pig Development in North-eastern Region. iii. Sub-Mission on Fodder and Feed Development. iv. Sub-Mission on Skill Development, Technology Transfer and Extension.	All the Sub-mission are highly relevant
Jeevika - National Rural Livelihoods Mission (NRLM).	Community managed sustainable agriculture (agro-ecology approaches), Usage of locally available natural inputs – for pest management and soil fertility management, Integrated farming practice with small ruminants, Non Pesticide Management and Natural soil fertility Management, Ensuring the scalability of climate change resilient agriculture practices through Community Best Practitioners (CBPs).	Highly relevant. Under the overall framework of National Rural Livelihood Mission (NRLM),the Bihar Rural Livelihoods Promotion Society (BRLPS) is functioning and implementing the JEEVIKA scheme.
Bihar Women Empowerment Policy 2015.	Bihar state is increasing its focus on women empowerment by ensuring availability of resources (education and employment) for women, which would in turn lead to increased contribution from women in development of the economy.	Relevant to the project as women achieve economic empowerment though small ruminants and the income flow contributes to enhance their

		decision-making role within household.
State Action Plan for Elimination of Child Labour (June 2017) and Child Labour (Prohibition and Regulation) Act, 1986, amended in 2016 ("CLPR Act")	Bihar Government is mindful of the inter-dependence between poverty and child labour. The strategy to combat child labour is based on measures to reduce household poverty and to provide alternative options to child workers. As per CLPR Act, child in any employment including as a domestic help, is a cognizable criminal offence.	Relevant to the project and the procurement documents for civil works can refer to the action plan and the legislation.
Bihar Skill Development Mission.	Bihar Skill Development Mission (BSDM) has been constituted by The Government of Bihar to empower the youth by providing them with requisite skills to fuel the growth of the State of Bihar. The primary roles of BSDM are: <ul style="list-style-type: none"> • To establish a wide network of training centers for the youth. • To provide employment opportunities to the youth. 	Relevant specially the thematic skill development courses like Goat Farmer Course, Animal Health Worker
Mahila Kisan Sashaktikaran Pariyojana (MKSP).	A sub component of the Deendayal Antodaya Yojana-NRLM (DAY-NRLM) seeks to improve the present status of women in agriculture, and enhance the opportunities available to empower.	Applicable as women constitute an important project beneficiary group and the project needs to ensure participation of women and strengthen their role in decision making, in institutions, access to trainings, in reduction of drudgery.
National commission of women (1990) and National policy for the Empowerment of Women (2001).	These are intended to create a positive environment for the overall development of women and safeguard the rights and legal entitlements of women.	Relevant for ensuring their right to equal remuneration.
National Policy on Tribal Development, 1999.	"The policy seeks to bring scheduled tribes into the mainstream of society through a multi-pronged approach for their all-round development without disturbing their distinct culture.	Highly relevant and the project uses a participatory approach to technology development, demonstration and scaling-up.
Development and empowerment of STs is enshrined in the Constitution and the tribal sub- plans included covered under the Five Year Plans."	"This policy will be applicable to project activities in tribal dominated districts. Project has to ensure participation of tribal communities in the project activities without any adverse impacts on local tribal groups."	Please see below

Tribal Sub Plan	All funds from various programs are pooled and used strategically to support the socio- economic development of tribals within a specified period.	The policy is applicable in the tribal districts. The project interventions can be dovetailed with the Tribal Development Sub Plan.
National Food Security Mission (NFSM).	National Food Security Mission (NFSM) is a Central Scheme of GOI launched in 2007 to increase production and productivity of wheat, rice and pulses on a sustainable basis so as to ensure food security of the country. The aim is to bridge the yield gap in respect of these crops through dissemination of improved technologies and farm management practices.	Highly relevant since all the selected districts are covered under National Food Security Mission.
Neel Kranti Mission (Blue Revolution), Central Financial Assistance.	<p>Blue Revolution, also called by the name Neel Kranti Mission is aimed at enhancing the economic prosperity of the country by augmenting fisheries, fish farmers and contribute towards food and nutritional security. The mission utilizes water resources for fisheries development in a sustainable manner, considering the bio-security and environmental concerns. In this article, let us take a brief look at the mission.</p> <p>The Blue Revolution scheme has the following components:</p> <ul style="list-style-type: none"> • National Fisheries Development Board (NFDB) and its activities • Development of Inland Fisheries and Aquaculture • Development of Marine Fisheries, Infrastructure and Post-Harvest Operations • Strengthening of Database & Geographical Information System of the Fisheries Sector • Institutional Arrangement for Fisheries Sector • Monitoring, Control and Surveillance (MCS) and other need-based Interventions • National Scheme of Welfare of Fishermen 	Highly relevant since considering Fisheries and Aquaculture as one of the main objectives of the project.
Livestock Master Plan Bihar Prepared for it by the International Livestock Research Institute (ILRI)	The master plan, which will be for a 15-year period, will emphasise on various steps to give a push to dairy, goat-rearing, poultry, piggery and other allied sectors with an aim to improving food security and reducing poverty through better and more sustainable use of livestock.	Highly relevant design project activities to align with State master plan.
Special provisions for women farmers in national schemes		
Centrally Sponsored Scheme on “Blue Revolution: Integrated Development and Management of Fisheries” launched during 2015-16.	<p>Components of the scheme include:</p> <p>Development of Inland Fisheries and Aquaculture.</p> <p>Development of Marine Fisheries, Infrastructure and Post-Harvest Operations.</p> <p>National Scheme on Welfare of Fishermen</p> <p>Monitoring, Control and Surveillance and other need-based Interventions (MCS).</p> <p>Institutional Arrangement for Fisheries Sector,</p> <p>Strengthening of Database & Geographical Information System of the Fisheries Sector (SoDGIS)</p>	<p>The eligible beneficiaries for the scheme are Fishers, Fish farmers, Entrepreneurs, Cooperatives, SHGs and any other private recipients including women beneficiaries.</p> <p>Under the Blue Revolution scheme the financial assistance is being provided for women</p>

National Fisheries Development Board and its activities(NFDB).		beneficiaries to the tune of the 60% of the unit cost in respect of the all the beneficiary oriented components.
Support to Training and Employment Programme for Women (STEP) - Central Sector scheme under the Ministry of Women & Child Development	STEP is for developing organization of women dairy and poultry cooperative societies. Sectors and Activities Covered under STEP Programme include, Dairying, Fisheries, animal husbandry (Goat/Sheep Rearing for Meat/Wool, Backyard Poultry & Indigenous Birds (Ducks, Quails))	Relevant
National Mission on Agricultural Extension & Technology (NMAET) – Sub-Mission on Agricultural Extension (SAME). Centrally sponsored	Agriculture Technology Management Agency (ATMA) Agri-Clinics & Agri-Business Centers (ACABC) Mass Media Support to Agricultural Extension.	Highly relevant as the project is built realize the mission of DFI
Mission for Integrated Development of Horticulture (MIDH). Centrally sponsored	Mission for Integrated Development of Horticulture (MIDH) is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector covering fruits, vegetables, root & tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa and bamboo. Under MIDH, financial assistance is provided for following major interventions/activities: <ul style="list-style-type: none"> • Setting up of nurseries, tissue culture units for production of quality seed and planting material. • Area expansion i.e. Establishment of new orchards and gardens for fruits, vegetables, and flowers. · Rejuvenation of unproductive, old, and senile orchards. • Protected cultivation, i.e. poly-house, green-house, etc, to improve the productivity & grow off season high value vegetables and flowers. • Organic farming and certification. • Creation of water resources structures and watershed management. • Bee-keeping for pollination. • Horticulture Mechanization. • Creation of Post Harvest Management and Marketing infrastructure. 	All the Sub-mission are highly relevant specially for protected cultivation/Green House
National Food Security Mission (NFSM). Centrally sponsored	The programme is being continued up to 2019-20. Main aim is to increase production and productivity of wheat, rice and pulses on a sustainable basis so as to ensure food security of the country. The aim is to bridge the yield gap in respect of these crops through dissemination of improved technologies and farm management practices.	Relevant. 12 BAaI project districts are covered under NFSM

<p>National Mission for Sustainable Agriculture (NMSA). Centrally sponsored</p>	<p>National Mission for Sustainable Agriculture (NMSA) has been formulated for enhancing agricultural productivity especially in rainfed areas focusing on integrated farming, water use efficiency, soil health management and synergizing resource conservation. NMSA has following four (4) major programme components or activities:</p> <ol style="list-style-type: none"> 1. Rainfed Area Development (RAD) 2. On Farm Water Management (OFWM) 3. Soil Health Management (SHM) 4. Climate Change and Sustainable Agriculture: Monitoring, Modeling and Networking (CCSAMMN) 	<p>Relevant considering South Bihar project districts are mostly rainfed. Existing funding under NMSA can benefit BAaLi project</p>
<p>Agricultural Insurance. Centrally sponsored</p>	<p>Pradhan Mantri Fasal Bima Yojana</p>	<p>Relevant as it applies for crop cultivation. No insurance mechanism in place for small livestock.</p>
<p>State Action Plan on Climate Change</p>	<p>Climate Change sectoral adaptation action plans have been drawn.</p>	<p>Relevant for additional funding. Can develop projects to get funding under National Adaptation Funds.</p>

I. Monitoring and Evaluation

83. The project's M&E system will be aligned to the project log-frame. M&E data will be disaggregated by gender, by age, and by social group (scheduled tribe and scheduled caste). A management information system will be developed in line with other ongoing projects. Baseline, midline and endline surveys as well as annual outcomes surveys will be carried out to document project results and impact. It is recommended that the project staff collect GPS coordinates of all interventions to plot the data in maps and provide a visual representation of activities. This approach enhances monitoring, impact assessment and overall accountability.
84. Given the high climate risk, the project annual outcome surveys will include questions to assess beneficiaries' understanding of climate change based on training received from the lead farmers and from the DISHA workers/ FTA.

Annexure 1 – Environment and Social Management Plan

A. Positive impact of project implementation

1. The project places emphasis on enhancing income and food security by supporting landless households and smallholder producers through promotion of small Livestock and inland fisheries in the State of Bihar. The project design is well suited to address impending climate risk envisaged in the selected districts. A large section of the target groups belong to the rural poor, small and marginal farmers, especially women and landless groups who are likely to be most affected by climate change, are deemed vulnerable and who may not have ready access to risk- mitigation tools. Bihar has a large goat population (ranked third in India) and most goats are held by marginalized social groups and women, so goats are particularly important in poverty-reduction strategies and activities targeting vulnerable and disadvantaged groups. A large number of self-help groups are operational in the districts under consideration which the project will take advantage of to build effective producer groups for goat and poultry, in particular. The Project will develop packages of practices for good husbandry of goat, livestock and inland fisheries, well suited to improve the livelihoods of poor households and to transfer the knowledge in a way that is appropriate for producers with low levels of literacy.

B. Potential project's social, environmental, and climate change impacts and risks

2. **Social Risk:** Bihar is one of the poorest states with high percentage of scheduled castes, scheduled tribes population, largest landless population. Skewed sex ratio and female literacy rate place women at a significant disadvantage. According to the National Family Health Survey IV, 60% of women are anaemic and 32% women are underweight. Close to 66 % households are landless, 58% below poverty household make BAaLI districts socially vulnerable. In addition to these, high percentage of non working population and below average per capita GDP, add to the vulnerability and enhance climate risks. All these factors contribute to low access to information, technology and capacity building in these districts.
3. **Environmental Risk:** Flood prone north Bihar and drought prone south Bihar, proximity to protected areas/wild life sanctuaries (man-animal conflicts), water quality, and earthquake proneness increases risk. Recurring flood results in degradation of soil health, water quality deterioration. Damage to life and properties is integral part of flooding. Human and livestock health impacts post floods is of concern and need to be addressed. Like floods, drought is also a recurring phenomenon in Bihar, especially in south Bihar which is likely to affect water availability and water quality. Another environmental risk is the poor sanitary standards of markets and abattoirs/slaughterhouses, in terms of untreated effluents and waste and lack of hygiene. All these risks may have site specific and temporary adverse impacts that are reversible, through the appropriate mitigation measures explained in the ESMP. As a result, the **environmental category of this project is B.**
4. **Climate Risk:** It is evident from the analysis of climate scenarios that the selected districts would have hotter and drier futures. Increased temperature, changes in daytime/night-time temperatures, changes in seasons (e.g., start date of rainy season), increased/decreased/more

variable rainfall, and more severe and/or more frequent extreme events may impact agriculture and livestock. Expected crop loss, reduced availability of feed and fodder, increase in crop-and livestock/fisheries water demand, increase in vector-borne diseases, would need to be addressed. In addition, duration of out-door farm activities of livestock grazing and agriculture labourers are likely to be affected due to heat stress. Reduction in livestock productivity (milk, meat) is also likely to be impacted by projected increase in THI (temperature humidity index). Feed intake, production and reproductive efficiency of animals are affected by heat stress as a result of increase in temperature. Livestock is a key asset fulfilling multiple economic, social and risk management functions especially for rural poor communities. The designed strategies to mitigate the climate risks as specified in the ESMP below. **The climate risk is rated as High.**

C. Proposed Mitigation Measures

5. The risk mitigation strategy included in the project design address the environmental and climate risks listed in the environment and climate risks matrix below. The strategy revolves around the following main activities : 1) in relation to goat and poultry production and marketing, activities focus on capacity building of beneficiary farmers on adapted breeds for goats and backyard poultry, good livestock husbandry with focus on feeding practices, design of shelters for goats, and veterinary care. Given frequency and physical damage from floods, the project will pilot a goat insurance product; 2) in relation to fisheries, the siting and establishment of ponds would take into consideration the findings of the Hazard, Vulnerability and Risk assessment (HVRA), and as a result, ponds construction/ rejuvenation and ox-bow lake desiltation will be undertaken accordingly; 3) in relation to market infrastructure (market, slaughterhouses/ abattoirs), the design of the infrastructure will address sanitation, drainage, and effluent/ waste treatment, as well as hygiene.

D. Monitoring Programs and Parameters

6. The monitoring plan of the project would address environmental and climate related indicators specified in the environment and climate risk matrix below.

E. Public Consultation Activities

7. The mission visited 9 out of the 12 districts that constitute the project area. It held discussions with the producers, traders, block and district level officials of the DoAFR and the district collector. The mission also met with banks, private sector and NGOs . The design features of the project were discussed with these various groups and found relevant to improve incomes from goat and inland fisheries, improving nutrition thanks to diet diversification and inclusion of eggs, meat from poultry/goat/fish in local diets. There is also support to beneficiary contribution to project activities.

F. Responsibilities

8. The responsibility for the implementation of the ESMP rests with DoAFR. The Project Director will be responsible for the implementation of the ESMP, and ensuring that its provisions are reflected in the annual work plan and budget and monitoring plan of the project.

G. Reporting and Reviewing

9. The responsibility for reporting and reviewing the progress of the ESMP rests with the Project Director. Annual supervision missions fielded by IFAD will be also reporting on the implementation of the ESMP and effectiveness of the risk mitigation proposed, based on review of project documentation including the HVRA reports/ the annual outcome surveys, discussion with beneficiaries and with the district and block implementation teams. The findings will be documented in the supervision report.

H. Environment and Climate Risk Matrix

Target Groups	Threats	Climate triggers	Risk	Mitigation/Adaptation	Monitoring
Social risk					
Children below 14 years	Employment as labourers	Main trigger is poverty which can be exacerbated by the impacts of climate change causing loss of income and other forms of livelihoods.	Low	Project aims to improve incomes and therefore reduce poverty. Moreover, as income from goats will remain with women, it is likely that women will spend it on children education and nutrition, reducing the likelihood of children employment. The financing agreement will include a covenant whereby the project adheres to the national legislation and state strategy for elimination of child labour.	Enrolment of children in school in the baseline and endline impact assessments
Environment Risks					

Target Groups	Threats	Climate triggers	Risk	Mitigation/Adaptation	Monitoring
Goat rearers	Increase in GHG emission and in Carbon balance		Contribution to global warming	<p>The estimated carbon balance is 3,204,048 tCO₂e on balance, spread over 4,000 villages in 12 districts, and over a period of 6 years.</p> <p>The project made a conscious effort to improve the herd size to a financially viable size of 5 adults (up from an average of 3). The emphasis is on productivity improvement and good feed conversion, as well as on increasing off-take. Already goats emit less CH₄ than large ruminants.</p>	<p>Average herd size by household (annual outcome survey)</p> <p>And feed conversion rate (project monitoring)</p> <p>Rate of off-take (project monitoring)</p>

Target Groups	Threats	Climate triggers	Risk	Mitigation/Adaptation	Monitoring
Landless and marginal smallholders rearing goats	Reduced availability of common property resources and/or fallow land for grazing	N/A as this is mostly due to demographic pressure	<p>Low risk – The current production system does not rely on grazing in common property resources as these only account for 0.2% of the total geographic area of Bihar.</p> <p>The project will promote semi-intensive and intensive goat production, which relies on cultivation of fodder crops, planting of fodder trees, and purchase of feed requirements.</p>	The project made a provision for allocating seeds and seedling for fodder crops/ trees. It is also providing matching grants to producer groups to lease private land for cultivation of fodder crops.	No producers (W/M, ST/SC/Other) reporting increase in fodder availability from fodder crops and trees. (Annual outcome survey)
Goat rearers, traders in goat or fish, and consumers	Poor hygiene in goat and fish markets combined with poor drainage and untreated effluent and waste in markets, slaughterhouses/ abattoirs, butchers, etc...	N/A	Health risks to humans and animals	All market infrastructure supported by the project will be equipped with sanitation system, and treatment of effluent and waste, and where possible recycling of effluent and waste.	No of market infrastructure that is environmentally compliant (project monitoring)
Climate					

Target Groups	Threats	Climate triggers	Risk	Mitigation/Adaptation	Monitoring
Goat and poultry rearers in Southern part of project area	Droughts	Consecutive dry days, High temperature	Reduced fodder availability and water ; under-nourished animals that become vulnerable to disease	Project supports adapted breeds for the various agro-ecological regions in Bihar; drought resistant varieties of fodder crops/ trees; and veterinary care.	No of goat and poultry rearers adopting drought resilient breeds (annual outcome survey) No of goat and poultry rearers accessing veterinary care (annual outcome survey)
Goat and poultry rearers in Northern part of Bihar	Flood	Consecutive rainy days, higher frequency of severe rainfall	Loss of livestock	Project will pilot a goat insurance scheme in one district, and if found successful, it will be replicated	No of producers enrolled in goat insurance (project monitoring)
Women who undertake the bulk of labour for goat rearing	Heat stress	Projected increase in THI	Physical exhaustion, health hazards, loss of income due to illness	Project supports intensification of goat rearing which will reduce the time spent with animals browsing.	No of women/men adopting semi-intensive and intensive goat rearing (annual outcome survey)

Target Groups	Threats	Climate triggers	Risk	Mitigation/Adaptation	Monitoring
Fish rearers in Southern part of Bihar for pond aquaculture	Drought	Consecutive dry days, High temperature	Reduced water availability for filling the ponds, and reduced productivity of the fish, increase in costs of feed	Capacity building of producers to select suitable fish species and pond management. Location of new ponds to take into consideration findings of HVRA	No of fish rearers trained (project monitoring)
Fishers rearers for pond aquaculture in Northern Bihar	Flood	Consecutive rainy days, higher frequency of severe rainfall	Destruction of ponds, and higher cost for re-building them	Project supports designing of ponds with proper heights of dykes.	No of improved ponds (project monitoring)
Fishers in ox-bow lakes	Flood	Consecutive rainy days, higher frequency of severe rainfall	Increased siltation, and reduced productivity	Project support de-siltation of ox-bow lakes	No of ox-bow lakes de-silted (project monitoring)

I. Environmental and Social Management Plan (ESMP)

Key Requirements	Actions	Indicator	Responsibility	Time Frame	Budget Source
Increase in GHG emissions from goat rearing	Project will focus on bringing herd size to financially viable level (from 3 to 5 heads) and on increasing productivity, and feed conversion efficiency, as well as off-take rate.	Average herd size by household (annual outcome survey) Feed conversion rate (project monitoring) Rate of off-take (project monitoring)	DISHA/ FTA worker to carry out community mobilization and train farmers on good husbandry practices	Year 1 to 4	Under Component 1, Allocation for training of DISHA workers who in turn train livestock rearers : 5.5 million USD in total Under Component 2, Allocation for training FTA who in turn trains fishers : 6.9 million USD
High Temperature, Reduced Rainfall, variability leading to drought	Promotion of adapted goat/ poultry breeds and fish species; adapted shelters for goat/ poultry; adapted ponds for fish; and veterinary care for poultry/goat Demonstration of climate resilient husbandry techniques ⁴⁰ and	No of goat and poultry rearers adopting drought resilient breeds (annual outcome survey) No of goat and poultry rearers accessing	DISHA and FTAs to train farmers using appropriate training materials in local language and simple hand outs, as well as digital extension with weather advisories	Year 1 and 2	Under components 1 - Digital Extension : 0.1 million USD Under Component 2, - Digital Extension : 0.077 million USD

⁴⁰ Such techniques may include establishment of silvi-pastoral system and cultivation of fodder trees along field bunds, recycling of used/waste waters, improve natural pasture/grazing lands by in-situ rainwater conservation, replacing less productive grasses by newly developed more productive and drought tolerant varieties of grasses,

Key Requirements	Actions	Indicator	Responsibility	Time Frame	Budget Source
	Development of User manuals/guidelines	veterinary care (annual outcome survey) No of fishers with improved ponds			
Flood prone areas	Project will prepare HVRA studies. HVRA studies will draw on NRSC/ISRO district wise flood hazard zonation atlas for Bihar state using the available historical satellite datasets spanning over 13 years and intra annual flood variations from 1998 to 2010. The flood hazard maps prepared from satellite data were peer reviewed and also validated on ground by the Bihar State Disaster Management Authority (BSDMA) through its district administration .	No of HVRA studies completed	Project can hire technical assistance or collaborate with BSDMA using GIS overlay analysis while identifying the blocks/sites. This information will be used in developing the extension material for goat rearing and fisheries, as well as locating new ponds	Year 1 and 2	Under component 3: Allocation of 200,000 USD for unclassified technical assistance covering among others Hazard, Vulnerability, Risk assessment studies, in year 1 and 2
Flood induced losses in livestock	Pilot an insurance product for goat in one district	Number of persons (W/M) benefitting	Producer Organization	Year 2 to 4	Under component 1,

rehabilitation of wasted and abandoned lands, dual purpose cultivable crop varieties of pearl millet, sorghum, barley and oats, promoting indigenous livestock which are area specific animal breeds. Co-benefit: Desilting, repairing, renovation and construction of new conveyance system etc can be undertaken by utilizing opportunities under NREGA, and other scheme funds.

Key Requirements	Actions	Indicator	Responsibility	Time Frame	Budget Source
		from insurance coverage			Allocation of 94,000 USD to develop and test a mutual insurance mechanism
Sediment/siltation of ox-bow lakes	Survey of the oxbow lakes and preparation of studies to guide the desiltation	Number of oxbow lakes de-silted	PSU to consult the Central Inland Fisheries Research Institute (CIFRI) on the environmental guidelines for desiltation of ox-bow lakes and disposal of the silt	Year 2 to 4	Under component 2, Allocation for survey, planning and preparation of estimates for intensification of fish capture in oxbow lakes
Production of Feed and Fodder	Support to goat rearers and fishers to cultivate fodder on leased land and to plant fodder trees	No producers (W/M, ST/SC/Other) reporting increase in fodder availability from fodder crops and trees. (Annual outcome survey)	Producer Groups	Year 2 to 4	Under component 1, - Allocation of 1.9 million USD for fodder production (seeds and seedlings) Under component 2, - Allocation of 0.58 million USD for integrated fish farming including feed for fish
Hygiene, sanitation, effluent and waste of market infrastructure (markets,	All market infrastructure supported by the project will be equipped with sanitation system, and treatment of effluent and	No of market infrastructure that is environmentally compliant (project monitoring)	Directorate of Animal Husbandry and Directorate of Fisheries		Under component 1, Allocation of 442,000 USD for preparation of design for model

Key Requirements	Actions	Indicator	Responsibility	Time Frame	Budget Source
slaughterhouses, abattoirs)	waste, and where possible recycling of effluent and waste.				<p>market sheds and construction of market sheds</p> <p>Allocation of 192,000 USD for guidelines for slaughter points, training butchers and construction of model slaughter points</p> <p>Under component 2,</p> <p>Allocation of 322,000 USD for development of guidelines and construction of model fish markets and fish stalls</p>
Child labour	Financing agreement will include a covenant whereby the project adheres with national legislation and state strategy for elimination of child labour.	Full compliance with national legislation and state strategy: no child is employed on any of the civil works supported by project.	PSU	Full duration of the project	Cost of procurement specialist in PSU: 92,000 USD in total over project life :

J. Scope of Hazard, Vulnerability and Risk Assessment

Scope of Work of the Hazard Mapping and Analysis

- To identify and review relevant data sources to be used for conducting the hazard assessment in the study area, (existing hazard maps of the study area, previous assessments i.e. research publications, local knowledge, socio-economic databases and survey materials that are already available).
- Analyze the impact of extreme weather events (temperature, precipitation) and relevant geophysical events (floods and landslide etc) in terms of its nature, geographical distribution, severity and frequency based on historical information.
- To analyze frequency and extent of impact for health (livestock/fisheries).
- To generate appropriate spatial level hazard maps for geological, hydro-meteorological and health hazards.
- To analyze climate change scenarios (mid-century), impacts if feasible at the scale or extrapolate from district impacts.

Development of Exposure Database at appropriate spatial level

- To prepare demographic maps, socio economic profile map, location map of key buildings such as hospitals, police stations and fire stations.
- To develop exposure database of people and buildings to all hazard analyzed in Hazard Mapping and Analysis.
- To identify the probable threats that may need timely and coordinated response to protect lives, property, infrastructure and environment.

Vulnerability Assessment (Physical, Economic, Social and Environment)

- To conduct detailed social vulnerability assessment w.r.t. various hazards such as flood, cyclone, earthquake etc. This will include the study of the population profile of the study area at appropriate scale, identification of the vulnerable groups (address all social inclusion) and their level of access to basic services and livelihood.
- To conduct detailed assessment of socio-economic vulnerability at the appropriate scale (including value chain).
- To estimate environmental vulnerabilities in and around surrounding areas (implications on natural resources).
- To develop a composite vulnerability index at appropriate scale (determine high, medium and low risk).

Risk Assessment

Comprehensive scientific risk assessment at appropriate scale;

- To identify potential risk of geophysical and hydro-meteorological vents including climate variability and climate change (temperature, precipitation and extreme events) across identified sectors.
- To demarcate high risk zones and projections of potential losses to various sectors in different hazard zones.
- To develop the risk atlas at appropriate scale.
- Estimate response and rehabilitation needs particularly focusing on people and livestock needing food, shelter, rescue/evacuation and first aid etc.

Capacity Assessment at community/ village/ block levels

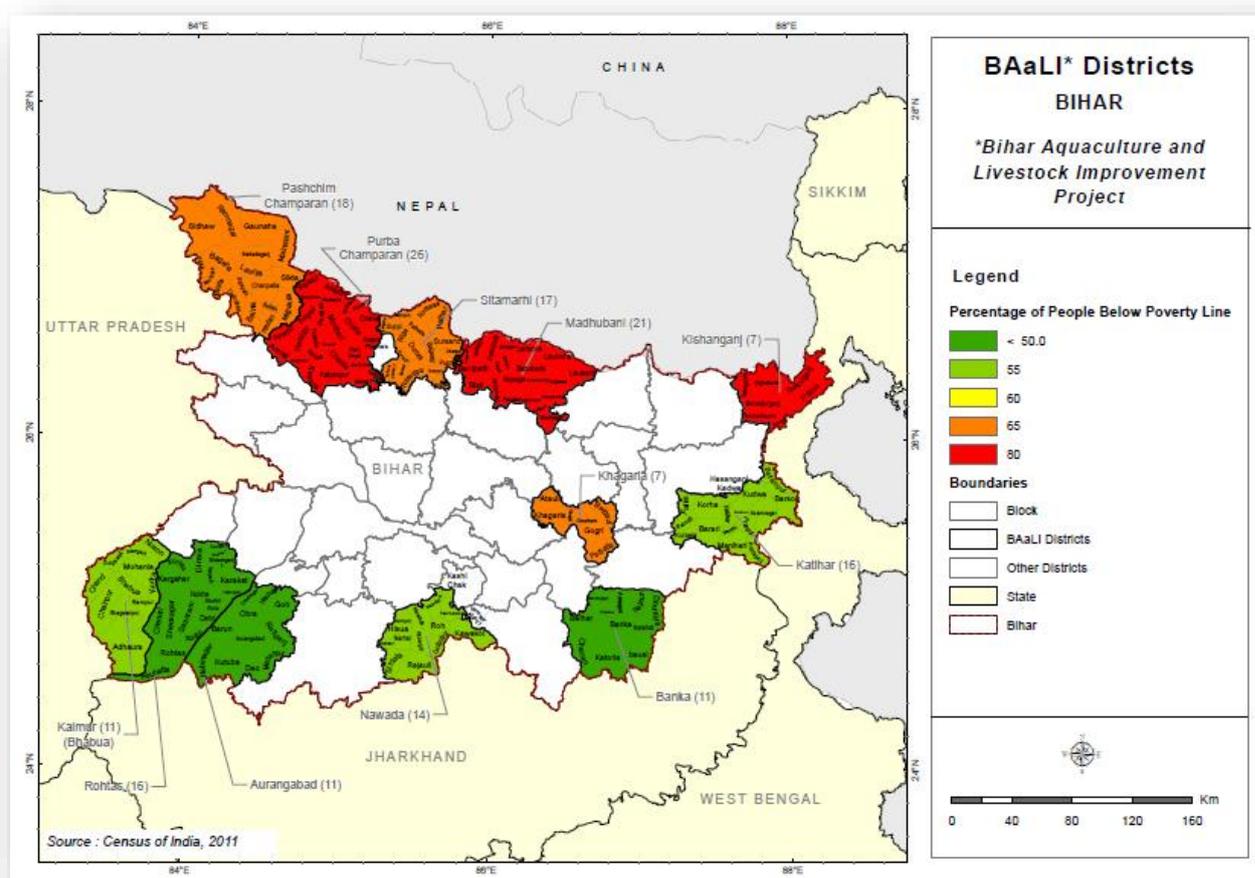
- Capture the capacities of existing government institutions, emergency service providers, utility agencies, social institutions and communities at appropriate scale.
- Conduct stakeholder consultation workshops with key stakeholders and develop a series of recommendations to further outline a series of steps to improve public safety measures.

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Annexure

Figure A- 1 Demographic Profile of BAaLI Implementation Districts of Bihar

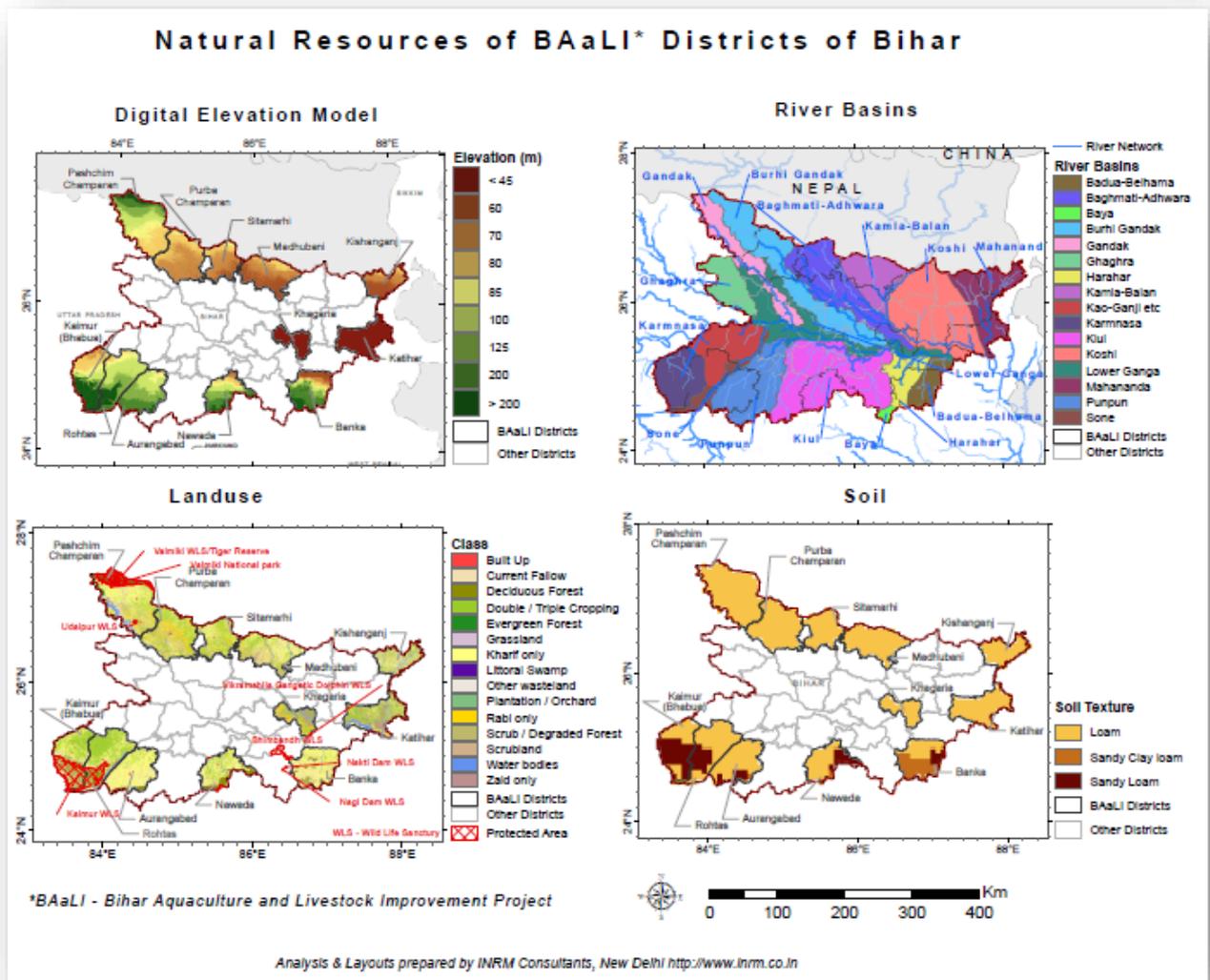


Geographical Area: Top 3 districts with largest geographical area (km²): Pashchim Champaran (5,229), Purba Champaran (3,969), Rohtas (3,850); Bottom 3 districts with smallest geographical area (km²): Sitamarhi (2,199), Kishanganj (1,884), Khagaria (1,486).

Administrative Blocks: Top 3 districts with highest number of Blocks: Purba Champaran (27), Madhubani (21), Pashchim Champaran (18); Blocks in rest of 9 districts: Banka (11), Kaimur (11), Katihar (16), Khagaria (7), Kishanganj (7), Nawada (14), Rohtas (16), Sitamarhi (17), Aurangabad (11).

BPL Family: Top 3 districts with highest number of BPL family: Kishanganj (79.08%), Purba Champaran (67.41%), Madhubani (66.56%); Bottom 3 districts with lowest number of BPL family: Banka (49.51%), Rohtas (49.37%) and Aurangabad (48.33%).

Figure A- 2 Physiographic Profile of BAaLI Implementation Districts of Bihar



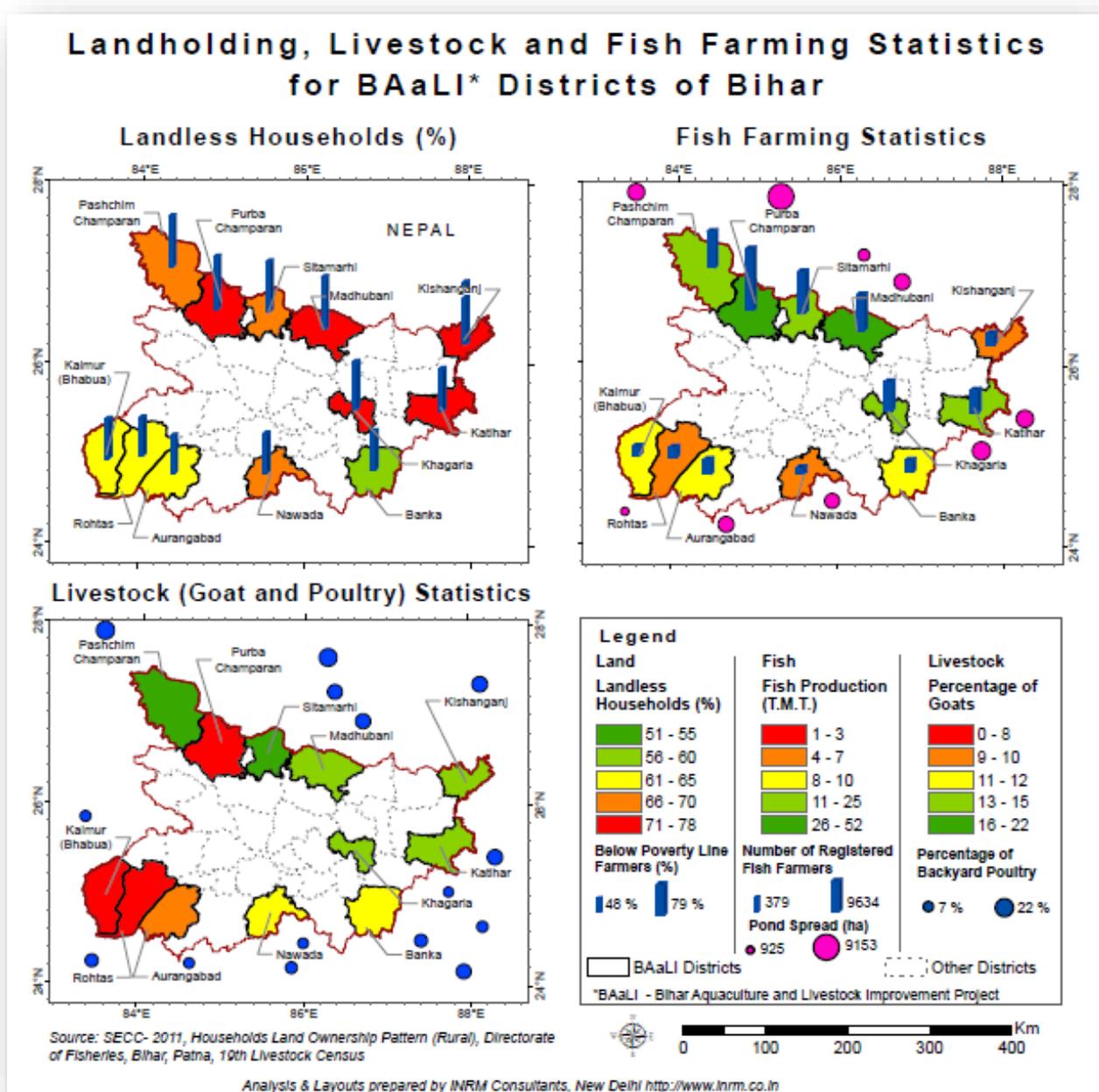
Top Left: Average elevation above sea level varies from 33 m to 194 m in the districts. Top 3 districts w.r.t. to higher elevation above msl are Rohtas (min:66- max:630- mean:151), Jamui (min:42- max:542- mean:180) and Kaimur (Bhabua) (min:55- max:643- mean:194).

Top right: 14 rivers which drain into the main Ganga stem: Badua-Belhama, Bagmati-Adhwara, Baya, Burhi Gandak, Chandan, Gandak, Ghaghra, Kamla Balan, Karmnasa, Kiul-Harhar, Kosi, Mahananda, Punpun and Sone.

Bottom Left - Landuse map. Top 3 districts with highest net sown area (% to district geographic area); Madhubani (64.4%), Rohtas (63.8%) and Katihar (63%); Top 3 districts with highest land not available for cultivation; (% to district geographic area): Khagaria (30%), Sitamarhi (29.3%), Banka (28%). **Protected Area:** Top 3 districts with highest % district area under protected area; Kaimur (Bhabua) (36.11%), Rohtas (16.98%), Pashchim Champaran (14.77%).

Bottom right: Soil Map. All districts have predominantly Loamy soil, except for south Bihar districts of Banka, Kaimur (Bhabua), Nawada, Rohtas, and Aurangabad which have sandy loam and sandy clay loam along with major loamy soil.

Figure A- 3 Land-holding and Livestock Profile of BAaLI Implementation Districts of Bihar



Top Left - Landless & BPL Family: Top 3 districts with largest number of Landless families: Khagaria (78%), Kishanganj (77%), Katihar (75%); Bottom 3 districts with lowest number of Landless families: Rohtas (61.5%), Kaimur (Bhabua) (61%), Banka (59%). **BPL Family:** Top 3 districts with highest number of BPL family: Kishanganj (79.08%), Purba Champaran (67.41%), Madhubani (66.56%); Bottom 3 districts with lowest number of BPL family: Banka (49.51%), Rohtas (49.37%) and Aurangabad (48.33%).

Top right - Fish Farming: Top 3 districts with highest fish production: Madhubani (51.45 TMT), Purba Champaran (50.4 TMT), Katihar (23.5 TMT); Bottom 3 districts with lowest fish production: Rohtas (6.75 TMT), Kishanganj (6.17 TMT), Nawada (5.4 TMT).

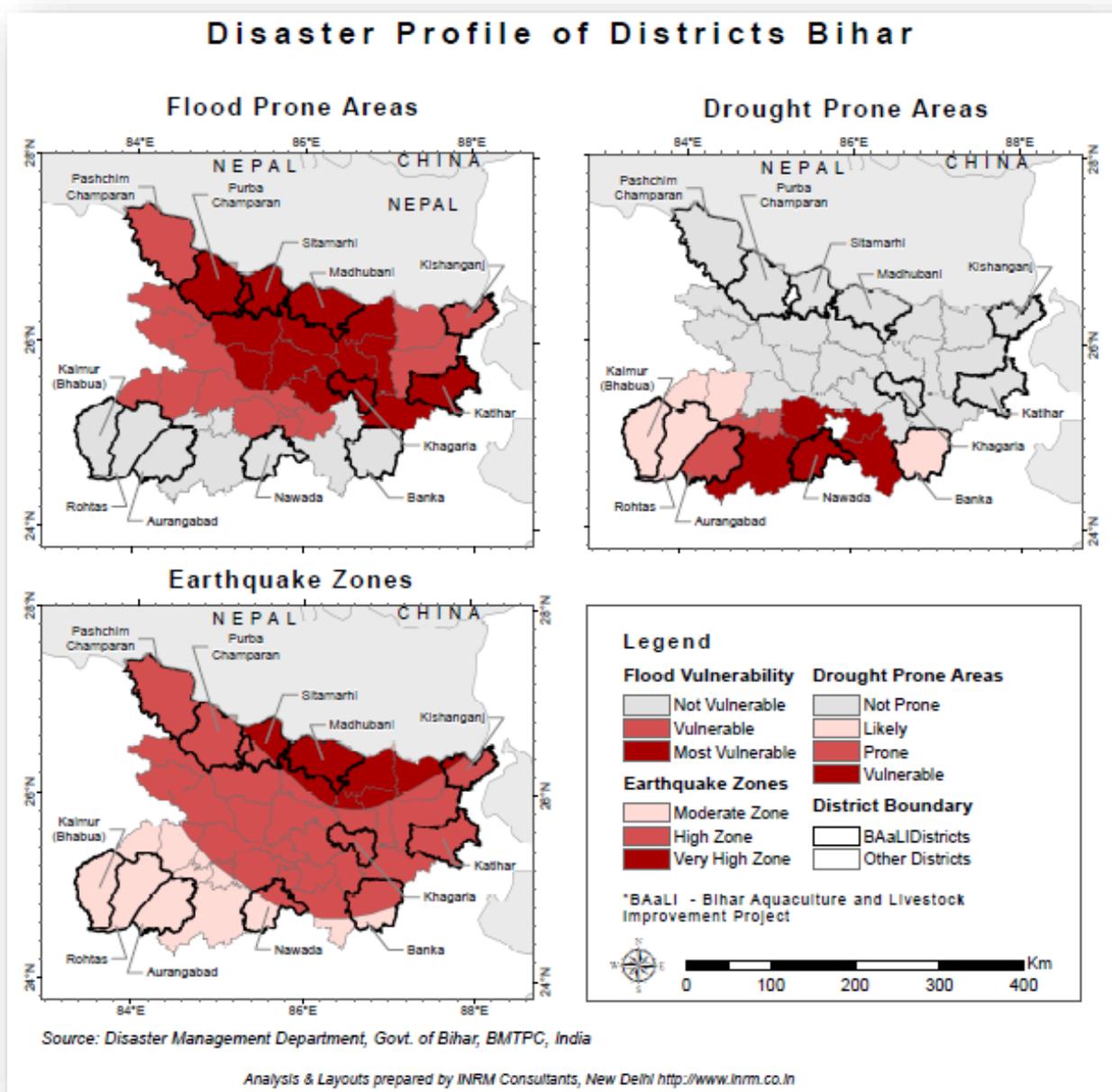
Registered fish farmers: Top 3 districts with highest number of registered fish farmers: Purba Champaran (9634), Sitamarhi (6449), Pashchim Champaran (5682); Bottom 3 districts with lowest number of registered fish farmers: Rohtas (1542), Kaimur (1398), Nawada (1055).

Spread of ponds: Top 3 districts with largest spread of ponds: Purba Champaran (9153 ha), Khagaria (4640 ha), Katihar (4176 ha). Districts devoid of identifies spread of ponds: Banka, Kishanganj, Kaimur (Bhabua).

Bottom Left - Livestock: Household with Goats: Top 3 districts with highest percentage household with Goats; Sitamarhi (21.7%), Pashchim Champaran (17.1%), Khagaria (15.2%); Bottom 3 districts with lowest percentage household with Goats; Aurangabad (8.8%), Rohtas (6.4%), Kaimur (Bhabua) (5.1%).

Household with Backyard poultry: Top 3 districts with highest percentage household with Backyard poultry; Pashchim Champaran (22%), Kishanganj (16.8%), Katihar (15.9%); Bottom 3 districts with lowest percentage household with Backyard poultry; Nawada (8%), Aurangabad (7.8%), Khagaria (7.1%).

Figure A- 4 Disaster Profile of BAaLI Implementation Districts of Bihar



Top Left - Flood Prone Area: Perennially flood-prone districts - most vulnerable category: Katihar, Khagaria, Madhubani, Purba Champaran and Sitamarhi; Perennially flood-prone districts - vulnerable category: Kishanganj and Pashchim Champaran. Top 3 districts with maximum Inundation in any particular year (from 1995 to 2010, km²): Purvi-Champaran (2600), Mudhubani (2460), Sitamarhi (2180); Bottom 3 districts: Katihar (1850), Khagaria (1150), Kishanganj (490).

Top right - Drought Prone Area: Kaimur (Bhabua), Rohtas and Banka fall under likely; Aurangabad falls under prone; Nawada falls under vulnerable category.

Bottom Left - Earthquake Zones: Top 3 districts under very high earthquake zone: Madhubani, Sitamari, Kishanganj; Moderate zone: Aurangabad, Kaimur (Bhabua), Rohtas.

Figure A- 5 Drought Probability of BAaLI Districts of Bihar

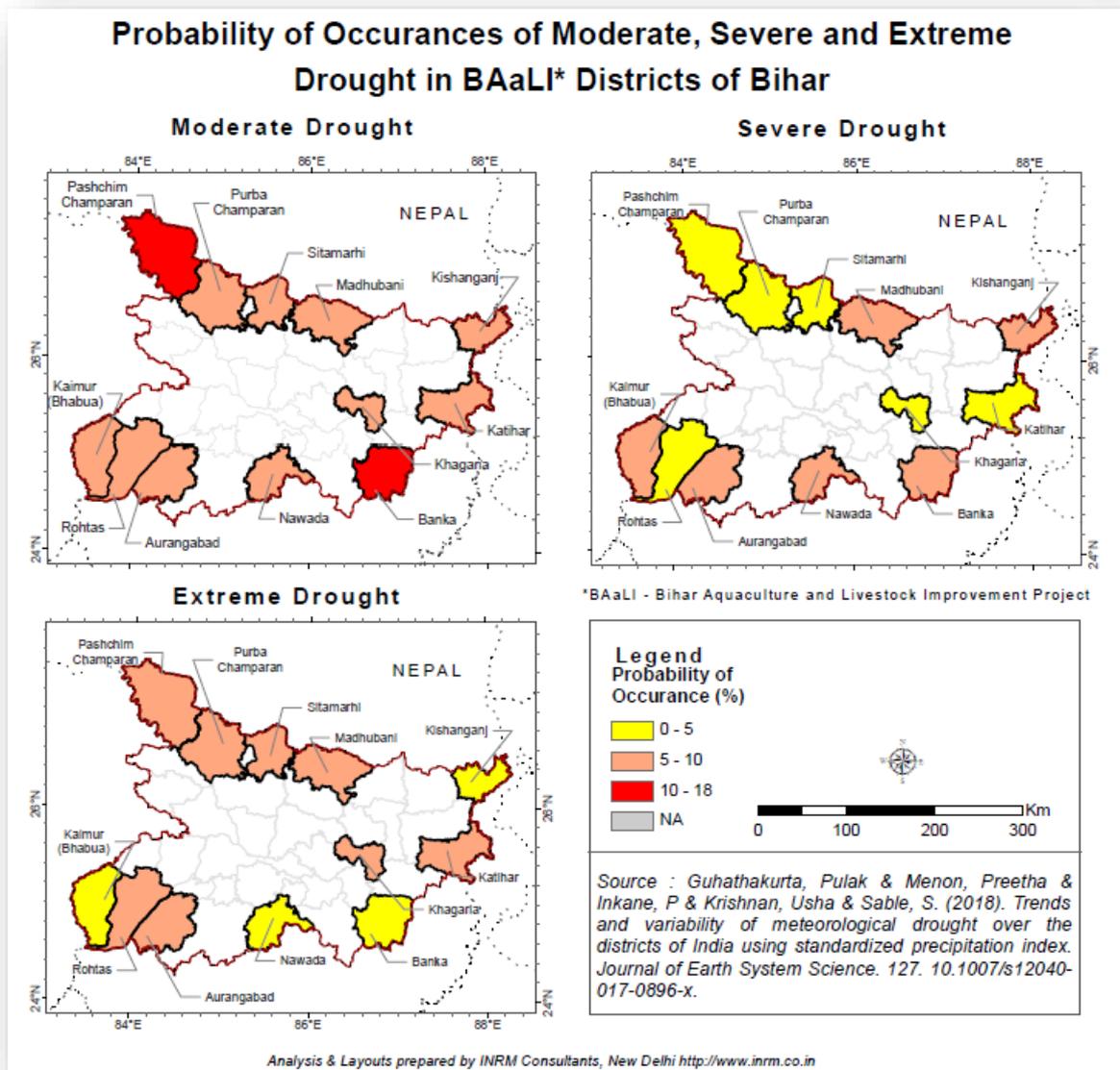
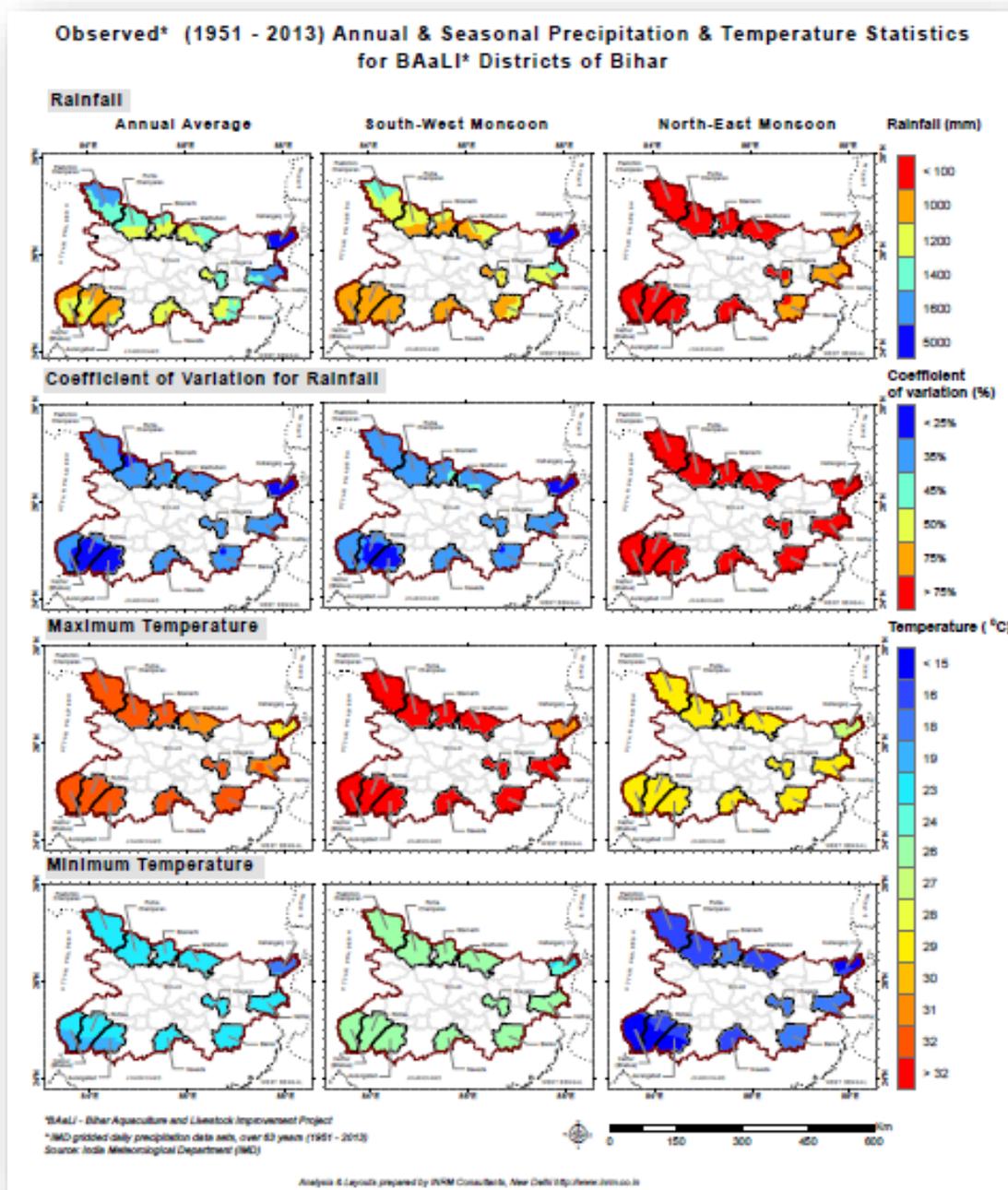


Figure A- 6 Historical Climate Profile of BAaLI Implementation Districts of Bihar

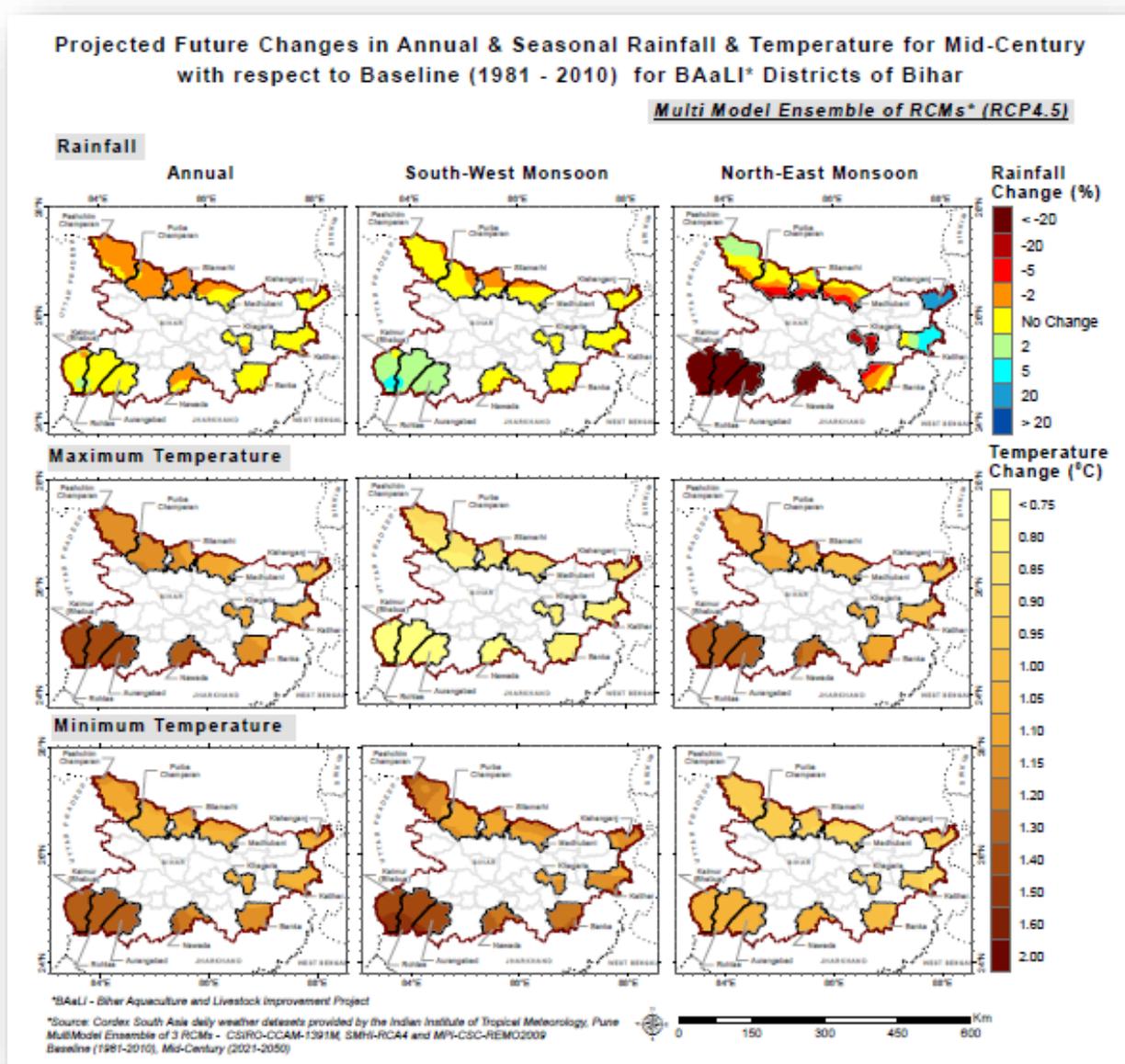


Map Position	Parameter	Season	Highest (value), Lowest (value)
First Row, First Column	Rainfall (mm)	Annual	Kishanganj (2673), Aurangabad (990.7)
First Row, Second Column		SW Monsoon	Kishanganj (2192), Aurangabad (869.2)
First Row, Third Column		NW Monsoon	Kishanganj (137.7), Kaimur (Bhabua) (53.9)

Map Position	Parameter	Season	Highest (value), Lowest (value)
Second Row, First Column	CV ⁴¹ Rainfall	Annual	Inter annual variability is higher in North Bihar districts as compared to South Bihar districts.
Second Row, Second Column		SW Monsoon	Inter annual variability is higher in North Bihar districts as compared to South Bihar districts.
Second Row, Third Column		NW Monsoon	Inter annual variability is high in all districts.
Third Row, First Column	Max. Temperature	Annual	Kaimur (Bhabua) (31.9), Kishanganj (28.4)
Third Row, Second Column	(°C)	SW Monsoon	Kaimur (Bhabua) (34.1), Kishanganj (30.5)
Third Row, Third Column		NW Monsoon	Banka (28.8), Kishanganj (26.6)
Fourth Row, First Column	Min. Temperature	Annual	Banka (20), Kishanganj (17.8)
Fourth Row, Second Column	(°C)	SW Monsoon	Sitamarhi (25.8), Kishanganj (23.2)
Fourth Row, Third Column		NW Monsoon	Katihar (17), Kaimur (Bhabua) (14.9)

⁴¹ A statistical measure of the dispersion of data points in a data series around the mean and is a measure of temporal variability. The coefficient of variation represents the ratio of the standard deviation to the mean, and it is a useful statistic for comparing the degree of variation from one data series to another, even if the means are drastically different from each other. The advantage of the CV is that it is unitless. This allows CVs to be compared to each other in ways that other measures, like standard deviations or root mean squared residuals, cannot be. Distributions with CV < 1 are considered low-variance, while those with CV > 1 are considered high-variance.

Figure A- 7 Projected Climate Profile of BAaLI Implementation Districts of Bihar - IPCC AR5 RCP4.5 Scenario (Low emission)



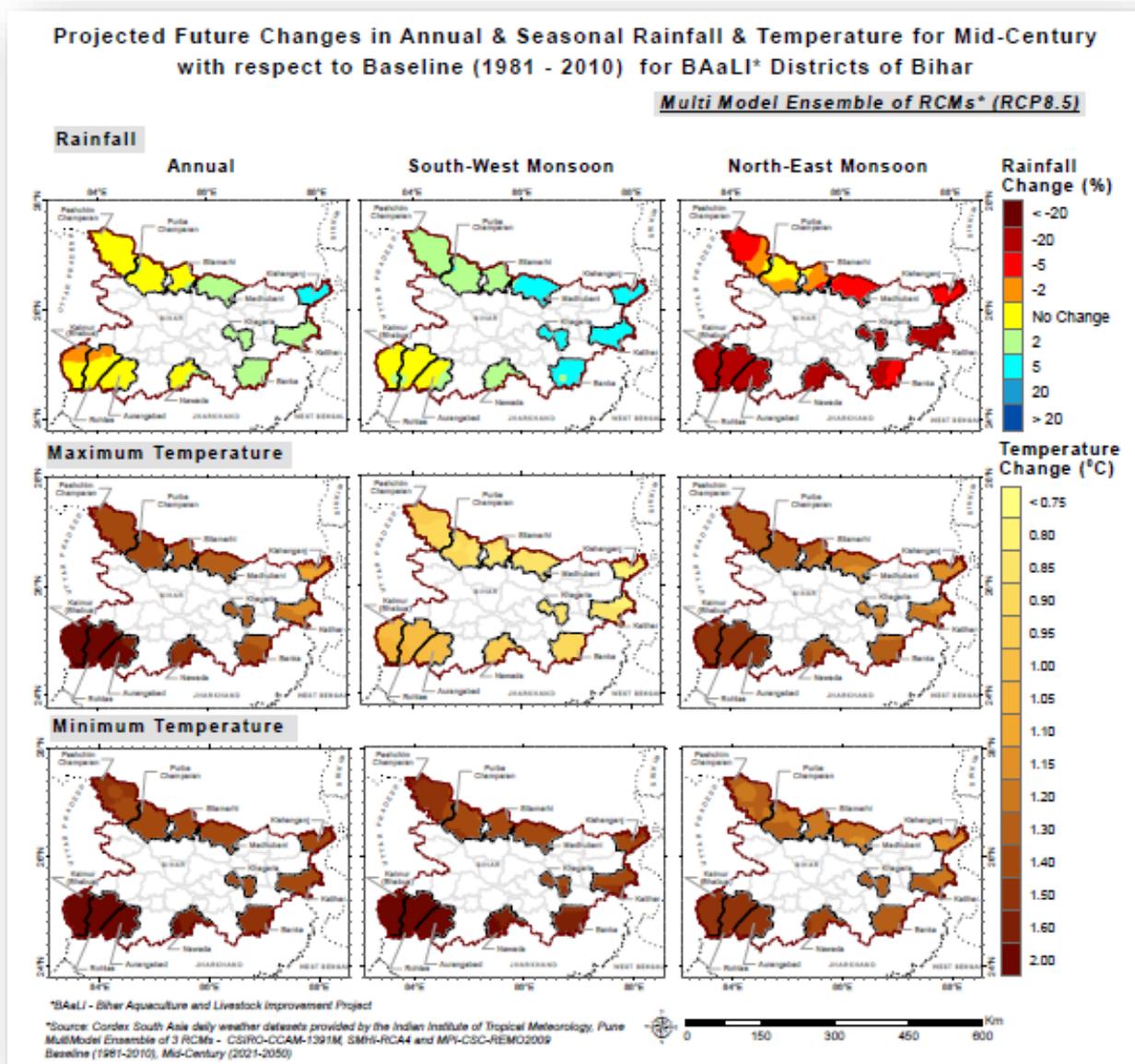
Change towards Mid-century (2021-2050) w.r.t. Baseline (1980-2010) under Low emission scenario (RCP4.5)

Map Position	Parameter	Season	Highest (change), Lowest (change)
First Row, First Column	Rainfall (% change)	Annual	Katihar (0.9), Sitamarhi (-3.3)
First Row, Second Column		SW Monsoon	Kaimur (Bhabua) (4.2), Sitamarhi (-2.7)
First Row, Third Column		NW Monsoon	Kishanganj (12.2), Aurangabad (-29.1)
Second Row, First Column	Max. Temperature	Annual	Rohtas (1.4), Kishanganj (0.9)
Second Row, Second Column	Change in (°C)	SW Monsoon	Madhubani (0.9), Kaimur (Bhabua) (0.6)
Second Row, Third Column		NW Monsoon	Rohtas (1.3), Madhubani (1)

Third Row, First Column	Min. Temperature	Annual	Rohtas (1.3), Kishanganj (1)
Third Row, Second Column	Change in (°C)	SW Monsoon	Aurangabad (1.4), Sitamarhi (1.1)
Third Row, Third Column		NW Monsoon	Rohtas (1), Sitamarhi (0.8)

Note: Negative value implies reduction from baseline

Figure A- 8 Projected Climate Profile of BAaLI Implementation Districts of Bihar - IPCC AR5 RCP8.5 Scenario (High emission)



Change towards Mid-century (2021-2050) w.r.t. Baseline (1980-2010) under Low emission scenario (RCP8.5)

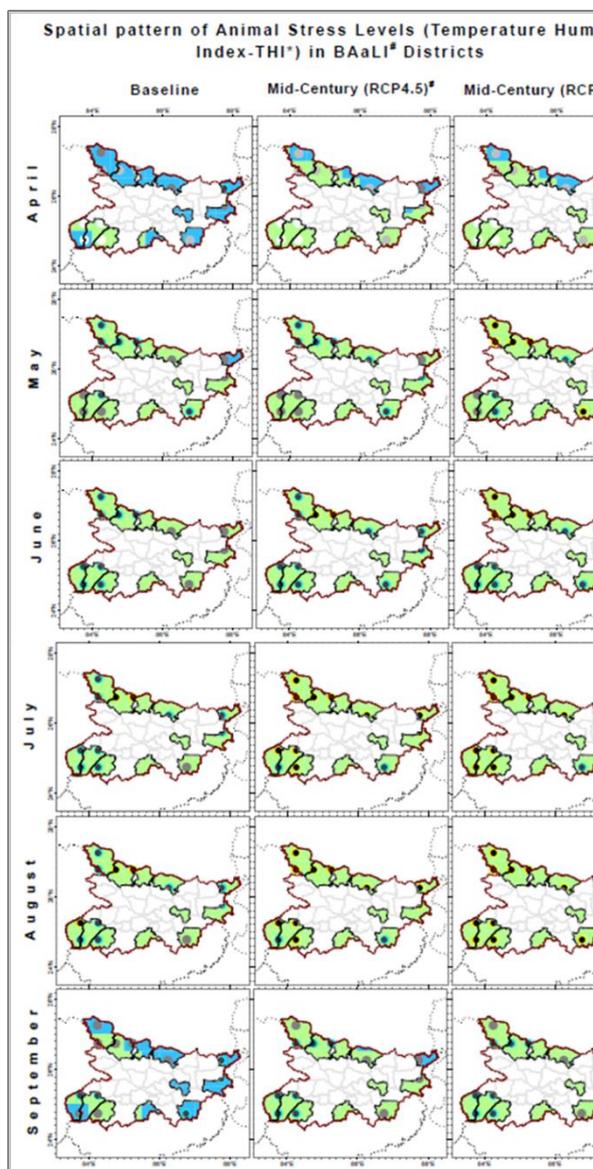
Map Position	Parameter	Season	Highest (change), Lowest (change)
First Row, First Column	Rainfall (% change)	Annual	Kishanganj (6.5), Kaimur (Bhabua) (-1.8)
First Row, Second Column		SW Monsoon	Kishanganj (8.3), Kaimur (Bhabua) (0.5)

First Row, Third Column		NW Monsoon	Purba Champaran (-1.2), Aurangabad (-16.9)
Second Row, First Column	Max. Temperature	Annual	Rohtas (1.7), Kishanganj (1.1)
Second Row, Second Column	Change in (°C)	SW Monsoon	Rohtas (1), Purba Champaran (0.8)
Second Row, Third Column		NW Monsoon	Rohtas (1.5), Nawada (1.2)
Third Row, First Column	Min. Temperature	Annual	Rohtas (1.8), Kishanganj (1.3)
Third Row, Second Column	Change in (°C)	SW Monsoon	Aurangabad (1.8), Madhubani (1.3)
Third Row, Third Column		NW Monsoon	Kaimur (Bhabua) (1.5), Madhubani (1.1)

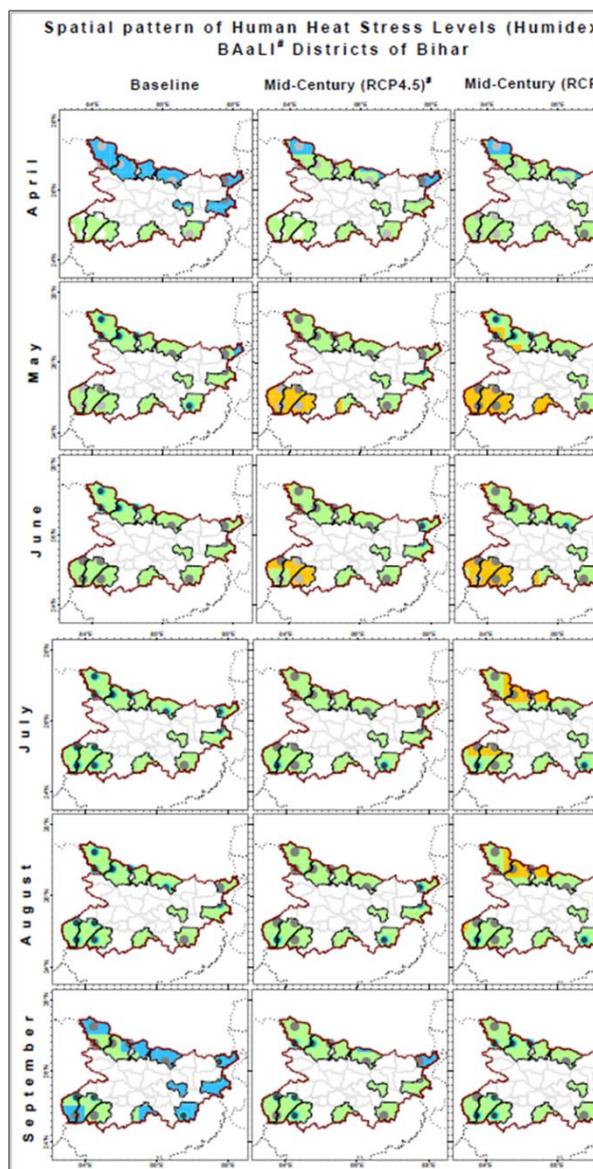
Note: Negative value implies reduction from baseline

Figure A- 9 Spatial pattern of Heat Stress Levels for BAaLI Implementation Districts of Bihar

Temperature Humidity Index THI - Animal heat stress



Humidex (HI) - Human heat stress



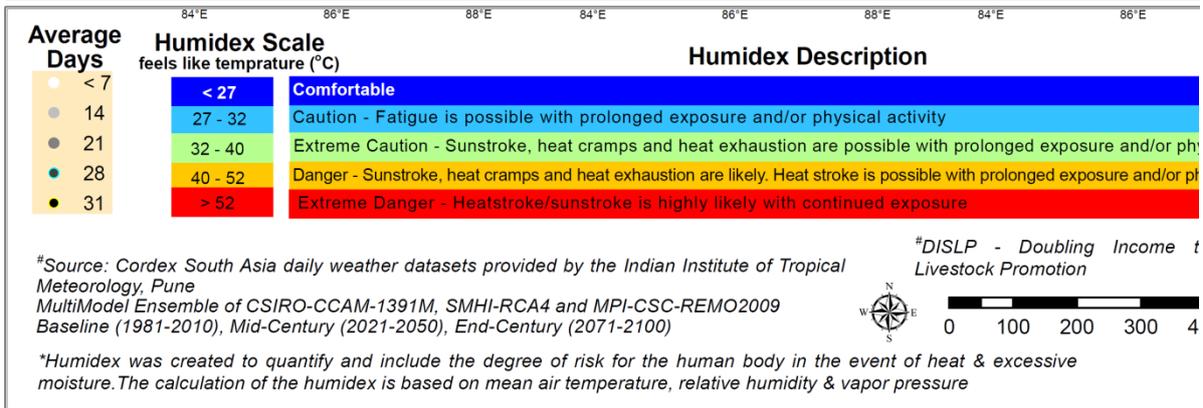
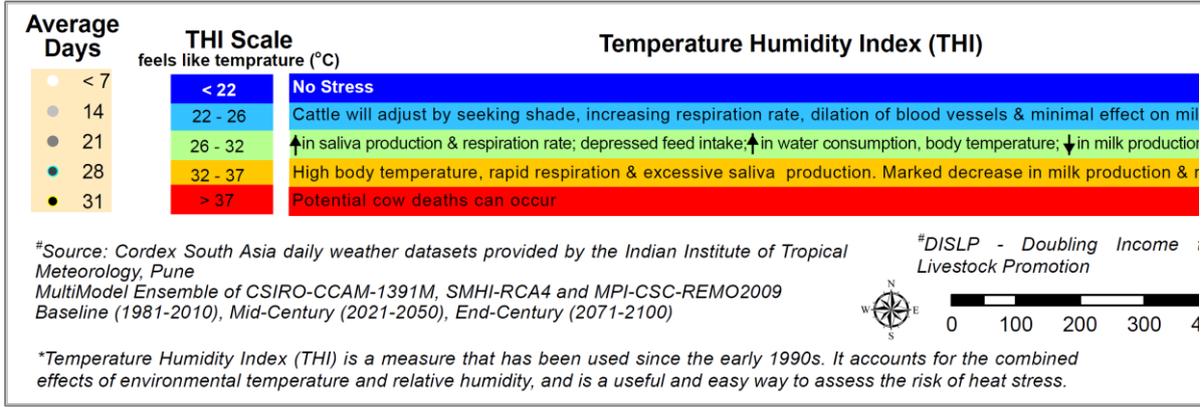
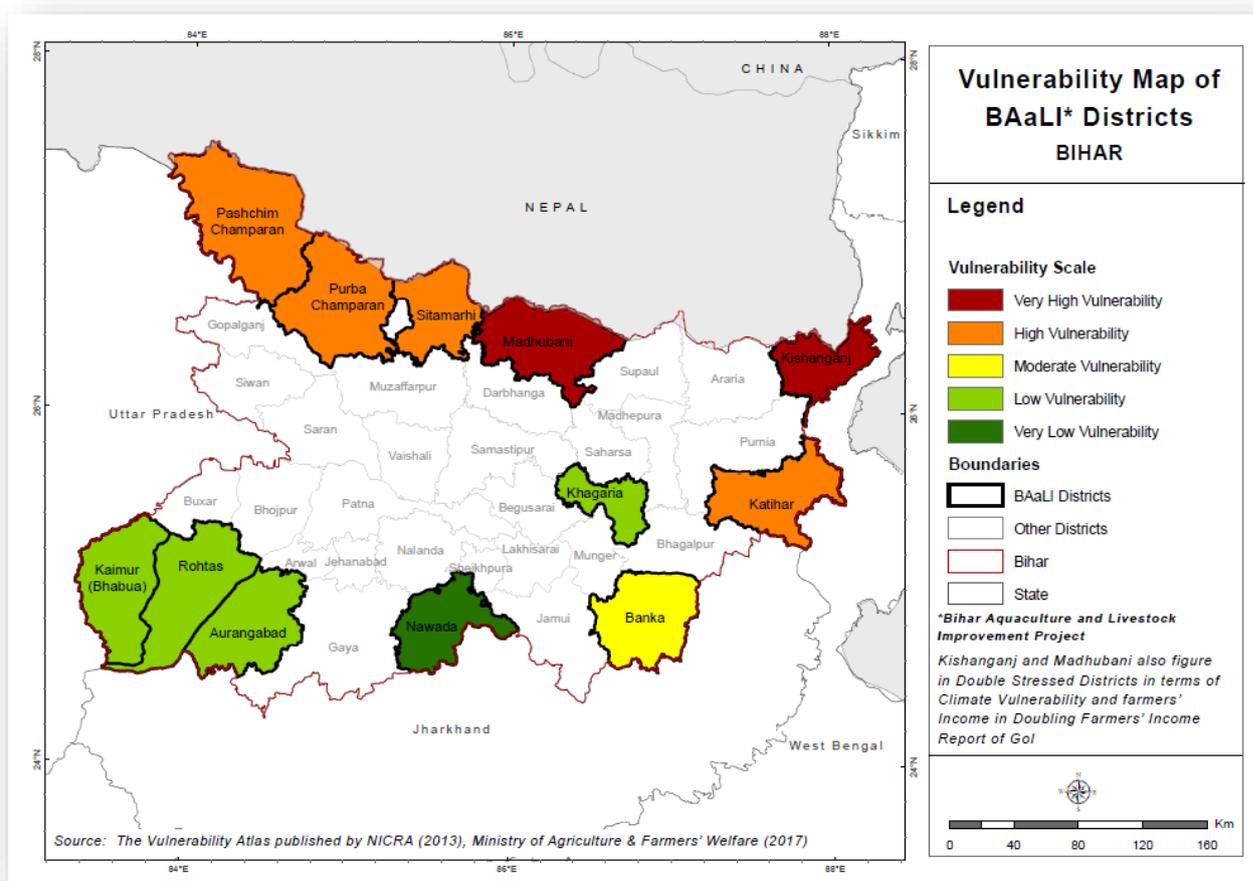


Figure A- 10 Climate Change Vulnerability of BAaLI Implementation Districts of Bihar



Vulnerability Category: Districts of Kishanganj and Madhubani fall under very high vulnerability category, Katihar, Sitamarhi, Purba Champaran and Pashchim Champaran fall under high vulnerability category, Banka falls under moderate vulnerability category, Aurangabad, Khagaria, Rohtas and Kaimur (Bhabua) fall under low vulnerability and district of Nawada falls under very low vulnerability category.

Drivers of vulnerability: Major drivers of vulnerability identified are projected decrease in July rainfall, High net sown area, low net irrigated area and low groundwater availability, flood proneness and low net irrigated area.

District	Vulnerability	Exposure Factor	Sensitivity Factor	Adaptive Capacity factor
Kishanganj	Very High	Projected decrease in July rainfall	High NSA	Low NIA
Madhubani	Very High	Projected decrease in July rainfall	High NSA	Low groundwater availability
Katihar	High	Projected decrease in July rainfall	High NSA	Low groundwater availability

District	Vulnerability	Exposure Factor	Sensitivity Factor	Adaptive Capacity factor
Sitamarhi	High	Projected decrease in July rainfall	Flood proneness	Low NIA
Champanan (East)	High	Projected decrease in July rainfall	High NSA	Low NIA
Champanan (West)	High	Projected decrease in July rainfall	High NSA	Low NIA
NSA: Net Sown Area; NIA, Net Irrigated Area Source: Atlas on Vulnerability of Indian Agriculture to Climate Change. Central Research Institute for Dryland Agriculture, Hyderabad				

Figure A- 11 Summary Table for BAaI Implementation Districts of Bihar

District	Historical				Low emission Climate Scenario			High emission Climate Scenario			BSDMA Plan						V Atlas
	Rainfall		Temperature		Rainfall	Temperature		Rainfall	Temperature		Disasters*						NICRA#
	ANN	RDAY	MAX	MIN	ANN	MAX	MIN	ANN	MAX	MIN	EQ	FLD	DRO	CYL	W/FIRE	D-VUL	N-VUL
Aurangabad	H	H	H	L	L	L	H	L	H	H			D		L		L
Banka	L	H	L	M	H	M	M	M	M	H	M		D	C	L		M
Kaimur (Bhabua)	H	H	M	L	M	L	M	L	H	H			D	C	M		L
Katihar	L	L	M	H	L	L	L	H	L	H	M	F		C		H	H
Khagaria	L	L	M	L	H	H	H	L	H	H		F		C		H	L
Kishanganj	H	H	M	L	L	H	H	L	H	H	M	F		C		M	VH
Madhubani	H	L	M	L	H	H	H	L	H	H	H	F	D	C		H	VH
Nawada	H	H	L	L	H	H	H	L	H	H			D		L		VL
Pashchim Champaran	H	H	M	L	H	H	H	L	H	H		F		C	H	M	H
Purba Champaran	L	H	M	L	H	H	H	L	H	H	M	F	D	C		H	H
Rohtas	H	H	M	L	L	L	H	L	H	H			D	C	M		L
Sitamarhi	H	H	M	L	H	H	H	L	H	H	H	F	D	C		H	H

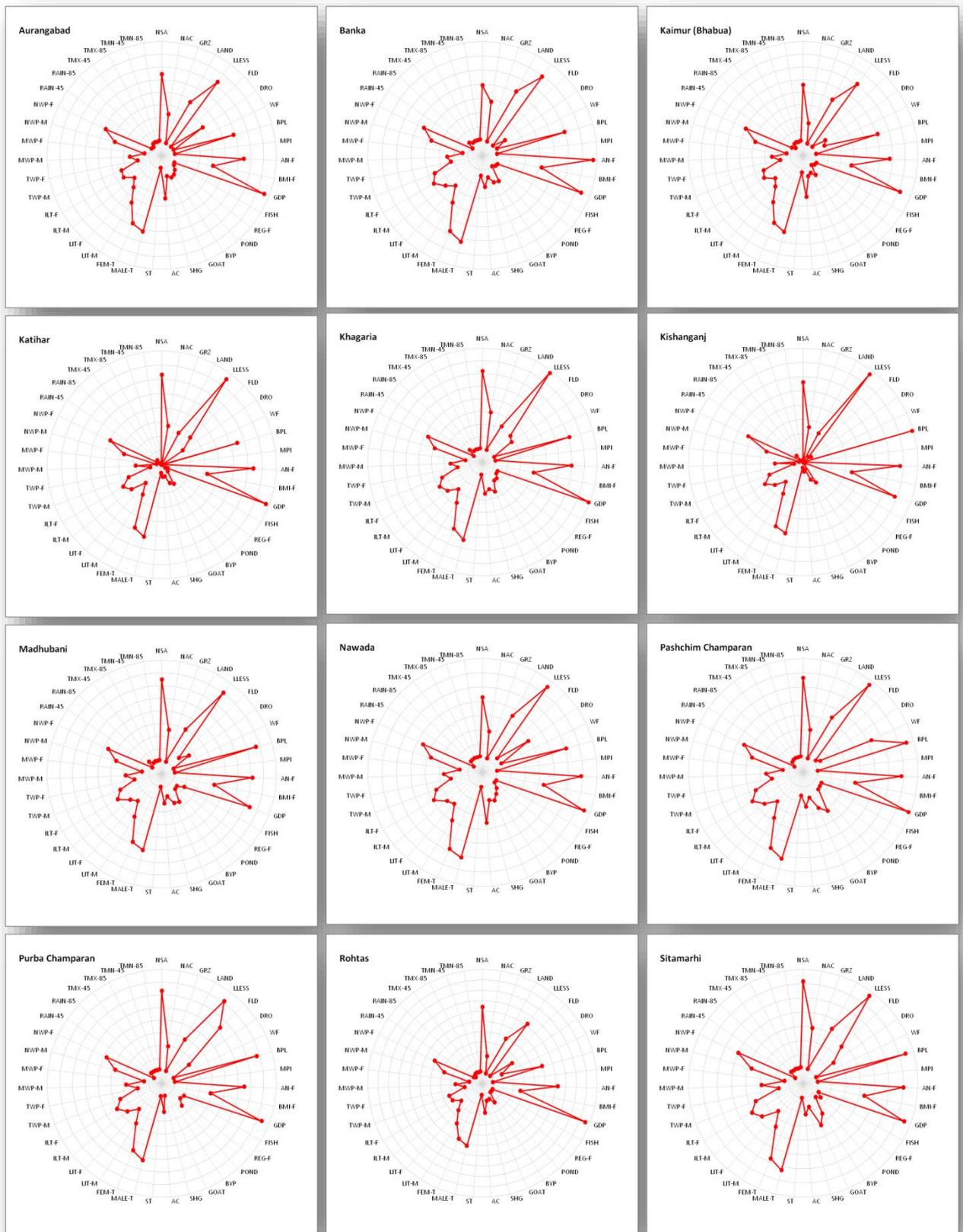
*Source: Bihar State Disaster Management Plan; #NICRA Atlas on Vulnerability of Indian Agriculture to Climate Change

Abbreviations:

- VH Very High
- H High
- M Moderate
- L Low
- VL Ver Low
- D Drought prone
- C High Wind/cyclone prone
- F Flood Prone

ANN: Annual rainfall; RDAY: Rainy days; Max: Maximum; Min: Minimum;
EQ: Earthquake; FLD: Flood; DRO: Drought; CYL: Cyclone; D-Vul: Disaster Vulnerability; N-Vul: NICRA
district vulnerability

Figure A- 12 Multi-dimensional Interrelations of Vulnerability Indicators for BAaI Implementation Districts of Bihar



Close to outer circle implies lower risk

Abbreviations Used in Radar Chart			
NSA	Net area sown (% of district GA)	AC	Scheduled Castes population Person (% of Total district population)
NAC	Not available for cultivation (% of district GA)	ST	Scheduled Tribes population Person
GRZ	Permanent pastures/grazing land (% of district GA)	MALE-T	Total Population Male
LAND	% of HH with Land	FEM-T	Total Population Female
LLESS	% of HH with No Land	LIT-M	Literates Population Male
FLD	Flood prone area %	LIT-F	Literates Population Female
DRO	Drought prone years %	ILT-M	Illiterate Male
WF	% of District forest fire incidences to total state incidences	ILT-F	Illiterate Female
BPL	% BPL Family	TWP-M	Total Worker Population Male
MPI	Multidimensional Poverty Index (MPI)	TWP-F	Total Worker Population Female
AN-F	Women having anaemia	MWP-M	Main Working Population Male
BMI-F	Women with BMI <18.5	MWP-F	Main Working Population Female
GDP	GDP (per capita) as % of Bihar State GDP	NWP-M	Non Working Population Male
FISH	Fish Production	NWP-F	Non Working Population Female
REG-F	Registered Fish farmers	RAIN-45	% Change Rainfall (RCP45)
POND	Spread of Pond	RAIN-85	% Change Rainfall (RCP85)
BYP	Backyard Poultry Birds (% of total district poultry)	TMX-45	Change - Tmax (RCP45)
GOAT	Goats (% of total district livestock)	TMX-85	Change - Tmax (RCP85)
SHG	% SHG members to Rural Population	TMN-45	Change - Tmin (RCP45)
		TMN-85	Change - Tmin (RCP85)

India

**Bihar Aquaculture and Livestock Improvement Project
Project Design Report**

Annex 6: First Annual Work Plan and Budget (AWPB)

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 6: First Year Annual Work Plan and Budget

INDIA: BIHAR
ANNEX 6: ANNUAL WORK PLAN AND BUDGET 2020/21
SUMMARY
(INR '000)

Components and subcomponents	Appraisal	AWP&B Plan	Financing Plan (INR 000)							Previous year achievement	
	Appraisal Total		Govt	IFAD Loan	IFAD Grant	Convergence	FI	Beneficiaries	Total	Physical	Financial
A. Small livestock promotion											
Capacity strengthening	16,67,263.8	1,95,213.5	85,556.0	1,09,657.6	0.0	0.0	0.0	0.0	1,95,213.5		
Production and productivity expansion	31,92,100.9	2,870.0	0.0	2,583.0	0.0	0.0	0.0	0.0	2,583.0		
Market development and value addition	98,866.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Subtotal	49,58,231.6	1,98,083.5	85,556.0	1,12,240.6	0.0	0.0	0.0	0.0	1,97,796.5		
B. Inland fisheries promotion											
Capacity strengthening	12,59,379.9	1,46,125.2	47,331.6	69,993.5				28,800.0	1,46,125.2		
Production and productivity expansion	35,59,818.9	79,124.3	12,683.6	20,441.4	35,285.6			6,918.8	75,329.3		
Market development and value addition	4,11,034.8	0.0							0.0		
Subtotal	52,30,233.5	2,25,249.5	60,015.2	90,434.9	35,285.6	0.0	0.0	35,718.8	2,21,454.5		
C. Project management											
Project management unit	3,81,792.9	69,013.3	18,782.4	50,230.9		0.0	0.0	0.0	69,013.3		
Knowledge management and M&E	71,979.3	35,560.5	4,882.1	12,318.5	18,360.0	0.0	0.0	0.0	35,560.5		
Subtotal	4,53,772.3	1,04,573.8	23,664.4	62,549.3	18,360.0	0.0	0.0	0.0	1,04,573.8		
Total PROJECT COSTS	1,06,42,237.4	5,27,906.7	1,69,235.5	2,65,224.8	53,645.6	-	-	35,718.8	5,23,824.7		

Table 1.1. Livestock: Capacity strengthening

	Unit	Appraisal Targets			Annual Physical and financial targets										Achievement		
		QTY	Unit Cost	Cost 000	Annual Physical targets				Annual	Govt	IFAD	CONV	BEN	Previous year achievement			
		Total	(INR)	Total	Q1	Q2	Q3	Q4	Total	Financial	Financing Plan (000 INR)			Physical	Financial		
A. Institutional capacity building																	
1. Staff training																	
Staff training /a	person	112	20,000	2,296.0			112	112	2,296.0	229.6	2,066.4	-	-	-	-	-	-
Refresher training	person	112	20,000	2,531.3					-	-	-	-	-	-	-	-	-
Exposure visits /b	person	50	50,000	2,562.5			50	50	2,562.5	256.3	2,306.3	-	-	-	-	-	-
Supply of Tablets /c	each	132	10,000	1,353.0			132	132	1,353.0	135.3	1,217.7	-	-	-	-	-	-
Subtotal				8,742.8					6,211.5	621.2	5,590.4						
2. Training on community mobilisation																	
Training on community mobilisation /d	perssons	112	7,500	861.0			112	112	861.0	86.1	774.9	-	-	-	-	-	-
Orientation training to Community facilitators /e	persons	64	5,000	336.2			16	16	32	164.0	16.4	147.6	-	-	-	-	-
Subtotal				1,197.2					1,025.0	102.5	922.5						
3. Communication strategy																	
Communication expert	pers_month	2	250,000	512.5			2	2	512.5	76.9	435.6	-	-	-	-	-	-
Livestock domain expert	pers_month	2	250,000	512.5			2	2	512.5	76.9	435.6	-	-	-	-	-	-
Roll out of communication strategy	lumpsum	4	400,000	1,814.6				2	1	410.0	41.0	369.0	-	-	-	-	-
Subtotal				2,839.6					1,435.0	194.8	1,240.3						
4. Centre for Excellence for goats																	
Centre for excellence for goat	centre	1	20,000,000	22,601.3					-	-	-	-	-	-	-	-	-
5. Infrastructure development																	
Improvement of Block level vet dispensary	each	64	1,000,000	70,602.0					-	-	-	-	-	-	-	-	-
Construction of new vet hospitals	each	16	8,500,000	1,50,029.3					-	-	-	-	-	-	-	-	-
Subtotal				2,20,631.3					-	-	-	-	-	-	-	-	-
6. Office equipment																	
Laptops /f	each	48	70,000	3,444.0			48	48	3,444.0	344.4	3,099.6	-	-	-	-	-	-
Portable printers /g	each	48	10,000	492.0			48	48	492.0	49.2	442.8	-	-	-	-	-	-
Photocopier	each	12	100,000	1,230.0			12	12	1,230.0	123.0	1,107.0	-	-	-	-	-	-
Office air-conditioners	each	12	45,000	553.5			12	12	553.5	55.4	498.2	-	-	-	-	-	-
Subtotal				5,719.5					5,719.5	572.0	5,147.6						
Subtotal				2,61,731.7					14,391.0	1,490.4	12,900.7						
B. Service delivery support																	
1. Small livestock Lead entrepreneur support (Model farmers)																	
Technical training of SLEs	SLEs	64	5,000	320.0			32	32	64	320.0	32.0	288.0	-	-	-	-	-
Refresher training	SLE	64	5,000	361.6					-	-	-	-	-	-	-	-	-
Training in mobilisation of PG & FPO	SLE	64	1,000	65.6			32	32	64	65.6	6.6	59.0	-	-	-	-	-
Supply of tablets to SLEs	LE	64	10,000	640.0					-	-	-	-	-	-	-	-	-
Supply of equipment including techning aids to SLEs	Lumpsum	64	25,000	1,600.0					-	-	-	-	-	-	-	-	-
Supply of 20+1 goat unit to each LE	LE	64	250,000	16,000.0					-	-	-	-	-	-	-	-	-
Subtotal				18,987.2					385.6	38.6	347.0						
2. PG leaders training /h	persons	18,432	1,000	20,333.4					-	-	-	-	-	-	-	-	-
3. DISHA workers capacity building																	
TA for TOT /i	lumpsum	1	2,000,000	2,050.0	1			1	2,050.0	205.0	1,845.0	-	-	-	-	-	-
Printing of 4 training modules# /j	books	5,000	500	2,562.5			5000	5000	2,562.5	256.3	2,306.3	-	-	-	-	-	-
Preparation of guidelines for PG/PO mobilisation #	lumpsum	20,000	50	1,025.0			20000	20,000	1,025.0	102.5	922.5	-	-	-	-	-	-
Goat/poultry health calendars # /k	000 #	1,000	35,000	36,771.9			500	500	17,937.5	1,793.8	16,143.8	-	-	-	-	-	-
Process of selection of DISHA workers /l	persons	4,608	2,000	9,682.6			2304	2,304	4,723.2	472.3	4,250.9	-	-	-	-	-	-
Training of DISHA workers in community mobilisation Module 1#	persons	4,608	5,000	24,206.4			2304	2,304	11,808.0	1,180.8	10,627.2	-	-	-	-	-	-
Exposure visits to DISHA workers	person	4,608	1,000	5,083.3					-	-	-	-	-	-	-	-	-
DISHA workers training modules 2,3 and 4 # /m	persons	4,608	14,500	73,708.5					-	-	-	-	-	-	-	-	-
Refresher training to DISHA workers	Block	64	10,000	759.4					-	-	-	-	-	-	-	-	-
Certification of DISHA training	Lumpsum	1	200,000	226.0					-	-	-	-	-	-	-	-	-
Honorarium for DISHA workers /n	person	9,216	18,000	1,87,575.4					-	-	-	-	-	-	-	-	-
Subtotal				3,43,651.0					40,106.2	4,010.6	36,095.6						

Table 1.1. Livestock: Capacity strengthening

	Unit	Appraisal Targets			Annual Physical and financial targets										Achievement		
		QTY	Unit Cost (INR)	Cost 000	Annual Physical targets				Annual Financial	Govt	IFAD	CONV	BEN	Previous year achievement			
					Total	Q1	Q2	Q3						Q4	Total	Physical	Financial
4. DISHA worker support																	
Uniform to DISHA workers	kits	4,608	2,000	10,166.7													
Bycycles to DISHA workers	each	4,608	4,000	20,333.4													
Vet kits	kits	4,608	7,000	35,583.4													
Tablets	each	4,608	10,000	50,833.4													
Incentives to DISHA workers /o	buck	4,608	12,000	64,050.1													
Monthly meeting in vet hospitals /p	meeting	3,840	750	3,425.4													
Subtotal				1,84,392.5													
Subtotal				5,67,364.1						40,491.8	4,049.2	36,442.6					
C. Contractual staff																	
1. District level																	
Vet Officers /q	pers_year	144	780,000	1,30,515.1	6	6	6	6	24	19,188.0	1,918.8	17,269.2					
Training, institutions and gender officers	pers_year	36	480,000	18,612.4	3	3	3	3	12	5,904.0	590.4	5,313.6					
Accounts officer	pers_year	72	480,000	40,158.5	3	3	3	3	12	5,904.0	590.4	5,313.6					
Planning & MIS officer	pers_year	72	480,000	40,158.5	3	3	3	3	12	5,904.0	590.4	5,313.6					
Subtotal				2,29,444.4						36,900.0	3,690.0	33,210.0					
2. Block level																	
Community facilitators /r	pers_year	192	396,000	81,894.4	16	16	16	16	64	25,977.6	2,597.8	23,379.8					
Subtotal				3,11,338.8						62,877.6	6,287.8	56,589.8					
Total Investment Costs				11,40,434.6						1,17,760.4	11,827.3	1,05,933.1					
II. Recurrent Costs																	
A. Staff salary and allowances																	
1. District level																	
District Animal Husbandry Officer	pers_year	72	1,500,000	1,25,495.3	3	3	3	3	12	18,450.0	18,450.0	-					
Mobility allowance: district	year/dist	72	420,000	35,138.7	3	3	3	3	12	5,166.0	3,874.5	1,291.5					
Project Allowance for Govt staff /s	year	6	300,000	2,091.6	0.25	0.25	0.25	0.25	1	307.5	-	307.5					
Subtotal				1,62,725.6						23,923.5	22,324.5	1,599.0					
2. Block level																	
Block level vet officers	pers_year	384	780,000	3,48,040.3	16	16	16	16	64	51,168.0	51,168.0	-					
Mobility allowance: Block level	pers_year	384	36,000	16,063.4	16	16	16	16	64	2,361.6	236.2	2,125.4					
Subtotal				3,64,103.7						53,529.6	51,404.2	2,125.4					
Total Recurrent Costs				5,26,829.2						77,453.1	73,728.7	3,724.4					
Total				16,67,263.8					0	1,95,213.5	85,556.0	1,09,657.6					

Table 1.2. Livestock: Production and productivity enhancement

Component and sub-components	Appraisal Targets			Annual Physical and financial targets											Achievement			
	Unit	Physical	Unit Cost	Total cost INR 000	Annual Physical targets				Financial 000 INR	Financing Plan (000 INR)					Previous year achievement			
		Total	(INR)		Q1	Q2	Q3	Q4		Total	GOVT	IFAD	Grant	CONV	BEN	Physical	Financial	
A. Direct-to-farmer services																		
1. Digital extension service																		
Service provider contract	year	1	1,000,000	1,076.3														
Setting up of hardware and software systems	lumpsum	1	2,000,000	2,050.0	1				1	2,050.0	205.0	1,845.0						
Knowledge generation and conversion to voice messages	lumpsum	1	500,000	512.5	1				1	512.5	51.3	461.3						
Annual operating costs	year	6	300,000	2,091.6				1	1	307.5	30.8	276.8						
Subtotal				5,730.3						2,870.0	287.0	2,583.0						
2. Extension materials production																		
Extension materials production	lumpsum	5	300,000	1,784.1														
3. Training of farmers by DISHA workers																		
Training of farmers in village by DISHA workers	village	18,432	1,000	20,854.1														
Training at LE farm	persons	92,160	300	31,281.2														
Subtotal				52,135.3														
Subtotal				59,649.7						2,870.0	287.0	2,583.0						
B. Scaling up of small livestock activities																		
1. Producer group mobilisation																		
Consultation with VO & formation of PG	PG	9,216	1,000	10,422.9														
Interface activity: PG fund	PG	9,216	25,000	2,60,573.0														
Subtotal				2,70,996.0														
2. Goat rearing support																		
Small livestock fund for internal lending	PG	9,216	75,000	6,91,200.0														
Supply of vegetable seed kits /a	PG	9,216	5,000	46,080.0														
Supply of breeding bucks	PG	9,216	12,000	1,10,592.0														
Support to goat-shed construction /b	000 hh	198	2,500,000	4,95,000.0														
Construction of goat-shed under convergence	000 hh	396	2,500,000	11,67,341.1														
Goat vaccination	goat	45,00,000	5	22,500.0														
Support to fodder production /c	PG	9,216	15,000	1,38,240.0														
Annual awards for DISHA workers, PG and LE, /d	entity	560	5,000	2,800.0														
Subtotal				26,73,753.1														
Subtotal				29,44,749.1														
C. Goat mutual insurance																		
1. Technical assistance																		
Selection and engaging service provider /e	lumpsum	3	1,000,000	3,392.9														
Model implementation in one district	Block	4	300,000	1,356.1														
Insurance fund support	Block	8	200,000	1,808.1														
Subtotal				6,557.1														
D. Backyard poultry support																		
1. Supporting Backyard poultry for household nutrition																		
Mother unit for supply of chicks (an Entrepreneur activity)	lumpsum	48	200,000	11,033.7														
Vaccination for poultry birds fund to DISHA workers	DISHA	4,680	2,000	10,073.7														
Poultry sheds for 10 birds unit /f	each	92,000	1,500	1,60,037.6														
Subtotal				1,81,145.1														
Total				31,92,100.9						2,870.0	287.0	2,583.0						

/a for kitchen gardens

/b at the rate of INR 2500 per household for 20% households

/c supply of seeds and seedlings

/d 3 DISHA workers, 3 PGs, and 1 LE per district

/e for TOT, developing guidelines for goat mutuals and training of PG leaders

/f for materials

Table 1.3. Livestock: Market development

BILAS

	Components and sub-components	Appraisal targets			Annual Physical and financial targets							Achievement				
		Unit	Physical	Unit Cost	Total cost	Annual Physical targets				Annual	Financing Plan 000 INR			Previous year achievement		
			Total	(INR)	000 INR	Q1	Q2	Q3	Q4	Total	Cost	Govt	IFAD	BEN	Physical	Financial
	A. Marketing support															
	1. Marketing support															
	Training in goat marketing to PG leader	persons	9,216	200	2,244.4									-	-	-
	Supply of weighing scales	PG	9,216	2,000	22,444.2									-	-	-
	Buyer-seller interaction meetings /a	event	8	500,000	4,870.7									-	-	-
	Subtotal				29,559.4									-	-	-
	2. Market infrastructure support															
	Goat market sheds (design, specification, preparation of BOQ)	lumpsum	16	100,000	1,765.1									-	-	-
	Construction of model goat market sheds	each	32	1,000,000	38,919.4									-	-	-
	Goat fair support to PGs	lumpsum	320	25,000	9,515.1									-	-	-
	Subtotal				50,199.5									-	-	-
	3. Facilities for hygienic meat production															
	Preparation of guidelines for slaughter points	lumpsum	1	300,000	322.9									-	-	-
	Training of butchers in hygienic meat production /b	Persons	320	750	264.8									-	-	-
	Setting up of model meat stall /c	Block	12	500,000	17,650.5									-	-	-
	Slaughter points for small animals	lumpsum	12	500,000	8,825.3									-	-	-
	Mobile slaughter points for small ruminants	lumpsum	2	4,000,000	9,040.5									-	-	-
	Subtotal				36,103.9									-	-	-
	Subtotal				1,15,862.8									-	-	-
	B. Value addition															
	Startup search engine /d	lumpsum	1	1,500,000	1,614.4									-	-	-
	Support to identified startups for conducting feasibility studies	lumpsum	6	300,000	2,085.0									-	-	-
	Total				98,866.9									-	-	-

\a both for goat and poultry products

\b 5 persons per Block

\c Two in each district

\d to scout for the startups

Table 2.1. Fisheries: Capacity strengthening

Component and sub-components		Appraisal physical and financial targets				Annual physical and financial targets										Achievement	
		Unit	Physical	Unit Cost	Total cost	Annual Physical targets					Annual	Financing Plan INR 000				Previous year achievement	
			Total	(INR)	INR 000	Q1	Q2	Q3	Q4	Total	000 INR	Govt	IFAD	CONV	BEN	Physical	Financial
A. Capacity building of DOIF																	
1. Training /a																	
	Training of FEOS &FES /b	persons	112	20,000	2,353.4	0	28	28		56	1,148.0	114.8	1,033.2	-	-		
	Training of JEs	JEs	16	20,000	336.2			8		8	164.0	16.4	147.6	-	-		
	Tablets	each	128	10,000	1,312.0					128	1,312.0	131.2	1,180.8	-	-		
	Subtotal				4,001.6						2,624.0	262.4	2,361.6	-	-		
2. Exposure visits																	
	For senior management staff /c	person	18	300,000	6,274.8			3		3	922.5	92.3	830.3	-	-		
	Exposure visits by junior management staff /d	persons	112	50,000	6,515.0					-	-	-	-	-	-		
	Subtotal				12,789.7						922.5	92.3	830.3	-	-		
3. Communication strategy																	
	Communication expert	pers_month	2	300,000	615.0		2			2	615.0	92.3	522.8	-	-		
	Livestock domain expert	pers_month	2	300,000	615.0		2			2	615.0	92.3	522.8	-	-		
	Roll out of communication strategy	lumpsum	4	400,000	1,814.6			1		1	410.0	61.5	348.5	-	-		
	Subtotal				3,044.6						1,640.0	246.0	1,394.0	-	-		
4. Fisheries knowledge centre																	
	Fisheries knowledge centre in Patna	centre	1	20,000,000	22,601.3					-	-	-	-	-	-		
5. Office equipment																	
	Laptops /e	each	64		-		64			64	-	-	-	-	-		
	Printers	each	64	10,000	656.0		64			64	656.0	65.6	590.4	-	-		
	Air-conditioners	each	32	45,000	1,476.0		32			32	1,476.0	147.6	1,328.4	-	-		
	Subtotal				2,132.0						2,132.0	213.2	1,918.8	-	-		
	Subtotal				44,569.2						7,318.5	813.9	6,504.7	-	-		
B. Last mile service delivery promotion																	
1. Fisheries lead entrepreneurs (FLE) support																	
	Training of FLE /f	FLE	64	30,000	2,017.2			16	16	32	984.0	98.4	885.6	-	-		
	FLE support /g	FLE	64	200,000	14,120.4					-	-	-	-	-	-		
	Supply of Diagnostic kits	each	64	35,000	2,471.1					-	-	-	-	-	-		
	Subtotal				18,608.7						984.0	98.4	885.6	-	-		
2. Fisheries transformative agents (FTA) support																	
	Preparation of training modules and for FTAs and guidelines for PG & PO mobilisation /h	pers_month	2	300,000	615.0		2			2	615.0	92.3	522.8	-	-		
	Printing of training modules and PG/PO guidelines /i	Lumpsum	1	200,000	205.0			2		1	205.0	20.5	184.5	-	-		
	FTA training /j	batches	116	10,000	1,218.7			50		58	594.5	59.5	535.1	-	-		
	Supply of diagnostic kits to FTAs	each	1,152	35,000	44,479.3					-	-	-	-	-	-		
	Supply of tablets to FTAs	each	1,152	10,000	12,708.4					-	-	-	-	-	-		
	Support for 1 acre pond	Lumpsum	1,152	238,000	3,02,459.0					-	-	-	-	-	-		
	Honorarium to FTAs /k	Lumpsum	2,304	54,000	1,37,250.3					-	-	-	-	-	-		
	Subtotal				4,98,935.6						1,414.5	172.2	1,242.3	-	-		
3. Producer group mobilisation																	
	PG mobilisation training	FTA	1,152	1,000	1,180.8			576	576	1,152	1,180.8	118.1	1,062.7	-	-		
	Preparation of PG action plan	Lumpsum	1,152	1,000	1,210.3			288	288	576	590.4	59.0	531.4	-	-		
	Matching grant: Support for PG interface activities /l	Lumpsum	1,152	100,000	1,15,200.0			288	288	576	57,600.0	-	28,800.0	-	28,800.0		
	Matching grant: Formation of FPO at Block level /m	Block	64	800,000	51,200.0					-	-	-	-	-	-		
	Subtotal				1,68,791.1						59,371.2	177.1	30,394.1	-	28,800.0		
	Subtotal				6,86,335.4						61,769.7	447.7	32,522.0	-	28,800.0		

Table 2.1. Fisheries: Capacity strengthening

Component and sub-components	Unit	Appraisal physical and financial targets			Annual physical and financial targets							Achievement				
		Physical Total	Unit Cost (INR)	Total cost INR 000	Annual Physical targets				Annual Financial 000 INR	Financing Plan INR 000				Previous year achievement Physical	Financial	
					Q1	Q2	Q3	Q4		Total	Govt	IFAD	CONV			BEN
C. Contractual staff																
1. District level fisheries																
FEO & FES (Project supported)	pers_year	96	504,000	56,221.9	4	4	4	4	16	8,265.6	826.6	7,439.0	-	-	-	-
Institutions, training & Gender specialist	pers_year	96	420,000	46,851.6	4	4	4	4	16	6,888.0	688.8	6,199.2	-	-	-	-
Accounts officer	pers_year	96	420,000	46,851.6	4	4	4	4	16	6,888.0	688.8	6,199.2	-	-	-	-
Planning & ME officer	pers_year	96	420,000	46,851.6	4	4	4	4	16	6,888.0	688.8	6,199.2	-	-	-	-
Subtotal				1,96,776.6						28,929.6	2,893.0	26,036.6	-	-	-	-
2. Office equipment																
Laptops /n	each	64	70,000	4,592.0	16	16	16	16	64	4,592.0	459.2	4,132.8	-	-	-	-
Portable printers /o	each	64	10,000	656.0	16	16	16	16	64	656.0	65.6	590.4	-	-	-	-
Photocopiers /p	each	16	200,000	3,280.0					16	3,280.0	328.0	2,952.0	-	-	-	-
Subtotal				8,528.0						8,528.0	852.8	7,675.2	-	-	-	-
Subtotal				2,05,304.6						37,457.6	3,745.8	33,711.8	-	-	-	-
Total Investment Costs				9,36,209.2						1,06,545.8	5,007.3	72,738.5	-	-	-	28,800.0
II. Recurrent Costs																
A. Salary and allowances of DOIF staff & FTA																
1. DOIF staff																
District Fisheries Officer	per year	6	900,000	6,274.8					1	922.5	922.5	-	-	-	-	-
Block level FEOs & FES	FEOs	384	504,000	2,24,887.6	16	16	16	16	64	33,062.4	33,062.4	-	-	-	-	-
Block level Junior Engineers	JEs	96	504,000	56,221.9	4	4	4	4	16	8,265.6	8,265.6	-	-	-	-	-
Travelling allowances to DFO	per year	6	414,000	2,886.4	0.25	0.25	0.25	0.25	1	424.4	424.4	-	-	-	-	-
Project Allowance for Govt staff /q	year	6	300,000	2,091.6	0.25	0.25	0.25	0.25	1	307.5	-	307.5	-	-	-	-
Mobility allowances to DOIF staff	per year	576	24,000	16,063.4	24	24	24	24	96	2,361.6	236.2	2,125.4	-	-	-	-
Total Recurrent Costs				3,08,425.6						45,344.0	42,911.0	2,432.9	-	-	-	-
Total				12,59,379.9						1,46,125.2	47,331.6	69,993.5	-	-	-	28,800.0

Table 2.2. Fisheries: Production and productivity enhancement

Component and subcomponents	Appraisal targets				Annual Physical and financial targets											Achievement	
	Unit	Physical	Unit Cost	Financial	Annual Physical targets					AWPB	Financing Plan					Previous year achievement	
		Total	(INR)	000 INR	Q1	Q2	Q3	Q4	Total	000 INR	Govt	IFAD	Grant	FI	Ben	Physical	Financial
A. Service for fish farmers																	
1. Training fish farmers /a																	
Communication specialist /b	pers_month	2	100,000	205.0	1	1			2	512.5	20.5	184.5	-	-	-		
Printing of Guidelines	copies	3,00,000	10	3,075.0		300000		3,00,000		3,075.0	307.5	2,767.5	-	-	-		
Training of farmers /c	batch	4,992	1,000	5,116.8		2596	2596	50	4,992	5,116.8	511.7	4,605.1	-	-	-		
Training of oxbow lake fishers	persons	200	1,000	210.1				100		102.5	10.3	92.3	-	-	-		
Subtotal				8,606.9						8,806.8	849.9	7,649.4	-	-	-		
2. Extension support																	
Digital extension software development	lumpsum	2	2,000,000	4,202.5				1	1	2,050.0	205.0	1,845.0	-	-	-		
Digital extension annual operation	year	6	200,000	1,394.4				1	1	205.0	20.5	184.5	-	-	-		
Subtotal				5,596.9						2,255.0	225.5	2,029.5	-	-	-		
3. Business-led extension																	
Business-led extension /d	region	150	500,000	82,736.7						-	-	-	-	-	-		
4. Credit-guarantee fund																	
Credit guarantee fund to financing institution for credit facilitation	lumpsum	2	34,500,000	69,000.0						-	-	-	-	-	-		
Institutional credit leverage	lumpsum	10.5	34,500,000	3,62,250.0						-	-	-	-	-	-		
Incentive for loan repayment /e	lumpsum	10.5	172,500	1,811.3						-	-	-	-	-	-		
Subtotal				4,33,061.3						-	-	-	-	-	-		
Subtotal				5,30,001.8						11,061.8	1,075.4	9,678.9	-	-	-		
B. Fish-farming promotion																	
1. Fish culture in small ponds & tanks																	
Rejuvenation of small fishponds /f	0.5 acre	16,000	30,000	5,55,883.9		100	200	200	500	15,375.0	1,537.5	6,918.8	-	-	-	6,918.8	
Fish seed and feed supply for rejuvenated ponds	0.5 ac	16,000	15,000	2,77,941.9			100	400	500	7,687.5	3,843.8	3,843.8	-	-	-		
Construction of new ponds	1 acre	4,800	285,000	15,86,460.0						-	-	-	-	-	-		
Fish seed and feed supply for new ponds	1 acre	4,800	35,000	1,94,828.4						-	-	-	-	-	-		
Improved culture practices /g	1 ac pond	18,000	5,000	1,04,372.4						-	-	-	-	-	-		
Supply of integrated fish-farming kit /h	farmer	12,000	3,000	41,748.9						-	-	-	-	-	-		
Subtotal				27,61,235.6						23,062.5	5,381.3	10,762.5	-	-	-	6,918.8	
2. Technical assistance by Worldfish																	
Technical support to existing hatcheries	0	3	20,000,000	64,626.3	0.25	0.25	0.25	0.25	1	22,320.0	3,075.0	-	17,425.0	-	-		
Development of nursery clusters	0	3	10,000,000	32,313.1	0.25	0.25	0.25	0.25	1	11,160.0	1,537.5	-	8,712.5	-	-		
Species diversification	0	3	10,500,000	33,928.8	0.25	0.25	0.25	0.25	1	11,520.0	1,614.4	-	9,148.1	-	-		
Subtotal				1,30,868.2						45,000.0	6,226.9	-	35,285.6	-	-		
3. Intensifying capture fisheries ecosystem /i																	
Survey and planning	lake	50	25,000	1,427.4						-	-	-	-	-	-		
Preparation of estimates	lake	50	100,000	5,709.5						-	-	-	-	-	-		
Inlet/outlet construction	lake	50	712,000	40,651.7						-	-	-	-	-	-		
Construction of nursery ponds /j	nursery	50	1,050,000	59,949.8						-	-	-	-	-	-		
Ranching of oxbow lake	lake	50	525,000	29,974.9						-	-	-	-	-	-		
Subtotal				1,37,713.3						-	-	-	-	-	-		
Subtotal				30,29,817.1						68,062.5	11,608.1	10,762.5	35,285.6	-	-	6,918.8	
Total				35,59,818.9						79,124.3	12,683.6	20,441.4	35,285.6	-	-	6,918.8	

Table 2.3. Fisheries: Market development support

Component and sub-components	Appraisal targets, units and total costs				Annual Physical and financial targets									Achievement			
	Unit	Total	Unit Cost	Total cost	Annual Physical targets				AWPB				Previous year achievement				
			(INR)	INR 000	Q1	Q2	Q3	Q4	Total	INR 000	Govt	IFAD	Grant	CONV	Physical	Financial	
A. Market support																	
1. Market infrastructure																	
Support to design, construction spervisions of markets /a	pers_month	16	250,000	2,544.7													
Construction of wholesale fish markets	each	16	20,000,000	3,64,205.7													
Construction of model rural haats fish markets /b	district	12	1,000,000	16,973.5													
Development of model fish stalls	district	12	300,000	5,566.5													
Subtotal				3,89,290.4													
2. Live fish transport, pilot basis																	
Technology identification	lumpsum	1	150,000	169.5													
Piloting live fish marketing /c	district	12	200,000	3,616.2													
Solar-powered fish containers /d	each	64	100,000	7,413.2													
Subtotal				11,198.9													
Subtotal				4,00,489.3													
B. Value addition																	
Startup search engine /e	lumpsum	1	1,500,000	1,614.4													
Support to identified startups for conducting feasibility studies	lumpsum	12	300,000	2,085.0													
Entrepreneurs training	persons	12	50,000	882.5													
Total				4,11,034.8													

Table 3.1. Project management unit

Components and subcomponents	Appraisal Quantities and Costs				Annual Plan							Achievement		
	Unit	Total	Unit Cost	Appraisal	AWPB Physical targets				AWPB	Financing Plan 000 INR		Previous year achievement		
			(INR)	Total	Q1	Q2	Q3	Q4	Total	INR 000	Govt	IFAD	Physical	Financial
I. Investment Costs														
A. Office equipment														
Laptops	each	20	70,000	1,435.0		20			20	1,435.0	143.5	1,291.5		
Desktop	each	10	75,000	768.8		10			10	768.8	76.9	691.9		
Printers	each	10	10,000	102.5		10			10	102.5	10.3	92.3		
Photocopiers	each	4	100,000	410.0		4			4	410.0	41.0	369.0		
UPS	each	10	3,000	30.8		10			10	30.8	3.1	27.7		
LCD projectors	each	3	100,000	307.5		3			3	307.5	30.8	276.8		
Digital camera	each	3	25,000	76.9		3			3	76.9	7.7	69.2		
Video camera	each	3	100,000	307.5		3			3	307.5	30.8	276.8		
Tablets or smart phones	each	20	30,000	615.0		20			20	615.0	61.5	553.5		
Office furniture /a	set	3	500,000	1,537.5		3			3	1,537.5	153.8	1,383.8		
Office air-conditioners	each	16	45,000	738.0		16			16	738.0	73.8	664.2		
Upgrading of website /b	lumpsum	2	500,000	1,107.2		1			1	512.5	51.3	461.3		
Miscellaneous equipment	set	3	500,000	1,615.7		1			1	512.5	51.3	461.3		
Subtotal				9,052.2						7,354.4	735.4	6,618.9		
B. Staff/consultant recruitment														
HR agency for staff recruitment	lumpsum	1	2,000,000	2,050.0	1				1	2,050.0	307.5	1,742.5		
Startup facilitator	pers_month	2	250,000	512.5	1				1	512.5	76.9	435.6		
Subtotal				2,562.5						2,562.5	384.4	2,178.1		
C. Technical assistance (unclassified) /c	pers_month	100	350,000	39,646.4		4	8	8	20	7,175.0	1,076.3	6,098.8		
D. Audits and accounts														
Internal audits /d	year	6	900,000	6,274.8				1	1	922.5	92.3	830.3		
External audits	year	6	500,000	3,486.0				1	1	512.5	51.3	461.3		
ERP customisation for accounts	year	1	1,700,000	1,742.5			1		1	1,742.5	174.3	1,568.3		
Accounts software maintenance	year	6	200,000	1,394.4				1	1	205.0	20.5	184.5		
Training in accounts software	persons	90	25,000	2,548.7		9	9		18	461.3	46.1	415.1		
Preparation of annual finance reports	year	6	100,000	697.2				1	1	102.5	10.3	92.3		
Subtotal				16,143.5						3,946.3	394.6	3,551.6		
E. Coordination meetings														
PSC meetings	year	6	100,000	697.2		1	1		1	102.5	10.3	92.3		
PMC meetings	meet	24	10,000	278.9	1	1	1	1	4	41.0	4.1	36.9		
State level coordination meeting of all districts	year	12	200,000	2,788.8				2	2	410.0	41.0	369.0		
District level coordination meeting	year	288	10,000	3,346.5	12	12	12	12	48	492.0	49.2	442.8		
Subtotal				7,111.4						1,045.5	104.6	941.0		
F. Policy support														
Municipal regulations for slaughtering	pers_month	2	200,000	410.0						410.0	61.5	348.5		
Support to University for R&D on goat breeding	lumpsum	3	1,000,000	3,231.3			1		1	1,025.0	102.5	922.5		
Goat policy development	pers_month	1.5	350,000	538.1						538.1	80.7	457.4		
Policy consultations	lumpsum	6	300,000	1,938.8		1	1		2	615.0	61.5	553.5		
Subtotal				6,118.2						2,588.1	306.2	2,281.9		
Total Investment Costs				80,634.3						24,671.8	3,001.5	21,670.3		

Table 3.1. Project management unit

Components and subcomponents	Appraisal Quantities and Costs				Annual Plan							Achievement		
	Unit	Unit Cost		Appraisal Total	AWPB Physical targets				AWPB Total	Financing Plan 000 INR		Previous year achievement		
		(INR)	(INR)		Q1	Q2	Q3	Q4		INR 000	Govt	IFAD	Physical	Financial
II. Recurrent Costs														
A. Project support unit, Patna														
1. Salaries and allowances														
Mission Director	pers_year	6	2,400,000	16,732.7	0.25	0.25	0.25	0.25	1	2,460.0	2,460.0	-		
Drawing and disbursement officer														
Project coordinator (BLDA)	pers_year	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	1,537.5	-		
Finance specialist	pers_year	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Planning and ME specialist	pers_year	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Procurement specialist	pers_year	4	1,500,000	6,626.8	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
KM manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Marketing manager	pers_year	5	780,000	4,638.6						-	-	-		
Subtotal				64,810.1						9,409.5	4,538.7	4,870.8		
2. Office operating costs														
Travel allowance	year	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Vehicle hiring	year	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Office expenditure	year	6	500,000	3,486.0	0.25	0.25	0.25	0.25	1	512.5	51.3	461.3		
Other facilities and utilities	year	6	500,000	3,486.0	0.25	0.25	0.25	0.25	1	512.5	51.3	461.3		
Subtotal				27,887.8						4,100.0	410.0	3,690.0		
Subtotal				92,697.9						13,509.5	4,948.7	8,560.8		
B. Incremental staff and Office operating costs for LIT Small Livestock Patna														
1. Incremental staff, Patna														
Project Director	pers_year	3	2,000,000	6,972.0	0.125	0.125	0.125	0.125	0.5	1,025.0	1,025.0	-		
Joint Director/ Project coordinator	pers_year	6	2,000,000	13,943.9	0.25	0.25	0.25	0.25	1	2,050.0	2,050.0	-		
Livestock specialists /e	pers_year	12	1,200,000	16,732.7	0.5	0.5	0.5	0.5	2	2,460.0	2,460.0	-		
Finance manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Procurement officer	pers_year	5	480,000	2,718.6	0.25	0.25	0.25	0.25	1	492.0	49.2	442.8		
Training, Institutions & Gender Manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Planning and M&E Manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Data entry operators	pers_year	12	360,000	5,019.8	0.5	0.5	0.5	0.5	2	738.0	73.8	664.2		
Subtotal				61,701.4						9,163.5	5,897.9	3,265.7		
2. Office operating costs, LIT														
Travel allowances	annual	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Vehicle hiring	annual	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Office expenditure	annual	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Other facilities and utilities	annual	6	1,000,000	6,972.0	0.25	0.25	0.25	0.25	1	1,025.0	102.5	922.5		
Subtotal				38,345.8						5,637.5	563.8	5,073.8		
Subtotal				1,00,047.2						14,801.0	6,461.6	8,339.4		

Table 3.1. Project management unit

Components and subcomponents	Appraisal Quantities and Costs				Annual Plan						Achievement			
	Unit	Total	Unit Cost	Appraisal	AWPB Physical targets				AWPB	Financing Plan 000 INR		Previous year achievement		
			(INR)	Total	Q1	Q2	Q3	Q4	Total	INR 000	Govt	IFAD	Physical	Financial
II. Recurrent Costs														
C. Incremental staff and Office operating costs for FIT Patna														
1. Incremental staff, Patna														
Project Director	pers_year	3	2,000,000	6,972.0	0.125	0.125	0.125	0.125	0.5	1,025.0	1,025.0	-		
Joint Director														
Project Coordinator	pers_year	6	2,000,000	13,943.9	0.25	0.25	0.25	0.25	1	2,050.0	2,050.0	-		
Finance manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Procurement officer	pers_year	5	480,000	2,718.6	0.25	0.25	0.25	0.25	1	492.0	49.2	442.8		
Training, Institutions & Gender manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Hatchery development expert	pers_year	6	1,200,000	8,366.4	0.25	0.25	0.25	0.25	1	1,230.0	123.0	1,107.0		
Nursery development expert	pers_year	6	1,200,000	8,366.4	0.25	0.25	0.25	0.25	1	1,230.0	123.0	1,107.0		
Diversification expert	pers_year	6	1,200,000	8,366.4	0.25	0.25	0.25	0.25	1	1,230.0	123.0	1,107.0		
Planning and M&E manager	pers_year	6	780,000	5,438.1	0.25	0.25	0.25	0.25	1	799.5	80.0	719.6		
Data entry operators	pers_year	12	360,000	5,019.8	0.5	0.5	0.5	0.5	2	738.0	73.8	664.2		
Subtotal				70,067.8						10,393.5	3,806.9	6,586.7		
2. Office operating costs, FIT														
Travel allowances	annual	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Vehicle hiring	annual	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Office expenditure	annual	6	1,500,000	10,457.9	0.25	0.25	0.25	0.25	1	1,537.5	153.8	1,383.8		
Other facilities and utilities	annual	6	1,000,000	6,972.0	0.25	0.25	0.25	0.25	1	1,025.0	102.5	922.5		
Subtotal				38,345.8						5,637.5	563.8	5,073.8		
Subtotal				1,08,413.5						16,031.0	4,370.6	11,660.4		
Total Recurrent Costs				3,01,158.7						44,341.5	15,780.9	28,560.6		
Total				3,81,792.9						69,013.3	18,782.4	50,230.9		

Table 3.2. Knowledge management & Monitoring and evaluation

Component and sub-components	Appraisal targets			Annual Plan Physical and financial targets										Achievement		
	Unit	Total	Unit Cost (INR)	AWPB Physical targets					Total	AWPB INR 000	Financial Plan			Previous year achievement		
				Q1	Q2	Q3	Q4	Govt			IFAD	Grant	Physical	Financial		
I. Investment Costs																
A. Office equipment																
1. Office equipment																
Laptops	each	3	70,000	215.3		3			3	215.3	21.5	193.7				
Desktop	each	3	75,000	230.6		3			3	230.6	23.1	207.6				
Printers	each	3	10,000	30.8		3			3	30.8	3.1	27.7				
UPS	each	3	15,000	46.1		1			1	46.1	4.6	41.5				
Video camera	each	1	100,000	102.5		3			3	102.5	10.3	92.3				
Tablets or smart phones	each	3	30,000	92.3		1			1	92.3	9.2	83.0				
Purchase of books and periodicals	lumpsum	6	50,000	348.6						51.3	5.1	46.1				
Subtotal				1,066.1						768.8	76.9	691.9				
2. MIS software installation & operation						1	1		2							
MIS software & installation /b	lumpsum	2	2,500,000	5,125.0						5,125.0	512.5	4,612.5				
Repairs and maintenance of MIS software	annual	5	100,000	594.7						-	-	-				
Subtotal				5,719.7						5,125.0	512.5	4,612.5				
Subtotal				6,785.8						5,893.8	589.4	5,304.4				
B. Studies and surveys								1	1							
Annual outcome surveys	year	6	800,000	5,577.6		1			1	820.0	123.0	697.0				
Baseline surveys	lumpsum	1	3,000,000	3,075.0						3,075.0	461.3	2,613.8				
MTR survey	lumpsum	1	1,000,000	1,130.1						-	-	-				
Endline survey	lumpsum	1	3,000,000	3,924.6				2	2	-	-	-				
Thematic studies	lumpsum	10	500,000	5,663.8						1,025.0	153.8	871.3				
Subtotal				19,371.0						4,920.0	738.0	4,182.0				
C. Workshop and annual Reports					2				1							
Project start up workshops	event	1	500,000	512.5		1	1	1	3	512.5	51.3	461.3				
Performance review workshops	event	18	150,000	3,137.4					1	461.3	46.1	415.1				
MIS reports	year	6	200,000	1,394.4				1	1	205.0	20.5	184.5				
Annual Progress Reports	year	6	200,000	1,394.4						205.0	20.5	184.5				
Subtotal				6,438.7						1,383.8	138.4	1,245.4				
D. Knowledge management																
1. Studies																
Feasibility of cage culture for smallholders	lumpsum	2	200,000	441.3						-	-	-				
Impact of co-manangement of oxbow lakes	lumpsum	1	500,000	593.3						-	-	-				
Success stories	lumpsum	10	200,000	2,378.8						-	-	-				
Thematic vedio films	lumpsum	10	200,000	2,378.8						-	-	-				
Subtotal				5,792.1						-	-	-				
2. Hazards, risks, vulnerability assessment							0.5	0.5	1							
assessment	lumpsum	1	21,600,000	21,600.0						21,600.0	3,240.0	-	18,360.0			
Subtotal				27,392.1						21,600.0	3,240.0	-	18,360.0			
Total Investment Costs				59,987.5						33,797.5	4,705.8	10,731.8	18,360.0			
II. Recurrent Costs																
A. Staff salaries of KM & ME																
1. Staff salaries /c						0.25	0.25	0.25	0.25	1						
M&E Specialist	pers_year	6	-	-	0.25	0.25	0.25	0.25	1	-	-	-				
KM manager	pers_year	6	-	-	0.5	0.5	0.5	0.5	2	-	-	-				
Project Assistants	pers_year	12	360,000	5,019.8						738.0	73.8	664.2				
Subtotal				5,019.8						738.0	73.8	664.2				
2. Office operating costs						0.25	0.25	0.25	0.25	1						
Travel and allowances	annual	6	200,000	1,394.4	0.25	0.25	0.25	0.25	1	205.0	20.5	184.5				
Vehicle hiring	annual	6	500,000	3,486.0	0.25	0.25	0.25	0.25	1	512.5	51.3	461.3				
Office expenditure	annual	6	300,000	2,091.6						307.5	30.8	276.8				
Subtotal				6,972.0						1,025.0	102.5	922.5				
Total Recurrent Costs				11,991.8						1,763.0	176.3	1,586.7				
Total				71,979.3						35,560.5	4,882.1	12,318.5	18,360.0			

India

**Bihar Aquaculture and Livestock Improvement Project
Project Design Report**

Annex 7: Procurement Plan for first 18 months

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 7: Procurement Plan for first 18 months

Procurement Plan SUMMARY		
Country:	India	
Project	BAaLI	
Loan:		
Version	1.0	
Version Date	23-Aug-19	
Procurement Category	Plan	Actual
Goods	2,32,200.00	-
Works	-	-
Consulting Services	24,18,885.00	-
Non-Consulting Services	-	-
US\$	26,51,085.00	-

Prior Review Thresholds					
Thresholds	Goods	Works	Non-Consulting Services	Firms - Consulting Services	Individuals - Consulting Services
Prior Review	≥ US\$ 100000.00	≥ US\$ 100000.00	≥ US\$ 25000.00	≥ US\$ 50000.00	≥ US\$ 5000.00
Post Review	< US\$ 0.00	< US\$ 0.00	< US\$ 0.00	< US\$ 0.00	< US\$ 0.00

All Direct Contracting and Single-Source Procurements are **Prior Review**.

Procurement Method Thresholds			
	Shopping	NCB	ICB
Goods	< US\$ 25000.00	≥ US\$ 25000.00 to ≤ US\$ 200000.00	> US\$ 0.00
Works	< US\$ 0.00	≥ US\$ 0.00 to ≤ US\$ 0.00	> US\$ 0.00
Non-Consulting Services	< US\$ 0.00	≥ US\$ 0.00 to ≤ US\$ 0.00	> US\$ 0.00
	ICS/CQS	LCS	QCBS
Individuals	< US\$ 0.00	≥ US\$ 0.00 to ≤ US\$ 0.00	> US\$ 0.00
Firms	< US\$ 0.00	≥ US\$ 0.00 to ≤ US\$ 0.00	> US\$ 0.00

Version 1.0
Date 23-Aug-19

Country: INDIA	India
Project/Programme: BAaLI	BILAS

Procurement Plan - GOODS

AWP/Component Ref	No	Description*	Funding	Basic Data						Pre-Qualification						Bidding Process				Bid Evaluation				Contract Award & Signature			
				Package/ Lot Number	Pre- or Post Qualification	Prior or Post Review	Plan vs. Actual	Procurement Method	Amount (US\$)	Plan vs. Actual	Prep of PreQual docs	No Objection Date	PreQual Invitation Date	PreQual Closing Date	Submission of PreQual Report	No Objection Date	Prep of BD	No-objection Date	Bid Invitation Date	Bid Closing-Opening	Submission Tech Eval Rpt	No-objection Date	Submission Combined Eval Rpt*	No-objection Date	Plan vs. Actual	Date Contract Award	Date Contract Signature
		120 Laptops for PSU , PIU & Districts	IFAD	1	Post-Qual	Prior Review	Plan	NCB	1,16,640.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Dec-19	22-Dec-19	24-Dec-19	23-Jan-20	6-Feb-20	13-Feb-20	20-Feb-20	27-Feb-20	Plan	5-Mar-20	2-Apr-20
							Actual		Actual															Actual			
		13 desktop computers for PSU and PIU	IFAD	2	Post-Qual	Prior Review	Plan	NCB	13,546.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Dec-19	22-Dec-19	24-Dec-19	23-Jan-20	6-Feb-20	13-Feb-20	20-Feb-20	27-Feb-20	Plan	5-Mar-20	2-Apr-20
							Actual		Actual															Actual			
		110 BW laserjet printers	IFAD	3	Post-Qual	Prior Review	Plan	NCB	20,900.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Dec-19	22-Dec-19	24-Dec-19	23-Jan-20	6-Feb-20	13-Feb-20	20-Feb-20	27-Feb-20	Plan	5-Mar-20	2-Apr-20
							Actual		Actual															Actual			
		20 multi-function photocopier (A4, A3)	IFAD	4	Post-Qual	Prior Review	Plan	NCB	29,700.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Dec-19	22-Dec-19	24-Dec-19	23-Jan-20	6-Feb-20	13-Feb-20	20-Feb-20	27-Feb-20	Plan	5-Mar-20	2-Apr-20
							Actual		Actual															Actual			
		46 Air conditioners	IFAD	1	Post-Qual	Prior Review	Plan	NCB	42,800.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Feb-20	22-Feb-20	24-Feb-20	25-Mar-20	8-Apr-20	15-Apr-20	22-Apr-20	29-Apr-20	Plan	6-May-20	3-Jun-20
							Actual		Actual															Actual			
		3 LCD projectors	IFAD	1	Post-Qual	Post Review	Plan	NS	4,500.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	30-Jun-20	N/A	1-Jul-20	15-Jul-20	22-Jul-20	N/A	N/A	N/A	Plan	26-Jul-20	28-Jul-20
							Actual		Actual															Actual			
		Digital cameras and video cameras for KM	IFAD	1	Post-Qual	Post Review	Plan	NS	7,100.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	30-Jun-20	N/A	1-Jul-20	15-Jul-20	22-Jul-20	N/A	N/A	N/A	Plan	26-Jul-20	28-Jul-20
							Actual		Actual															Actual			
		Office furniture sets	IFAD	2	Post-Qual	Post Review	Plan	NS	22,300.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	10-Jul-20	N/A	11-Jul-20	25-Jul-20	1-Aug-20	N/A	N/A	N/A	Plan	5-Aug-20	7-Aug-20
							Actual		Actual															Actual			

2,57,486.00	Plan
0.00	Actual

Prepared by: _____ Approved by: _____ No Objected to by: _____

Procurement Methods	
National Shopping	NS
International Shopping	IS
National Competitive Bidding	NCB
International Competitive Bidding	ICB
Limited (International) Bidding	LIB
Direct Contracting	DC

* Only required when two-envelope system is used

Country: INDIA
Project/Programme: BAaL
Procurement Plan - CONSULTING SERVICES

Component Ref	No	Description*	Funding	Shortlist (Yes/No)	Prior or Post Review	Plan vs. Actual	Procurement Method	Amount (US\$)	Plan vs Actual	EOI Shortlist Procedure					Proposal Process				Evaluation				Contract Award & Signature					
										Prep of REOI	No Objection Date	REOI Launch Date	EOI Submission Deadline	Submission of Shortlist Report	No Objection Date	Prep of RFP/RCQ	No-objection Date	RFP/RCQ Launch Date	Proposal submission deadline	Submission of TER	No-objection Date	Submission of CER	No-objection Date	Plan vs Actual	Negotiations completed	Submission of Draft Contract and MoU	No objection Date	Date Contract Signature
3.1		Technical Assistance from World Fish (CGIAR Institution)	IFAD Grant	No	Prior Review	Plan	SSS	9,37,000.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Dec-19	22-Dec-19	24-Dec-19	7-Feb-20	21-Feb-20	28-Feb-20	13-Mar-20	20-Mar-20	Plan	10-Apr-20	14-Apr-20	21-Apr-20	28-Apr-20
						Actual			Actual															Actual				
3.2		Baseline Impact Assessment Survey	Loan	Yes	Prior Review	Plan	QCBS	43,478.00	Plan	15-Nov-19	22-Nov-19	24-Nov-19	15-Dec-19	29-Dec-19	5-Jan-20	9-Jan-20	16-Jan-20	18-Jan-20	17-Feb-20	2-Mar-20	9-Mar-20	23-Mar-20	30-Mar-20	Plan	20-Apr-20	24-Apr-20	1-May-20	8-May-20
						Actual			Actual															Actual				
		MIS Software development	IFAD	No	Prior Review	Plan	QCBS	36,232.00	Plan	1-Dec-19	8-Dec-19	10-Dec-19	31-Dec-19	14-Jan-20	21-Jan-20	25-Jan-20	1-Feb-20	3-Feb-20	4-Mar-20	18-Mar-20	25-Mar-20	8-Apr-20	15-Apr-20	Plan	6-May-20	10-May-20	17-May-20	24-May-20
						Actual			Actual															Actual				
		Accounting Software installation and customization	IFAD	Yes	Prior Review	Plan	QCS	24,638.00	Plan	15-Apr-20	22-Apr-20	24-Apr-20	15-May-20	22-May-20	29-May-20	2-Jun-20	9-Jun-20	11-Jun-20	2-Jul-20	16-Jul-20	23-Jul-20	6-Aug-20	13-Aug-20	Plan	3-Sep-20	7-Sep-20	14-Sep-20	21-Sep-20
						Actual			Actual															Actual				
		HR Agency for recruitment of staff	IFAD	Yes	Prior Review	Plan	QCBS	28,896.00	Plan	15-Nov-19	22-Nov-19	24-Nov-19	15-Dec-19	29-Dec-19	5-Jan-20	9-Jan-20	16-Jan-20	18-Jan-20	17-Feb-20	2-Mar-20	9-Mar-20	23-Mar-20	30-Mar-20	Plan	20-Apr-20	24-Apr-20	1-May-20	8-May-20
						Actual			Actual															Actual				
		Technical Assistance for preparation of teaching materials	IFAD	No	Prior Review	Plan	QCBS	14,493.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Feb-20	22-Feb-20	24-Feb-20	9-Apr-20	23-Apr-20	30-Apr-20	14-May-20	21-May-20	Plan	11-Jun-20	15-Jun-20	22-Jun-20	29-Jun-20
						Actual			Actual															Actual				
		Hazards, risk, vulnerability assessment	IFAD Grant	Yes	Prior Review	Plan	QCBS	3,00,000.00	Plan	15-Mar-20	22-Mar-20	24-Mar-20	14-Apr-20	28-Apr-20	5-May-20	9-May-20	16-May-20	18-May-20	17-Jun-20	1-Jul-20	8-Jul-20	22-Jul-20	29-Jul-20	Plan	19-Aug-20	23-Aug-20	30-Aug-20	6-Sep-20
						Actual			Actual															Actual				
		Upgrading website	IFAD	Yes	Prior Review	Plan	QCS	8,600.00	Plan	15-Dec-19	22-Dec-19	24-Dec-19	14-Jan-20	21-Jan-20	28-Jan-20	1-Feb-20	8-Feb-20	10-Feb-20	2-Mar-20	16-Mar-20	23-Mar-20	6-Apr-20	13-Apr-20	Plan	4-May-20	8-May-20	15-May-20	22-May-20
						Actual			Actual															Actual				
		Engagement of Internal Auditor (CA firm)		No	Prior Review	Plan	QCBS	18,116.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	30-Apr-20	7-May-20	9-May-20	23-Jun-20	7-Jul-20	14-Jul-20	28-Jul-20	4-Aug-20	Plan	25-Aug-20	29-Aug-20	5-Sep-20	12-Sep-20
						Actual			Actual															Actual				
		Communication Expert	IFAD	No	Post Review	Plan	ICS	4,348.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	1-Jun-20	N/A	3-Jun-20	24-Jun-20	1-Jul-20	N/A	N/A	N/A	Plan	15-Jul-20	20-Jul-20	N/A	22-Jul-20
						Actual			Actual															Actual				
		Livestock domain Expert	IFAD	No	Post Review	Plan	ICS	4,348.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	1-Jun-20	N/A	3-Jun-20	24-Jun-20	1-Jul-20	N/A	N/A	N/A	Plan	15-Jul-20	20-Jul-20	N/A	22-Jul-20
						Actual			Actual															Actual				
		Digital Extension Software development	IFAD	No	Prior Review	Plan	QCBS	28,896.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Sep-20	22-Sep-20	24-Sep-20	8-Nov-20	22-Nov-20	29-Nov-20	13-Dec-20	20-Dec-20	Plan	10-Jan-21	14-Jan-21	21-Jan-21	28-Jan-21
						Actual			Actual															Actual				
		Municipal Regulations for slaughtering points survey	IFAD	No	Post Review	Plan	ICS	2,899.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Oct-20	N/A	17-Oct-20	7-Nov-20	14-Nov-20	N/A	N/A	N/A	Plan	28-Nov-20	1-Dec-20	N/A	5-Dec-20
						Actual			Actual															Actual				
		Engagement of External Auditor	IFAD	No	Prior Review	Plan	QCBS	7,246.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Nov-20	22-Nov-20	24-Nov-20	8-Jan-21	22-Jan-21	29-Jan-21	12-Feb-21	19-Feb-21	Plan	13-Mar-21	16-Mar-21	23-Mar-21	30-Mar-21
						Actual			Actual															Actual				
		Technical Assistance (Unclassified)	IFAD	No	Post Review	Plan	ICS	1,52,200.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	15-Sep-20	N/A	17-Sep-20	8-Oct-20	15-Oct-20	N/A	N/A	N/A	Plan	29-Oct-20	1-Nov-20	N/A	5-Nov-20
						Actual			Actual															Actual				
		Support to University for R&D on Goat Breeding	IFAD	No	Prior Review	Plan	SSS	14,493.00	Plan	N/A	N/A	N/A	N/A	N/A	N/A	1-Nov-20	8-Nov-20	10-Nov-20	10-Dec-20	24-Dec-20	31-Dec-20	14-Jan-21	21-Jan-21	Plan	11-Feb-21	15-Feb-21	22-Feb-21	1-Mar-21
						Actual			Actual															Actual				

16,07,767.00 Plan
0.00 Actual

Prepared by: No Objected to by:

Selection Methods	
Quality and Cost Based Selection	QCBS
Quality Based Selection	QBS
Selection by Consultants' Qualifications	QCS
Least Cost Selection	ICS
Fixed Budget Selection	FBS
Individual Consultants Selection	ICS
Cost Source Selection	SSS

Version 1.0
Date 23-Aug-19

Procurement Plan - NON-CONSULTING SERVICES

Country: INDIA
Project/Programme: BAaU
Loan #: BILAS

Component Ref	Nr	Description*	Funding	Basic Data				EOI Shortlist Procedure					Proposal Process				Evaluation				Contract Award & Signature					
				Shortlist (Yes/No)	Prior or Post Review	Plan vs. Actual	Procurement Method	Amount (US\$)	Plan vs. Actual	Prep of REOI	No Objection Date	REOI Launch Date	EOI Submission Deadline	Submission of Shortlist Report	No Objection Date	Prep of RFP/RCQ/RFQ	No-objection Date	RFP/RCQ/RFQ Launch Date	Proposal submission deadline	Submission of TER	No-objection Date	Submission of CER	No-objection Date	Plan vs. Actual	Negotiations completed	Submission of Draft Contract and MoN
			IFAD	Yes	Prior Review	Plan	OCBS															Plan				
						Actual																Actual				
						Plan																Plan				
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Investing in rural people

India

Bihar Aquaculture and Livestock Improvement Project

Project Design Report

Annex 8: Project Implementation Manual (PIM)

Document Date: 02/03/2020

Project No. 2000002417

Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 8: Project Implementation Manual

Chapter I: Introduction and background

1. Project Implementation Manuals (PIM) are prepared for all IFAD-funded projects. The aim of a PIM is to facilitate implementation by providing a comprehensive set of guidelines for project implementation. These include IFAD and Government requirements and procedures along with a description of processes involved in implementation. The PIM is designed for circulation to project management and senior technical staff as well as to partner agencies and to act as a basic guide to project implementation.
2. This PIM for the BAaLI contains information about the project concept, its design and implementation modalities. It will enhance the overall understanding of staff (both government and partner agency) and other stakeholders the design details of BAaLI, its various components and the process of its implementation. It is also intended to provide guidance with regards to the management of finances, systems of budgeting and accounting and the procurement procedures. The PIM will help in improving monitoring processes, and overall management information and reporting systems.
3. This PIM has eleven chapters as detailed below:
 - a. Chapter I : Introduction and background
 - b. Chapter II : Project description
 - c. Chapter III : Implementation arrangements – Small livestock promotion
 - d. Chapter IV : Terms of reference for Small livestock promotion component
 - e. Chapter V : Implementation arrangements – Inland fisheries promotion
 - f. Chapter VI : Terms of reference for Inland fisheries promotion component
 - g. Chapter VII : Organization framework
 - h. Chapter VIII: Terms of reference for Project Management
 - i. Chapter IX : Planning, M&E and Learning framework
 - j. Chapter X : Financial Management
 - k. Chapter XI : Procurement
4. The PIM is a dynamic document that will be updated by the Project Implementation Unit (PIU) as the project progresses. Changes to key elements of the PIM that impinge on IFAD requirements should be agreed with IFAD.

Chapter II – Project Description

1. The project intends to address the production and productivity constraints of the both the small livestock and fisheries value chains through climate resilient enterprise led extension and market linkages. This project will have 3 components: (i) Small livestock promotion focusing majorly on goats; (ii) Inland Fisheries Promotion; and (iii) Programme Management, M&E and Policy Support. The expected impact and outcome from this project include: (i) 90 percent of the households reporting doubling of income from livestock and fisheries; (ii) 90 percent of women reporting improved quality of diet; (iii) 80 percent of the households reporting adoption of practices promoted by the project; (iv) 20 percent increase in average live weight the time of sale; (v) reduction in kid mortality rate to 8 percent; (vi) 90 percent increase in yield per Ha.

2. The implementation plan and activity sequencing is provided as Attachment PD 1.

Component 1. Small livestock promotion

3. The small livestock promotion component have three sub-components: (i) Capacity Strengthening; (ii) Production and productivity expansion; and (iii) Market development and value addition.

1.1 Capacity strengthening

1.1.1 Institutional Capacity building

4. **Training and Exposure visits:** DoAFR will undertake recruitment of 64 Block Veterinary Officers (BVOs) to fill the existing vacancies in all project blocks using funding from GoB resources and recruit 64 Community Facilitators (CFs) using project resources. The project will provide training and refresher training to 112 DioAH staff including the newly recruited BVOs on Goat rearing and Backyard poultry (BYP) in partnership with reputed research and training institutions. The project will also train BVOs and CFs in community mobilization and Producer Group (PG) and Farmer Producer Organization (FPO) promotion. The staff of DioAH(50 persons) will also be sent on exposure visits to public and private sector institutions to study good practice models.

5. **Infrastructure development:** Use of infrastructure and maintenance in many veterinary hospital buildings is sub-optimal. In total 64 hospitals in project blocks will be refurbished using project funds and construction of new buildings for existing veterinary hospitals/dispensaries (16 hospitals) in dilapidated condition in the project blocks will be undertaken using convergence funds. The project will support construction of a Centre for Excellence on Small Ruminants and this centre may come up in a district other than the project district.

6. **Communication strategy:** Current efforts at communication are disparate and use traditional channels for outreach (e.g. wall writings, pamphlet distributions, etc.). A team of experts will be engaged to assist DioAH in preparing a comprehensive communication strategy, reviewing the existing training, outreach and other IEC/Extension materials, converting these into user friendly communication/ training aids using modern technology and for supporting in the roll out of the communication strategy.

1.1.2 Service Delivery support

7. **Small livestock Lead Entrepreneur (SLE) support:** The project will identify, one SLE per block (64 persons) preferably from out of existing breeders, or entrepreneurs or commercial goat farmers and train them in goat and BYP best practices and in mobilization of PGs and FPOs. Each selected SLE will be supported to establish a demonstration unit under the DioAH's "20 Does and one Buck scheme". The project will provide support for establishing farmer training facilities in these demonstration units to train goat farmers in the area on latest technologies. SLEs are expected to provide commercially oriented extension service to the goat farmers in the area coupled with supply of quality doelings, breeding Bucks, feed, mineral blocks, etc. SLEs will foster cluster level planning and promotion of PGs and FPOs.

8. **DISHA workers' Capacity building:** The project will develop a cadre of grassroots workers who provide specialized services to goat farmers and BYP farmers, called DISHA workers (DWs). This will be a standardized version of Pashu Sakhi (Local resource person or Vaccinator modalities in the state). The project will engage an agency or a team of experts to: (i) convert existing training materials into a standardized user friendly training aids and reference materials for DWs; (ii) prepare guidelines for PG and FPO mobilization; and (iii) provide ToT to BVOs, Training, Institutions and Gender Officers (TIG Officer), CFs and other related project staff and undertake a full cycle of training four training programmes to DWs so as to provide practical experience to the trainers. As a part of this ToT, BVOs and CFs will be provided relevant orientation and guidelines for training DWs and SLEs on mobilization of PGs and FPOs. The BVOs, TIG Officers and the SLEs will be responsible for community interaction and selection of DISHA workers based on agreed selection criteria.

9. The project will train DWs (4,608) in four phases comprising: (i) understanding common diseases of goats and BYP and their prevention and deworming; (ii) good practices related to feeding, breeding and housing; (iii) first aid and castration and ethno-veterinary medicine use; and (iv) entrepreneurship and communication skills, marketing and PG and FPO mobilization. All DWs will be provided with a health-Kit, cool box, tablet, uniform and bicycle, a breeding buck and a stipend of INR 1,500 per month during the first two years. The project will standardize the training manuals, curriculum and internal certification process and apply it across the state. The project will also engage with Agriculture Skill Council (National/State) for certification of DWs based on Prior Learning Evaluation. The DWs will be linked to the Block level veterinary hospitals/dispensaries for necessary backstopping.

1.2 Production and productivity expansion

1.2.1 Direct-to-farmer services

10. **Digital Extension:** The project will develop a digital extension and advisory services in the form of SMS and Voice messages for the small livestock sector and in order to achieve cost effectiveness. A technology backbone for this purpose and also content generation activities will be supported. Messages related to production, marketing, climate event preparation, women empowerment, and nutrition will be disseminated. A service provider will be engaged for supporting DoAH in undertaking this activity. Similar activities are also proposed under the fisheries component and the DoAFR may integrate these into one activity to use the same technology backbone and engage a single service provider to implement this activity.

11. **Extension materials:** As part of the roll out of the new communication strategy, the project will use latest materials and tools for providing relevant messages to the farmers on formats that appeal to them.

12. **Training of farmers:** BVOs and CFs will handhold the DWs and SLEs to deliver training to goat and BYP farmers using the training materials prepared for farmers' training by DWs and SLEs on: (i) goat management and health care; (ii) fodder production; (iii) balanced feeding including mineral mixture in diet and (iv) marketing related issue of goat and/or BYP. DWs will conduct training of farmers in 9,216 villages and 92,160 farmers will be trained in demonstration units of SLEs.

1.2.2 Scaling up of small livestock activities

13. **Producer Group mobilization:** The project will support mobilization of PGs (9,216). This process will be led by the DWs with support from SLEs. PGs will receive a small fund of INR 25,000 into their bank account to undertake climate resilience building interface activities such as fodder development on common land (where possible/ available), paid vaccination, purchase of books and registers, and other miscellaneous expenses of the PG. These PGs with a membership of about 100 participating farmers each are expected to grow into Block level FPOs for collective marketing under the leadership of SLE.

14. **Goat rearing support:** The project will provide a small fund of INR 75,000 on a matching grant basis to 9,216 PGs to develop systems supporting ultra-poor. Allocations for supplying breeding bucks (9,216), universal vaccination during the first two years, fodder production by leasing private lands, vegetable seed kits, stall feeding systems and goat housing are made to improve climate resilience. Performance-based awards will be instituted to reward best performing DWs, SLEs and PGs. Convergence with other government schemes will be forged particularly for goat sheds and flood shelters.

15. **Goat Mutual Insurance:** Risk mitigation measures for the small livestock rearing households in the form of insurance is both expensive and fraught with difficulties related to insurance settlement. A Goat mutual Insurance will be introduced in all the blocks of one district as a pilot. This involves a system of premium collection by FPOs from the members who want to insure their goats and settlement in case of goat death by the FPOs themselves. The project would provide a corpus of INR 100,000 to each FPO and a service provider with adequate experience will be engaged for implementing this activity. [if the premium collection goes outside the village, the farmers will not come forward and given the social conditions in Bihar and poor literacy, it may not work]

16. **Backyard poultry support:** The project will introduce interventions mainly to strengthen the existing government scheme of GoB. Main activities to be supported under BAaLI is the support for mother units (48) and vaccination to poultry birds. The BYP activity is primarily aimed at improving nutrition security of participating households.

1.3 Market development and value addition

1.3.1 Marketing and infrastructure improvement

17. **Marketing Support:** There is no shortage of market for goats in the state. However, there is need to adopt better practices so as to improve income for the farmers. The project will support the PGs (9,216) to start the system of selling goats by live weight through knowledge dissemination and supply of weighing scales. The project will also establish Value Chain Platforms for identifying the potential for linkages with processors, exporters and retailers operating in the goat sector.

18. **Market Infrastructure Development:** The project will support preparation of design, specifications and BoQs and construction of 12 goat market sheds. The project will also support organizing of goat fairs at the block level with support from SLEs at the time of key festivals (Eid, Dussera) to support bulk sale and purchase and support farmers to benefit from peak festival sale and pricing. The project will support establishment of model meat stalls (12) and mobile slaughter houses (2) and conduct training of butchers (320 persons) in hygienic slaughter.

1.3.2: Value addition

19. **Start-up search engine:** Value addition in small livestock sector is still at a nascent stage and requires partnership with start-ups to experiment with new models. To foster an environment for attracting start-ups in the small livestock sector, a start-up search engine will be set up within the DioAH. This will be in the form of a team or a service provider tasked to scout for start-ups interested in investing in Bihar for production and marketing of value added products (kebab and other products, goat dairy processing) or utilization of byproducts (hides, blood/bone meal, goat manure). The project has allocated funds for supporting feasibility studies by 6 identified start-ups and further support from BMGF and other sources will be mobilized. Under the fisheries component a similar effort is envisaged and the DoAFR may consider clubbing these two interventions.

Component 2: Inland Fisheries Promotion

20. The inland fisheries promotion component will have three sub-components: (i) Capacity Strengthening; (ii) Production and productivity expansion; and (iii) Market development and value addition.

Sub-component 2.1: Capacity Strengthening

2.1.1 Capacity building

21. **Training:** The project will build on the recruitment and posting of Block Fisheries Extension Officers (BFEOs) and Fisheries Extension Supervisors (BFESs) and Junior Engineers by GoB to fill the existing vacancies in all project blocks. DioF staff including the newly recruited staff and the TIG Officers (112 persons) will be trained on technical, leadership and PG and FPO mobilization related aspects using standardized curriculum. The project will engage reputed research institutions and resource persons to deliver these training programmes.

22. **Exposure Visit:** Fisheries is a fast evolving sector in the state with much scope to learn from best practices. The project will support international exposure visits for the mid and senior management staff (18 persons) of the DoAFR, Water Resources Department and DioF to learn about potential of small-scale fisheries, hatchery standardisation process, diversification of fish species and innovative market linkages process. In addition, national exposure visits will be organised for junior level staff of DioF (112 persons) to learn about diversification of fish species for nutrition security, performing fisheries PGs and FPOs, and affordable new technologies in fisheries sector like mini hatchery, cage culture, etc.

23. **Communication Strategy:** Refer to 1.1.1 (para 5) above. A similar approach will be adopted for Fisheries as well.

2.1.2 Last mile service delivery promotion

24. **Fisheries Lead Entrepreneur (FLE) support:** The project will identify, register and support a FLE in each block (64 persons) who are in the business of hatcheries/nurseries or fish culture in about a hectare of ponds. These FLEs will be trained in technical aspects and support will be provided to develop their farms as the demonstration cum training sites including provision of diagnostic kits. These demonstration farms will serve as centres for training Fisheries Transformative Agents (FTAs) and fish producers. FLEs will also provide commercially oriented extension service to the fish farmers in the area including supply of fish seed and feed and aggregation for marketing.

25. **Fisheries Transformative Agent support:** The project will support a cadre of Fisheries Transformative Agent (FTA) comprising fish culture practitioners in small water-bodies with interest to develop model production unit at the Panchayat level (1,156 persons). These FTAs will be used as the last mile service delivery vehicles and will be provided r training, tablets, and a monthly stipend of INR 4,500 for 2 years from the project and support for development of a pond measuring not more than one acre and diagnostic kits under GoB scheme. FTAs will act as community-based service providers to fish producers.

26. **Mobilization of producers:** FTAs will mobilize PGs (some 1,152 PGs) in both pond and tank and ox-bow lake ecosystems. The project will support training, preparation of a PG action plan and interface activities with a matching grant support. The project will also support formation of FPO(64) at the block level with a matching grant support for intensification of fish culture.

2.2 Production and productivity expansion

2.2.1 Services for fish farmers

27. **Training:** The project will support development of standardized production enhancement protocols / communication materials. The fish producers in ponds and tanks will be trained (4,992 persons) and monitored on aspects on various practical fish farming aspects. Fishermen from oxbow lakes or open water-bodies will be trained on nursery management and ranching (in all some 200 persons). These training will be conducted on the farm of FTAs and the model farm of FLEs.

28. **Digital Extension:** The project will develop a digital extension and advisory services in form of SMS, Voice messages and build on the existing capacity of delivering call centre based advisory. This will entail establishing required technology backbone, development of content based on best practices, registration of fish producers, delivery of best practices related message, flood related early warning systems and fish price trends. A service provider will be engaged for supporting DioF in undertaking this activity.

29. **Business led extension:** Delivery of extension through businesses with interest in promoting production at the producer level is a cost effective way of extension delivery wherein both parties develop symbiotic relationship. Feed companies and hatcheries fit into this bill perfectly. The project will create a platform to forge relationships between businesses with the fish producers, FTAs and FLEs at the district and state level.

30. **Credit Innovation Fund:** Poor Credit linkages is one of the limiting factors in promoting fisheries among poor farmers, The project will identify financial institutions interested in providing credit to fish farmers. The project will deploy credit innovation fund to select financial institutions with clear pathway for leveraging the capital for higher credit deployment to fish farmers. The project will also incentivize the FTAs and FLEs to foster credit linkages of fish production and marketing.

2.2.2 Fish farming promotion

31. **Fish culture in small ponds:** Many of the backyard ponds, farm ponds, small and seasonal ponds have lost production capacity due to siltation which need to be rejuvenated. The project will support excavation using service providers (companies renting bucket excavators) to some 16,000 producers holding less than 0.5 acre pond and supply of seed and feed. The project will also support new pond construction using DioF's regular scheme modality to some 48,000 farmers and will provide support for improved culture practices to some 18,000 fish farmers along with the supply of integrated farming kits.

32. **Specialised technical assistance:** The project will engage World Fish Centre to provide specialised, commercially oriented technical assistance in three select districts based on global best practices: (i) hatchery support including gap analysis, development of protocols, rating and certification systems, prepare and oversee implementation of remedial measures; (ii) development of nursery in clusters; (iii) species diversification; and (iv) fishery policy development support. The TOR for the engaging WFC is given separately in Chapter VI.

33. **Intensifying capture fisheries ecosystem:** Dysfunctional inlets and outlets of the ox-bow lakes will be desilted in convergence with *Jal Jeevan, Haryali* (Water, Life and Greenery) programme of GoB. The project will support nursery development and stocking of 50 ox-bow lake ecosystems with diversified species. These efforts will improve climate resilience of households and enable them to adapt to climate change events.

2.3 Market Development and value addition

2.3.1 Market Support

34. **Market infrastructure:** The project will support engagement of a service provider to develop designs for district level wholesale fish market, preparation of BoQs and tender documents and supervision of construction. Construction of the wholesale markets of some 16 will be carried out using funds from centrally sponsored schemes. Sanitation infrastructure in some 12 local fish markets and haats and construction of 12 model fish stalls will be supported. Where appropriate these will be integrated with the goat markets.

35. **Live Fish transport:** To capitalize on the uniqueness of the Bihar fish which is sold live, the project will support live fish transportation activities to new markets. This will include identification and preparation of a compendium of various live fish transportation technologies and identification of technology suitable for Bihar. The project will support acquisition of these technologies on 12 sites on a pilot basis. In addition, alternate energy technologies for transportation of chilled fish (64) will also be piloted.

2.3.2 Value addition

36. **Start-up search engine:** value addition in inland fisheries is still at a nascent stage in the state and requires partnership with start-ups to experiment with new models. To foster an environment for attracting start-ups in the sector, a start-up search engine will be set up within the DioF. This will be in the form of a team or an Agency to scout for start-ups and entrepreneurs interested in taking up value addition activities (fish scale collection and export, ornamental fish production, fresh water pearl production, fish fillet processing, etc.) and conduct consultations at the state level. The project will support the selected entrepreneurs for training (12 persons) in institutions such as the Central Institute of Fisheries Technology. The project will also provide start-up capital for conducting feasibility studies for these 12 entrepreneurs and further support from BMGF and other sources will be mobilized.

Component 3: Project Management, M&E and Policy Support

37. **Project Management:** DoAFR will be the Lead Implementation Agency and the project will be implemented through its two Directorates (DioAH and DioF). A Project Support Unit (PSU) under the aegis of BLDA reporting to the Mission Director through the Project Director will be established for ensuring fund flow to the Directorates. The project will establish a LIT in DioAH and FIT and DioF and DLITs in the district offices of DioAH and DFITs in the district offices of DioF. LIT and FIT will be responsible for implementing project activities by harmonising them with the existing district and block level structures of each Directorate. The project has made allocations for incremental staff in PSU, LIT, FIT, DLITs and DFITs and procurement of office equipment, furniture, internal and external audit, reviews, committee meetings and operating costs. The project has made a total allocation of USD 6.3 million including the resources from IFAD of USD 4.51 million for project management.

38. **Monitoring and Evaluation (M&E) and Knowledge management (KM):** The project will support establishment of an M&E within the PSU, LIT, FIT, DLITs and DFITs and a KM Unit within PSU. The project will support staff costs, procurement of office equipment and operating costs. The project will also fund establishment of a computerised and GIS linked Management Information System (MIS) with tablets at the grassroots level for collecting data. Allocations for knowledge generation and dissemination, thematic studies, base line survey, end-line survey and project completion report have been made.

39. **Policy support:** The project will work towards fostering an enabling policy environment for large scale promotion of small livestock and fisheries in the state. Issues such as application of commercial rates on electricity used for fishing, higher registration fee for lease deeds for fish farms, income from fishing as taxable income, etc., require policy level discussions and interventions where possible. The project will also support development and implementation of appropriate municipal regulations for hygienic slaughtering and sale of meat and fish products. Necessary research and studies will be supported in collaboration with the Veterinary University for promotion of goat breeds best suited for the state and also on climate resilient feed resources for small ruminants. Dialogues, roundtables, action research studies will be facilitated on these issues to enable the government to take appropriate policy decisions.

Attachment 1: Implementation plan and activity sequencing chart

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
1	Preparatory Activities								
	Engage a team of consultants for goat policy								
	Obtain cabinet approval for the project								
	Seek supplementary budget of INR 3.00 Crores for initial project expenditure								
	Create a separate project budget line for the project under DoFAR budget								
	Issuance of a notification nominating Mission Director, Project Director and Project Coordinators								
	Amend MoA and Bylaws of BLDA								
	Select project blocks								
	Appoint BVOs, FEOs and FESs								
	Select institutions and make plans for training of DioAH and DioF staff								
	Identify a team of Consultants or a Service Provider for conducting ToT to BVOs and CFs.								
	Finalize terms of reference and FRP for baseline survey								
	Obtain approval for engaging WorldFish on a single source basis								
	Submit project readiness check list to DEA								
	Constitute a state delegation to negotiate and initial the negotiated text of the financing agreement with IFAD								
2	Small Livestock Promotion								
a)	Staff recruitment								
	Recruitment of BVOs and posting one BVO per project block (64)								
	Establish PSU, LIT and DLITs								
	Complete recruitment of all contract staff								
b)	Staff Training - Technical and Community mobilization								
	Identify Training Institution								
	Identify staff for training								
	Fix up training schedule and depute staff for training								
	Conduct training of VOs								
c)	Exposure visit								
	Engage a Consultant for Learning route.								
	Prepare a plan and seek approval								
	Identify staff for exposure visits								
	Agree with exposure sites about travel schedule and depute staff for								
	Conduct exposure visits								
d)	Veterinary dispensary renovation								
	Engage a consultant for preparing a list of deficiencies and cost estimates								
	Prepare a list of deficiencies and cost estimates								
	Advertise, evaluate and engage a contractor								
	Complete renovation and refurbishing work								
e)	Centre for excellence								
	Identify a location for building a Fisheries Centre for Excellence.								
	Prepare a detailed project report and seek firm commitment on funding.								
	Construct Centre for Excellence								

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
f)	Veterinary dispensary construction								
	Undertake review of dispensaries								
	Prepare proposals for reconstruction, designs and cost estimates.								
	Seek convergence funding for construction								
	Construct dispensaries								
g)	Communication strategy								
	Engage a team of consultants								
	Review the existing communication materials and literature available.								
	Prepare extension materials and a communication strategy with roll out								
	Disseminate the extension messages								
h)	Training of Trainers								
	Advertise, seek proposal, evaluate and contract an agency for preparation of training materials and conduct ToT.								
	Preparing the training modules, training and reference materials.								
	Identify staff for training								
	Fix up training schedule and depute staff for training								
	Train Block Vet Officer, CFs and DWs								
i)	SLE Support								
	Selection of SLEs								
	Training of SLEs								
	Provide support to SLEs (20+1 Scheme, establishment of training and demonstration unit and tablet)								
j)	DISHA worker capacity building								
	Select DWs in consultation with the community.								
	Train DWs in four phases								
	Undertake exposure visits to DWs								
	Provide project support to DWs								
	Conduct monthly meeting and provide regular handholding								
k)	Direct to farmer service								
	Engage an agency for implementing digital extension for both small livestock and fisheries extension								
	Identify hardware and software requirements.								
	Develop and implement a plan for registration of stakeholders.								
	Develop content for digital extension								
	Implement digital extension and roll out conventional extension materials								
l)	Training of farmers								
	Prepare training materials for village level and demonstration unit level training								
	Conduct a district level workshop for Block Vet Officers and CFs								
	Coach SLEs and DWs to conduct training								
	Plan and implement village level training								
	Plan and implement demonstration unit level training								
m)	PG and FPO mobilization								
	Mobilize PGs								
	Elect office bearers and open bank account								
	Collect membership fee and request for project support								
	Release support and monitor implementation								
	Mobilize and support FPOs								

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
	n) Goat rearing support								
	Submit request for release of matching grant support								
	Conduct compliance verification and release matching grant support								
	Provide Breeding buck support to PGs								
	Institute a system of award to best small livestock rearers, DWS and SLEs								
	Facilitate access to government schemes and convergence funding								
	o) Goat mutual insurance								
	Identify a district for GMI implementation								
	Select an agency for implementing GMI								
	Develop guidelines for GMI								
	Implement GMI and review performance								
	Develop guidelines for expansion based on experience								
	p) Backyard poultry support								
	Identify progress BYP farmers and provide mother units								
	Facilitate submission of application for government and convergence schemes								
	Sensitise PG members and others in benefits of BYP and vaccination requirements								
	Roll out a poultry bird vaccination modality								
	Start vaccination of poultry birds and educate on nutritional benefits of animal protein.								
	q) Marketing Support								
	Training of DWs and SLEs on goat marketing								
	Training of PG farmers								
	Identify existing markets and market players								
	Conduct market linkage meetings								
	r) Weighing scale provision								
	Sensitizing the farmers on sale of goats based on weight								
	Supplying weighing scales to PG								
	Start the practice of selling goats based on weight								
	s) Value chain Platform								
	Identifying potential buyers within and outside the state								
	Identifying PGs and SLEs to participate in the value chain platform								
	Conduct Value chain platform meetings.								
	Initiating formal/informal linkages for purchase of goats								
	t) Goat market shed construction								
	Prepare a scheme for supporting market sheds on a PPP mode.								
	Identify the goat markets that require improvement.								
	Engage Consultants to design market sheds, prepare BoQs and supervise construction.								
	Sign MoU with the market owners for construction of goat sheds								
	Complete construction of market sheds								
	u) Goat fairs								
	Conduct discussion with PGs/FPOs/LSEs for conducting goat fair								
	Prepare a plan for conducting goat fair								
	Publicise and conduct goat fair								
	Release funds for conducting goat fairs								

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
	v) Training of butchers								
	Identifying butchers for the training.								
	Identify a qualified technical resource agency/ies for conducting training.								
	Conduct training of butchers								
	Evaluate the results of training after six months of training								
	w) Modern meat shops								
	Prepare a scheme for supporting model met shops.								
	Identify meat shop owners interested in developing model meat shops.								
	Sign a MoU with the meat shop owner for constructing model meat shop.								
	Supervise construction and release funds.								
	x) Slaughter points and vans								
	Prepare a scheme for supporting Slaughter Points and Vans.								
	Identify potential slaughter point and van operators								
	Seek proposals from interested operators and approve best proposals								
	Complete the activity and release funds								
	y) Value addition								
	Identifying an agency to function as a start-up search engine.								
	Conduct meeting with GoB officials and shortlist agencies with firm plans for investment								
	Provide support for conducting feasibility study to agencies interested in investing in Bihar's small livestock and fisheries sectors								
	Facilitate support from other GoB on-going programmes and commence investment								
3	Inland Fisheries Promotion Component								
	a) Staff recruitment								
	Recruitment of BFEOs and posting one BFEO per project block (64)								
	Establish LIT and DLITs								
	Complete recruitment of all contract staff								
	b) Training								
	Identify training institutions								
	Identify staff for training								
	Fix up training schedule and depute staff for training								
	Conduct training								
	Develop training manual and materials for training of fish farmers								
	c) Exposure visits								
	Select locations and host institution for international exposure.								
	Plan for the international exposure visit for senior management								
	Select officials for international exposure visit								
	Conduct international exposure visit								
	Identify the national exposure visit locations and host institutions for field level officials.								
	Conduct national level exposure visit								
	d) Communication strategy								
	Engage a team of consultants								
	Review the existing communication materials and literature available.								
	Prepare extension materials and a communication strategy with roll out								
	Disseminate the extension messages								

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
e)	Centre for excellence								
	Identify a location for building a Fisheries Centre for Excellence.								
	Prepare a detailed project report and seek firm commitment on funding.								
	Construct Centre for Excellence								
f)	FLE support								
	FLE selection								
	Training for FLEs								
	Provide support to FLEs to upgrade existing unit into a demonstration unit.								
	Facilitate the FLE to access funds from other government programmes								
g)	FTA support								
	Selection of FTAs								
	Conduct training of FTAs								
	Prepare plans and provide project support to FTAs								
	Facilitate access of FTAs to funds from other government programmes.								
h)	Farmer training								
	Prepare a manual and training materials containing standard operating procedures.								
	Identify farmers interested in training								
	Prepare a training plan with training calendar and get approval.								
	Train the farmers								
i)	Digital Extension								
	Engage an agency for implementing digital extension for both small livestock and fisheries extension								
	Identify hardware and software requirements.								
	Develop and implement a plan for registration of stakeholders.								
	Develop content for digital extension								
	Implement digital extension and roll out conventional extension materials								
j)	Business led extension								
	Compile a list of private sector businesses involved in fisheries.								
	Conduct workshops with the participation of private businesses and FLEs and FTAs								
	Facilitate business linkages between private businesses and FLEs and FTAs								
k)	Credit innovation fund								
	Call for expression of interest from financial institutions.								
	Conduct meetings with interested financial institutions and negotiate terms of engagement								
	Sign a MOU with interested financial institution								
	Release funds to financial institution								
l)	Support for pond rejuvenation								
	Prepare list of Bucket excavator rental agencies, call for quotations, and sign rate contract agreement.								
	Seek applications from interested farmers and								
	Application from interested farmers and get their proposal approved.								
	Complete pond rejuvenation and settle the account of bucket excavator rental agency								
	Provide fish farming support kit (Fish seed, bund protection net, Azolla bed, Vegetable seed, PH DO Test kit, chicks/ducklings etc) to farmer								
	GPS tagging pre and post excavation/ rejuvenation								

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
	m) New pond construction								
	Publicise the schemes available and assist the farmers in accessing								
	Provide support for fish seed and feed to the new tanks constructed using convergence funding								
	GPS tagging pre and post excavation/ rejuvenation								
	n) TA from WorldFish								
	Invite World Fish Center and request them to prepare a proposal for participation in the implementation of the project.								
	Review the proposal of World Fish and get required approvals for engagement of World Fish Centre on single source basis.								
	Sign MoU with World Fish Centre								
	Review the progress and make necessary adjustments to work plan.								
	o) Capture fisheries ecosystem								
	Prepare cost estimates and seek convergence funding and complete tasks related to desilting of inlets and outlets.								
	Assist PGs to prepare proposals for nursery development and ranching.								
	Complete tasks related to nursery development and ranching								
	p) Wholesale market construction								
	Identify market locations for construction of wholesale fish markets.								
	Engage a Consultant to undertake design, BoQ preparation, cost estimates, bidding documents and supervision of construction.								
	Finalize the bidding documents and advertise the tender and seek necessary approval								
	Select Contractor and complete construction								
	q) Rural haat improvement								
	Identify rural haats for improvement.								
	Engage a Consultant to undertake design, BoQ preparation, cost estimates, bidding documents and supervision of construction.								
	Finalize the bidding documents and advertise the tender and seek necessary approval.								
	Select Contractor and complete construction.								
	r) Live fish transport								
	Compilation of available live fish transport technologies and identification of technology suitable for Bihar.								
	Selection and acquisition of technology.								
	Review performance for scaling up.								
	Chilled fish transport								
	Prepare a scheme for supply of solar powered chilled fish transport.								
	Call for applications and select beneficiaries.								
	Procure chilled fish transport and hand them over to selected								
	s) Start-up support								
	Identifying an agency to function as a start-up search engine.								
	Conduct meeting with GoB officials and shortlist agencies with firm plans for investment								
	Provide support for conducting feasibility study to agencies interested in investing in Bihar's small livestock and fisheries sectors								
	Facilitate support from other GoB on-going programmes and commence investment								

S. No.	Activity	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Project Closing
4	Knowledge Generation and Dissemination								
	Conducting studies to generate knowledge								
	Preparation of success stories								
	Knowledge sharing through social media								
5	Planning, MIS and M&E								
	Engagement of an agency for MIS development								
	Development of MIS software								
	Baseline survey								
	AWPB and Procurement Plan submission								
	Annual outcome survey								
	Submission of ORMS								
	Midterm review								
	Endline survey								
	Project Completion Report								

Chapter III: Implementation arrangements and responsibilities – Small Livestock Promotion Component

A. Capacity Strengthening

1. Institutional Capacity building

5. **Staff Recruitment:** Although veterinary education in India covers all livestock species i. e., Cattle, Horses, Small ruminants, Pigs, pet animals (cat and dogs), emphasis has always been on large ruminants' health. Moreover, traditionally focus of Central and State governments has also been on Dairy sector making it incumbent upon the Veterinarians to provide their services to dairy farmers on a priority basis. Since most goat and BYP farmers are from poor and marginalized communities, they are unaware that existing animal health services are also meant to take care of goats and BYP. Therefore, they do not expect any services from these vet hospitals and clinics.. To remedy this situation vets need to be sensitized about the needs of smallholder farmers and awareness has to be created amongst the goat farmers regarding veterinary services. In order to orient the Veterinarians towards Goat and BYP, there is a need for a short orientation training to understand constraints of this and ways to mitigate them so that mortality due to disease can be reduced and productivity can be increased. To increase outreach of public veterinary services in the Blocks under the project, 64 Block Veterinary Officers will be recruited and deputed by GoB using its own resources and 64 Community Facilitators will be recruited at block dispensaries and 24 Senior Veterinary Officers and 12 Training, Institutions and Gender (TIG) Officers will be recruited using project resources for the District Animal Husbandry Office for project implementation.

6. Steps in implementation of activities related to staff recruitment include are to:

- Seek approval for engaging staff on contract basis directly by giving contract for minimum two years through BLDA. It is necessary to come out of the system of providing 11 months contract.
- Advertise the staff requirement after reviewing terms of reference provided in this PIM. The total additional staff requirement for this component is 64 Block Veterinary Officers (BVOs), 64 Community Facilitators, 24 Senior Veterinary Officers and 12 Training, Institutions and Gender (TIG) Officers. Terms of reference are provided in Chapter IV- Terms of Reference – Small Livestock Promotion Component.
- Select staff and place them to the project blocks. In the event of inability to find adequate number of Block Vet Officer, DoAFR will transfer officers to the project blocks.

7. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Recruitment of BVOs and posting one BVO per project block (64)	DoAFR		
Recruitment of 64 Community Facilitators (CF) and placing one CF per block	DoAFR		
Recruitment of 24 Senior Veterinary Officers and 12 TIG Officers	DoAFR		

8. **Training:** The project will build on the recruitment and deputation of Block Vet Officer (64) by GoB to fill the existing vacancies in all project blocks and 24 Senior Veterinary Officers will be recruited as project staff at DLITs. All 64 VOs and 24 staff at

district level (total of 88) will be trained by a reputable agency on Goat and BYP health and husbandry. The project will also provide follow up training to select staff. Training will be conducted in batches of 25-30 VOs within 6 months of their joining the project. Resource persons with minimum experience of 15 years in relevant subjects (small ruminant production, Veterinary extension, Poultry production, Genetics and Breeding, animal nutrition) will form the training team.

9. Key Topics to be covered in training are provided in Chapter IV- Terms of Reference – Small Livestock Promotion Component. The training will be of a duration of 6 days and it is advisable for the training to take place outside of Bihar so that the participants are away from their work-place and are able to devote time completely to the training. Also, visiting training institution would provide them with an opportunity to see and learn from the work being done in this sector in another state. Some of the leading institutes in the country that can impart this training are: (i) National Institute of Agricultural Extension Management (MANAGE)-Hyderabad; (ii) Veterinary Officers Training Institute (VOTI), Bhubaneswar; and (iii) Central Institute for Research on Goats (CIRG), Maqdoom, Mathura.

10. Steps in implementation of activities related to training include are:

- Identifying Training Institution with experience in training and extension.
- Analysing the ability of various institutions to complete the training of all proposed persons.
- Contacting the Training Institution and fix up training calendar for training all the staff.
- Identifying the staff members from the project blocks and also the newly recruited Block Vet Officer of the project to be sent for training.
- Fixing up the training schedule and send the selected staff members for training.

11. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identify Training Institution)	LIT- DioAH		
Identify staff for training	LIT- DioAH		
Fix up training schedule and depute staff for training	LIT- DioAH		
Conduct training of VOs	Training Institutions	LIT- DioAH	

12. **Exposure visits 'Learning Route':** Post Orientation training, the staff of DioAH will also be sent on exposure visits through a 'Learning Route' approach to public and private sector institutions to study good practice models. These exposure visits will help broaden their vision and understand various activities related to production and marketing that could be replicated in Bihar. It will enable the Veterinary officers to learn from the existing models, to understand what is working and what is not, what helps faster adoption of best practices in other parts of the country.

13. It will cover locations capturing activities across the goat value chain development: research institutions, breed development, commercial farms, FPO models focusing on production and marketing with engagement of 'Pashu Sakhis', aggregation centres by FPOs, marketing initiatives, processing units (meat, cheese, eggs, goat milk soap), sale of eggs, meat and meat products at the supermarkets along with training institutes for entrepreneurs interested in establishing processing units.

14. Some of the organizations recommended for visit are Goat FPOs for community model of production and marketing (Heifer International), Ghazipur Mandi and Abbatoir, Ghaziabad, UP; NIFTEM for processing of meat products, Kegg Farms for production and marketing of improved birds and eggs, Central Avian Research Institute for poultry production, NDRI for Goat dairy milk entrepreneurship, leading processing and export units for small ruminants (AOV Exports) and private commercial farms for quality breeding buck (Ajaputra Farms) etc. The duration of exposure visits is can be 7 days.

15. Steps in implementation of activities related to exposure visits include:

- Engage Consultant to plan for Learning Route/Exposure Visits.
- Develop a coherent Exposure visit plan and seek approval of DioAH
- Identify the staff members from the project blocks and newly recruited/deputed Block Vet Officer of the project to be sent for training.
- Send the selected staff members for exposure visit.

16. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Engage a Consultant for Learning route.	LIT- DioAH		
Prepare a plan and seek approval	Consultant		
Identify staff for exposure visits	LIT- DioAH		
Agree with exposure sites about travel schedule and depute staff for training	LIT- DioAH		
Conduct exposure visits	Consultant/DioAH		

17. **Infrastructure development:** Along with strengthening manpower capabilities, veterinary infra-structure also needs attention. A number of veterinary dispensary buildings are not fully operational due to various reasons like lack of electrical wiring, leaking roof, broken equipment, logging of water around hospital etc. The project will support renovating and refurbishing them (64) using project funds so that a conducive environment for the veterinary staff is created for delivery of services in clean and hygienic surroundings and it also attracts more goat/BYP keepers to visit the hospital and access services.

18. Steps in implementation of activities related to renovation and refurbishing existing Veterinary dispensaries include:

- Engaging a Consultant Civil Engineer to assess the situation of 64 Block Veterinary Dispensaries in the project blocks.
- Preparing a list of deficiencies and cost estimates for each dispensary.
- District Animal Husbandry Officer to seek convergence funding for compound wall construction and filling soil around the dispensary.
- Advertising locally and seek quotations based on the list of deficiencies and cost estimates.
- Evaluating the quotations and seek approval of the competent authority to sign contracts.
- Signing a contract with the selected agency and complete renovation and refurbishing.

19. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Engage a consultant for preparing a list of deficiencies and cost estimates	LIT-DioAH		
Prepare a list of deficiencies and cost estimates	Consultant	LIT-DioAH	
Advertise, evaluate and engage a contractor	DLITs	LIT-DioAH	
Complete renovation and refurbishing work	DLITs	LIT-DioAH	

20. The project will undertake construction of new buildings for existing veterinary hospitals/dispensaries (16) that are in dilapidated condition using convergence funds and also 2 Centres of Excellence (one on Goats and one on Fisheries).

21. Steps in implementation of activities related to construction of new veterinary dispensaries include:

- Conduct a review of the dispensaries in the project area that are in dilapidated condition.
- Prepare a proposal for construction of new veterinary hospitals in these locations along with designs and cost estimates.
- Seek convergence funding for construction of these dispensaries.
- Identify location for construction of a Centre of Excellence and seek government support for construction
- Construct the dispensaries and Centres of Excellence.

22. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Undertake review of dispensaries	LIT-DioAH		
Prepare proposals for reconstruction, designs and cost estimates.	Consultant	LIT-DioAH	
Seek convergence funding for construction	LIT-DioAH	DLITs	
Construct dispensaries	LIT-DioAH	DLITs	
Identify a location for Center of Excellence	LIT-DioAH		
Prepare proposals for reconstruction, designs and cost estimates.	Consultant	LIT-DioAH	
Construct Centre of Excellence	Contractor	LIT-DioAH	

23. **Communication strategy:** A strong communication strategy is absolutely critical from the project perspective. The project has a strong focus on preventive health (vaccination and deworming) along with improving the management practices of goat rearing. Currently, the farmers have very limited information about the vaccination and deworming in goat or Backyard poultry. The DWs will be the nodal persons who will be supplying the preventive services. While we are developing the supply of preventive services in the project areas, it is critical to develop the demand for these services by raising awareness about the preventive care. Hence a mass-media approach is required for the preventive care activities like in the case of polio vaccines. This will be accomplished through radio jingles, television bytes, newspaper ads, hoardings on bus stops, at the vet

clinic, pamphlets at medicine retail shops along with posters to be given to the PGs/DWs/SLEs which can be put up at common points in the village.

24. For the adoption of best practices, two key approaches may be used along with other approaches suggested by communication team. First is developing video clips showcasing on best practices, second is to develop small booklets with pictures etc. for farmers to encourage these practices. The project will engage a team of Consultants for supporting LIT-DioAH in developing a communication strategy to meet the above objectives. The Consultants will undertake a rapid needs assessment to identify the gaps in information at the farmer level. In developing the communications, the existing materials will be reviewed and converting these into use friendly communication materials and creating new materials as per the needs assessment. A strong roll out strategy will be developed for high impact and to bring about the required change in practices. Needs of the women rearers will be especially catered to ensure messages reach them i.e. suitable time for awareness meetings, illustrative posters, gender neutral messaging, etc.

25. Steps in implementation of activities related communication strategy include:

- Engage a team of Consultants – ToR in Chapter IV- Terms of Reference – Small Livestock Promotion Component.
- Undertake review of all the extension materials available and develop extension materials required.
- Develop a communication strategy and prepare a plan for extension messages dissemination.

26. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Engage a team of consultants	LIT-DioAH		
Review the existing communication materials and literature available.	Consultants	LIT-DioAH	
Prepare extension materials and a communication strategy with roll out plan	Consultants	LIT-DioAH	
Disseminate the extension messages	DLITs	LIT-DioAH	

2. Service Delivery support

27. For efficient service delivery a diverse set of professionals need to come together to meet the requirements of smallholder farmers. These include DWs and Small livestock entrepreneur (SLEs) who would be interfacing with the community regularly to provide services as well as disseminate knowledge. To enable them to carry out their roles, capacity building through trainings will be done at the beginning and later on through refresher trainings. These training programmes will be conducted by the BVOs and Senior Veterinary Officers at the district level. In order to build capacity of these trainers, the project will train these trainers.

28. **Training of Trainers (ToT):** The project will engage an agency/ a team of experts to: (i) convert existing training materials (four phase training) into a standardized user friendly training aids for DWs with focus on integrating adult learning methodology that will include pictorial representations, videos, case studies and role plays; (ii) develop training manual for each training undertaken that will be used as a reference material during the implementation phase; (iii) prepare guidelines for PG and FPO mobilization; (iv) develop facilitation training module for ToT to Block Vet Officer and other related project staff; and (v) develop training module and guidelines on community interaction, DWs

selection & mobilization of PG and FPOs. Detailed terms of reference of the agency to be engaged is provided in Chapter IV- Terms of Reference – Small Livestock Promotion Component.

29. The selected agency would undertake: (i) Facilitation ToT for Block Vet Officer on training DWs using four module training materials; (ii) Facilitation TOT to Community Facilitators (CFs) and Block Vet Officer on community mobilization, PG and FPO promotion; (iii) conduct four trainings programmes for DWs covering four modules so as to provide practical experience to the Block Vet Officer and CFs in training DWs.

30. Steps in implementation of activities related to training of trainers include:

- Advertise and seek proposals from competent agencies for engagement as resource agency for conducting training of Trainers.
- Evaluate proposals and select an agency for conducting ToT.
- Design training modules, training and reference materials required by DWs.
- Design training modules for ToT for Block Vet Officer for training DWs.
- Design training modules for training Block Vet Officer and CFs in community mobilization, PG and FPO promotion.
- Identify staff to be sent for ToT training.
- Fix up the training schedule with training agency and send the selected staff members for training.
- Conduct training of Block Vet Officer and CFs.

31. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Advertise, seek proposal, evaluate and contract an agency for preparation of training materials and conduct ToT.	LIT -DioAH		
Preparing the training modules, training and reference materials.	Agency	LIT -DioAH	
Identify staff for training	LIT- DioAH		
Fix up training schedule and depute staff for training	LIT- DioAH	DLITs	
Train Block Vet Officer, CFs and DWs	Agency	LIT -DioAH	

32. **Small livestock Lead Entrepreneur (SLE) support:** The project will identify, train and support one SLE per block (64 persons) preferably from existing breeders/entrepreneurs/commercial goat farmer owners. S/he will play a crucial role to disseminate goat/BYP information and technologies to other farmers as a strategic approach to reach multitude of small farmers across the block as a business opportunity to advance his interests. It is expected that s/he would become aggregators once production of goats and poultry increases. It is envisaged that s/he would lead marketing activities including market assessment and linkages with buyers, organize Goat fairs, identifying location for goat market/shed. Progressive farmers of the project block would be asked to register for this position. Selection will be based on criteria mentioned below and will be made by a committee comprising of CF, VO, TIG Officer and 2-3 village leaders.

33. Selection criteria for SLEs – Women will be encouraged to apply and all things being equal, would be given preference over men:

- Goat/BYP farmer with progressive outlook and interest in doing business in Goats/BYP.
- Should have interest in supporting the other members of the community in goat and BYP farming.
- Should have leadership qualities and willing to devote time in engaging with DWs, DioAH staff.
- Should have 1 acre land available where demonstration units can be established.
- Age not exceeding 45 years and should be at least 10 standard pass.
- Should have good reputation with no criminal record.
- Should have good communication skills and attitude to share knowledge.

34. **Training of SLEs** – The subjects to be covered under training of the SLEs include goat rearing best practices, entrepreneurship and Producer Groups (PG) and Farmer Producer Organization (FPO) mobilization. SLEs will be provided with technical training on both goat and backyard poultry and they will also receive training on PG and FPO mobilization. The project will provide follow up training to SLEs. Moreover, they would be coached by Block Vet Officer in identifying and preparing breeding bucks for sale.

35. **Demonstration unit:** SLEs will be supported to establish a demonstration unit under the DioAH’s 20 Does and 1 Bucks scheme. They will follow the government procedure to apply for the 20+1 scheme and would be guided by Block Vet Officer to expedite the process. SLEs will serve as trainers for farmers who visit their farms to see the new technologies adopted by them like scientific goat farming, production of fodder grasses and trees, demonstration of Azolla pit etc. The Block Vet Officer and TIG Officer will provide information and Know-how for developing the demonstrations.

36. **Support for farmer training facilities:** The project will provide support of INR 25,000 for establishing farmer training facilities in these demonstration units to train goat and or BYP farmers on latest technologies.

37. **Extension service by SLEs:** SLEs are expected to provide commercially oriented extension service to the goat farmers coupled with supply of good quality goat kids, breeding bucks, feed, mineral block, etc. The SLEs will help CFs to foster cluster level planning and promotion of PGs and FPOs to develop an income generating business model. They will be linked to MIS through tablets for regular reporting.

38. Steps in implementation of activities related training of SLEs include:

- Select SLEs based on the selection criteria.
- Train the SLEs on technical aspects and also PG and FPO promotion.
- Provide support to SLEs comprising 20+1 Scheme, tablets and fund for establishing training and demonstration unit.

39. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Selection of SLEs	Block Vet Officers/CFs	DLITs	VOs and CLFs
Training of SLEs	DLITs	LIT-DioAH	
Provide support to SLEs (20+1 Scheme, establishment of training and demonstration unit and tablet)	DLITs	LIT-DioAH	

Provision of training and other services to goat/BYP farmers	SLEs	Block Vet Officers	
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40. **DISHA workers' Capacity building:** There is an acute shortage of Veterinarians in India and Bihar is no exception implying that a large number of livestock remains unserved. Since the focus of DioAH staff has always been on dairy sector, it won't be wrong to assume that health coverage provided for goats and BYP is negligible and hence the urgent need to invest in a cadre of service providers who can provide services to small farmers rearing goats and BYP. The projects intends to invest in development of this grass-root cadre to be called DISHA Workers (DWs) and will be a standardized version of Pashu Sakhi and Local resource person/Vaccinator modalities in the state. They would help to control preventable diseases and provide extension to increase productivity and also assist DioAH in surveillance and monitoring.

41. All DWs will be provided with a health-Kit, cool box, tablet, uniform and bicycle, a breeding buck and a stipend of INR 1,500 during the first two years. DWs will provide doorstep services to farmers' against a small service charge. The service charge for deworming and vaccinations would be standardized by LIT-DioAH. Apart from vaccination and deworming, they are expected to earn living by a number of other activities that include castration, minor veterinary services like first aid, sale of mineral block and concentrate feed. Charges for these services will be decided through consultation with the community.

42. The project will standardize the training manuals, curriculum and internal certification process and apply it across the state. The project will also engage with Agriculture Skill council (National/State) for certification of DWs based on Prior Learning Evaluation. The DWs will be linked to the Block Vet Officer for necessary backstopping. They will be linked to MIS through tablets and report regularly.

43. **Process to be followed in selection of DWs:** The Block Vet Officer/TIG Officer/CF will approach village institutions comprising Village Organizations (VOs) and Cluster level federations (CLFs) and share DWs job description/ and selection criteria. They would be encouraged to hold consultations within their village and propose names of 2-3 eligible candidates with their eligibility details in the next meeting to be held within a week. In the next meeting, villagers will select the best candidate through consensus. Given the considerable investment that will go in training DWs, a guarantee will be sought that the DWs once s/he has been trained, will not leave for another job so that his/her acquired skills will be truly used for the benefit of the community. DioAH has vaccinators that provide immunizing services to large ruminants and goats as and when the department needs their services on payment model. These vaccinators will be also be considered favourably for the job. Women will be especially encouraged to apply and all things being equal, would be given preference over men. The Block Vet Officer/TIG Officer/CFs will be responsible for final selection of the DWs as per the suggested criteria.

44. The criteria for DW would be:

- S/he should be a native and residing in either of the two villages she would be responsible for providing services to.
- The age of the DW should be between 20-42 Years and preferably in 30-35 years age bracket.
- S/he should be a good livestock rearer (Small stock and poultry) / at least having 2-3 sheep/goat and/or 5 poultry birds with her/him and having basic knowledge on Animal Husbandry.
- S/he should have functional knowledge of writing and reading of local language and be minimum class 8th Pass.
- S/he should have known inclination towards taking care of sick animals.
- S/he must have knowledge of heat diagnosis in goats.

- Having prior experience of vaccination/animal first aid will be preferred.
 - S/he should have good communication skill and pleasant demeanour.
 - S/he should have no mobility constraints to provide handholding support to the goat and BYP farmers of her region.
 - S/he should be willing to undergo all trainings and exposure visits (within/outside the state) as and when organized by the project.
45. It is assumed that-
- S/he will be a person gainfully employed locally and will be available for project work.
 - S/he is aware that this is not a full time work and monthly income from this work will be in the range of INR 2000- 4000 and can increase depending on his/her business acumen.
46. On successful selection, DW will agree that –
- S/he will continue to provide services not only in project period but also beyond it since a lot of investment is made in trainings, Health Kit, bicycle, Tablet, etc.
 - S/he will be responsible for not only goats but also provide services to poultry birds in the area of operation.
47. The project will train DWs (4,608) in four phases comprising:
- Basics of Goat keeping & Backyard poultry, good practices related to feeding, breeding and housing
 - Understanding common diseases of goats and BYP and their prevention
 - First aid, castration and ethno-veterinary medicine economics of Goat & BYP; and
 - Entrepreneurship, communication skills, marketing and PG and FPO mobilization.
48. Training of DWs will undergo 32 days of training spread over 3 years. Initially it will comprise of 20 days in four phases spread over year one (5+5+5+5) and thereafter 2 day refresher training every four months for next two years. First training of each module will be done by TRA in conjunction with Block Vet Officer and CF. Rest of the batches of DWs will get trained by Block Vet Officer and CF. The training will be held at the block in batches of 25-30 and will include theory as well as practical classes
49. At the end of the trainings DWs will –
- Learn about effective communication.
 - Know goat body parts and normal goat behaviour.
 - will learn about suitable goat house model and how to improve housing using locally available material.
 - Know what and how much to be fed to a goat/BYP on daily basis using locally available feed resources for feeding chicken.
 - Know economics of BYP and goat keeping at HH level.
 - Learn how to increase hatchability rate and productivity.
 - how to identify sick goat and take temperature.
 - will know how to identify common diseases viral and bacterial diseases of goat and BYP like PPR, ET, FMD, ND, fowl pox and vaccination to prevent it.
 - how to save goats from worm infestation by regular faecal examination and deworming.
 - how to take care of different age group of goat and chicks and in different seasons.

- Learn how to increase hatchability rate and productivity.
- Know benefits of castration and how to do it.
- Know economics of BYP and goat keeping at HH level.
- Learn to use locally available plants, herbs and spices to treat common ailments of Goat and poultry.
- Use of tablet for data-entry.
- Learn to become effective trainer for training farmers.
- Learn different aspects of goat marketing.
- Learn to develop as a service provider entrepreneur.
- Learn about factors to be considered to convert goat and or Poultry rearing into an enterprise.
- Know about different schemes of government for goat and Poultry keepers.
- Learn book keeping and accounting for tracking income as a service provider and also incomes from goat and poultry rearing.

50. DWs will also be taken on exposure visits to locations that have successfully implemented similar interventions and impact that has made in the community. DWs will interface with VO, SLE and CF. She will receive those vaccines from DioAH that are a component of government disease control campaign. For other vaccines s/he will be linked to local retailer at the block level to get vaccines and de-wormers for goat and poultry birds. As an incentive, she will be rewarded with a breeding buck on successful completion of 1 year of becoming a DW.

51. Steps in implementation of activities related training of SLEs include:

- Select DWs in consultation with the community comprising VOs and CLFs.
- Train the DWs in four phases.
- Post trainings, TIG Manager and TIG officer will identify locations for DWs to go for exposure visits and organize sending them with CF and SLEs.
- Provide project support to DWs (stipend, uniform, kit, bicycle and tablet)
- DWs will provide services under supervision of BVOs and Community Facilitators.
- Conduct monthly meeting with DWs and provide handholding support.

52. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Select DWs in consultation with the community.	Block Vet Officer/CF	DLITs	VOs and CLFs
Train DWs in four phases	Block Vet Officer/CF	DLITs	
Undertake exposure visits to DWs	Block Vet Officer/CF	DLITs	
Provide project support to DWs	Block Vet Officer/CF	DLITs	
Conduct monthly meeting and provide regular handholding	Block Vet Officer/CF	DLITs	

B. Production and productivity enhancement

1. Direct-to-farmer services

53. **Digital Advisory Service:** As discussed in the communication strategy development, the small livestock sector extension in the country has been largely neglected. Along with a detailed communication strategy, another opportunity is to take advantage of extensive and growing mobile network to provide direct advisory to the farmers on goat health and management practices in the form of voice messages and SMS. DioAH is also engaged in farmer call centre related activities for large ruminants and have some experience in this area.

54. The project will develop a platform for farmer advisory services in form of SMS, Voice messages on mobile phones and build on the existing capacity of call centre based advisory. This will entail establishing required technology backbone, development of content based on best practices, registration of producers, and delivery of accurate and relevant messages. The project intends to build the mobile geo-referenced database of the goat rearers through DWs and SLEs and use them as a conduit to increase farmer awareness regarding these activities. This activity is also proposed under the fisheries component and the DoAFR may integrate these into one activity and engage a single service provider. The messages related to time for vaccination/deworming, specific messages related to goat husbandry may be shared as per the prepared schedule.

55. **Extension materials:** As part of the roll out of the new communication strategy, the project will use latest materials and tools for providing relevant messages to the farmers on formats that appeal to them.

56. Steps in implementation of these activities include:

- Engage an agency for implementing digital extension preferably combining the activities of both small livestock and fisheries activities.
- Identify technology backbone requirement and make arrangements for procurement of required hardware and software.
- Develop and implement a plan for registration of Vet Officers, CFs, SLEs, DWs and farmers for delivery of digital extension.
- Develop content for digital extension, identify key messages, periodicity of extension messages, seasonality of key message delivery, etc.
- Implement the digital extension modalities and roll out conventional extension materials.

57. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Engage an agency for implementing digital extension for both small livestock and fisheries extension	DoAFR	LIT-DioAH and LIT-DioF	
Identify hardware and software requirements.	Agency	LIT-DioAH and LIT-DioF	
Develop and implement a plan for registration of stakeholders.	Agency	LIT-DioAH and LIT-DioF	
Develop content for digital extension	Agency	LIT-DioAH and LIT-DioF	

Implement digital extension and roll out conventional extension materials	LIT-DioAH and LIT-DioF	DLITs, DFITs	
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58. **Training of farmers:** The Technical Support Specialists in the LIT-DioAH will develop training materials for farmers’ training by DWs and SLEs on: (i) goat management and health care; (ii) fodder production; (iii) balanced feeding including mineral mixture in diet and (iv) marketing related issue of goat and/or BYP. DWs will conduct training of farmers in 9,216 villages and also in demonstration units of SLEs (92,160 persons).

59. Steps in implementation of farmer training related activities include:

- Technical Support Specialists in the LIT-DioAH will develop training materials for farmers’ training both village level and at the demonstration units of SLEs.
- Conduct a review workshop with the Block Vet Officers and CFs at the district level on farmer training at the village and demonstration unit level.
- Coach SLEs and DWs to enable them to transfer knowledge to farmers using the training materials prepared for this purpose.
- Plan and implement farmer training at the village level by DWs and at the demonstration unit by the SLEs and DWs.

60. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Prepare training materials for village level and demonstration unit level training	LIT-DioAH		
Conduct a district level workshop for Block Vet Officers and CFs	LIT-DioAH	DLITs	
Coach SLEs and DWs to conduct training	Block Vet Officers/CFs	DLITs	
Plan and implement village level training	DWs and SLEs	Block Vet Officers/CFs	
Plan and implement demonstration unit level training	SLEs and DWs	Block Vet Officers/CFs	

2. Scaling up of small livestock activities

61. **Community Facilitator:** Goat farmers are presently operating as individuals and do not benefit from economies of scale. It is therefore important for them to come together with a stronger marketing strategy for optimizing production costs and stabilizing producer prices. To bring about this change, they need support to build their capacities. The project will make provision of a Community Facilitator (CF) at the block level to organize goat farmers into goat producer groups (PGs). The CFs will be engaged by the project or through a service provider. CFs will be trained by the TIG-Manager and TIG Officers on various aspects of community mobilization include PG and FPO promotion. S/He would facilitate PGs to manage activities of common interest to goat/BYP farmers and in opening PG bank accounts. S/He would also train of the PG office bearers on account management, record keeping, networking, leadership etc. CFs would be responsible for interfacing with SLEs for marketing related initiatives. In year 3-4, Farmers Producer Organization (FPO) at Block level would be formed.

62. **Producer Group mobilization:** The project will support mobilization of PGs (9,216) and FPOs. PGs will be around Goats and will be based on the values of self-help, self-

responsibility, democracy, equality, equity and solidarity. The process of organizing PGs will be led by the CFs with support from DWs. Mixed SHGs will be promoted depending upon the preference of participating households. Separate one day training will be provided to each office bearer depending on his/her role to run the PG efficiently. PG will receive a small fund of INR 25,000 into their bank account to undertake interface activities such as paid vaccination, annual plan preparation, HH vegetable cultivation, fodder development on common land where available, purchase of books and registers, and other miscellaneous expenses of the PG. Release of funds will be made on achievement of minimum performance standards and PG bank account having INR 10,000 collected through membership fees. These PGs with a membership about 100 or less women and men farmers are expected to grow into block level FPOs for collective marketing under the leadership of CF and SLE.

63. Community Facilitator will follow the below mentioned steps for forming a PG-

- Step 1: Identification of opinion leaders- Identify opinion leaders from among the producers and form a representative group of proactive people.
- Step 2: Orientation of leaders- Discuss the need for formation of an organization to utilize the potential of the goat keeping as a livelihood activity.
- Step 3: Discussion with village community - Involve the leaders group to organize a series of meetings of the village community (Gram Sabhas) to discuss the following:
 - Necessity for collective action.
 - Values in collective action.
 - Proposed activities, product- value addition, linkages, etc.
 - Proposed action plan.
 - This communication with the people needs to be repetitive and cannot be done in one meeting.
- Step 4: Training of producers/goat farmers- Organize trainings for on concepts and roles of the PG/FPO and their own roles as members
- Step 5: Identify rules including obligations of group members to ensure the smooth running of the group and avoid conflict within the group
- Step 6: Identify responsibility for leadership, coordination of logistics, record keeping, networking, team building, communication and other roles.
- Step 7: Facilitate the election of the Management Committee/office bearers with at least 50% being women, and facilitate framing of Vision, Mission, and Goals and draft the byelaws and other applicable resolutions with the committee.
- Step 8: Opening of bank account: Facilitate opening of a bank account, with signatories as per the byelaws of the PG.
- Step 9: Collect necessary fees: Collect membership fees as applicable from members and deposit in the bank account.
- Step 10: Registration: Complete the documentation required for registration and follow-up the process of registration. The office bearers should take responsibility of these activities.
- Please note that registration is not an essential part of formalizing at this stage. The PG may initiate its operations and register in the appropriate legal form later, when the membership and operations are sizeable. Informed member choice is paramount. If the organization decides to function as an informal group, registration may not be required at all.
- Pre requisites for release of funds for interface activities.

- Group has 50 or more members and has a Bank Account.
- Office bearers of the group are trained and maintaining PG records.
- The group has been functioning successfully for 6 months and have collected INR 10,000 as membership fees.
- They have a coherent plan of action and are following it.

64. Steps in implementation in PG and FPO mobilization include:

- Mobilize PGs in consultation with existing community institutions.
- PGs to select office bearers (minimum 50% women) and help them to formulate an action plan.
- Office bearers to open bank account with support and assistance from CF/SLEs/DWs.
- Collect membership fee and submit request for release of interface support.
- Release support and monitor implementation.
- Mobilize block level FPOs.

65. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Mobilize PGs	CFs/DWs	Block Vet Officer	VOs
Elect office bearers and open bank account	CFs/DWs	Block Vet Officer	
Collect membership fee and request for project support	PG	CFs/DWs	
Release support and monitor implementation	Block Vet Officer/CFs	DLITs	
Mobilize FPOs	CFs/SLEs/DWS	Block Vet Officer	

66. **Goat rearing support:** The project will create a small goat development fund (INR 75,000) on a matching grant basis with 9,216 PGs to develop internal lending systems for particularly targeting the ultra-poor with 0-2 goats for purchase of goat, feed and mineral mixture. TIG-Manager in consultation with TIG officers will prepare a simple guideline for use by PGs on the utilization of matching grant and modalities of support to ultra-poor households. The project will support PGs to buy breeding bucks (9,216). PG members will decide on who would keep breeding buck and provide services on a charge predefined by the members. The project will also provide universal vaccination¹ during the first two years as well as support fodder production by leasing private lands. The project will institute annual awards for best small scale rearers, DWs and SLEs. In addition convergence will be sought with other government schemes to bring additional services e.g., goat sheds, stall feeding, shelter during floods, etc.

67. Pre-requisites for release of matching grant for goat development fund are

- Functioning for a year with proper documentation in place.
- Has a bank account with a balance of INR 75,000.
- Has adopted the guidelines for utilization of matching grant and in particular the support to ultra-poor households.

¹Vaccination would be free but DWs will be paid for their services

- Has prepared an Annual Action plan for the PG.

68. Steps in implementation of goat rearing support include:

- PGs submit a request for release of matching grant support.
- Conduct compliance verification for release of support and release support to bank account of PG.
- Monitor use of matching grant funds provided.
- PG members decide on Breeding buck beneficiary, modalities of its management, purchase, user fee and by consensus and seek project support to purchase breeding buck.
- Release funds for breeding buck purchase.
- Develop guidelines for selection of best small livestock rearers, DWs and SLEs and institute a system of awards.
- Facilitate the PG members to apply for other government schemes and convergence funding.

69. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Submit request for release of matching grant support	PG	CF/DWs	
Conduct compliance verification and release matching grant support	CF/DWs	Block Vet Officer and DLITs	
Provide Breeding buck support to PGs	CF/DWs	Block Vet Officer and DLITs	
Institute a system of award to best small livestock rearers, DWS and SLEs	Block Vet Officer and DLITs	Lit-DioAH	
Facilitate access to government schemes and convergence funding	Block Vet Officer and DLITs	LIT-DioAH	

70. **Goat Mutual Insurance:** Risk mitigation measures for the small livestock rearing households in the form of insurance is not happening on ground as most goats are not insured. Even when they are insured under some scheme, the farmers face difficulties to get insurance settlement. Goat Mutual Insurance (GMI) or Community Insurance is a mechanism of mitigating individual loss through collective contribution to a corpus, with an assumption that any of member can have loss that cannot be predetermined. This involves a system of premium collection by the FPO from the members who want to insure their goats and get settlement through FPOs themselves. However, before this can be operationalized, a number of activities should have taken place. The DWs should be trained and actively working with farmers. The farmers are deworming and vaccinating goats so that overall flocks are healthy. The community is willing to work together to set norms for selection of goats that can be insured, premium amount to be collected, how claims would be settled etc. The project will invest in a technical resource agency (such as Goat Trust) to implement this approach in one district as a pilot. It would provide a corpus of INR 100,000 to each FPO to act as an insurance fund along with the premium collection from members.

71. Steps in implementation of goat mutual insurance include:

- Identify district for implementation of the pilot.

- Advertise, evaluate and select an agency with relevant experience and proven track record to implement GMI.
- Develop guidelines in consultation with the project officials and community cadre and beneficiaries.
- Implement GMI and review performance.
- Develop guidelines for expansion of this modality in other districts.

72. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identify a district for GMI implementation	LIT-DioAH		
Select an agency for implementing GMI	LIT-DioAH		
Develop guidelines for GMI	Agency	LIT-DioAH	
Implement GMI and review performance	Agency/DWs	Block Vet Officer/CFs	DLIT
Develop guidelines for expansion based on experience	Agency	LIT-DioAH	

73. **Backyard poultry support:** This activity is primarily aimed at improving nutrition security of participating households. Importance of consuming animal source protein will be explained to women and men and encouraged to include it in their diets. GoB has a scheme for BYP and the project will introduce interventions mainly to strengthen the government scheme. Main activities will be to provide support to some 48 mother units and vaccination to poultry birds. The project will pilot solar powered incubators. Improved chicks need to be raised in a mother unit for 21-28 days to increase their survivability in field conditions. Initial deworming and vaccinations for Newcastle Disease (ND) done at the mother units help the chicks to grow well. It grows approximately three times faster and is marketed earlier than normal free ranging backyard poultry birds, provides quicker returns and is preferred by small-holders who value it for its asset worthiness and productivity value. Egg laying begins at six months of age and each hen lays approximately 140 to 180 eggs in one egg-laying cycle.

74. Selection criteria for identifying entrepreneurs for mother unit establishment will be based on the conditions laid in the government scheme.

75. Steps in implementation of backyard poultry include:

- Identify progressive backyard poultry farmers and support them for establishing mother units.
- Encourage women that have experience in rearing poultry and interested to apply for BYP government schemes including convergence schemes..
- Sensitize women about financial gains that can be made by BYP with semi-intensification coupled with vaccination.
- Prepare and distribute vaccination schedule for poultry birds and establish a system of fee based vaccination for poultry through DWs.
- Educate community on the nutritional benefits of consuming Animal Source protein especially for children and pregnant/lactating women and impact of child malnutrition on cognitive abilities.

76. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identify progress BYP farmers and provide mother units	DWs/SLEs	Block Vet Officer/CFs	
Facilitate submission of application for government and convergence schemes	DWs/SLEs	Block Vet Officer/CFs	
Sensitise PG members and others in benefits of BYP and vaccination requirements	DWs/SLEs	Block Vet Officer/CFs	
Roll out a poultry bird vaccination modality	Block Vet Officer/CFs	DLITs	
Start vaccination of poultry birds and educate on nutritional benefits of animal protein.	DWs/SLEs	Block Vet Officer/CFs	

C. Market development and value addition

1. Marketing Support

77. **Training in goat marketing to PG leaders/farmers:** Due to high demand of goats, sale of goats by farmers is not a problem. However, there is significant scope to improve incomes from sale of goats by addressing some key issues in the marketing practices. They include: (i) distress sale due to emergency need for money goats are sold at 4-6 months of age leading to sub-optimal income along with low production for the state; (ii) limited awareness of prevailing retail prices lowers bargaining power; (iii) limited awareness regarding the existing goat markets at the block, district and state level; (iv) lack of linkages with market players at this level leading to sub-optimal price realization; (v) sale of goats based on guesstimate of goat live weight; and (vi) limited awareness about breed selection, potential high quality bucks are sold for slaughter with significant impact on breed improvement.

78. Activities to support goat marketing including: (i) providing training on marketing aspects improve the marketing practices to DWs/SLEs who will in turn train the producer groups and farmers (INR 200 for one meeting on marketing with PGs/Farmers for DWs); (ii) strengthening information regarding market prices and market requirements to improve the negotiation power of the goat rearers (iii) identifying the market stakeholders in the block, district and state level markets and strengthening market linkages.

79. Steps in implementation of marketing support include:

- Training of DWs, SLEs on goat marketing.
- Training of PGs/farmers on the marketing by the DWs and SLEs.
- Identifying the existing markets and market players in the nearby markets and start a dialogue with them to understand their need in terms of volume, time, quality of animal etc.
- Initiating market linkages meetings between the market stakeholders and farmers.

80. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Marketing Support			

Training of DWs and SLEs on goat marketing	Block Vet Officer/CFs	DLITs	
Training of PG farmers	DWs/SLEs	Block Vet Officer/CFs	
Identify existing markets and market players	PGs/DWs/SLEs	Block Vet Officer/CFs	
Conduct market linkage meetings	PGs/DWs/SLEs	Block Vet Officer/CFs	

81. **Providing weighing scales:** Traditionally goats have been sold on estimation of weight at all levels in the value chain, except for sale of meat by the butcher. The farmers have some idea about the weight of the goats, while the traders who purchase from the farmers also have an ability to estimate weight of the goat. Usually, there is a mis-match between the two estimates, which make the negotiations difficult. Under estimation by any party leads to a sub-optimal outcome. Traders normally tend to make estimate on the lower side, thus reducing the price realized by the farmers. The key activities towards supporting sale of goats by weighing include: i) providing each PG with a weighing scale and training of PG leaders and farmers on the need for selling their goats based on weight and introducing the systems of weighing of goats at the time of sale.

82. The Steps in implementation of this activity are provided below:

- Sensitizing the goat farmers on the need to sell goats based on weight.
- Procuring weighing scales and supplying them to the same to PGs.
- Starting the practice of weighing of goats at the time of sale.

83. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Sensitizing the farmers on sale of goats based on weight	DWs/SLEs	Block Vet Officer/CFs	
Supplying weighing scales to PG	Block Vet Officer/CFs	DLIT	
Start the practice of selling goats based on weight	DWs/SLEs	Block Vet Officer/CFs	

84. **Value Chain Platform:** In the state, goat marketing is largely limited to the informal trade and marketing channel, with aggregators, traders and butchers being the dominant marketing stakeholders. However, at the national level formal investments in goat products marketing and processing is increasing significantly, including online sale of meat and meat products, sale through supermarkets, sale of processed frozen meat products including kebabs, exports of mutton, etc. No such investments have taken place in the state as yet. Bihar is one of the states with highest goat population and the project districts have high goat population. In the coming years, as the project evolves and the PGs will have the ability to supply high volumes of quality animals. There is scope to establish linkages with the agribusinesses operating in this sector for direct investments in the state and/or to establish linkages for purchase of live goats from farmer groups. A lot of effort is required to develop value chain linkages with potential buyers (including formal and informal players). It is an iterative process of meetings, dialogues and discussions which helps to lay the ground for establishing formal informal purchase agreements.

85. The project provides for a value chain platform to create an environment for continued buyer seller engagement. The project will organize value chain platforms (buyer-seller meets) with potential buyers, including processors, retailers and exporters. Some leading traders from large consumption centres of Patna, Ranchi, Mumbai, Delhi etc. may also be invited to facilitate demand for Eid etc. In the initial years, the suppliers' side will be represented by the Marketing Manager, TIG Manager, leading SLEs and some large producer groups. This will help to develop an understanding of the market requirements, which can be communicated to the PGs. This will help to develop a demand-supply match

over a period resulting in a strong linkage with the formal sector along with creating an environment for investments in slaughter/processing infrastructure in the state.

86. Steps in implementation of this activity are :

- Conducting Value Chain Platform (Buyer Seller) meets at the state level every year to understand the needs of the processors, online retailers, exporters, etc., so that the appropriate linkages can be made as the project progresses.
- Developing formal or informal linkages between buyers and PGs/SLEs to capitalize on premium markets and peak festival prices.

87. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identifying potential buyers within and outside the state	PSU-Marketing Manager		
Identifying PGs and SLEs to participate in the value chain platform	Block Vet Officer/CFs	DLITs	PSU/Marketing Manager
Conduct Value chain platform meetings.	PSU/Marketing Manager	LIT-DioAH	DLITs
Initiating formal/informal linkages for purchase of goats	PSU-Marketing Manager	LIT-DioAH	

2. Market Infrastructure Development

88. **Goat market shed design and Construction:** Some districts and blocks have a rural haats for goats, while in some other areas, there are no markets and the aggregators/butchers directly purchase the goats from the farmer doorstep. The collectors have to go village-to-village, house-to-house to purchase goats. This is a huge time cost for the aggregators. They are barely able to buy 3-5 goats in a day, sometimes even less. While on the other hand, the farmers if they want to sell the goat, they have to wait till a buyer comes to the village. Even where the rural haats exist, it is mostly in the form of an open ground, with no shed, feed or fodder or water facility as these are private markets. In some cases, government land has been leased out to the private players. During times of rains and extreme weather conditions the risk of illness and diseases is high. Also, if the traders/aggregators want to keep the goats for a day, there is no provision for the same.

89. To address the constraints regarding lack of marketing infrastructure, the project proposes to support construction of goat market sheds which includes preparation of designs, BOQs, construction and supervision of market sheds. The existing goat markets in the project areas, district and block level markets or rural haats will be identified. Most of the goat markets are in private domain and the project will develop PPP modality for goat market shed construction. In case where the goats markets do not exist and where the communities (PGs) express a strong need for the market, the project officials at the district/block level will initiate dialogue with the district administration to identify locations for developing the goat markets. The market design will bear in mind the shelter for the animals, water/fodder availability, place to keep the animals if not sold, big weighing scales as required (for weighing lots of 5-10 goats), and other specific needs of the market. Based on the specific designs, undertake market shed construction in the project blocks as per the requirement.

90. Steps in implementation of this activity are provided below:

- Developing a scheme for developing goat market sheds on PPP mode.
- Identifying goat markets that require improvement.

- Engaging consultant (district level) to design the goat market sheds for the identified goat markets.
- In areas where the goat markets do not exist, taking the help of the district administration to identify locations suitable for construction of goat market sheds.
- Entering in to a memorandum of agreement with the market owners to provide support for goat market development.

91. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Prepare a scheme for supporting market sheds on a PPP mode.	PSU-Marketing Manager	LIT-DioAH	
Identify the goat markets that require improvement.	Block Vet Officer/CFs	DLITs	Goat market owners
Engage Consultants to design market sheds, prepare BoQs and supervise construction.	LIT-DioAH	DLITs	
Sign MoU with the market owners for construction of goat sheds	DLITs	Block Vet Officer/CFs	
Complete construction of market sheds	Market owner	DLITs	

92. **Organizing Goat Fairs:** The goat market is seasonal with peak demand at the time of specific festivals, Eid, Dussera, Holi, etc. Currently, the farmers are not able to capitalize on this high demand due to lack of an organized marketing approach at this time of the year. Also, the traders feel that they can earn higher if they have high supply of good animals at these specific times. A key activity to capitalize on this peak pricing is to organize "goat fairs" at the goat markets, where the sellers and buyers come together to capitalize on the premium pricing during this time. This activity will be implemented by SLEs under the supervision of Block Vet Officers and CFs.

93. Steps in implementation of this activity are provided below:

- Conduct discussion with PGs/FPOs and SLEs on conducting goat fair at the block level.
- Estimate the potential volume of goats that can be sold through goat fairs along with other specifications of size, breed etc.
- Prepare a plan for conducting goat fair and submit to Block vet Officer to approve the plan.
- Publicise the event and invite the buyers and producers and conduct goat fair.
- Release funds to SLEs for conducting goat fair.

94. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Conduct discussion with PGs/FPOs/SLEs for conducting goat fair	Block Vet Officer/CFs		
Prepare a plan for conducting goat fair	SLEs/DWs	Block Vet Officer/CFs	
Publicise and conduct goat fair	SLEs/DWs	Block Vet Officer/CFs	
Release funds for conducting goat fairs	Block Vet Officer/CFs	DLITs	

95. **Training of Butchers for Hygienic Meat Production:** The situation of meat slaughter is highly unhygienic, with open slaughter at the butcher level. Traditionally the consumers have had a preference for purchasing fresh meat. Recently, modern meat

shops are coming up with focus on quality. To initiate the activities on clean meat production, the project will hire an agency to train the butchers on hygienic meat production practices in the project districts.

96. Steps in implementation of this activity are provided below:

- Identifying butchers for the training at the district block level. Progressive butchers who can implement the new practices in their meat shops will be identified for training.
- Identifying and hiring a highly qualified and competent agency/ies to conduct training of butchers in clean meat production. Leading ICAR institutes, veterinary collages, food safety institutes are the nodal national agencies who can be engaged in providing these services.
- Conduct training and evaluate the results after six months of training.

97. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identifying butchers for the training.	Block Vet Officer/CFs	DLITs	
Identify a qualified technical resource agency/ies for conducting training.	LIT-DioAH	DLITS	
Conduct training of butchers	Agency	DLITs	
Evaluate the results of training after six months of training	DLITs	LIT-DioAH	

98. **Setting up modern meat shops:** The hygiene situation of the current meat stalls, the equipment used, the facilities are very primitive. On the other hand, there is higher emphasis on food quality and safety at the national level, while at the same time consumers are becoming quality conscious. In this situation, it is important to transition to modern meat shops with basic infrastructure for improved hygiene including covering the meat, refrigeration, clean equipment. Along with training in meat production, this activity focuses on establishing modern meat stalls. This will achieve the objective of informing the butchers about the requirements of a modern meat stall, while at the same time sensitizing consumers regarding clean meat production.

99. From the demonstration perspective, the project will support upgrading the existing meat stalls as model meat stalls. This will be achieved with the help of Consultants to provide design for a modern meat stall, which will be implemented by the local contractor along with purchase of infrastructure for setting up the meat shop.

100. Steps in implementation of this activity are provided below:

- Prepare a scheme for supporting model meat shop development.
- Identify meat shop owners at the district level interested in participating with the schemes. This will be from among the butchers who have participated in clean meat production techniques.
- Identify a consultant/agency to develop design model meat shops.
- Select the meat shop owners for receiving project support and sign a MoU for model meat shop construction.
- Supervise construction and release funds.

101. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative

Prepare a scheme for supporting model met shops.	PSU-Marketing Manager	LIT-DioAH	
Identify meat shop owners interested in developing model meat shops.	DLITs	LIT-DioAH	
Sign a MoU with the meat shop owner for constructing model meat shop.	DLITs	LIT-DioAH	
Supervise construction and release funds.	DLITs	LIT-DioAH	

102. **Construction of Slaughter Points and Slaughter Vans:** Most of the slaughter of goat in the state is open slaughter, which is illegal as per the norms of the local municipality. The project will support setting up of slaughter points in the project areas. In many countries, a slaughter point is a mini slaughterhouse catering to the needs of the 20-30 retail stores in the area (capacity of about 100 small ruminants per day). The advantages of a slaughter point as compared with the abattoirs is that it is close to the butcher shops, requires small investments, and is also capable of effectively managing the waste. Along with new investors, the big butchers operating at district headquarters may be interested in establishing a small slaughter point as a backward linkage, and provide slaughter services to the butchers in the nearby areas. They also supply meat to the hotels, restaurants, weddings, and parties.

103. Steps in implementation of this activity are provided below:

- Prepare a scheme for supporting construction of Slaughter Points and purchase of Slaughter Vans.
- Identify potential slaughter point and slaughter van operators.
- Seek proposals and approve proposals taking into account the contribution from the operators, number of butchers to be serviced and location of the slaughter house.
- Construct Slaughter Points and procure Slaughter Vans

104. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Prepare a scheme for supporting Slaughter Points and Vans.	PSU-Marketing Manager	LIT-DioAH	
Identify potential slaughter point and van operators	DLITs	LIT-DioAH	
Seek proposals from interested operators and approve best proposals	LIT-DioAH	DLITs	
Complete the activity and release funds	LIT-DioAH	DLITs	

3. Value Addition

105. In the current situation, the marketing system is focused only on live goat sale for meat purposes. Currently the private investments in the value addition in the goat sector are very limited. In other parts of the country and the world, entrepreneurs and FPOs are investing in value added goat products (sale of premium cuts, kebabs, goat milk cheese, soap, pasteurized milk) and by products (skin, bone meal, blood meal, manure) etc. These investment opportunities have not been tapped in the state as yet. Towards supporting the investments in value added goat products and by-products, the project will engage an agency as a start-up search engine for scouting interested start-ups and investors interested in investing in Bihar. The project will also support for conducting feasibility studies to the identified start-ups/investors.

106. Steps in implementation of this activity are provided below:

- Identify an agribusiness agency to scout potential start-ups and investors for investing small livestock and fisheries sectors of Bihar.
- Conduct meetings between the officials of the Government of Bihar and the start-ups/investors.
- Shortlist agencies interested in investing in Bihar and take their proposals for conducting feasibility studies.
- Provide support for feasibility studies.
- Facilitate the start-ups/investors to start investment activity and seek other concessions from the ongoing schemes of GoB.

107. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identifying an agency to function as a start-up search engine.	PSU-Marketing Manager	LIT- DioAH FIT-DioF	
Conduct meeting with GoB officials and shortlist agencies with firm plans for investment	Agency PSU-Marketing Manager	LIT- DioAH FIT-DioF	DoAFR
Provide support for conducting feasibility study to agencies interested in investing in Bihar's small livestock and fisheries sectors	Agency PSU-Marketing Manager	LIT- DioAH FIT-DioF	DoAFR
Facilitate support from other GoB on-going programmes and commence investment	Select start-ups and investors	LIT- DioAH FIT-DioF	DoAFR

Attachment to this Chapter

1. Attachment SLP 1 : Common Goat diseases prevalent in Bihar
2. Attachment SLP 2 : Vaccination Chart for Goats
3. Attachment SLP 3 : Low Cost Goat Shed
4. Attachment SLP 4 : Breed Improvement through Selection
5. Attachment SLP 5 : Special points for feeding of goats

Attachment: SLP1

Common Goat diseases prevalent in Bihar

Peste Des Petits (PPR)

Symptoms-PPR is the most devastating viral disease of goats characterized by fever, sores in the mouth, with mal-odor (halitosis), diarrhea, pneumonia, and sometimes death. Congestion of conjunctival mucous membranes and matting of eye lids. Diarrheic feces may contain mucus and blood. Pregnant goat may abort.

Prevention- The virus is secreted in tears, nasal discharge, secretions from coughing, and in the feces of infected animals. Water and feed troughs can also be contaminated with secretions and become additional sources of infection. Vaccine is available and provides immunity for 3 years.

Enterotoxemia

Symptoms- It is often called overeating disease and affects goats that are healthy and growing fast. It is a bacterial disease caused by *Clostridium perfringens* B and C. Symptoms can include twitching, star gazing, teeth grinding, fever, and swollen stomach, diarrhea with blood, convulsions, and death within a few hours.

Prevention- Sudden access to grain or a richer diet or any dietary changes favors clostridia bacterial growth in the intestines. Therefore, any change in diet should be gradual. Disease can be prevented through vaccination.

Goat Pox

Symptoms- It is an acute to chronic viral disease of sheep and goats characterized by generalized pox lesions throughout the skin and mucous membranes. The eyelids are swollen and they may completely cover the eye ball. Muco-purulent discharges from eyes and nose. All breeds of sheep and goats irrespective of age and sex are affected.

Prevention- Vaccinate animals annually to prevent this disease. The usual mode of transmission is from direct contact with the infected animal. Indirect transmission by contaminated litter, fodder, water and attendants may spread the virus through mechanical way. Isolation of infected herds and sick animals for at least 45 days after recovery should be done.

Foot and Mouth Disease

Symptoms- Lesions (sores) in the mouth and on the feet, salivation and lameness. Vaccination needs to be done twice a year.

Prevention- Quarantine before introduction into herds. Vaccinate annually.

Tetanus

Symptoms -Tetanus is a neurological disease caused by a toxin which is produced by the bacterium *Clostridium tetani*. Signs include stiff muscles, spasms, flared nostrils, erect/stiff ears and elevated tail. In addition, the affected animals have a difficult time opening their mouths, so the term "lockjaw" has been given to the disease. Animals can be hyper-responsive to stimuli. Eventually, the affected animals can go down and die.

Prevention- Annual Vaccination where tetanus is prevalent

Black quarter

Symptoms- It is an acute infectious disease caused by *Clostridium* bacteria. It causes inflammation of the muscles, toxemia and high mortality. Fever, loss of appetite, depressed behavior, stiff gait and reluctance to move due to lameness, gaseous bubbles in the muscles before death, sometimes nose bleeding and swelling of the head. Animals that die of BQ show accumulation of fluid under the skin in the lungs and body cavities; affected muscle is dark brown, dry and sponge like or moist. A pungent odour is noted.

Prevention- It is spread by contaminated soil and organisms are either taken in when the animal is feeding or through wounds. Bury or burn the carcass to prevent the disease from spreading to other animals. The meat can also cause humans to get sick. It can be prevented if goats are vaccinated annually.

Parasites

These pose a significant threat to the health of small ruminants. Internal parasites include round worms, tape worms and *coccidia* while external parasites are mites and keds, lice etc. Parasites can damage the gastrointestinal tract, and result in reduced reproductive performance, reduced growth rates; less productive animals. General clinical signs that an animal is suffering from a parasitic infestation include diarrhea, weight loss or reduced weight gain, un-thriftiness, loss of appetite, and reduced reproductive performance.

Prevention: Regular Deworming is recommended twice a year

Attachment: SLP2
Vaccination Chart for Goats

	Name of Disease	Primary vaccination	Regular Vaccination
1	Hemorrhagic Septicemia (H.S.)	At the age of 6 month for kid	Once Annually Before monsoon
2	Enterotoxaemia	At the age of 4 month for kid (If doe is vaccinated) At the age of 1st week for kid (if doe is not vaccinated)	Before monsoon (Preferably in May). Booster vaccination after 15 days of first vaccination.
3	Black Quarter (B.Q)	At the age of 6 month for kid	Once annually (Before monsoon)
4	Peste des Petit Ruminant (P.P.R)	At the age of 3 month for kid & above	Once in three years
5	Foot & mouth disease (F.M.D.)	At the age of 4 month for kid & above	Twice in a year (September & March)
6	Goat Pox	At the age of 3 month & above for Kid	Once Annually (December month)

Attachment: SLP 3

Low Cost Goat Shed

Courtesy- Mesha Project, AKF

Goats like plenty of fresh air and clean and dry places. It is enough to provide a dry comfortable, safe and secure place, free from worms and affording protection from excessive heat and harsh weather. Adequate space, proper ventilation, good drainage and plenty of light should be provided for while constructing a goat shed.

The following points are important while constructing goat sheds:

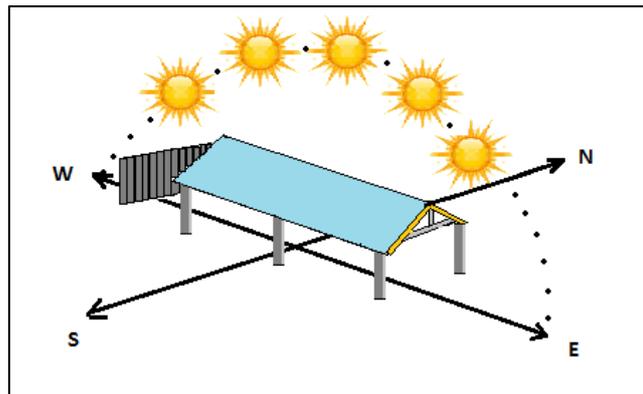
1. Proper ventilation which allows a good amount of light and air in the shed
2. The size of the shed is to be decided based on the flock size or number of goats
3. On an average 10-14 square feet for adult goats and 3-8 square feet for kid goats is required
4. A separate space should be assigned for bucks, does and kids.
5. Pregnant goats should be separately housed, away from other goats
6. Availability of a goat feeder and water tub within the goat shed is useful
7. A floor made of bamboo or wood is preferable
8. A 1.5-inch thin layer of straw over the floor could be provided in the winter season
9. The layer of straw should be changed once/ twice a week

Technical details in the construction of a Goat Shed:

Direction of the goat shed:

The length of the shed is to be considered from east to west. This will fulfil two purposes:

1. It will protect from direct sunlight during summers (in the mid-day).
2. During winter season this allows sun light to come inside the goat shed in the morning and evening hours.



Area and height of goat shed: The size of the goat shed is dependent on the number of goats. 12 sq. ft. (4ft x 3ft) spacing is good for each adult goat while the height of the goat shed should be maintained between 7 to 8 feet from the ground.

Side walls:

The goat shed should be covered from all sides with a short opening on the two opposite walls. The wall along the width of the shed should be covered from top to bottom. The opposite walls along the length are raised to a height of 0.75 to 1 meter. The space left can be covered with bamboo, forming a knitted mesh like structure. This allows sufficient air and light to pass through the shed.

Roof:

The roof is made from a local material *ikrior khar* (a type of local grass which is used in the construction of huts) and facilitates a balance in day and night temperatures.

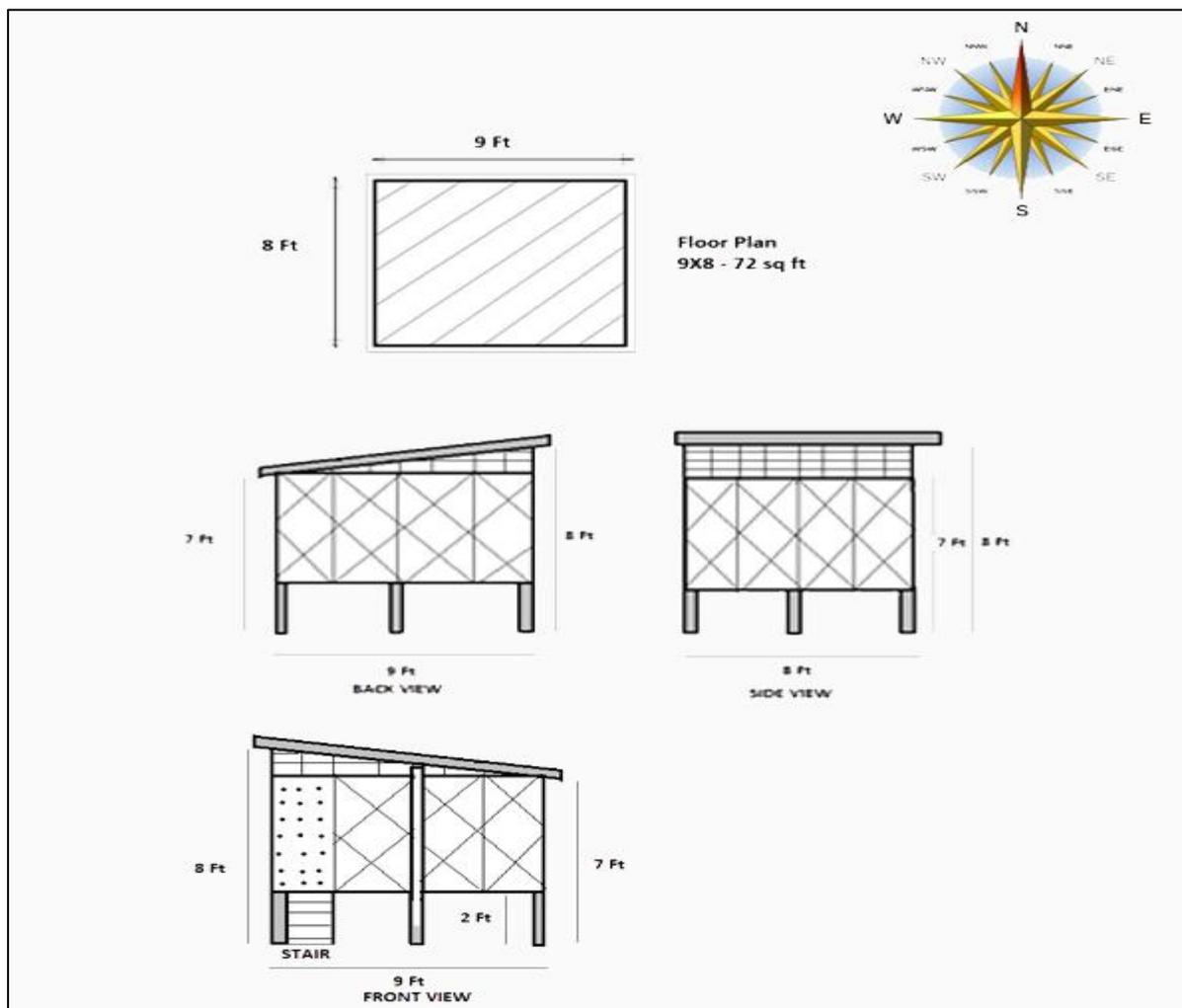
Flooring:

The floor of the shed should be raised, a minimum of 2-2.5 feet above the ground. The space should be sufficient to ease the cleaning of goat faecal material and other wastes. The soil below the raised bed should be replaced with fresh earth before the monsoons and lime powder should be applied every month to prevent the growth of bacteria and other parasites which can infect the goats.

Free Run Area (Open Space):

If possible, the surrounding space immediately next to the goat shed should be considered as an open space or free run area. This area should be fenced, and act as a boundary for the goat shed.

Goat shed Layout model for 6 Goats (12 sq ft/goat)



References-

- 1) BAIF FOUNDATION 2013, Sustainable goat husbandry Manual
- 2) Livestock Research for Rural Development 19 (9) 2007, Goat production scenario in Bihar, India
- 3) Engineers India Research Institute 2008, Hand Book of goat farming
- 4) CIRG Mathura concept note

Attachment: SLP 4

Breed Improvement through Selection

The Goat resources of Bihar are mainly of meat type. Hence, it is imperative to measure production trait with respect to meat production in order to improve such animals by selective breeding / cross breeding

Meat production traits

- 72 Body weight at a particular age – 3/6/9/12 months
- 73 Body growth per day – 3 to 6 months or 3 to 9 months of age
- 74 Body size at particular age – 6/12 months
- 75 No. of kid born and survived per adult female/year
- 76 Carcass weight compared to body weight before slaughter

Phenotype & Genotype- Phenotype (growth & meat production) is the interaction of Genotype with the environment.

$$P = G + E$$

P – Phenotype

G – Genotype

E – Environment

In Bihar, Goat are reared under extensive system and growth rates of such animals are slow. Genetic improvement is required since increase in productivity through improved nutrition alone is unlikely to be economical. Therefore, it is desirable to select such animals which can grow at a faster rate on existing resources and cull poor growing animals to optimize the use of available biomass resources. Bucks with poor growth rate should not be allowed to continue in the flock as their progenies are expected to be poor performers. All the male animals with poor growth rate at 6 months of age should be castrated.

Genetic improvement through selection

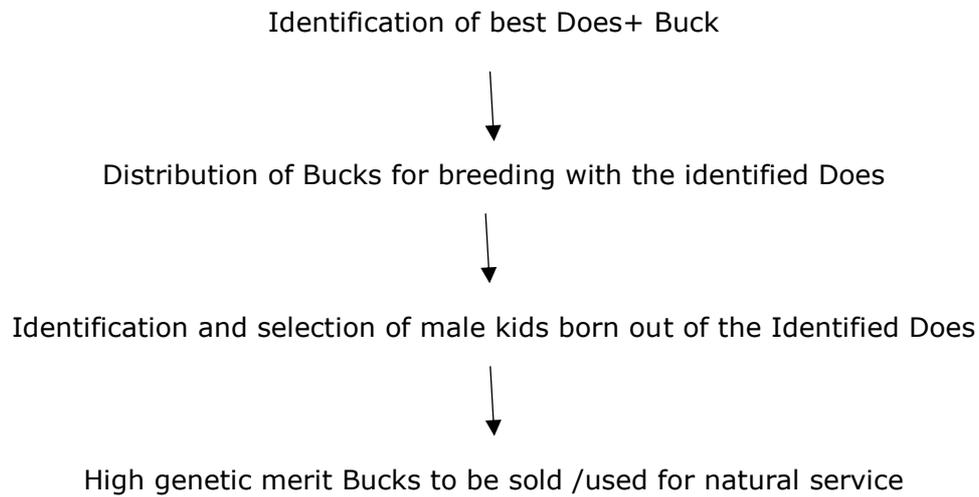
The main purpose of breeding is to produce individual with superior merit in terms of production, reproduction and overall economics through recombining the genes into more desirable groups. Selection and systems of breeding are the tools available for a breeder or a farmer for improvement of animals, since new genes cannot be created; they can recombine into more desirable groupings.

A system of breeding to improve Black Bengal breed could involve **Pure breeding** namely mating of males and females of the same breed. A purebred flock can be managed as a single flock because all does and bucks are of the same pure breed. The goal of purebred goat production should be to supply superior seed stock to the commercial goat industry, farms and as breeding buck at village level. Seed stock is marketed as bucks and replacement does to other seed stock producers or to commercial goat operations. For genetically improving in descript goats in Bihar, selective breeding through natural service is recommended presently.

Selective breeding - Bucks with good vigour and phenotype are identified for breeding with the healthy Does. The number of such bucks shall be at a ratio of 1 buck per 30 identified does. Male kids born out of the identified does and having satisfactory growth rate and preferably born out of twinning kids will be identified; records will be maintained by farmer/facilitator until 9 months of age at the farmer's house itself (Body weight at

birth and thereafter 3 months interval till 9 months of age, prolificacy, conception rate etc). Recorded data shall be evaluated and better male individuals should be selected and purchased from farmers and further used for breeding. Training at the farmer level is required if selection has to be done by them. All the identified as well as selected animals will be insured and ear tagged.

The flow chart for the above activities is as follows:



Attachment: SLP 5

Special points for feeding of goats

- Extensive system of feeding should be gradually replaced by sub intensive or semi-intensive system.
- Goats should not be let loose for grazing until the dew has dried up i.e. two hours after sunrise. Grazing on wet grass with dew cause intestinal inflammation, *tympanitis* and parasitic infestations.
- Village common grazing lands should be protected from biotic factors and improved through re-seeding with nutritious perennial and high yielding grass and legumes.
- Fodder trees like pipal, neem, mango, banyan, mulberry, subabul, ashok, acacia etc. should be planted in large numbers in grazing lands, on bank of rivers, ponds and canals, as fencing of agricultural fields.
- Natural herbs growing under plantation trees should be collected and conserved in the form of hay for feeding goats during scarcity period.
- All available bushes, harmless weeds, crop residues and agro-industries by-products should be fed to goats.
- All cereal grains in concentrated mixture must be crushed and oil cakes finely ground before feeding.
- Goats should be offered roughages ad lib. As a thumb rule 2/3 of the energy requirements should be met through roughages.
- Half of roughages should be leguminous green fodders and rest half should be grasses/ tender tree leaves. Among the roughages the goats have a preference to grasses like Doob, Anjan, Senji, Motha, Vegetables like carrot, radish, turnip tops, leaves of cabbage, cauliflower, mustard, spinach, turnip etc and cultivated fodders like Lucerne, berseem, cow pea, mustard, oat, jowar, maize, guar and hays and straw like oat hay, arhar bhusa, Paddy straw.
- In the absence of good quality green fodders, concentrates must be considered to replace them.

Water Requirement

Clean water should be supplied to goats *ad-libitum*. They should be given water at least twice daily. They need at least 5 litres water in winter and 10 litres in summer. Goats in confinement generally drink 3 to 5 litres daily.

Chapter IV: Terms of Reference - Small Livestock Promotion Component

Livestock Specialists (Small Ruminants) – LIT, DioAH – 2 Positions

Qualification:

- Post graduate degree in veterinary Sciences preferably Livestock Production & Management and Extension.

Experience:

- 10-15 years of experience in implementing disease control and livelihood related activities.
- Experience in Goat/backyard poultry production and agro-economics relevant to the central India Region and the country as a whole.
- Experience in developing and managing grassroots level animal health workers and implementing extension modalities related to better management and feed and fodder practices for small ruminants.
- Knowledge of implementing small livestock projects funded by multilateral financing institutions is desirable but not mandatory.
- Conversant with One Health approach to complement existing mechanisms to tackle the common challenges in public and animal health such as Zoonotic animal diseases and antimicrobial resistance (AMR).

Job Description:

- Assist the Project Coordinator-DioAH (PC-DioAH) to finalize the training curriculum, identifying training institutions and organizing training of Veterinary Officers and Training, Institutions and Gender Officers.
- Guiding the district team in selection of Small Livestock Lead Entrepreneurs (SLE) and DISHA workers (DWs) and developing a plan for providing project support including training of SLEs and DWs.
- Assist PC-DioAH to engage a consultant/ technical team/service provider to: (i) develop extension materials; (ii) training of trainers for conducting DISHA worker training.
- Assist the PC-DioAH in holding six monthly and annual performance appraisals of veterinary staff at district and block levels.
- Engage with the government research organizations/ veterinary universities to develop, plan research /studies as when required to provide evidence for policy advisory.
- Oversee and approve the content developed by communication and digital extension service providers related to Small Livestock and Backyard Poultry aspects before it is disseminated.
- Streamline breeding approaches including selection and maintenance of breeding bucks, management of pregnant goats and reducing kid mortality for implementation in project
- Assist in developing AWPB of LIT in consultation with the district teams.

- Assist in developing M&E systems including MIS and coordinate with the district and block team for data collections.
- Assist the Project Coordinator, LIT, DioAH for coordination with the Rural Development Department to make a convergence plan on an annual basis to ensure convergence of MGNREGS and other government programmes with that of BAaLI.
- Assist Project Coordinator, LIT, DioAH in coordinating with National Rural Livelihoods Mission (Jeevika), Bihar and other NGOs to ensure synergy between the activities of these mission/organizations with that of BAaLI.
- Any other task assigned by the Project Coordinator-LIT.

Training, Institutions and Gender (TIG) Manager –LIT, DioAH - 1 Position

Qualification:

- Post Graduate degree in Social Work with certification on gender.

Experience:

- 5-7 years of experience in implementing community mobilization and gender related work and Producer Group (PG) and Farmer Producer Organization (FPO) mobilization and support.
- Prior experience of working in livestock sector **will be an advantage.**

Job Description:

- Facilitate interaction between the districts and block level teams of BAaLI and the community institutions mobilized by Jeevika.
- Facilitate and preparation guidelines for mobilizing PGs and FPOs and handhold district and block level teams of BAaLI in mobilizing PGs and FPOs.
- Oversee mobilization of PGs and FPOs by the block level project staff and community cadre comprising SLEs and DWs.
- Co-ordinating all capacity building training for Community Institutions (PGs and FPOs) with concerned technical experts.
- Establishing social audit guidelines and setting up a system of social audit in all project villages to assess the relevance, efficiency and effectiveness of the activities implemented under the project.
- Undertaking field visit and preparing a Fact Sheet on project implementation performance specifically related to PGs and FPOs mobilization empowerment and entitlements of the community and submit the same to the Project Coordinator.
- Prepare detailed guidelines for supporting PGs and FPOs and handhold district and block teams in implementation.
- Undertaking specific studies/surveys/case studies related to community institutions, gender and youth.
- Designing a gender strategy for BAaLI and support the project team in engaging youth within the designed project activities.
- Ensuring gender mainstreaming in all relevant project activities in close collaboration with professional staff and leading the gender transformation initiatives.
- Any other task assigned by the Project Coordinator -LIT.

Technical team for developing extension materials and community strategy

A team of two consultants comprising a Communication Expert and a Livestock Domain Expert will be engaged for reviewing the existing communication and extension materials to streamline communication efforts of DioAH by converting existing materials into user friendly communication / training aids.

1) Consultant – Communication Expert- LIT, DioAH

Qualification: Post Graduate degree in (Extension, Rural Development, Agribusiness Management, Communications, Mass media and related fields)

Experience: 10-15 years of experience in developing extension and communication related activities in livestock/agricultural development projects.

Job Description

- Review the existing training and extension materials and developing user friendly teaching aids and materials in consultation with the Livestock Domain Expert for use by the staff engaged in project implementation.
- Development of extension messages, frequency of extension message delivery and a calendar for extension activities by the project staff in partnership with the Livestock Domain Expert.
- Prepare the detailed plan for dissemination of extension materials through the grassroots level workers in consultation with the TIG Manager and TIG officers.
- Assist PSU in selection and finalization of the agency for digital extension/mobile advisory.
- Monitor the monthly progress of the extension activities at the state and discuss the same with the senior officials in the LIT.
- Ensure documentation of best practices emerging from project implementation in consultation with Knowledge Management Managers.
- Assess the impact of the extension communication on production and productivity in consultation with M&E Managers.
- Any other task assigned by the Project Coordinator-LIT.

2) Consultant – Small Livestock Domain Expert, LIT, DioAH

Qualification:

- Post graduate degree in veterinary Sciences preferably Livestock Production & Management and Extension.

Experience

- 10-15 years of experience in implementing disease control and livelihood related activities.
- Experience in Goat/backyard poultry production and agro-economics relevant to the central India Region and the country as a whole.
- Experience in developing and managing grassroots level animal health workers and implementing extension modalities related to better management and feed and fodder practices for small ruminants.
- Knowledge of implementing small livestock projects funded by multilateral financing institutions is desirable but not mandatory.

Job Description

- Review the existing training and extension materials and developing user friendly teaching aids and materials in consultation with the Communication Expert for use by the staff engaged in project implementation.
- Development of extension messages, frequency of extension message delivery and a calendar for extension activities by the project staff in partnership with the Communication Expert.
- Prepare the detailed plan for dissemination of extension materials through the grassroots level workers in consultation with the TIG Manager and TIG officers.
- Assist PSU in selection and finalization of the agency for digital extension/mobile advisory.
- Monitor the monthly progress of the extension activities and discuss the same with the senior officials in the LIT.
- Ensure documentation of best practices emerging from project implementation in consultation with Knowledge Management Managers.
- Assess the impact of the extension communication on production and productivity in consultation with M&E Managers.
- Any other task assigned by the Project Coordinator-LIT.

Marketing Manager – PSU – 1 position

Qualification: Post Graduate degree in (Agriculture Marketing, Extension, Rural Development, Agribusiness Management and related fields)

Experience: 5-7 years of experience in implementing livestock and agricultural development projects with relevant experience in extension activities.

Job Description

- Take lead in the marketing and processing related activities for goats/Backyard poultry/Fisheries.
- Take lead in organizing Value chain platform and value addition activities of both small livestock and fisheries sectors.
- Prepare a plan for implementing marketing related activities of the project in both Small Livestock and Fisheries Sectors.
- Take lead in activities related to hygienic meat production and Live fish transport related activities.
- Develop detailed plan for marketing activities at the state, district and block level.
- Coordinate with the service providers for the marketing extension training module for DWs, SLEs, and FLEs along with TIG Managers
- Provide technical backstopping to TIG officers in conducting marketing extension activities of the farmers with DWs, SLEs and FLEs.
- Assess the existing goat/poultry markets in the project areas
- Develop linkages with the market stakeholders operating in the study areas with support of district officers – butchers, traders, along with other potential buyers (processors/supermarkets, etc. as they emerge over a period of time)

- Collaborate with TIG Manager/Officer and SLEs, FLEs and Community Facilitators in developing marketing linkages at the district/block level.
- Monitor the monthly progress of the marketing activities and discuss the same with the senior officials in the LIT and FIT.
- Ensure documentation of best practices of emerging from project implementation in consultation with the Manager-Knowledge Management.
- Ensure collection of impact of the improved marketing practices/processing.
- Any other task assigned by the Project Director -SPU.

TIG Officer-Training, Institution and Gender Officer, DLIT - 12 positions

Qualification:

- Post Graduate degree in Social Work, Gender Studies or a related subject.

Experience:

- 3-5 years of experience in implementing community mobilization, training and gender related work.

Job Description:

- Work closely with Block level Veterinary officer in selection and training of animal health service providers –DWs
- Co-ordinating capacity building trainings for DWs, SLEs and PG office bearers with concerned technical experts.
- Preparing guidelines for mobilization of PGs and FPOs and the modalities to support these community institutions.
- Oversee Community Facilitators in mobilizing communities, forming PGs and FPOs
- Establishing guidelines and performance standards for releasing project support to PGs and FPOs
- Undertaking review visits to the project villages, identifying issues related to training and also issues constraining implementation and making recommendations for improving implementation performance of PG and FPO development activities
- Ensuring mainstreaming of gender and knowledge management in the activities of district staff, block staff and DWs.
- Participating actively in providing trainings as and when required.
- Coordinate field reporting through community facilitators
- Any other task assigned by the Technical Support Specialists and Training, Institutions and Gender Manager, LIT.
- Coordinating marketing related activities in the district through coordination with state, district and block level teams under the overall guidance of the Marketing Manager – PSU.
- Coordinating extension related activities in the district through coordination with state, district and block teams.
- Any other task assigned by the District Project Manager.

Senior Veterinary Officer – 24 positions – 2 per DLIT in 12 districts

Qualification:

- Graduate degree in Veterinary Sciences and preferably with postgraduate degree/diploma in Rural Development

Experience:

- 3-5 years of experience in implementing disease control and livelihood related activities.
- Experience in Goat/poultry production and agro-economics relevant to the eastern and central India regions.
- Knowledge of management of projects is desirable but not mandatory

Job Description:

- Coordinating implementation of project activities and overseeing implementation under the supervision of District Project Manager and the LIT.
- Coordinating with the LIT, DioAH with regard to implementation of animal health related project activities including indenting for vaccines for timely supply to VOs and DWs
- Annual work plan preparation in collaboration with the M&E covering project activities of Block Veterinary officers (BVOs) in the District and submitting the same to LITs.
- Supervising field level activities of BVOs and providing support required from the DLITs.
- Ensuring that the VOs comply with the targeting requirements of the project with respect to poverty and gender while selecting beneficiaries for participation in project activities.
- Ensuring convergence between project activities and activities of other line departments;
- Reviewing field level activities in collaboration with TIG officer and submitting reports to the LIT-DioAH on a regular basis.
- Any other task assigned by the District Project Manager.

Block Veterinary Officer – 64 positions in 64 project blocks

Educational Qualification:

- Bachelor Degree in Veterinary Sciences & Animal Husbandry (BVSc & AH) or equivalent.
- Postgraduate degree in any field of Veterinary Science desirable but not mandatory.

Experience:

- About 2 years of experience of working in the government or private sector in the field of animal production and animal health. Fresh graduates may also be considered in case of non-availability of experienced candidates.
- Experience in conducting trainings and extension work will be preferred.

Job Description:

- Overall responsibility for field level implementation of project activities in partnership with DWs and SLEs.
- Responsible for preparing annual work plans and budget for implementing project activities in the block and supervising implementation of agreed plans.
- Responsible for identification and selection of DWs and SLEs.
- Train DWs in First aid, preventive health care, GHP and Biosecurity measures & disease reporting and provide constant mentoring support.
- Work with DWs and implement preventive health care plan to ensure effective prevention and control of goat /poultry diseases.
- Handhold the DWs and SLEs on a continuous basis and provide required support for them to emerge as sustainable service providers.
- Ensure supply of quality vaccines under proper cold chain conditions
- Convergence with government schemes to optimize resources
- Work closely with Marketing Manager, TIG Officer, SLEs and CFs to implement marketing related activities.
- Develop training materials for farmers' training by DWS and SLEs on: (i) goat management and health care; (ii) fodder production; (iii) balanced feeding including mineral mixture in diet and (iv) marketing of goat and/or BYP.
- Ensure SLE and DWs use standardized training modules for farmer meetings that include:
 - Animal health – disease control, preventative vaccination program, bio-security
 - Business processes (Goats and poultry farm business processes).
 - Housing (prevailing animal housing system, suggestions for improvement of housing structures);
 - Breeding (breeding bucks selection, record keeping, improving hatchability rate);
 - Feed & Fodder (fodder production and cultivation practices, concentrates, mineral blocks);
- Field visits to the project locations to analyse existing animal husbandry practices and help the DWs to solve the challenges faced by farmers in project districts
- Ensure gender mainstreaming in all relevant project activities in close collaboration with other staff.
- Any other task assigned by the District Project Manager.

Community Facilitator

Qualification:

Community Facilitator would be a person with a diploma or degree in Livestock and Fisheries or a degree in Social work.

Experience:

About 2-3 years of experience in implementing community mobilization and gender related work. Prior experience of working in and/or familiarity with development issues in Bihar will be an advantage.

Job Description:

- Planning and mobilizing community to form PGs and FPOs and handhold DWs.
- Organizing elections for selection of office bearers of the PGs and FPOs.
- Providing assistance to maintain books of accounts of PGs and FPOs.
- Training PG and FPO members in book keeping, bank account reconciliation and auditing of accounts.
- Training PG and FPO office bearers in leadership development, leadership rotation and PG best practices
- Working with SLE for market development and input supplies for PGs.
- Undertaking opening of accounts of all PGs
- Ensuring smooth transfer of project funds in PG accounts.
- Any other task assigned by the District Project Manager and Block Veterinary Officer.

ToRs for Refresher Training of Veterinarians in Goat and BYP rearing

Objective:

Providing a Refresher training for Block Veterinary Officers of DioAH on Goat /Backyard Poultry farming for enhancement of production and productivity.

Scope of Work:

To provide effective six day training to Block Veterinary officers and the key Topics to be covered in the training will include the following:

- Context and prospects of Goat farming in Bihar
- Goat breeds of India: an overview and selection of goat breed according to agro-climatic condition
- Selection of breeding bucks and their management
- Nutritional requirement of goats under different rearing systems in different agro climatic zones of Bihar
- Nutritional management in goat for optimum productivity and production, feed pelleting procedures.
- Resources available including agroforestry for feed and fodder in Bihar and strategies for fodder expansion and feed diversification.
- Day to day Health monitoring at a goat farm: A key to early diagnosis.
- Emerging and re-emerging diseases of goats and Clinical diagnosis of goat diseases: a modern approach.
- Preventive Health Management in Goats.
- Reproductive management and measures to improve reproductive efficiency in goats.

- Housing management with focus on low cost shelter management approaches for goats in Bihar.
- Goat product processing and value addition.
- Field visit to commercial goat farm, Goat market, Processing unit and Self-Help group.
- Role of women in rural goat entrepreneurship.
- Role of Cooperative societies and Self Help Group in goat farming.
- Supply chain management and Marketing of goat products.
- Data recording and common management practices at organized and unorganized goat farm.
- Backyard Poultry Farming: Concept, Breeds, Management, Economics and Marketing.
- Backyard Poultry Farming: Economics and Marketing.

Selection Criteria

- Leading institutes with proven track record in conducting trainings in extension, research and Veterinary sciences will be engaged to conduct the trainings.
- Resource persons with minimum experience of 15 years in relevant subjects (small ruminant production, Veterinary extension, Poultry production, Genetics and Breeding) will form the training team

Some of the leading institutes in the country

- National Institute of Agricultural Extension Management (MANAGE)-Hyderabad,
- Veterinary Officers Training Institute (VOTI) Bhubaneswar
- Central Institute for Research on Goats (CIRG) Maqdoom Mathura
- Maharashtra Sheep and Goat Development Corporation, College of Agriculture, Pune, Maharashtra

TORs for a Resource Agency to conduct ToT for Veterinarians

Objective of the assignment:

The key objective of this assignment is to undertake a series of activities to provide technical and knowledge support for 'Training of the trainers' to 64 veterinarians and other staff to build their capacities in training DWs in the target communities in 12 project districts. These DWs are expected to address the issue of preventive health care and husbandry to improve the animal rearing on scientific lines.

The project will engage an agency or a team of experts to:

- Develop four modules of training, training materials and reference manuals for training DWs covering Goat and Poultry by standardizing the existing materials available.
- Provide 2 day training to Block Veterinary Officers and Community Facilitators on Community interaction and DISHA worker selection.
- Conduct ToT programmes to Block Veterinary Officers to provide facilitation skills to train DWs.

- Undertake four training programmes to DWs so as to showcase to Block Veterinary Officers on how to conduct DISHA worker training which will enable the Block Veterinary Officers to carry on with training of DWs.
- Prepare guidelines for PG and FPO mobilization

Scope of Work:

The agency will

- Design a suitable training program, training curriculum, modules for DISHA Workers with minimum educational qualification as 8th standard (Approximately 4 weeks for designing the required modules).
- Based on the above it will design training module ToT facilitation training for vets.
- Conduct 4 trainings in batches of 25-30 vets for ToT facilitation training.
- Conduct training of 4 modules of DISHA Worker in each district as ToT practical.
- Provide training as per the details given in table below:

Duration for training

	Name of training	Days	Batches	Total Days
	Institution building & DWs selection training for Vets	2	5	10
	Vet ToT facilitation Training	3	3	9
	DISHA Worker Module 1	5	5	25
	DISHA Worker Module 2	5	5	25
	DISHA Worker Module 3	5	5	25
	DISHA Worker Module 4	5	5	25
	Total			119

(Indicative module are mentioned here)

Module 1: Entrepreneurship, communication skills, marketing, PG and FPO mobilization

Module 2: Basics of Goat Keeping and BYP, good practices related to feeding, breeding and housing

Module 3: Understanding common diseases of goats and BYP and their prevention

Module 4: First aid, castration and etho-veterinary medicines, Economics of goats and BYP

Eligibility Criteria of the agency

- As a part of legal requirements, the agency should be a registered body under the relevant law and is active and operational continuously for the last 3 years on the date of application.
- Average annual turnover of the Agency/Institution should be more than INR. 75 lakhs per annum in the last three years. This stipulation is not applicable to International NGOs and Foundations working in India.

- The agency should not have been blacklisted by any government (Union and/or State), Ministry/Department/Organization/NABARD/CAPART/Multinational donor agency/etc. or any other donor/partner organization in the past.
- The Agency should be in conformity with mission, vision and the values of Project and ready to work for the key goals.
- The Agency should have at least 3 years of relevant experience of working in the field of Livelihood with special focus on improved small livestock practices, training and capacity building of community and community professionals.
- The agency should have conducted at least 2 such initiative – livestock based training programs and handholding support for community and community professionals (Pashu Sakhis, Local Resource persons and Vaccinators), with any state government or in any multilateral donor supported project.
- The Agency's professional team should have at least 12 qualified professionals ie 6 Veterinary doctors with relevant experience in training, 6 Technical experts (Subject matter specialist for Intuition building/Social work/Entrepreneurship)
- Should have understanding of socio economic, political, and cultural livelihood realities of Bihar.

ToRs for Research on Breeding Approaches

In spite of having third largest goat population in the country, the present level of productivity per animal is low in Bihar. **Objective:**

Undertake goat breed related research to inform breeding strategy to be adopted according to agro climatic conditions leading to deliberations on development of Goat breeding policy for the state of Bihar.

Scope of Work:

The project will support a study:

- to identify and evaluate breeds that are compatible for crossbreeding with Black Bengal goat to improve production.
- to compare the performance of cross bred goats with pure Black Bengal.
- evaluate Dairy goat breed performance in Bihar's context

Selection criteria

- Leading research institutions/Veterinary Universities with track record of having conducted research/studies in Animal sciences in Bihar will be eligible
- The institution should have infra-structure (Goat sheds, open space for animals, and well equipped laboratory
- Research team should include Animal breeding and Genetics expert with PhD degree

Leading agencies that can be engaged

- IVRI Bareilly, Veterinary University, Patna, or CIRG, Maqdoom)

TORs for Digital Extension Service Delivery

Objective:

The objective of the assignment is to provide the both small livestock and fish and farmers digital extension messages and advisory on goat health and husbandry practices, backyard poultry and fish culture.

Scope of Work

- Conduct needs assessment to determine the information and knowledge requirements of the goat/BYP/fish farmers so as to produce relevant extension messages. (If already available the needs assessment study for the communications strategy may be used). The needs assessment will be disaggregated by gender and will cover access to resources; control over decisions related to animal husbandry and fisheries rearing, as well as over income from these activities; roles and workload distribution. In addition, the needs assessment will cover nutrition aspects related to consumption of goat and poultry meat/eggs/fish, and current knowledge of their nutritive value.
- Review existing digital extension material available with DioAH and DioF and re-package them where possible.
- Develop content, frequency and mode of transmission of messages (SMS, voice messages). The content will mainstream gender and nutrition aspects. The development of the content will address that both women and men will be recipient of the information and advisory services.
- Establish required technology backbone and build capacities of DioAH and DioF to maintain and run it.
- Prepare a database by putting in place a system of registration of small livestock/BYP/Fish farmers for dissemination of messages.
- Develop a monthly content calendar and content basket.

Selection criteria

- The agency must be a digital marketing agency (farmer advisory) or communication agency that has at least 5 years' experience in digital marketing/extension.
- The agency must be capable of advising DioAH and DioF on how to focus the communication to appeal the specific target audiences, how to make information or messages attractive and effective and how to optimize budget and digital reach
- The agency should have successfully conducted at least 2 initiatives on rural marketing/extension.
- Experience of providing extension in agribusiness sector would be an advantage.

ToRs for Goat Mutual (Insurance) Technical Resources Agency

Objective:

Goat Mutual Insurance (GMI) or Community Insurance is a mechanism of mitigating individual loss through collective contribution to a corpus, with an assumption that any of member can have loss that cannot be predetermined. Goat Mutual is a system of risk mitigation for the small livestock rearing households through community initiated security instrument.

Objective of this assignment is provide support to the project to operationalize the Goat Mutual (Insurance) system in the one of the select project district and all the project blocks in the selected district.

Scope of Work:

The assignment will be for a period of 36 months, which is subject to extension.

The agency is expected to undertake a number of activities to operationalize GMI. The scope of work will include but not limited to the following -

- Undertake risk assessment, risk frequency and pre disposing factors for mortality in goats.
- Develop guidelines and train DWs, LSEs, PG and FPO leaders and implement goat mutual insurance modality.
- Provide training to DWs and CFs on such risk management, concept and process to enable them to communicate with the farmers and explain the concept.
- Undertake Data monitoring of various risks to be covered specially mortality for first 9 months
- Initiate Community involvement in development of instrument, criteria and norms to be followed.
- Facilitate Leaders from various Producer group to build a collective fund - Community risk management fund

Selection Criteria

- The agency should have understanding of socio economic, political, and cultural livelihood realities of Bihar.
- As a part of legal requirements, the agency should be a registered body under the relevant law and is active and operational continuously for the last 3 years on the date of application.
- Average annual turnover of the TRA/Institution should be more than Rs. 50 Lakhs per annum during the last three years.
- The agency should not be blacklisted by any government (Union and/or State), Ministry/Department/Organization/NABARD/CAPART/Multinational donor agency or any other donor/partner organization in the past.
- The agency should have experience of working in the field of goat/sheep based Livelihood with special focus on capacity building of community and community professionals and integration of integration of small livestock business services like risk reduction/ management and marketing will be preferred
- The agency should have successfully conducted at least 2 initiatives on managing community based goat mutual/insurance with focus on risk reduction strategy

TORs for Training of Butchers in Clean Meat Production

Objective:

Objective of the assignment is to improve the situation of meat production through training of butchers engaged in goat meat sale on hygienic meat production practices.

Scope of Work:

Key training activities will focus on but not limited to following aspects of clean meat production.

- Maintaining overall Hygiene
 - Personal hygiene
 - Hygiene while processing meat
 - Hygiene of the meat stall
 - Equipment hygiene
 - Hygiene related to carcass handling

- Cleaning and sanitation
 - Cleaning procedures
 - Cleaning agents
 - Disinfection techniques
 - Commercially available disinfectants
 - Disinfestations plan

- Basics of Inspection of Animals for Diseases

- Practical slaughter techniques to enhance hygiene, carcass handling and bio-security practices and value added cuts.

Selection criteria

Leading institutes engaged in conducting training on clean meat production will be engaged to conduct the trainings including ICAR and other Leading National Institutes with significant experience in conducting these trainings

Leading institutes include National Research Center on Meat, Hyderabad; Guru Angad Dev Veterinary and Animal Science University, Punjab; FSSAI Delhi.

TORs for a Consultant to prepare Municipal regulations for Slaughter

Objective of the Assessment:

Objective of the assignment is assessing the existing norms for slaughter in the state, understand the issues in implementation and provide recommendations to enforce the compliance of regulatory norms.

Scope of Work:

Major area of work will include but not be limited to the following:

- Interact with the local municipalities to understand the existing norms for slaughter of goats.
- Understand the extent of compliance and the challenges in enforcing compliance.
- Implications of illegal slaughter – public health hazard and pollution.
- Document relevant best practices in other states, countries
- Suggest recommendations to bring changes in the existing situation in Bihar through improving implementation of public policy, ensuring quality of meat, suggest solutions for improving waste management

Selection Criteria

- Veterinarian (MVSC) with experience in developing livestock related municipal norms meat inspection norms.

TORs for Support to Startups for Value Addition In the Goat Sector

Objective of the assignment

- The objective of the assignment is to provide the momentum and technical required support and for implementing the investment plans. A similar intervention is proposed under the fisheries component. Both these activities can be entrusted to the same service provider.

Specific Scope or work

- Identify start-ups and investors interested in making investments in processing, marketing and value addition in small livestock and fisheries sectors. The products include goat milk cheese, goat milk cosmetics (soap etc.), mutton kebabs, curry cuts, high end retail meat outlets. This will also include investors interested in building abattoirs/slaughter houses, and live fish transport.
- Explore the existing opportunities for investments for value addition in the goat by products sector (collection and processing of bone meal, blood meal, skin, etc.)
- Organize meetings between the investors and officials of DoAFR to identify government support available for these start-ups and investors.
- Seek proposals from these start-ups and investors and screen proposals for government support.
- Hand holding of the start-ups by supporting preparing technical feasibility reports

Selection Criteria

- Consulting Agencies engaged in providing technical support to agriculture and livestock sector development projects and similar projects of agribusiness opportunities in agriculture and livestock sector.
- Understanding of the livestock sector value chains to identify potential investments in value addition/marketing opportunities.

TORs for an agency to implement Learning Route for Goat Sector Development

Objective of the assignment

The main objective of the Learning Route is to provide the opportunity to the staff of the DioAH to learn about the innovations in the goat sector to work on similar models in the state of Bihar.

The idea is to cover locations capturing activities across the goat value chain development: research institutions, breed development, commercial farms, FPO models focusing on production and marketing with engagement of pashu sakhis (CAHW), aggregation centers by FPOs, marketing initiatives, processing unit (meat, cheese, goat milk soap), sale of meat and meat products at the supermarkets along with training institutes for entrepreneurs interested in establishing processing units.

Scope of Work

- Identify the learning route locations to learn about the activities of the leading agencies and institutions and best practices for goat sector development.

- Share the detailed list of locations with the project teams to shortlist the locations to visit based on the time, geographic coverage and key learning points.
- Prepare the background notes for each learning location, highlighting the learning points.
- Organizing technical sessions during the learning route
 - Initial introductory meeting with the Learning Route Participants on the expectations from the visit to each location.
 - Undertake daily discussions with the participants regarding the applicability to the local context.
 - At the end of the learning route conduct a discussion session to prepare a brief proposal for implementing the learning in the local situation.
- Prepare a learning route document for future reference by the project team.
- Undertake the entire travel coordination.

Criteria for selection of the agency

- Consulting Agencies, engaged in providing technical support to agriculture and livestock sector development projects with similar experience of conducting technical study tour.
- Technical expert requirement:
 - Expert engaged in livestock sector development projects, (specific focus on small ruminant sector development will be an advantage).
 - Expert in conducting training programs at the senior level.
- Expert in conducting training for senior technical officers to support the technical learning sessions.
- The organization with experience in organizing thematic events and tours to support the detailed organization of the tour will be an advantage.

TORs for Consultant for Designing Modern Meat Shops

Objective:

Towards improving the hygiene of meat production, the objective of the current assignment is provide technical input upgrade the existing meat shops to upgrade to modern meat shops

Scope of Work:

Provide technical input to improve the existing meat stalls

- Prepare guidelines and designs for a model meat stall.
- Review meat shops identified DioAH having basic amenities for up gradation (electricity, water, location).
- Assess the areas for improvement in the meat shop and prepare detailed design.
- Submit a detailed design for upgrading the meat shop
- Provide handholding support as required for upgrading the meat shop.

Selection criteria

Individual constants/Leading consulting firms/ICAR and National Institutes engaged in similar work can be engaged in providing the consulting services.

Leading institutes include National Research Centre on Meat, Hyderabad; Guru Angad Dev Veterinary and Animal Science University, Punjab; FSSAI Delhi.

Technical Expertise requirement

Food Technologist with expertise in meat slaughter procedure and public health norms and an Architect with experience in designing retail outlets.

Chapter V: Implementation arrangements and responsibilities – Inland Fisheries Promotion Component

D. Capacity Strengthening

1. Institutional Capacity building

108. **Introduction:** Bihar is one of the leading states producing freshwater fishes in India. Fisheries is an important economic activity in the state for additional employment and income generation. About 60-65 percent of people in the state consume fish. Bihar has abundant surface water resources: about 3,200 km of rivers, 100,000 hectares *Chaur*s or floodplain wetlands, 9,000 hectares of Oxbow lakes or *Mauns*, 7,200 hectares of reservoirs and 69,000 hectares of ponds and tanks. With such large area of water availability, presence of skilled fishing community and wide diversity of fish species, Bihar has potential to strengthen fishery-based livelihood system for millions of its populations. Traditionally, fishery has been one of the significant sources of livelihood and nutritional security for traditional fishing community. Aquaculture has now become a high income earning enterprise for small and marginal farmers. Pond and tank based fishery makes a major contribution to the local economy in rural Bihar.

109. Fish production in Bihar increased from 320,000 tons in 2007-08 to 510,000 tons in 2016-17. The current levels of fish productivity in Bihar can be doubled by adhering to the better management practices, bringing small and seasonal ponds/ backyard ponds under fish production systems. Significant aspects of the fisheries sector contributing to improving livelihoods of households involved in aquaculture in Bihar are: (i) strong market demand for fish with local production unable to meet local demand; and (ii) high potential in terms of the availability of water-bodies for aquaculture. Weakness in the current system is inadequate support to fish farmers with small land holding in the fisheries related programs.

110. **Staff recruitment:** The staff compliment available with the Directorate of Fisheries is very limited. To increase outreach of fisheries extension services in the blocks under the project, 64 Block Fisheries Extension Officers or Fisheries Extension Supervisors will be recruited and deputed by GoB and 12 Senior Fisheries Extension Officers and 12 Training, Institutions and Gender (TIG) Officers will also be recruited under the project for the District Fisheries Office for project implementation.

111. Steps in implementation of activities related to staff recruitment include to:

- Seek approval for engaging staff on contract basis directly by giving contract for minimum two years through BLDA. It is necessary to come out of the system of providing 11 months contract. This will be funded fully using GoB resources.
- Advertise the staff requirement after reviewing terms of reference provided in this PIM. The total requirement for this component is 64 Block Fisheries Extension Officers/Fisheries Extension Supervisors (BFEOs), 12 Senior Fisheries Extension Officers and 12 Training, Institutions and Gender (TIG) Officers. Terms of reference are provided in Chapter VI- Terms of Reference – Inland Fisheries Promotion.
- Select staff and place them to the project blocks. In the event of inability to find adequate number of BFEOs, DoAFR will transfer officers to the project blocks.

112. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Recruitment of BFEOs and posting one BFEO per project block (64)	DoAFR		

Recruitment of 12 Senior FEOs and 12 TIG Officers	DoAFR		
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113. **Training:** Emerging trends and technology related new interventions are helping farmers to enhance productivity. Packages of practices are getting standardized for fish production and productivity enhancement. Officials at DioF also need to be updated about upcoming technologies and trends in this sector so that they can support farmers with improvised system of culture practices. All the BFEOs and Junior Engineers involved in project implementation will be trained on better management practices and emerging technologies. Such capacity building process will facilitate adoption of new technique at community level under guidance of district level officials.

114. The project will engage reputed research institutions and resource persons to deliver the training programs. A five days residential training will be organized for Department officials Central Inland Fisheries Research Institute, Barrackpore (Kolkatta). CIFRI is a reputed ICAR institution for promotion of Inland fisheries. Residential training for Junior Engineer (JE) will be organized at Aquaculture Department, IIT, Kharagpur.

115. The topics to be covered during training programmes will include:

- **Capture fisheries in oxbow lake:** In-situ seed production system and maintenance of Inlet-outlet is crucial function for enhancing productivity of Oxbow lake. Proven models of ensuring seed ranching in large water-bodies will be introduced in this session.
- **Hatchery management:** Technology up-gradation in hatchery management, brood stock management, how to ensure optimal seed production using available broodstock and seed logistic management will be covered during training.
- **Species diversification:** Along with Indian major carp (IMC) and Chinese carps, minor carps, catfishes, small and other indigenous fish varieties have potential of better price discovery in Bihar and nearby states. Systematic cultural practices of diversified fish species and adopting mix culture practices along with IMC enhances livelihood as well as ecological diversity.
- **Integrated fisheries:** Now a days various models of integrated fish farming has been established like SOJOURN model (Bangladesh), Aqua-geoponics, Affordable cages for seed production and Mola-Carp –Vegetable farming in various part of eastern India. Such models have potential to ensure nutrition component at household level.
- **FPO in fisheries:** Collectivisation of farmers' community through Producer groups, Producer organisations, etc., needs to be integrated with business acumen. Departmental officers will be trained on how FPO perform, their role and function and opportunities to link with various government program.

116. The Junior Engineers will be trained in: (i) advanced design techniques for pond and tank construction for fish culture; (ii) preparation of estimate and detailed project report; and (iii) advanced design techniques for rejuvenation of large water-bodies.

117. Steps in implementation of activities related to staff training include:

- Contact CIFRI, Kolkatta and IIT, Kharagpur and seek time slot for conducting suggested training in their institutions.
- Identify the staff members from the project blocks of the project to be sent for training.
- Analyse the ability of various institutions to complete the training of all proposed persons and identify new institutions if required.
- Fix up the training schedule and send the selected staff member for training.
- Develop a training manual for participants that will be used for organizing community-based training by officials.

118. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identify training institutions	FIT-DioF		
Identify staff for training	FIT-DioF	DFITs	
Fix up training schedule and depute staff for training	FIT-DioF	DFITs	
Conduct training	Training Institute	FIT-DioF	
Develop training manual and materials for training of fish farmers	Training Institute	FIT-DioF	

119. **Exposure Visits:** Exposure to newly adopted protocols and technologies for senior officials and implementing officials will be useful to learn about innovative practices in fisheries sector for enhancing production and productivity. There are different approaches through which farmers have adopted new technologies and doing fisheries related activities in innovative ways and getting better productivity in different parts of India and outside country especially in Bangladesh, Vietnam, etc. Exposure will facilitate development of understanding about approach and technology to adopt new practices in applying similar innovative ideas in project districts.

120. The project will support one-week durations international exposure visits (to countries like Bangladesh or Vietnam) for the mid and senior management staff (18 persons) of the DoAFR/DioF and Water Resources Department to learn about potential of small-scale fisheries, hatchery standardisation process, diversification of fish species and innovative market linkages. In addition, national exposure visits (Odisha, Maharashtra, Assam) of week duration will be organised for junior level staff of DioF (112 persons) to learn about diversification of fish species for nutrition security, best performing fisheries PGs and FPOs, and affordable new technologies in fisheries sector like mini hatchery, cage culture, etc.

121. Steps in implementation of activities related to staff training include:

- Select locations and host institution for international exposure visit for senior management officials in consultation with IFAD and World Fish.
- Plan for the exposure visit in consultation with the host institutions.
- Select officials for international exposure visit and seek appropriate approvals.
- Conduct international exposure visit.
- Identify the locations and host institutions to facilitate exposure visits within India for field level officials.
- Conduct national level exposure visit and ensure submission of a visit report for dissemination of best practices.

122. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Select locations and host institution for international exposure.	FIT-DioF		
Plan for the international exposure visit for senior management	FIT-DioF		

Select officials for international exposure visit	FIT-DioF		
Conduct international exposure visit	Selected institution	FIT-DioF	
Identify the national exposure visit locations and host institutions for field level officials.	FIT-DioF		
Conduct national level exposure visit	Selected institution	FIT-DioF	

123. **Communication Strategy:** Current efforts at communication are disparate and traditional channels for outreach (e.g. wall writings, pamphlet distributions, etc.) are used. The project has proposed to develop communication materials e.g., posters, pamphlets, and folders comprising Best management practices (BMP) and economic benefits of integrating small scale fisheries in farm ponds/ backyard water-bodies. Such effort will enhance adoption rate of innovative production techniques at household level.

124. A team of experts (or an agency) will be engaged to assist DioAH in preparing comprehensive communication strategy, reviewing the existing training, outreach and other IEC/Extension materials, converting these into user friendly communication / training aids using modern technology and supporting in the roll out of the communication strategy.

125. Steps in implementation of activities related communication strategy include:

- Engage a team of Consultants – ToR in Chapter VI- Terms of Reference – Inland Fisheries Promotion.
- Undertake review of all the extension materials available and develop extension materials required.
- Develop a communication strategy and prepare a plan for extension messages dissemination.

126. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Engage a team of consultants	FIT-DioF		
Review the existing communication materials and literature available.	Consultants	FIT-DioF	
Prepare extension materials and a communication strategy with roll out plan	Consultants	FIT-DioF	
Disseminate the extension messages	DFITs	FIT-DioF	

127. **Fisheries Centre of Excellence:** The project will support development of a Centre of Excellence. This centre will function under guidance of DiOF and will have Knowledge centre and will have well functional varying technology demonstration units like hatcheries for different fish species, scientific testing lab, functional models of Biofloc, Re-circulatory aquaculture system, Processing, packaging, Dryer, logistic technologies, Cage, smoking kiln etc. Knowledge centre will have a library, digital knowledge products, audio video, video conference system to provide extension services to farmers and will also contain atraining hall, workshop and conference hall. All state specific data, region specific research, and new technologies will be made available in this centre.

128. Steps in implementation of the activities related to construction for Centre of Excellence include:

- Identify a location for establishment of Centre of Excellence taking into account land availability, logistic convenience and fisheries development of the area.
- Prepare a detailed project report with designs and cost estimates and submit the same to GoB, GoI and other donors.
- Conduct a consortium meeting with the identified funding agencies and seek firm commitment for funding construction of the Centre of Excellence.
- Take up construction of Centre of Excellence.

129. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identify a location for building a Fisheries Centre of Excellence.	FIT-DioF	DoAFR	
Prepare a detailed project report and seek firm commitment on funding.	FIT-DioF	DoAFR	
Construct Centre of Excellence	FIT-DioF	DoAFR	

2. Last mile service delivery promotion

130. **Fisheries Lead Entrepreneur (FLE) support:** Fisheries lead entrepreneur (FLE) are those who operates hatcheries, manage resources in scientific manner to produce quality seed, run fish seed nursery, provide input support services to the fish farmers or practices semi-intensive practice for better production through resources. FLE will be identified and selected to provide quality seed, soil and water testing facility, hand holding support to fisheries extension agent (FTAs) at community level and demonstrate the best technological possibilities at their farm. Their farms will be used as a demonstration unit for fish farmers at the block level. By the end of the project period, all these FLE will provide support service to farmers as *one stop aqua services* providers including supply of better quality inputs, testing of labs facility, capacity building support and facilitating market linkages. All these locations will serve as a community resource centre unit for knowledge dissemination and providing quality input support. One FLE per block will be selected in each project block. Altogether 64 FLEs will be selected during first three month of the project inception.

131. The functions of the proposed FLEs include:

- Ensure proper functioning of demonstration farm with all best practices.
- Set up basic training infrastructure in demonstration farm.
- Organise training programs for FTA and PG members as per the agreed schedule.
- Maintain quality broodstock and ensure best production utilization of demonstration farm.
- Maintain proper data of trained farmers, seed production, and production from demonstration farm.
- Practice new technology and integrated farming models in demonstration unit.
- Perform water quality test for interested farmers.
- Supply fish seed to farmers who wish to set up seed nursery.
- Mobilize and support PGs and FPOs to implement their business plan.
- Attend any meeting, workshop, training programs organized by DioF.

- Share information about Government scheme with farmers.
- Any other function as requested by the BFEOs.

132. The selection criteria for FLEs include:

- A farmer/ entrepreneur engaged in fish seed production or rearing business for at least 3 years.
- Preference will be given to those Hatchery with better management practices and good track record of seed production
- Suitable land area available in the farm for development/ creation of essential infrastructure,
- Farm should not be in flood affected area,
- Water area of the farm preferably not below 2 ha.
- Person must be willing to share knowledge, train local fish farmers in his facility.
- Person must be willing to maintain the developed demonstration farm and follow better quality guidelines issued by Department.

133. **Training of FLEs** –Training manuals for training FLE will be prepared by DioF. Along with technical aspect, each manual will have sections on FAQ to resolve queries. Training manuals in local language (Hindi) will be developed for FLEs comprising : (i) Hatchery and brood management; (ii) Soil and water testing; (iii) Nursery rearing protocol; (iv) Species diversification; (v) Feed management; (vi) Disease control; and (vii) Logistic management and seed survival technique

134. FLEs will be trained in State training centre, DioF. Batch of 20-22 FLEs will be trained from project districts. DioF will organise 5 days residential training for FLEs. DioF may engage any other competent training institute for this purpose. After proper training, selected FLEs will be eligible to receive project support.

135. **Support for farmer training facilities:** The project will provide support of INR 200,000 for establishing farmer training cum demonstration facilities in hatchery/farm of FLE which includes: (i) basic shade, Stationary, Training manuals, White board and facilities/ furniture for conducting training programs for FTA and farmers; (ii) four to five quintal of quality brood stock; (iii) bird nets; (iv) vegetable seed kit to promote integrated models over pond bund; and (v) improving landscape, and other required infrastructure development as per the recommendation of BFEO. The project will also provide a diagnostic kit and a tablet for MIS.

136. **Extension service by FLEs:** FLEs are expected to provide commercially oriented extension service to the fish farmers coupled with supply of good quality fish seed, fish feed and other extension support. The FLEs will help BFEOs to develop and implement cluster level plans and promote PGs and FPOs. They will be linked to MIS through tablets for regular reporting.

137. The implementation steps include:

- Identify candidates interested in becoming FLEs and compile list of potential FLEs.
- Identified candidates will be called for a meeting and oriented about the role and function of FLEs.
- Interested candidates will submit application and complete selection of a FLE for each block.
- Selected FLEs will be provided a 5 days residential training to set up well functioning demonstration centre.
- A detailed improvement plan for demonstration site will be developed by BFEO and according to this plan funds will be released for upgrading the existing unit as a demonstration unit.

- Facilitate the FLEs to seek funding from other government programmes for further improvement of the farm.

138. The implementation responsibility chart is provided below

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
FLE selection	BFEOs/TIG Officer	DFIT	
Training for FLEs	DFIT	FIT-DioF	
Provide support to FLEs to upgrade existing unit into a demonstration unit.	BFEOs/TIG Officer	DFIT	
Facilitate the FLE to access funds from other government programmes	BFEOs/TIG Officer	DFIT	

139. **Fisheries transformative agent (FTA) support:** A cadre of Fisheries Transformative agent (FTA) will be established to provide advisory, promotion of fisheries-based livelihoods through Farmers interest group (FIG), handholding support and monitoring of farmers process in each of the panchayat. FTAs will train community members on package of practices and management systems of water-bodies.

140. Total 1,152 Numbers of FTAs will be selected from project blocks; one per panchayat. FTAs will function as a last mile extension service provider at community level, will be engaged in promoting fish seed rearing (During Feb-Apr), advisory to fish farmers on management of water bodies (June - Oct), Monitoring fish growth (Nov-Jan) and harvesting related services (Feb - Apr). Thereby their engagement will be all round the year. FTA will be the first point of contact to facilitate formation of PGs and FPOs. They will also monitor performance of PG and FPO, and build capacity of nursery and fish farmers through regular farm visits. FTAs will be the lead contact person to maintain pond specific MIS in their panchayat. They will also facilitate farmers' linkages with DioF scheme. It is proposed to support their honorarium during the first two years. FTAs will be encouraged to charge service fee to PG/ FPOs. Such practice will establish them as service providers and business facilitators in collaboration with FLEs.

141. The FTA selection criteria include:

- A best practicing farmer engaged in fish production/ seed production or rearing business for at least 3 years with schooling of 8-10 years.
- The Pond/ Nursery should be existing one with no major civil work requirement,
- Preference will be given to those farmers with better management practices and good track record of fish/seed production
- Suitable land area available in the farm for development/ creation of integrated farming models
- There should have adequate demand of seed (spawn/fry/fingerling/yearling) in the district/block.
- Farm should not be in flood affected area,
- Water area of the farm preferably not below 1 Acre,
- Person must be willing to share knowledge, train local fish farmers in his facility.
- Person must be willing to maintain the developed demonstration farm and follow better quality guidelines issued by Department.

142. The FTA selection process include:

- FEOs will prepare list of better performing fish farmers for each of the project panchayats.

- Identified candidates will be called for a meeting and oriented about the role and function of FTAs.
- Interested candidates will submit application to DFITs.
- FTA will sign a MoU with DFITs providing their consent and agreement to offer services to the fish farmers.
- Selected FTAs will be provided a 3 days orientation training to set up well functional demonstration farm and how to organize PG.
- FTAs will be provided training manuals to train farmers at demonstration farm.
- Training schedule will be developed in consultation with DFIT and accordingly training / exposure events will be organized at demonstration centre.
- Block level officials will monitor efficiency of FTA performance at demonstration site.
- Proper records and documentation will be captured about activities, production and linkages with farmers through MIS.

143. **Training of FTAs:** FIT-DioF will prepare training modules and training materials for training FTAs in aquaculture related subjects and also on PG/FPO promotion related to fisheries. All the FTAs will be provided with Manuals, tablet and diagnostic kit for soil and water testing in order that they provide handholding support to fish farmers and PGs. GPS location of ponds will be captured and practices adopted will be uploaded by FTAs for monitoring as well as for MIS data point generation.

144. FTAs will be trained on batches of maximum 20 participants at any of the model demonstration farm managed by FLEs. They will be trained as per the standardized module developed by aquaculture expert, FIT. FTAs will be provided training on following subject:

- Pond specific better management protocols
- Feeding, disease control and monitoring
- Integrated fisheries
- Soil water testing
- Nutritional aspect of small fishes
- Fish seed nursery management
- Species diversification(carp-mola)
- PG formation and strengthening

145. After the basic training, FTAs will offer services to farm pond owners and fish farmers to establish better management practices, soil-water testing, ensuring better quality seed and feeding behaviour. BFEOs will hold review meeting with FTAs and FLEs during those review meeting, practical pond specific challenges will be sorted out on regular basis. Such process will ensure continuity in knowledge transfer by department.

146. They will be provided with basic pond development support using the existing government schemes to enable FTAs to establish their farm as model production centre for other farmers in their locality. During this process, they will be supported as fish seed nursery rearers or as a model fish farmer to supply quality fingerlings and utilise productivity of water-bodies. This will develop FTAs as a seed entrepreneur's and as a service provider at PG level.

147. Monthly task completion report will be submitted to FEO/FES by selected FTAs. Based on their performance up to INR 4500 per month will be provided to them as stipend, including field related travel support. This stipend will be for a period of two years of project duration. Based on monthly work done report and release order from BFEOs, stipend will be released to individual bank account of FTA.

148. The implementation steps include:

- Identify candidates interested in becoming FTAs and compile list of potential FLEs.
- Train the selected FTAs in the demonstration unit of FLEs.
- Make a plan for provision of project support to FTAs and release support.
- Facilitate the FTAs to seek funding from other government programmes for further improvement of the farm.

149. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Selection of FTAs	BFEs/FLEs	DFIT	
Conduct training of FTAs	BFEs/FLEs	DFIT	
Prepare plans and provide project support to FTAs	BFEs/FLEs	DFIT	
Facilitate access of FTAs to funds from other government programmes.	BFEs/FLEs	DFIT	

150. **Mobilization of producers group:** The project will support mobilization of PGs/FPOs social mobilization activities by the FTAs and FLEs. This will lead towards collective effort towards production enhancement and marketing. Each of the PG will have 15-20 fish farmers as members. Entire extension protocols, BMP, technologies and linkages with input suppliers will be done through PG. After two years, PGs will be federated as Farmer Producer Organization (FPO) at block level. The FPOs will create backward and forward linkages in the interest of PG members. FPO will facilitate linkages with input suppliers, bank, NBFC and market for its members.

151. PGs will be based on the principle of membership, to pursue specific fisheries related common interests of members and developing technical and market led economic activities that benefit their members and maintaining relations with supply chain stakeholders. Each of the PG will have their own bank accounts that will facilitate in accessing group loans, bulk procurement, develop their business plan and ensure market linkages.

152. Each PG will have at least 20 members, they will organise monthly meeting to discuss production and business specific issue. FTA will organise regular meetings for PG and update FLEs and fisheries officials on specific issue to be resolved for farmer. The PG will use collective institutional arrangement for Backward linkage (input, credit and technology) and Forward linkage (production facilities, market and value addition)

153. Initially, FTAs will mobilize a PG in each Panchayat in both pond and tank and ox-bow lake ecosystems. Institution building process will be led by the Training, Institution and Gender Officer. The project will support training, preparation of a PG action plan and interface activities. The project will also support formation of Farmer Producer Organizations (64) at the block level. Mobilisation of PG and federating them as FPO needs institution building approach. The project will provide matching grant facility to PGs to undertake interface activities and also a matching grant to FPOs.

154. Each PG will have an elected body like President, Secretary and a Treasurer. All decisions will be taken in close consultation of the PG members. The elected members will hold the post for 1 year and in the next year the group will elect new office bearers. The group leaders will be trained on topics like meeting book maintenance, group management, leadership development, book-keeping and accountancy, basics of group business plan development.

155. The implementation steps include:

- Prepare guidelines for establishing, conditions and processes for release of matching grants to PGs and FPOs and use of funds provided as matching grant.

- Mobilize a PG in each panchayat and establish systems related to meeting book maintenance, bank account operation system, membership contribution, etc.
- Review the performance of PGs and prepare proposals for submission to the project for release of matching grant.
- Once the PGs are stabilized, prepare a plan for mobilization of FPOs at the block level.
- Review performance of FPOs and prepare proposals for submission to the project for release of matching grant.

156. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Selection of FTAs	BFEs/FLEs	DFIT	
Conduct training of FTAs	BFEs/FLEs	DFIT	
Prepare plans and provide project support to FTAs	BFEs/FLEs	DFIT	
Facilitate access of FTAs to funds from other government programmes.	BFEs/FLEs	DFIT	

E. Production and productivity expansion

1. Services for fish farmers

157. **Farmer Training:** Productivity and production enhancement of the existing water-bodies is one of the important steps to attain self-sufficiency as well as to promote export to other States. Existence of local market demand, availability of different local species and different typologies of existing water bodies are opportunities for Bihar that needs to be streamlined through this project. This project aims at to bring all potential water-bodies including small and seasonal farm ponds, water-bodies created under MGNREGA, common and private water-bodies and upcoming opportunity to create water-bodies under *Jal-JeevanHariali* under fisheries based diverse intervention to meet market demand as well as ensure nutritional security at household level. Promotion of small and indigenous fish variety for household consumption will ensure nutrition security of the poorest households.

158. The project will support development of standardized production enhancement protocols / communication materials. These will be conducted on the farm of FTAs and the demonstration farm of FLEs. Farmers will be trained on: (i) production enhancement protocol in small and seasonal water-bodies; (ii) Diversification and integrated farming modules; and (iii) Fish culture in open water-bodies and Oxbow lakes on nursery management and ranching.

159. The implementation steps include:

- Preparation of a manual and training materials with standard operating procedures for farmers' training and providing these manuals to FTA and FLEs.
- Identify the farmers interested in getting training and prepare Panchayat and block level training schedule along with cost of training.
- Submit the plan with training cost to BFEs and get approval for conducting training.
- Train the farmers on the farms of FTAs and FLEs.
- FTAs and FLEs to submit training attendance sheet to FES/FEO for reimbursement of training cost.

160. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Prepare a manual and training materials containing standard operating procedures.	FIT-DioAH	DLITs	
Identify farmers interested in training	FTAs/FLEs	BFEOs	
Prepare a training plan with training calendar and get approval.	FTAs/FLEs	BFEOs	
Train the farmers	FTAs/FLEs	BFEOs	

161. **Digital Extension:** Extension service delivery in the rural sector including fisheries sector has been largely neglected due to line department led training and visit extension. There is growing opportunity to take advantage of extensive and growing mobile network to provide direct advisory to the fish farmers in the form of voice messages and SMS. DioFis also engaged in farmer call centre related activities and has some experience in this area. The project will develop a platform for fish farmer advisory services in form of SMS, Voice messages on mobile phones and build on the existing capacity of call centre based advisory. This will entail establishing required technology backbone, development of content based on best practices, registration of producers, and delivery of accurate and relevant messages. The project intends to build the mobile database of the fish farmers through FTAs and FLEs and use them as a conduit to increase fish farmer awareness regarding these activities. This activity is also proposed under the small livestock component and the DoAFR may integrate these into one activity and engage a single service provider. The messages related to time for production protocols, new technologies,, feed sources, new ways of developing cost effective feed may be shared as per the prepared schedule.

162. Agency/Service provider will develop advisory content on following topics: (i) Pond management practices; (ii) Soil and water management practices; (iii) Seed stocking and seed nursing system; (iv) Preparation of farm-based feeds and feed management; (v) Fish disease management; (vi) Compilation of fisheries departments scheme, benefit, eligibility as short message; and (vii) Integrated fish farming and nutritional aspect of local fishes

163. **Extension materials:** As part of the roll out of the new communication strategy, the project will use latest materials and tools for providing relevant messages to the fish farmers on formats that appeal to them.

164. Steps in implementation of these activities include:

- Engage an agency for implementing digital extension preferably combining the activities of both small livestock and fisheries activities.
- Identify technology backbone requirement and make arrangements for procurement of required hardware and software.
- Develop and implement a plan for registration of BFEOs, FLEs, FTAs and fish farmers including hatchery and nursery operators for delivery of digital extension.
- Develop content for digital extension, identify key messages, periodicity of extension messages, seasonality of key message delivery, etc.
- Implement the digital extension modalities and roll out conventional extension materials.

165. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Engage an agency for implementing digital extension for both small livestock and fisheries extension	DoAFR	LIT-DioAH and LIT-DioF	

Identify hardware and software requirements.	Agency	LIT-DioAH and LIT-DioF	
Develop and implement a plan for registration of stakeholders.	Agency	LIT-DioAH and LIT-DioF	
Develop content for digital extension	Agency	LIT-DioAH and LIT-DioF	
Implement digital extension and roll out conventional extension materials	LIT-DioAH and LIT-DioF	DLITs, DFITs	

166. **Business-led extension:** Delivery of extension through businesses with interest in promoting production at the producer level is a cost-effective way of extension delivery wherein both parties develop symbiotic relationship. Feed companies and hatcheries fit into this bill perfectly. The project will create a platform to forge relationships of businesses with the fish producers, FTAs and FLEs at the district and state level. Private sector has access to knowledge and technologies that can address local challenges and integrate options that can best fit the current socio-economic and farming situations prevalent in freshwater fisheries sector. Every year one such collaborative workshop will be organized at regional level to supplement process with better extension service provided by private sector.

167. Steps in implementation of these activities include:

- Compile a list of various private sector stakeholders engaged in fisheries promotion, like feed company, medicine companies, hatcheries and nurseries.
- Conduct workshops at the regional/state levels to bring all the businesses and FLEs and FTAs to discuss ways and means of forging relationships.
- Facilitate business linkages between FLEs and FLEs with the businesses and promote delivery of extension services.

168. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Compile a list of private sector businesses involved in fisheries.	FIT-DioF	DLITs	
Conduct workshops with the participation of private businesses and FLEs and FTAs	FIT-DioF	DLITs	
Facilitate business linkages between private businesses and FLEs and FTAs.	FIT-DioF	DLITs	

169. **Credit Innovation Fund:** Poor Credit linkages is one of the limiting factors in promoting fisheries among poor farmers. The project will identify financial institutions interested in providing credit to fish farmers and provide them with Credit Innovation Fund with clear pathway for leveraging the capital for higher credit deployment to poor farmers in the sector. The project will also incentivize the FTAs and FLEs to foster credit linkages for fish production and marketing.

170. Steps in implementation of these activities include:

- Call for Expression of interest from financial institutions to participate in financing the fisheries sector.
- Conduct a meeting with interested financial institutions individually to negotiate the terms of engagement.

- Sign a MoU with interested financial institution – DoAFR to deposit an agreed amount with the selected financial institution and the financial institution to give loans to fish farmers. Leveraging in terms of loans disbursed against credit innovation fund to increase from second year onwards based on the credit repayment performance.
- Release credit innovation fund to financial institutions.
- Set up joint selection of beneficiaries for loans and appraisal of loan applications. Establish incentives to FTAs and FLEs for loan recovery.

171. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Call for expression of interest from financial institutions.	FIT-DioF	DoFAR	
Conduct meetings with interested financial institutions and negotiate terms of engagement	FIT-DioF	DoFAR	
Sign a MOU with interested financial institution	DoFAR	FIT-DioF	

2. Fish farming promotion

172. **Fish culture in small ponds and tanks:** Many of the backyard ponds, farm ponds, small and seasonal ponds have lost production capacity due to siltation which need to be rejuvenated. All those water-bodies have tremendous potential to enhance fish production and also to ensure household level nutrition security. Small and seasonal ponds and backyard water-bodies development is essential to realize doubling farmers income. It is important to mention that all these small and seasonal/ backyard pond rejuvenation will facilitate species diversification, promotion of integrated fish farming and meeting local market demands. Some of the small ponds will also cater to the needs for seed requirements at panchayat level. As a pilot initiative, upto 0.5 acre of existing pond per fish farmer will be supported for rejuvenation work through engagement of bucket excavators.

173. **Support for pond rejuvenation:** Due to small landholdings, many of the interested farmers are not able to meet criteria for new pond excavation. Small and marginal farmers will get benefitted through this program by excavation of new ponds upto 0.5 acre of land area. The project will support excavation using service providers (companies renting bucket excavators) to producers and for purchase of fish seed and feed.

174. After rejuvenation / excavation task completion, beneficiaries will be provided with farming support kit. This support kit will consist of 100 meters of net for bund protection/ bird protection, basic PH- DO test kit, Indian Major Carp, fish seed (2,000 Nos), Azolla bed, vegetable seed kit for integrated farming on bunds, and 0 chicks/duckling to interested farmers.

175. Steps in implementation of these activities include:

- Prepare a list of bucket excavator rental agencies for excavation/ rejuvenation of ponds and tanks.
- Call for quotations from the bucket excavator rental agencies and fix up a rate contract for excavation.
- Only trained farmers/ PG members will be eligible to apply for the program.
- The marginal farmers as well as weaker sections of the community will be given priority.

- The farmer/ PG members must have their own existing pond either owned individually or jointly with other family members.
- Interested farmers to submit written application to BFEO to rejuvenate pond for integrated fish culture.
- Recommend and send it to DLIT for final approval with number of hours of excavator use required for rejuvenation of ponds.
- Authorise the fish farmer to access excavators from approved Bucket Excavator rental agencies.
- Get the pond/tank rejuvenated and stock fish feed.
- Once excavation is completed, JE to file completion report and based on JE certification payment to be released directly to bucket excavator rental agency with intimation to the fish farmer.
- GPS tagged photograph of pond site before and after excavation has to be uploaded in MIS.

176. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Prepare list of Bucket excavator rental agencies, call for quotations, and sign rate contract agreement.	FIT-DioF	DoFAR	
Seek applications from interested farmers and	BEOs and JEs	DFITs	
Application from interested farmers and get their proposal approved.	BEOs and JEs	DFITs	
Complete pond rejuvenation and settle the account of bucket excavator rental agency	BEOs and JEs	DFITs	
Provide fish farming support kit (Fish seed, bund protection net, Azolla bed, Vegetable seed, PH DOTest kit, chicks/ducklings etc) to farmer	BEOs and JEs	DFITs	
GPS tagging pre and post excavation/ rejuvenation	BEOs and JEs	DFITs	

177. **New pond construction:** The project will also support new pond construction using various ongoing scheme of DioF, MGNREGA, and Jal Jeevan Haryali Abhiyan to construct new ponds. Focus of this new pond constriction will be small farmers owning less than 1.00 acre of water-body. This activity will follow the procedures established by the regular scheme implemented by DiOF, MGNREGA and JalJeevanHariyalAbhiyan. In addition to existing laid process, all new constructed ponds information will be captured in MIS for further promotion of fisheries related initiatives.

178. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Publicise the schemes available and assist the farmers in accessing support.	FIT-DioF	DoFAR	
Provide support for fish seed and feed to the new tanks constructed using convergence funding	BEOs and JEs	DFITs	
GPS tagging pre and post excavation/ rejuvenation	BEOs and JEs	DFITs	

179. **Specialized technical assistance:** The project will engage World Fish Centre, a CGIAR institutions to provide specialised commercially oriented technical assistance in three select districts based on global best practices: (i) hatchery support including gap analysis, development of protocols, rating/certification systems, prepare and oversee implementation of remedial measures; (ii) standard operating procedure development and development of nursery in clusters; and (iii) species diversification. World Fish Centre will depute fulltime experts to provide handholding support and install protocol for hatchery management, species diversification.

180. **ToR for World fish centre:**

- Preparation of guidelines for hatchery registration, accreditation, hatchery up-gradation and brood stock management.
- Prepare hatchery and nursery performance rating system.
- Review of seed certification act, Directorate of Fisheries-Bihar.
- Undertake gap analysis of hatcheries that are not fully functional and address the lacunae in their operations to make them fully functional.
- Establish nursery development in clusters in three districts.
- Promotion of carp fingerling and species diversification through best management practices for nursery / seed grower farm management.
- Promotion of nutrition-sensitive Carp-Mola polyculture technology in backyard tanks (Dhoba)/ farm ponds and public water bodies such as gram panchayat tanks, community tanks and flood plains.
- Species diversification through establishment of multiplication centres and hatcheries, farm demonstration in collaboration with FLEs and FTAs for improved varieties such as GIFT tilapia and Amur Carp.
- On-site technical support to fish hatchery operators for hatchery up-gradation, seed quality improvement, diversified species (GIFT, Amur carp) broodstock sourcing, management and seed production and hatchery accreditation.
- Training manuals development and Trainings to private aquaculture professionals and consultants.
- Active support and participation in various fisheries sectoral technical consultations and programs of the state conducted by the Directorate of Fisheries.
- Training for Departmental staffs on Hatchery standardization, utilisation of small pond through species diversification and new technologies in aquaculture sector.
- Any other support as desired by the Secretary, DoFAR and Director, DoFAR.

181. Steps in implementation of these activities include:

- Invite World Fish Centre to visit the project area and request them to prepare a proposal within the budget allocated under this project.
- Review the proposal internally and also send it for review by IFAD.
- Get the proposal approved by GoB and also by IFAD to engage World Fish Centre on a single source basis.
- Enter into a MoU with the World Fish Centre with a detailed scope of work, deliverables and financial outlay and payment process.
- Review the progress and make adjustments to the work plan of World Fish Centre.

182. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility
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	Primary	Secondary	Collaborative
Invite World Fish Center and request them to prepare a proposal for participation in the implementation of the project.	FIT-DioF	DoAFR	
Review the proposal of World Fish and get required approvals for engagement of World Fish Centre on single source basis.	FIT-DioF	DoAFR	
Sign MoU with World Fish Centre	FIT-DioF	DoAFR	
Review the progress and make necessary adjustments to work plan.	FIT-DioF	DoAFR	

183. **Intensifying capture fisheries ecosystem:** Dysfunctional inlet and outlet, absence of fish seed stocking system, siltation and primitive capture fishery production system in the ox-bow lakes have resulted in low production from this ecosystem. The project will support excavation of inlets and outlets to repair dysfunctional drainage system, nursery development and stocking of 50 ox-bow lake ecosystems with diversified species. The project will support mobilization of PGs to maintain in-situ seed production, collective harvesting and improvising productivity through oxbow lake.

184. Steps in implementation of these activities include:

- Identify ox-bow lakes in project districts and select about 50 ox-bow lakes for project support.
- Mobilize PGs comprising families involved in fishing.
- Make necessary cost estimates and submit a proposal for desilting inlets and outlets of ox-bow lakes to the convergence schemes such as *JalJeevanHaryalito* rejuvenate the selected ox-bow lakes.
- Assist the PGs to prepare a proposal for the rejuvenated ox-bow lakes for nursery development and ranching.
- Seek approval for the proposal and release support for nursery development and ranching.

185. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Prepare cost estimates and seek convergence funding and complete tasks related to desilting of inlets and outlets.	BFEOs/JE	DFIT	PG members
Assist PGs to prepare proposals for nursery development and ranching.	BFEOs/JE	DFIT	PG members
Complete tasks related to nursery development and ranching	PG members	BFEOs/JE	DFIT

F. Market Development and value addition

1. Market Support

186. **Wholesale fish market:** The project will support engagement of a Consultant/service provider to develop design for district level wholesale fish markets, preparation of BoQs and tender documents and supervision of construction. Construction

of the wholesale markets (16 Nos.) will be carried out using funds from centrally sponsored schemes.

187. Steps in implementation of these activities include:

- Identify the market locations for construction of district level markets and submit a report to FIT-DioF.
- Engage a Consultant by advertising the requirement to prepare detailed project report with design and BoQs and cost estimates and bidding documents for engaging a contractor and supervision of construction once the contract is awarded.
- Finalize the Detailed Project Report with designs, cost estimates and bidding documents and obtain approval for floating tenders for construction.
- Select a Contractor, sign a contract and complete construction of the wholesale fish markets.

188. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identify market locations for construction of wholesale fish markets.	DFIT	FIT-DioF	Market owner
Engage a Consultant to undertake design, BoQ preparation, cost estimates, bidding documents and supervision of construction.	FIT-DioF	DoAFR	
Finalize the bidding documents and advertise the tender and seek necessary approval	FIT-DioF	DoAFR	
Select Contractor and complete construction	FIT-DioF	DoAFR	Market owner

189. **Local fish market/haat improvement:** Most of the rural haats keep a separate space for fresh fish sale without any basic facilities. It is known fact that in rural haat most of the vendors are women. Basic sanitation and water facilities are not available in these market places. Other challenge is inexistence of waste disposal system. Introduction of basic hygienic handling of fish will enhance quality of fish. The project will support construction of model rural haats and model fish stalls.

190. Steps in implementation of these activities include:

- Identify rural haats for facility improvement after discussion with the market owners. Rural haats owned by the private individuals will be funded to the maximum extent of 75 percent subject to a maximum of INR 7,50,000.
- Engage a Consultant to survey and prepare a Detailed Project Report comprising design, BoQs and bidding documents and supervision of construction.
- Place the Detailed Project Report and seek approval of competent authority to provide project support.
- Call for quotations for construction and select a contractor for construction.
- Negotiate with the market owner – on sharing of construction cost – Market owner to complete his/her share of construction being 25 percent of total costs before project releases its share.
- Complete construction.

191. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility
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	Primary	Secondary	Collaborative
Identify rural haats for improvement.	DFIT	FIT-DioF	Market owner
Engage a Consultant to undertake design, BoQ preparation, cost estimates, bidding documents and supervision of construction.	FIT-DioF	DoAFR	Market owner
Finalize the bidding documents and advertise the tender and seek necessary approval.	FIT-DioF	DoAFR	
Select Contractor and complete construction.	FIT-DioF	DoAFR	Market owner

192. **Live Fish transport:** Live fish sale is growing in Bihar, even in rural areas consumers prefer live fish that brings premium price to producers and aggregators. To capitalize on the uniqueness of the Bihar where fish which is sold live, the project will support live fish transportation activities to new markets. This will include identification and preparation of a compendium of various live fish transportation technologies and identification of technology suitable for Bihar. The project will support acquisition of these technologies on a pilot basis.

193. Steps in implementation of these activities include:

- Compilation of all possible live fish carrier technologies and identification of technology suitable for Bihar.
- Selection of technology, identification of persons interested in operating the technology and acquisition of technology.
- Review performance of technology acquired and making plans for scaling up.

194. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Compilation of available live fish transport technologies and identification of technology suitable for Bihar.	FIT-DioF		
Selection and acquisition of technology.	FIT-DioF	DFITs	Users
Review performance for scaling up.	FIT-DioF	DFITs	Users

195. **Chilled fish transport:** DiOF has made agreement with Fisheries College, Pusa for installation of model tri-rickshaw mounted fish vending system. This model has capacity to stock 40 kg of fish and it has low cost solar based refrigerator system that can maintain -20 degree Celsius temperature. Such models will help vendors to arrest distress sale of unsold fishes. The project will support expansion of this initiative.

196. Steps in implementation of these activities include:

- Prepare a scheme for supply of solar powered chilled fish transport.
- Call for applications from traders for acquiring solar powered chilled fish transport.
- Select beneficiaries under this scheme – preference to be given to women fish vendors, and members from disadvantaged socio-economic groups including SC/ST.
- Procure chilled fish transport and hand them over to the beneficiaries.

197. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility

	Primary	Secondary	Collaborative
Prepare a scheme for supply of solar powered chilled fish transport.	FIT-DioF		
Call for applications and select beneficiaries.	FIT-DioF	DFITs	Users
Procure chilled fish transport and hand them over to selected beneficiaries.	FIT-DioF	DFITs	Users

3. Value addition

198. **Start-up search engine:** The current marketing systems is focused only on sale of fresh fish and no investments into value addition are forthcoming. In other parts of the country and the world, entrepreneurs and companies are investing in fish fillet processing, smoked fish, dried fish, ornamental fish production, fish water pearl production and fish scale collection and export activities. These investment opportunities have not been tapped in the state as yet. Towards supporting the investments in value added fish and fisheries products and by-products, the project will engage an agency as a start-up search engine for scouting interested start-ups and investors interested in investing in Bihar. The project will also support for training and conducting feasibility studies to the identified start-ups/investors.

199. Steps in implementation of this activity are provided below:

- Identify an agribusiness agency to scout potential start-ups and investors for investing small livestock and fisheries sectors of Bihar.
- Conduct meetings between the officials of the Government of Bihar and the start-ups/investors.
- Shortlist agencies interested in investing in Bihar and take their proposals for conducting feasibility studies.
- Provide support for feasibility studies.
- Facilitate the start-ups/investors to start investment activity and seek other concessions from the ongoing schemes of GoB.

200. The implementation responsibility chart is provided below:

Activity	Partners and their implementation responsibility		
	Primary	Secondary	Collaborative
Identifying an agency to function as a start-up search engine.	PSU-Marketing Manager	LIT- DioAH FIT-DioF	
Conduct meeting with GoB officials and shortlist agencies with firm plans for investment	Agency PSU-Marketing Manager	LIT- DioAH FIT-DioF	DoAFR
Provide support for conducting feasibility study to agencies interested in investing in Bihar's small livestock and fisheries sectors	Agency PSU-Marketing Manager	LIT- DioAH FIT-DioF	DoAFR
Facilitate support from other GoB on-going programmes and commence investment	Select start-ups and investors	LIT- DioAH FIT-DioF	DoAFR

Chapter VI: Terms of Reference –Inland Fisheries Promotion Component

Technical Support Specialist- Hatchery management – 1 Position – FIT-DioF

Qualification:

- Postgraduate degree in Fisheries/Aquaculture. Doctorate degree in aquaculture preferred.

Experience:

- Minimum 10 years of experience in fisheries sector with 3-5 years of experience in hatchery management.
- Good knowledge of Fish breeding and hatchery operation
- Knowledge of MS office.

Job Description:

- Assist the Project Coordinator in development of AWPB of the project, development of various schemes for project activities and overseeing district teams in project implementation.
- Organize training programmes for Block Fisheries Extension Officers/Supervisors to build their capacity for implementing project activities.
- Conduct gap analysis for up-gradation of dysfunctional hatcheries in the project area and develop guidelines for hatchery operation standardisation and up-gradation.
- Provide support to the M&E and Knowledge management team to develop MIS, conduct annual outcome survey and to generate and disseminate knowledge.
- Provide technical input and training to hatcheries operators to adopt better practices in the management of hatchery units.
- Prepare project proposals for various central and state plan schemes for better hatchery operation and management as per the requirement of the DioF.
- Training and handholding support to Fisheries Lead entrepreneurs (FLEs) and Fisheries Transformative Agents (FTAs) to implement brood stock management plan, better hatchery operation, and quality seed supply system.
- Prepare training manuals for training fish farmers and other extension materials (Poster, Folder, Brochure, video, voice messages etc.) on various fish hatchery related best management practices.
- Supervise regular trainings for beneficiaries and other stakeholders on best management practices, standard operating procedures, bio-security practices for hatchery seed production of Indian Major Carps and other species as per the DioF guidelines.
- Make plans for replacing the existing brood stock in the hatcheries with improved varieties from reliable sources.
- Perform any other project related duties as and when necessary, as per the guidance of the Project Coordinator-FIT.

Technical support specialists- Nursery promotion – 1 Position – FIT-DioF

Qualification:

- Postgraduate degree in Fisheries/Aquaculture. Doctorate degree in aquaculture preferred.

Experience:

- Minimum 10 years of experience in fisheries sector with 3-5 years of experience in nursery management.
- Good knowledge of Fish breeding, hatchery and nursery operation.
- Knowledge of MS office.

Job Description:

- Assist the Project Coordinator in development of AWPB of the project, development of various schemes for project activities and overseeing district teams in project implementation.
- Organize training programmes for Block Fisheries Extension Officers/Supervisors to build their capacity for implementing project activities particularly in respect of nursery management and nursery cluster promotion.
- Conduct analysis of nursery promotion scenario in the state and develop guidelines for nursery promotion and nursery cluster promotion.
- Provide support to the M&E and Knowledge management team to develop MIS, conduct annual outcome survey and to generate and disseminate knowledge.
- Provide technical input and training to nursery operators to adopt better practices in management of nursery unit.
- Prepare project proposals for various central and state plan schemes for nursery promotion as per the requirement of the DioF.
- Training and handholding support to FLEs and FTA to develop and implement nursery clusters.
- Prepare training manuals for training fish farmers and other extension materials (Poster, Folder, Brochure, video, voice messages, etc.) on various nursery management practices.
- Supervise regular trainings for nursery operators and other stakeholders on best management practices, standard operating procedures and bio-security.
- Perform any other project related duties as and when necessary, as per the guidance of the Project Coordinator-FIT.

Technical support specialist- Species diversification

Qualification:

- Postgraduate degree in Fisheries/Aquaculture. Doctorate degree in aquaculture preferred.

Experience:

- Minimum 10 years of experience in fisheries sector with 3-5 years of experience in fish farm management.
- Good knowledge of Fish breeding and hatchery operation
- Knowledge of MS office.

Job Description:

- Assist the Project Coordinator in development of AWPB of the project, development of various schemes for project activities and overseeing district teams in project implementation.
- Organize training programmes for Block Fisheries Extension Officers/Supervisors to build their capacity for implementing project activities.
- Develop guidelines for fish farming covering ponds and tanks, ox-bow lakes and reservoirs.
- Provide support to the M&E and Knowledge management team to develop MIS, conduct annual outcome survey and to generate and disseminate knowledge.
- Provide technical input and training to fish farmers to adopt better practices in the farm management covering seed selection, local feed development, protein enhancement of low cost feed, species diversification, etc.
- Prepare project proposals for various central and state plan schemes for aquaculture development as per the requirement of the DioF.
- Training and handholding support to Fisheries Lead entrepreneurs (FLEs) and Fisheries Transformative Agents (FTAs) to implement better fish farm management.
- Prepare training manuals for training fish farmers and other extension materials (Poster, Folder, Brochure, video, voice messages, etc.) on various fish farming techniques including species diversification related best management practices.
- Identify new species for diversification by fish farmers taking into account income, cost of cultivation and nutritional requirements of the fish farmers and obtain government approval for introduction if required.
- Identify sources for purchase of fish fingerlings and brood stock for other species of fish (Amur carp, GIFT strain of Tilapia, etc.) to be introduced and train a select group of farmers in farming and breeding of these varieties.
- Supervise regular trainings for beneficiaries and other stakeholders on best management practices, standard operating procedures, biosecurity practices for fish farm management.
- Perform any other project related duties as and when necessary, as per the guidance of the Project Coordinator-FIT.

Training, Institutions and Gender (TIG) Manager –FIT, DioF - 1 Position**Qualification:**

- Post Graduate degree in Social Work with certification on gender.

Experience:

- 5-7 years of experience in implementing community mobilization and gender related work and Producer Group (PG) and Farmer Producer Organization (FPO) mobilization and support.
- Prior experience of working in the fisheries sector **will be an advantage.**

Job Description:

- Facilitate and preparation guidelines for mobilizing PGs and FPOs and handhold district and block level teams of BAaLI in mobilizing PGs and FPOs comprising fish farmers.
- Oversee mobilization of PGs and FPOs by the block level project staff and community cadre comprising FLEs and FTAs.

- Co-ordinating all capacity building training for Community Institutions (PGs and FPOs) with concerned technical experts.
- Establishing social audit guidelines and setting up a system of social audit in all project villages to assess the relevance, efficiency and effectiveness of the activities implemented under the project.
- Undertaking field visit and preparing a fact Sheet on project implementation performance specifically related to PGs and FPOs mobilization empowerment and entitlements of the community and submit the same to the Project Coordinator.
- Prepare detailed guidelines for supporting PGs and FPOs and handhold district and block teams in implementation.
- Undertaking specific studies/surveys/case studies related to community institutions, gender and youth.
- Designing a gender strategy for BAaLI fisheries component and support the project team in engaging youth within the designed project activities.
- Ensuring gender mainstreaming in all relevant project activities in close collaboration with professional staff and leading on gender transformation initiatives.
- Any other task assigned by the Project Coordinator -FIT.

Technical team for developing extension materials and community strategy

A team of two consultants comprising a Communication Expert and a Fisheries Domain Expert will be engaged for reviewing the existing communication and extension materials to streamline communication efforts of DioF by converting existing materials into user friendly communication / training aids.

1) Consultant – Communication Expert- FIT, DioF

Qualification: Post Graduate degree in (Extension, Rural Development, Agribusiness Management, Communications, Mass media and related fields)

Experience: 10-15 years of experience in developing extension and communication related activities in fisheries/livestock/agricultural development projects.

Job Description

- Reviewing the existing training and extension materials and developing user friendly teaching aids and materials in consultation with the Fisheries Domain Expert for use by the staff engaged in project implementation.
- Development of extension messages, frequency of extension message delivery and a calendar for extension activities by the project staff in partnership with the Fisheries Domain Expert.
- Prepare the detailed plan for dissemination of extension materials through the grassroots level workers in consultation with the TIG Manager and TIG officers.
- Assisting PSU in selection and finalization of the agency for digital extension/mobile advisory.
- Monitor the monthly progress of the extension activities at the state and discuss the same with the senior officials in the FIT.
- Ensure documentation of best practices emerging from project implementation in consultation with Knowledge Management Managers.
- Assess the impact of the extension communication on production and productivity in consultation with M&E Managers.
- Any other task assigned by the Project Coordinator-FIT.

2) Consultant – Fisheries Domain Expert, LIT, DioF

Qualification:

- Post graduate degree in Fisheries with aquaculture specialization. Doctorate degree in aquaculture preferred.

Experience

- Minimum 10 years of experience in implementing fish farming, teaching and fisheries research related activities.
- Experience in implementing extension modalities related to fish farm management.
- Knowledge of implementing fisheries projects funded by multilateral financing institutions/CGIAR institutions is desirable but not mandatory.

Job Description

- Reviewing the existing training and extension materials and developing user friendly teaching aids and materials for the fisheries sector in consultation with the Communication Expert for use by the staff engaged in project implementation.
- Development of extension messages, frequency of extension message delivery and a calendar for extension activities by the fisheries project staff in partnership with the Communication Expert.
- Prepare the detailed plan for dissemination of fisheries extension materials through the grassroots level workers in consultation with the TIG Manager and TIG officers.
- Assisting PSU in selection and finalization of the agency for digital extension/mobile advisory.
- Monitor the monthly progress of the extension activities at the state level and discuss the same with the senior officials in the FIT.
- Ensure documentation of best practices emerging from project implementation in consultation with Knowledge Management Managers.
- Assess the impact of the extension communication on production and productivity in consultation with M&E Managers.
- Any other task assigned by the Project Coordinator-FIT.

Senior Fisheries Extension Officer – 12 positions – 1 per DFIT in 12 districts

Qualification:

- Graduate degree in Fisheries Sciences/ Industrial fisheries and preferably with postgraduate degree/diploma in Aquaculture.

Experience:

- 3-5 years of experience in implementing aquaculture related activities.
- Experience in fish farming relevant to the eastern and central India regions.
- Knowledge of management of projects is desirable but not mandatory.

Job Description:

- Coordinating implementation of project activities and overseeing implementation under the supervision of District Project Manager and the FIT.
- Coordinating with the FIT, DioAH with regard to implementation of fisheries related project activities.

- Annual work plan preparation in collaboration with the M&E covering project activities of Block Fisheries Extension Officers/Supervisors and submitting the same to FITs.
- Supervising field level activities of Block Fisheries Extension Officers/Supervisors and providing support required from the DFIT.
- Ensuring that the Block Fisheries Extension Officers/Supervisors comply with the targeting requirements of the project with respect to poverty and gender while selecting beneficiaries for participation in project activities.
- Ensuring convergence between project activities and activities of other line departments.
- Reviewing field level activities in collaboration with TIG officer and submitting reports to the LIT-DioF on a regular basis.
- Any other task assigned by the District Project Manager.

Block Fisheries Extension Officer/Supervisor – 64 positions in 64 project blocks

Educational Qualification:

- Bachelor Degree in Fisheries /Industrial Fisheries.

Experience:

- About 2 years of experience of working in the government or private sector in the aqua-culture sector. Fresh graduates may also be considered in case of non-availability of experienced candidates.
- Experience in conducting trainings and extension work will be preferred.

Job Description:

- Overall responsibility for field level implementation of project activities in partnership with FTAs and FLEs.
- Responsible for preparing annual work plans and budget for implementing project activities in the block and supervising implementation of agreed plans.
- Responsible for identification and selection of FTAs and FLEs.
- Train FTAs and FLEs in fish farming techniques and provide constant mentoring support.
- Handhold the FTAs and FLEs on a continuous basis and provide required support for them to emerge as sustainable service providers.
- Convergence with government schemes to optimize resources.
- Work closely with Marketing Manager, TIG Officer, FLEs and FTAs to implement marketing related activities.
- Develop training materials for farmers' training by FTAs and FLEs.
- Field visits to the project locations to analyse existing fish farming practices and help FTAs and FLEs to solve the challenges faced by fish farmers in project districts.
- Ensuring gender mainstreaming in all relevant project activities in close collaboration with other staff.
- Any other task assigned by the District Project Manager.

TIG Officer-Training, Institution and Gender Officer, DLIT - 12 positions

Qualification:

- Post Graduate degree in Social Work, Gender Studies or a related subject.

Experience:

- 3-5 years of experience in implementing community mobilization, training and gender related work.

Job Description:

- Work closely with Block Fisheries Extension Officers/Supervisors in selection and training of FTAs and FLEs.
- Co-ordinating capacity building trainings for FTAs and FLEs and PG office bearers with concerned technical experts.
- Preparing guidelines for mobilization of PGs and FPOs and the modalities to support these community institutions.
- Oversee FTAs and FLEs in mobilizing communities, forming PGs and FPOs.
- Establishing guidelines and performance standards for releasing project support to PGs and FPOs.
- Undertaking review visits to the project villages, identifying issues related to training and also issues constraining implementation and making recommendations for improving implementation performance of PG and FPO development activities.
- Ensuring mainstreaming of gender and knowledge management in the activities of district staff, block staff, FTAs and FLEs.
- Participating actively in providing trainings as and when required.
- Coordinate field reporting through FTAs and FLEs.
- Coordinating marketing related activities in the district through coordination with state, district and block level teams under the overall guidance of the Marketing Manager – PSU.
- Coordinating extension related activities in the district through coordination with state, district and block teams.
- Any other task assigned by the Training, Institutions and Gender Manager and District Project Manager.

TOR- World Fish Centre

- Preparation of guidelines for hatchery registration, accreditation, hatchery up-gradation and brood stock management.
- Prepare hatchery and nursery performance rating system.
- Review of seed certification act and support Directorate of Fisheries-Bihar to develop a hatchery rating and certification systems.
- Undertake gap analysis of hatcheries that are not fully functional and address the lacunae in their operations to make them fully functional.
- Establish nursery development in clusters in three districts.
- Promotion of carp fingerling and species diversification through best management practices for nursery / seed grower farm management.

- Promotion of nutrition-sensitive Carp-Mola polyculture technology in backyard tanks (Dhoba)/ farm ponds and public water bodies such as gram Panchayat tanks, community tanks and flood plains.
- Species diversification through establishment of multiplication centres and hatcheries, farm demonstration in collaboration with FLEs and FTAs for improved varieties such as GIFT tilapia and Amur Carp.
- On-site technical support to fish hatchery operators for hatchery up-gradation, seed quality improvement, diversified species (GIFT, Amur carp) broodstock sourcing, management and seed production and hatchery accreditation.
- Training manuals development and Trainings to private aquaculture professionals and consultants.
- Active support and participation in various fisheries sectoral technical consultations and programs of the state conducted by the Directorate of Fisheries.
- Training for Departmental staffs on Hatchery standardization, utilization of small pond through species diversification and new technologies in aquaculture sector.
- Provide support for reviewing and developing policies related to fisheries sector.
- Any other support as desired by the Secretary, DoAFR and Director, DoAFR.

Consultant - Fish market design development

- Provide professional inputs, advice and support to the implementation of the fish market renovation/new construction through the provision of appropriate and fit for purpose designs and costing estimates to the Department of fisheries
- Prepare feasibility report, detailed design, drawings, cost estimates and bidding documents for planning and implementation of fish market renovation including environmental management measures and carries out construction supervision.
- Prepare Detailed Project Report (DPR) inclusive of design, detailed cost estimates using the latest schedule of rates of the State and bidding documents.
- Assist completely in bidding, bid evaluation and award process in procurement of works, goods and materials in accordance to guidelines.
- Assist the Local Authority in obtaining technical sanction from competent authorities.
- Supervision of construction including comprehensive quality checks and measurements of works including checking the invoices sent by the contractor and responsible for certifying the quality of works.

TORs for Support to Start-ups for Value Addition in the Goat Sector

Objective of the assignment

- The objective of the assignment is to provide the momentum and technical required support and for implementing the investment plans.

Specific Scope or work

- Identify start-ups and investors interested in making investments in processing, marketing and value addition in the fisheries sector comprising fish fillet processing , smoked fish, dried fish, ornamental fish production, fish water pearl production, fish scale collection and export activities, etc.
- Organize meetings between the investors and officials of DoAFR to identify government support available for these start-ups and investors.

- Seek proposals from these start-ups and investors and screen proposals for government support.
- Handholding of the start-ups by providing support for training and preparing technical feasibility reports.

Selection Criteria

- Consulting Agencies engaged in providing technical support to agriculture, fisheries and livestock sector development projects and similar projects of agribusiness opportunities in agriculture and livestock sector
- Understanding of the fisheries sector value chains to identify potential investments in value addition/marketing opportunities

TORs for Digital Extension Service Delivery

Objective:

The objective of the assignment is to provide both small livestock and fish farmers digital extension messages and advisory on goat health and husbandry practices, backyard poultry and fish culture.

Scope of Work

- Conduct needs assessment to determine the information and knowledge requirements of the goat/BYP/fish farmers so as to produce relevant extension messages. (If already available the needs assessment study for the communications strategy may be used)
- Review existing digital extension material available with DioAH and DioF and re-package them where possible.
- Develop content, frequency and mode of transmission of messages (SMS, voice messages).
- Establish required technology backbone and build capacities of DioAH and DioF to maintain and run it.
- Prepare a database by putting in place a system of registration of small livestock/BYP/Fish farmers for dissemination of messages.
- Develop a monthly content calendar and content basket.

Selection criteria

- The agency must be a digital marketing agency (farmer advisory) or communication agency that has at least 5 years' experience in digital marketing/extension.
- The agency must be capable of advising DioAH and DioF on how to focus the communication to appeal the specific target audiences, how to make information or messages attractive and effective and how to optimize budget and digital reach
- The agency should have successfully conducted at least 2 initiatives on rural marketing/extension.
- Experience of providing extension in agribusiness sector would be an advantage.

Chapter VII: Project Organization and Management

A. Introduction

1. Project Management structures are built to ensure efficient delivery of project services including fund flow. IFAD projects in India use three models of project management: (i) project management structure built into the existing corporations; (ii) a separate PMU built into the line department; and (iii) a separate society established for implementation. The advantages of working with the corporations and societies include the ability to retain unspent funds at the end of the fiscal year enabling these institutions to start project activities without waiting for budget release. GoB uses the society model of implementation of implementing the World Bank funded Bihar Kosi Development Project. The other such society model of implementation in the state of Bihar is Jeevika - the Bihar State Rural Livelihoods Mission which is registered as a society implements the National Rural Livelihoods Programme and this society is attached to the Rural Development Department. Similarly, societies have been formed under the Health Department, Education Department and e-governance departments for implementing projects/programmes. The Department of Animal and Fish Resources (DoAFR) of Bihar implements a hybrid model of implementation wherein a society structure is used to ensure funds flow outside the normal treasury system of fund flow and the implementation built into the regular line directorates. This system will be used in implementing the BAaLI.

B. Project Management

2. At the central level, the Department of Economic Affairs (DEA) would be the nodal agency for the project and the DoAFR, GoB will be the lead implementing agency. Two broad principles would govern the management structure for this project. They include: (i) alignment to the existing government structure; and (ii) flexibility to make changes based on the requirements that may arise during the implementation phase. The project would be aligned to the existing government structure by making the DoAFR as the state level lead implementing and nodal agency. This department has established a Bihar Livestock Development Agency (BLDA), a society as a fund flow pass through mechanism for various livestock related central sector projects and programmes. Given the experience of DoAFR in implementation using this modality, it was considered practical to continue with the same under this project. This society will be used for this project with required changes to its Memorandum of Association and Bylaws to allow implementation of fisheries projects. A schematic presentation of the project management structure is provided in Attachment PM1.

3. **State level Project Management:** The project intends to build the capacity of the existing structures of the DoAFR comprising the DioAH and the DioF. The proposed management structure is built around the core competencies of these structures which will enable integration of the project activities into the regular government structures. DoAFR will be the Lead Implementation Agency through its two Directorates (DioAH and DioF). BLDA a society under DoAFR's aegis being used for flow of funds from the central sector and state sector projects and programmes to its Directorates will be used under this project for ensuring fund flow to the Directorates. The Secretary, DoAFR will be the Mission Director and the Director, DoAFR will be the Project Director.

4. APSU under BLDA reporting to the Mission Director through the Project Director, will be responsible for overall financial management, compliance requirements of the project comprising consolidated AWPB and procurement plan preparation, consolidated M&E and MIS, preparation of withdrawal application, audit and procurement guidance and support. PSU will report to the Project Director who is the Director of both the Animal Husbandry

and Fisheries Directorates. The Project Director will report to the Mission Director who is the Secretary, DoAFR.

5. The project will establish an Implementation Team in each of the Directorates; Livestock Implementation Team (LIT) in DioAH and Fisheries Implementation Team (FIT) in DioF. These teams will be responsible for implementing project activities by harmonising them with the existing district and block level structures of each Directorate. PSU will be supported with staffing related to overall financial management, Planning and M&E, Procurement and Knowledge management. The support to PSU will include: (i) Project Coordinator – BLDA; (ii) Finance Specialist; (iii) Planning and M&E Specialist; (iv) Knowledge Management Manager; and (v) Procurement Specialist. These professionals will report to the Project Director.

6. Overall, PSU would be responsible for compliance to the stipulation of Financing Agreement signed between GoI and IFAD. More specifically the PSU will be responsible for (i) consolidation of project plans leading to preparation of consolidated AWPBs; (ii) budget related functions with GoB including seeking allocation and release; (iii) PSU level financial management and procurement; (iv) management and administration; and (v) co-ordination with GoI and IFAD as detailed below:

- a. Programme planning, implementation and monitoring/ reporting: organizing Project Steering and Project Management Committee meetings, preparing and submitting consolidated AWPB after consolidating AWPBs of LIT and FIT, a procurement plan for review by IFAD; establishing an effective PSU level MIS and M&E system to track project progress and undertaking knowledge management activities.
- b. Financial management and procurement: incorporating the budget requirements of the project as per the AWPB submitted by LIT and FIT into the overall budget of the GoB and ensuring flow of funds to the society; ensuring release of funds to the LIT and FIT for implementing project activities; operating Project Accounts for timely release of funds to the LIT and FIT, receiving statement of expenditure related to fund release and keeping an account of fund release and utilization; preparing overall project financial statements; assisting the LIT and FIT in evaluating bids, and finalizing and executing contracts with service providers and suppliers of goods and services for implementing various project activities.
- c. Management and administration: liaising with the State administration to ensure coordination and convergence to facilitate LIT and FIT in project implementation; preparing and submitting progress reports semi-annually and annually to IFAD by consolidating the reports received from LIT and FIT; and establishing an effective MIS and M&E system to track project progress.
- d. Reporting and co-ordinating with GoI and IFAD: preparing and submitting withdrawal applications to GoI/CAAA for onward transmission to IFAD; ensuring preparation and submission of annual audit reports and financial statements to IFAD and ensuring compliance to the audit observations; and preparing RIMS data for submission to IFAD.

7. DoAFR will establish a LIT in the DioAH and a FIT in DioF) and these teams will be responsible and accountable for the implementation of the project in the respective sectors and the achievement of its results. LIT and FIT will be headed by the Technical Head of the Directorate who will be the Project Coordinator. The staffing for the LIT in DioAH shall include: (i) Technical Support Specialist – Extension; (ii) Technical Support Specialist – Small Ruminant Specialist; (iii) Planning and M&E Manager; (iv) Finance Manager; and (v) Training, Institutions and Gender Manager. The staffing for FIT in DioF shall include: (i) Technical Support Specialist – Aquaculture; (ii) Technical Support Specialist - Hatchery

Management; (iii) Technical Support Specialist – Diversification; (iii) Planning and M&E Manager; (iv) Finance Manager; and (v) Training, Institutions and Gender Manager. All contractual staff recruitments will be on a competitive basis in compliance with IFAD guidelines. LIT of DioAH may find it extremely difficult to get Technical Support Specialists from the market. These officers may be brought on deputation from within the Directorate. Other contractual staff engaged under this project will be either sourced using a service provider or directly by the Directorate concerned. The main function of LIT and FIT within the respective Directorate (DioAH and DioF) will be as follows:

- a. Programme planning, implementation and monitoring/ reporting: organizing project review meetings; preparing and submitting AWPB after consolidating AWPBs of DLITs and DFITs and a procurement plan for review by PSU; conceptualizing, supervising and monitoring project activities and their progress towards achieving physical, financial and outcome related targets; establishing an effective MIS and M&E system to track project progress; and supporting PSU in undertaking knowledge management activities.
- b. Financial management and procurement: preparing the project AWPB and submitting budget requirements to the PSU; seeking fund release from the PSU and ensuring release of funds to the DLITs and DFITs for implementing project activities; operating project accounts for timely release of funds to the DLITs and DFITs and other partners; receiving statement of expenditure and supporting documents related to fund release and keeping an account of fund release and utilization; preparing overall project financial statements related to the respective sector and submitting to PSU; procurement related functions related to the respective sector including evaluating bids, and finalizing and executing contracts with service providers and suppliers of goods and services for implementing various project activities.
- c. Management and administration: liaising with the PSU and other line agencies to ensure coordination and convergence to facilitate project implementation; establishing DLITs and DFITs in each project district and recruiting staff for DLITs and DFITs; preparing and submitting progress reports semi-annually and annually to PSU; and establishing an effective MIS and M&E system to track project progress.

8. **District Project Implementation Teams (DLITs and DFITs):** The project would establish a DLIT within each of the district offices of Animal Husbandry and Fisheries Directorates and a DFIT in each of the district offices of Fisheries Directorate. The DLIT and DFIT will be headed by the District Officer of the respective Directorate who will be the District Project Manager. The DLIT of the DoAH will have: (i) Senior Veterinary Officers -2; (ii) Training, Institutions and Gender Officer; (iii) Accounts Officer; and (iv) Planning and MIS Officer. DFIT of DioF will have (i) a Senior Fisheries Extension Officer; (ii) Training, Institutions and Gender Officer; (iii) Accounts officer; and (iv) Planning and MIS Officer. At the block level, DioAH will appoint Block Veterinary Officers to implement project activities at the field level. DioF will appoint block level Fisheries Extension Officers/Fisheries Extension Supervisors to implement fisheries sector related activities.

9. The DLITs and DFITs would be responsible for: (i) coordinating with block level officers, and community level workers and lead entrepreneurs to prepare AWPB and incorporating the same into the district AWPB; (ii) submitting in a timely manner, the AWPB to the LIT and FIT within the respective Directorate for incorporation into the project AWPB; (iii) obtaining required sanctions for implementing activities; (iv) releasing funds to implement project activities and monitoring project implementation; (v) collecting, collating and analysing MIS and M&E data for the district for onward submission to LIT and FIT for providing feedback to implementation partners; (vi) ensuring convergence between

project activities and activities of other line departments in the project villages; (vii) maintaining books of accounts related to project expenditure of the district and prompt settlement of advances with LIT and FIT; and (ix) ensuring compliance to audit observations.

10. The District Project Managers would be responsible for: (i) coordinating with the respective DLIT and DFIT with regard to implementation of project activities; (ii) coordinating with the District Administration for convergence and support; (iii) supervising field level activities of block level officers and community workers, and lead entrepreneurs and other implementation partners; (iv) releasing funds as per the approved AWPB; (v) functioning as a focal point to resolve issues faced by implementing partners and block level officers and village level workers; (vi) reviewing field level activities and submitting reports to the Deputy Commissioner and DLIT/FIT on a regular basis; and (vii) overall management of the DLIT/FIT as per the directions of the respective Project Coordinator including personnel and administrative functions.

11. The project would fund capacity building of LIT, FIT, DLIT and DFIT and block level staff of both Directorates, development of a computerised accounting system and a Management Information System. The project would also fund contracting of specialist agencies for conducting baseline survey, impact evaluation and other surveys and in preparation of a Project Completion Report at the end of the project.

C. Project Coordination Mechanisms

12. The project will build a three tier project coordination structure comprising a State level Project Steering Committee, a Project Management Committee and a District Project Coordination Committee. A schematic presentation of the project management structure is provided in Attachment PM 2.

1. State Level Coordination

13. **Project Steering Committee (PSC)** would function as the apex Governing body. The Chief Secretary/Development Commissioner would be the Chairperson and the Secretary, DoAFR would be the Secretary of the PSC. The proposed members of the PSC are: the Principal Secretary, Finance Department, the Principal Secretary, Planning Department, the Principal Secretary, Rural Development Department, and the Principal Secretary, Water Resources Department. Technical Experts of repute may be invited to participate in the PSC meetings.

14. PSC would meet on an annual basis and its function would be to secure interdepartmental coordination and linkages for the project. It would: (i) review progress of the project on the basis of the reports submitted by the PSU; (ii) resolve any problems requiring interdepartmental coordination with the line agencies and banks which require higher level of intervention; and (iii) resolve any policy bottlenecks that impact project implementation. The Chairperson on the advice of the Secretary may convene special meetings of the PSC.

15. **Project Management Committee (PMC)** would be the main body to deal with implementation of project activities by the respective Directorates. This committee will be chaired by the Secretary, DoAFR and the Director, DoAFR will be the Secretary. The CEO of a Jeevika, the Project Coordinator, DioAH, Project Coordinator, DioF, Project Coordinator, PSU-BLDA, and the Regional Directors of the Regional Directorates covering project districts will be the members. PMC would invite the Chairpersons of **District Project Coordination Committees (DPCC) on a rotation basis or as needed to address the implementation challenges.** The committee will convene in Patna quarterly and will be vested with the responsibilities to provide strategic and policy guidance,

endorse project staff selection, approval of Annual Work Plan and Budget, procurement plan, fund allocation and obtaining budgetary allocation, review project progress, approval of manuals of procedures, oversee the external and internal audit process and take action on findings, ensure coordination among all stakeholders, and provide guidance to project management. The Chairperson on the advice of the Secretary may convene special meetings of the PSC.

16. **District Project Co-ordination Committee (DPCC)** will be established in each project district and will be headed by the District Magistrate of the district. DPCC will have the following members: the District Animal Husbandry Officer, the District Fisheries Officer, the Project Manager, Jeevika, the Project Director, ATMA. A person amongst the two district level officers of DoAH and DioF designated by the Director, DoAFR will be the Secretary of this committee. The Chairperson of DPCC will have the right to appoint new members on the DPCC.

17. The DPCC would meet quarterly to discuss the project implementation progress, constraints and remedies. The most important function of this committee is to ensure flow of convergence funds to the project communities for implementing small livestock and fisheries activities.

C. Implementation Plans

Preparatory Phase Implementation Steps for project readiness

Pre-loan negotiation

1. The following agreements have been reached:

- Engage a team of two Consultants for preparing Goat Policy for the state and complete this study by 30 November 2018. These costs will be reimbursed as a part of retroactive financing.
- Submission of final detailed project design report by IFAD to DoAFR after addressing the comments of DoAFR by 7 October and the DoAFR to seek cabinet approval for the project by 30 November 2019.
- Allocation of INR3.00 Crore to DoAFR for start-up activities during 2019-20 in the supplementary budget for 2019-20 and release the same to BLDA by 31 December 2019.
- Creation of an Externally Aided Project budget line for this project under DoAFR for 2020-21 and request for a budget allocation based on first year AWPB.
- Issuance of a notification nominating the Secretary, DoAFR as the Mission Director, the Director, DoAFR as the Project Director and the technical heads of DioAH and DioF as the Project Coordinators.
- Amend the Memorandum of Association article 5.17 and bylaw 8 a (17) of BLDA as under:
 - i. It will also serve as the state implementation agency, **when needed**, to encourage, promote and carry out viably all activities to improve the breeding and management of other livestock like sheep, goat, pig, poultry, etc., **and fish** so as to enhance livestock and **fish** production and productivity throughout the territory of Bihar State leading to higher farm incomes and better quality of life of farmers.
- Include a new article into the Memorandum of Association bearing number 5.20 and also into the bylaws of BLDA bearing number 8 a (20) as under:

- i. It may establish separate Project Support Units or Implementation Units for each of the projects/programmes and nominate an officer as Project Director reporting to the Chairperson.
- Identifying and selecting 5-6 project blocks for each sector in each project district (in total 64 blocks for each sector) using the agreed selection criteria and communicating the same to IFAD.
- Block Selection:
 - DoAFR to conduct a state level consultation with the officials concerned from the DioAH, DioF and identify the project blocks within the selected project districts. 64 blocks to be selected for Small Livestock Promotion and 64 blocks for Inland Fisheries Promotion components with a possibilities of overlap to implement both components in a block.
 - DoAFR to provide a list of blocks to be covered under the Small Livestock Promotion component of the project as per the format provided below to IFAD.

District	Block	Total number of HHs	No. of BPLHHs	No. of SC/ST HHs	No. of Goat rearing HHs
Total					

- DoAFR to provide a list of blocks to be covered under the Inland Fisheries Component of the project as per the format provided below to IFAD.

District	Block	Total number of HHs	No. of BPL HHs	No. of SC/ST HHs	No. of fish culture/fishing HHs

- Engagement/allocation of 64 Veterinary Officers and 64 Fisheries Extension Officer/Supervisor for each project Block and also fill up the vacancies of Junior Engineers in all the project districts using GoB funds before 29 February 2020.
- Identifying institutions and making plans for training of Veterinary Officers and Fisheries Extension Officers/Supervisors.

- Finalize terms of reference, procurement modality and initiate the process for engaging contractual staff on PSU, LIT, FIT, DLITs and DFITs.
- Finalizing terms of reference and Request for Proposals for baseline survey.
- Obtaining relevant GoB approvals for engaging WorldFish on a single source basis after obtaining IFAD approval and requesting WorldFish to prepare a proposal for funding by the project by 31 January 2020.
- Preparation and approval of implementation plan and project readiness check list and submission of the same to DEA by 29 February 2020. A Project Readiness Check-list required to be submitted by the DoAFR, GoB to DEA.
- Constitution of a state delegation authorised by the Chief Secretary to negotiate and initial the negotiated text of the financing agreement on behalf of GoB.

Post Loan Negotiation and before effectiveness

a. Overall steps

- Establish PSC and PMC at the state level and DPCCat the district level by issuing a notification/circular.
- Review and finalization of PIM and get the same approved by the PSC/PMC.
- Establish PSU, LIT, FIT, DLITs and DFITs and engage contract staff.
- Undertake procurement of all office equipment, technical team required for implementation and service providers.
- Coordinate with Coordinate with World Fish and sign a MoU with World Fish for undertaking activities proposed under the project.

b. Financial Management

- CAAA to open the designated accounts for the loan and grant as per agreement during negotiations of financing agreement
- Open a project bank account for PSU, LIT, FIT, DLITs and DFITs.
- Appoint a Finance Specialist and two Finance Managers and 12 Finance Officers on contract basis.
- Establish an accounting system using Tally.
- Release funds to LIT, FIT, DLITs and DFITs as per AWP&B.

Post Loan Effectiveness

A. Start up

- Conduct a start-up workshop at state level to launch the project.
- Prepare AWPB for the financial year 2020-21 and share draft with IFAD for review before obtaining approval from the PMC. Include the same in the budget of the DoAFR as grant-in-aid.

B. Project Management

a. Supervision

- LIT and FIT to undertake supervision of the field level activities and ensure implementation of project activities as planned.
- LIT and FIT to submit regular reports to PSU and PSU in turn to PMC and PSC.
- Action taken report to be submitted on the recommendations of IFAD's Supervision Mission reports within 30 days from the date of receipt of management letter.

b. Preparation of AWP&B

- PSU to provide indicative budget for LIT and FIT.
- Based on the yearly plans of the project and indicative budget, AWPB for each district to be prepared and submitted to the respective LIT and FIT.
- LIT and FIT to prepare their AWPB and submit to PSU.
- PSU to consolidate these AWPBs and send the same to IFAD for comments and no-objection by 30 January every year.
- Based on comments of IFAD, PSU along LIT and FIT to rework AWPB and present it to PMC for approval.
- Based on this, include the fund requirement of the AWPB into the budget of DoAFR.

c. Fund flow

- As per the AWPB, PSU to seek release of funds from GoBand thereafter transfer to LIT and FIT.
- Fund to flow from LIT/FIT to DLITs/DFITs. The fund recipients to submit statement of expenditure every month certified by the authorised signatory.

d. Monitoring and Evaluation

- PSU to engage an agency specialized in M&E for conducting Baseline and impact assessment survey. Baseline survey to be undertaken during the first year of the project.
- PSU to engage an agency for developing computerised management information system and integrate the system with the on-going efforts of DoAFR.
- PSU to conduct annual outcome survey in collaboration with LIT and FIT every year starting from second project year and submit a report by end January every year.
- PSU to develop a system for web based uploading of photographs/videos related to demonstrations and field days with geo-tagging

e. Knowledge Management

- Identify emerging best practices and contribute to knowledge management related activities of the project.
- Prepare documentation of best practices and lessons for knowledge sharing and also place it on the web site of the project.
- Undertake impact of project interventions on effectiveness of government programmes that have been converged with the project.
- Develop knowledge sharing platforms for knowledge dissemination amongst LIT, FIT, DLITs and DFITs, entrepreneurs and community cadre.
- Document replications resulting from such knowledge dissemination exercise.

f. Reporting

- Submit half yearly and annual progress reports to IFAD within 45 days of end of the reporting period.
- Submit half yearly financial statements to IFAD within 45 days of end of the reporting period.
- Submit ORMS (RIMS) report to IFAD by end March every year.
- Submit Audited annual report with financial statements and management letter to IFAD by 30 September every year.

g. Project Closing

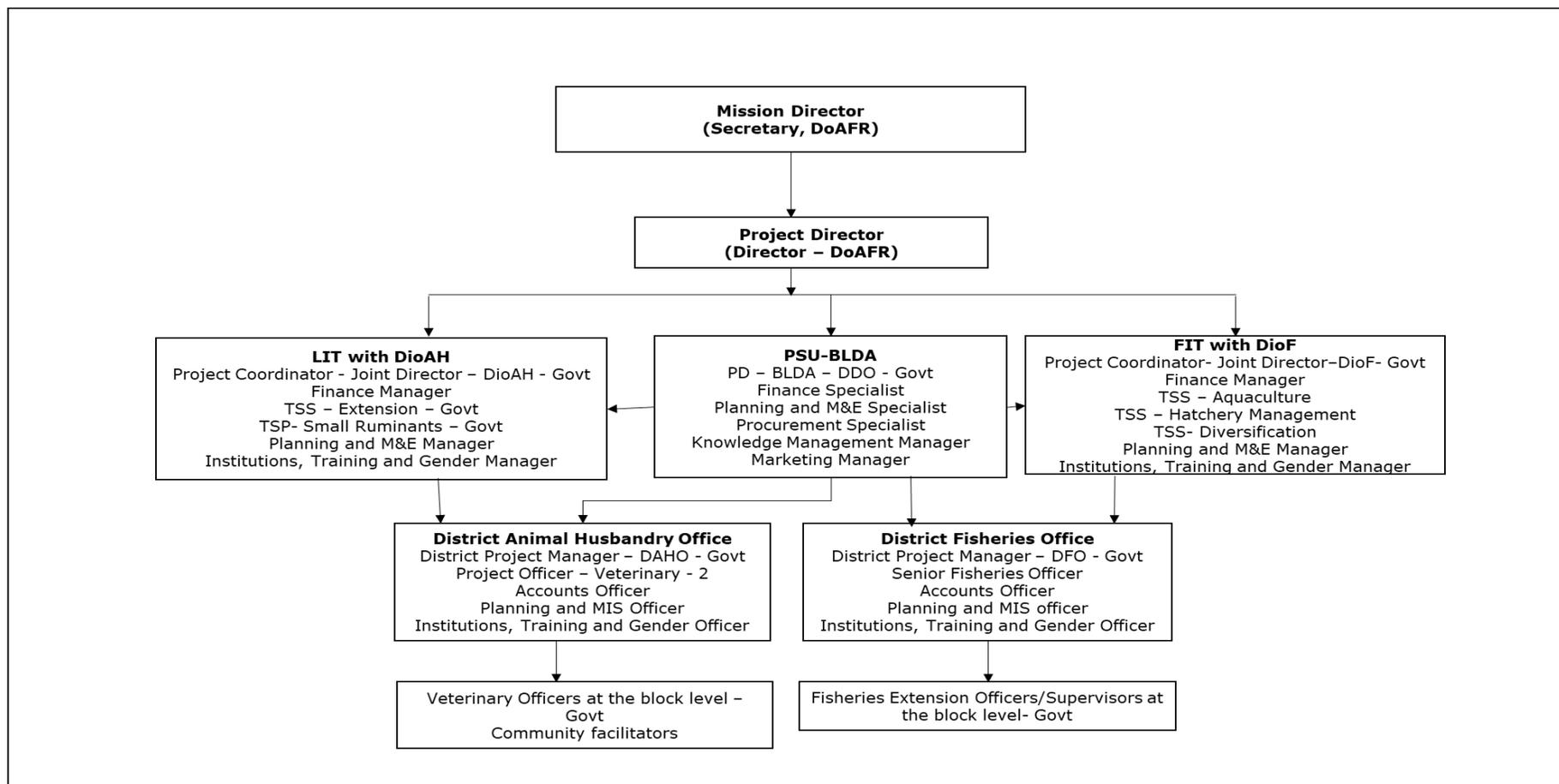
- Conduct a project completion impact assessment survey during the last quarter of the last project year.
- Prepare a Project Completion Report and submit it to IFAD- end of last project year.
- Make only committed expenditure during the period between project closing date and loan closing date.
- Reconcile and submit all withdrawal applications.

Attachments

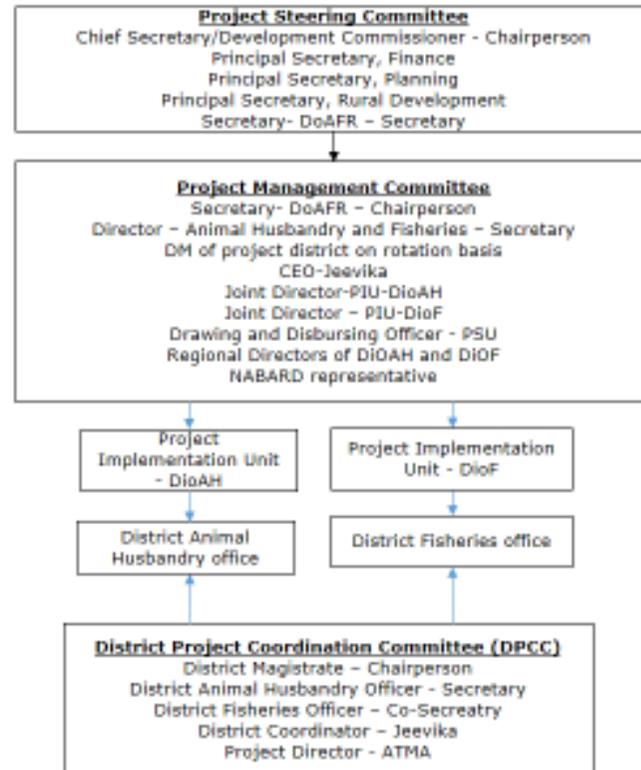
Attachment PM 1: Project Management Structure

Attachment PM 2: Project Coordination Structure

Attachment PM 1: Project Management Structure



Attachment PM 2: Project Coordination Structure



Chapter VIII: Terms of Reference – Project Management

Mission Director

The Secretary, DoAFR shall be the Mission Director. Functions of Mission Director include:

- Implementing all the policies laid down by the PSC.
- Ensuring compliance to statutory requirements imposed on the functioning of the PSU, LIT and FIT.
- Ensuring that all project activities are being implemented in a timely manner.
- Exercising powers related to the financial approvals, procurement and staff engagement as approved by the GoB.
- Maintaining close coordination with DoAFR, IFAD and the state level partners.
- Ensuring compliance to the terms and conditions set out in the programme financing agreement, project agreement, letter to the borrower and general condition of IFAD.
- Taking necessary actions to implement recommendation for resolving issues reported in the internal audit report and external auditor's management letter.
- Establishing an internal committee for receiving complaints of sexual harassment of women and complete inquiry in a sensitive and time-bound manner in accordance with the Sexual Harassment of Women at Workplace (Prevention, Prohibition & Redressal) Act, 2013.
- Incorporate gender sensitive approaches to recruitment of staff and create a gender sensitive working environment.
- Reviewing complaints related to fraud and Corruption², and taking necessary steps in consultation with the Additional Secretary, Vigilance Department, GoB.
- Functioning as the member secretary of the PSC and as the Chairperson of PMC
- Performing such functions as may be delegated by the Chairperson of the Project Steering Committee from time to time.

Project Director (PD)

The Director, DoAFR will be nominated as the PD. The function of PD include:

- Undertaking day-to-day management of the Project Support Unit (PSU).
- Planning and executing project activities in collaboration with LIT and FIT.
- Supervising AWPB and procurement plan preparation at the LIT and FIT level and also coordination with PSU for preparation and submission of the state level AWPBs.
- Supervising all project activities and ensuring that all project activities are being implemented in a timely manner.
- Exercising powers related to the financial approvals, procurement and staff engagement as approved by the Mission Director.

²<https://www.ifad.org/en/document-detail/asset/40189695>

- Undertaking regular staff (both LIT and FIT staff) meeting to review the progress and to mitigate implementation challenges.
- Recommend necessary actions to resolve issues reported in the internal audit report and external auditor's management letter.
- Maintaining close coordination with the state level partners and service providers.
- Undertaking regular review of the compliance to the terms and conditions set out in the programme financing agreement, project agreement, letter to the borrower and general condition of IFAD.
- Assist the Mission Director to comply with statutes enshrined in the Sexual Harassment of Women at Workplace (Prevention, Prohibition & Redressal) Act, 2013 and in gender sensitive recruitment and in creation of a gender sensitive work environment.
- Reviewing complaints related to fraud and Corruption³, and taking necessary steps in consultation with the Additional Secretary, Vigilance Department, GoB
- Performing such functions as may be delegated by the Mission Director/Chief Project Director.

Project Coordinator – PSU, BLDA

The Project Coordinator of BLDA will be nominated as the Project Coordinator PSU. The functions of the Project Coordinator-PSU include:

- Undertaking day-to-day management of the Project Support Unit (PSU).
- Supervising preparation and submission of consolidated AWPB and procurement plan at the PSU level and also coordination with LIT and FIT for preparation of their AWPBs and procurement plans.
- Exercising powers related to the financial approvals, procurement and staff engagement as approved by the Project Director.
- Incorporating project budget into budget of DoAFR, receiving budget allocations and release of budgets to LIT and FIT.
- Timely submission of proper progress reports, financial reports and withdrawal application as required by government and IFAD.
- Assist the Project Director to comply with statutes enshrined in the Sexual Harassment of Women at Workplace (Prevention, Prohibition & Redressal) Act, 2013 and in gender sensitive recruitment and in creation of a gender sensitive work environment.
- Maintaining close coordination with LIT and FIT and the state level partners.
- Performing such functions as may be delegated by the Project Director.

Finance Specialist - PSU

Qualification:

- Chartered Accountant (Member of the ICAI)/Post-graduate Degree in Commerce and accountancy

³<https://www.ifad.org/en/document-detail/asset/40189695>

Experience:

- About 10-15 years of experience in financial accounting of project/ company for candidates with post-graduation in commerce and accountancy and minimum 3-5 years experience for Chartered Accountants.
- Computer literacy and proficiency in Tally or other accounting software and use of spread sheets.
- Good knowledge of accounting.
- Working knowledge of audit requirements for financial compliances.

The functions of Finance Specialist include:

- Budgeting and accounting of the project.
- Expediting the release of funds for timely implementation of different activities by the LIT and FIT
- Consolidating accounts of the LIT & FIT.
- Monitoring fund utilization at the LIT & FIT.
- Maintaining records of all financial matters related to the project.
- Preparing periodical financial statements and submission of quarterly, half yearly and annual financial statements to IFAD.
- Preparing requests for release of funds from GoB and preparation and submission of withdrawal application to CAAA for submission to IFAD.
- Reviewing, supervising and inspecting the finance section of LIT, FIT, DLITs and DFITs, and provide the required guidance to them.
- Ensuring that the expenditure is within approved budgets and seek amendments to the AWPB and prepare supplementary budgets, if needed.
- Ensuring internal and statutory audit and preparation of financial statements for the purpose.
- Providing response on the internal audit report and external auditor's management letter.
- Ensuring timely settlement of advances.
- Ensuring procurement guidelines of IFAD are being followed.
- Keeping proper record of procurements made, fixed assets and carrying out periodical physical verification of the assets.
- Ensuring compliance with legal and statutory requirements such as filing of TDS and income tax returns and filing of annual audited accounts, etc.
- Providing training to the project finance and accounts staff on accounting and reporting requirement of the project.
- Providing financial data required for preparation of a Project Completion Report.
- Any other task assigned by the Project Coordinator-PSU.

Planning and M&E Specialist - PSU**Qualification:**

- Postgraduate degree in Agriculture Economics/Statistics/Economics

Experience:

- About 10-15 years of experience in rural development projects specifically in developing M&E frameworks, data analysis and report preparation.
- Experience in establishing systems for preparation of AWPB.
- Experience in undertaking research/studies related to impact assessment to evaluate project performance.
- Prior experience of working in and/or familiarity with development issues in the State Bihar will be an advantage.

Job Description:

- Guiding the LIT and FIT in preparation of AWPBs and procurement plan in consultation with DLITs and DFITs.
- Consolidating and finalizing the AWPB and Procurement plan for all stakeholders including AWPBs of all Directorate and district implementation teams.
- Establishing a computerised management information system with GIS links including developing formats and procedures for data collection taking into account the disaggregation of data by gender, youth and SC/ST.
- Collating and analysing data from the LIT and FIT and providing inputs to PD on project performance and preparing semi-annual and annual progress reports for submission to IFAD.
- Preparing and submitting quarterly reports to the PMC.
- Designing questionnaire, undertaking annual outcome surveys and preparing reports based on the results of the survey.
- Undertaking studies/survey/case studies of outputs, outcome and impact with approval from the management and as per AWPB.
- Preparing terms of reference for engagement of agencies and supervising the work of agencies engaged for conducting Baseline survey, RIMS baseline, Mid-term survey and Project Completion Survey to assess the impact of the project and supporting the agencies engaged for conducting these surveys.
- Collating data and analysing data for submission of information related to ORMS (RIMS) reporting.
- Collating data required for preparation of a Project Completion Report.
- Ensuring mainstreaming of gender in M&E work.
- Coordinating with the Training, Institutions and Gender Manager to ensure all activities follow the principles of the Gender Strategy.
- Ensuring capture of knowledge related to M&E in coordination with the Knowledge Management Manager.
- Any other task assigned by the PD.

Procurement Specialist - PSU**Qualifications:**

- Post graduate in commerce, business, finance, engineering or management or a degree in engineering (preferably civil) with a post graduate diploma or certification

in procurement or Material/Supply Management from any recognised university or institute.

Experience:

- Minimum 10 years of professional experience in international and national bidding procedure, procurement procedure, especially preparation of Expression of Interest, Notice Inviting Tender, Terms of Reference, Request for Proposal and bidding document for procurement of consultant services, goods and works.
- Preference will be given for experience in handling World Bank/International Financial Institution procurement procedures.
- Good written and verbal communication skills, proficient in English, computer literacy general MS package, proficient in computer based spread sheets for data analysis, proactive, work with minimum supervision, and as a team builder

Job Description:

- Prepare and include relevant Project Procurement Guidelines and formats according to the PIM. It should include IFAD procurement guidelines and Procurement Handbook, draw up draft project procurement manual for the project for approval by PMC and no objection by IFAD.
- Update the 18-month Procurement Plan prepared during design and ensure that the Plan is updated in accordance with the procedure and procurement plan agreed with IFAD.
- Liaise with IFAD procurement staff on applicable guidelines.
- Co-ordinate with concerned subject matter specialist on procurement matters, especially preparation of ToR, technical specification etc.
- Collaborate closely with PD and others for preparing advertisements, short listing, bidding documents, evaluation, letters of awards, draft contracts etc. in the procurement of good/works and services including consultancies.
- Co-ordinate with PD regarding submission of advertisements bidding documents, letters of invitation, evaluation reports, contracts, etc. to IFAD for those items subject to prior review.
- Facilitate/assist in getting no objection certificate (NOC) from IFAD wherever required.
- Co-ordinate with project team, organize and support evaluation committees for prompt evaluation and contract signatures.
- Maintain Contract Management forms (contract register and contract monitoring forms) as per the formats of IFAD and prepare amendment letters to the contracts. As part of the contract management, in coordination with the concerned officials monitor the contractual provisions for compliance.
- Monitor the progress of procurement activities of LIT and FIT against procurement timetables, highlight variations in progress, record reasons and identify remedial actions, if any.
- Assist the PD for placement of various documents/papers before Project Management Committee for review and approval, all types of audits of procurement activities, post review of IFAD, etc.
- Liaison with any other appropriate authority for any dispute among the parties relating to procurement.

- Provide documentations and data to IFAD fielded Supervision Mission and Implementation Support Missions.
- Perform any other relevant work related to the project assigned by the Project Director.

Manager - Knowledge Management - PSU

Qualification:

- Postgraduate degree Veterinary and Animal Husbandry /Fisheries / Agribusiness/ Rural Development/Development Studies / Journalism/Humanities

Experience:

- 5-7 years of experience in implementing rural development projects with relevant experience in knowledge management. Proficiency in written English is essential and knowledge of a local language is desirable. Proven experience in documenting and publishing case studies and/or research papers.

Job Description:

- Develop and operationalize a project level Knowledge Management strategy tailored to the needs of the project in line with IFAD's corporate Knowledge Management Policy.
- Establish sustainable KM systems at different Project levels to generate, analyse, document, share and disseminate Project field experiences for improved learning.
- Provide technical support on KM to districts and project staff and prepare the KM component of the annual work plan and budget for the project
- Capture and document learning, innovation and changes as these occur in the project life cycle during the QRM and Annual Reviews as well as from studies commissioned by the project.
- Preparing case studies containing best practices emerging in implementation of project activities and undertake dissemination of the best practices for replication within the project area.
- Prepare stories, newsletters for sharing and disseminating lessons learnt and good practices and also share information on innovations across Bihar in small livestock and fisheries sectors.
- Setting up a project website with IT support and publishing regular news and updates as well as case studies and articles on the website,
- Preparing project brochures and supporting M&E team in preparing six monthly and annual progress reports with inputs from concerned professional staff.
- Providing support to professional staff in identifying areas requiring preparation of implementation manual, training manual, training material preparation and preparation of required guidelines, manuals and materials.
- Identifying and documenting learning sites from the project.
- Organising learning events, exchange visits and exposure programmes for the communities.
- Liaising with LIT and FIT to generate and disseminate knowledge from project implementation experience.
- Preparation and of advocacy and policy reform within the small livestock, backyard poultry and fisheries related activities with other staff and partners for pursuing the agenda on advocacy and policy reform.
- Acting as a focal point for all knowledge management activities with inputs from other professional staff related to knowledge generation, knowledge dissemination and tracking uptake of relevant knowledge.

- Any other task assigned by the Project Director.

Project Coordinator – LIT (DioAH) and Project Coordinator – FIT(DioF)

The technical head of the Directorate of Animal Husbandry and the Directorate of Fisheries will be nominated as the Project Coordinator-LIT (DioAH) and Project Coordinator-FIT (DioF) respectively. The functions of the Project Coordinators include:

- Undertaking day-to-day management of the LIT/FIT
- Planning and executing project activities.
- Supervising AWPB preparation and procurement plan at the LIT/FIT level including the AWPBs of DLITs/DFITs and also coordination with PSU for submission of the LIT/FIT's AWPB.
- Supervising all project activities and ensuring that all project activities are being implemented in a timely manner.
- Exercising powers related to the financial approvals, procurement and staff engagement as approved by the Project Director.
- Undertaking regular staff meeting to review the progress and to mitigate implementation challenges.
- Supervising the activities of the project staff in the LIT/FIT
- Maintaining close coordination with the DLITs/DFITs established in the project districts.
- Overseeing implementation of project activities by the DLITs/DFITs and undertaking regular review of activities.
- Performing such functions as may be delegated by the Project Director.

Finance and Accounts Managers – LIT (DioAH) and FIT (DioF) – 2 positions

Qualification:

- Post-graduate Degree in Commerce/ Chartered Accountant (Member of the ICAI)

Experience:

- 5-7 years of experience in financial accounting of project/ company for candidates with post-graduation in commerce and minimum 2 years experience for Chartered Accountants.
- Computer literacy and proficiency in Tally or other accounting software and use of spread sheets
- Good knowledge of accounting
- Working knowledge of audit requirements for financial compliances.

Job Description:

- Maintaining the project accounts of the LIT/FIT.
- Preparing Bank Reconciliation Statements of the LIT/FIT every month.
- Preparing monthly progress report with the actual and budgeted figures for each activity and the variance thereof.

- Facilitating timely disbursement of project funds to DLITs/DFITs and other implementation partners.
- Following up with the DLITs/DFITs and implementation partners to ensure that they submit their monthly statements within the stipulated time.
- Preparing and consolidating the financial statements and the withdrawal application for submission to PSU.
- Providing accounts, statements and other documents as may be required by the Statutory/ Internal Auditor to ensure the timely completion of their assignment.
- Providing response on the internal audit report and external auditor's management letter.
- Maintaining the record of fixed assets, contract register and contract monitoring forms.
- Providing support and assisting the Finance Specialist in all other duties as may be assigned by the respective Project Coordinator.

Planning and M&E Manager– LIT (DioAH) and FIT (DioF)– 2 positions

Qualification:

- Graduate degree in Statistics/Economics/Agriculture Economics.

Experience:

- About 5-7 years of experience in rural development projects specifically in developing M&E frameworks, M&E training module development, management of MIS, data analysis and report preparation.

Job Description:

- Prepare AWPB for the project activities of LIT/FIT by consolidating the AWPBs of DLITs/DFITs, get it approved and submit it to PSU for consolidation.
- Review quarterly progress in implementation of project activities and submission of quarterly progress reports.
- Preparing Annual Progress Report related to project activities of LIT/FIT.
- Ensuring that field data is gathered and registered and also ensuring that quality of data entered for initial statistical analysis.
- Collecting data from DLITs/DFITs on a monthly basis and entering data and prepare analytical tables for data interpretation.
- Defining the principal automated outputs that the system should provide, based on IFAD, GoB, and GoI requirements.
- Assisting the agency engaged by the project in developing MIS including the choice of software according to database requirements, degree of user-friendliness, possibilities of updating the database and the technical facilities available in the field.
- Maintaining Local Area Network (LAN) so that every user in BAaLI can share network resources and use it without any difficulty (internet, printer sharing of files etc.).
- Providing technical advice as regards procurement of hardware, software, network related products and maintenance.

- Developing website and hosting and updating the same on regular basis to facilitate LIT/FIT and DLITs, DFITs, IFAD, other central Government to access project updates.
- Monitoring MIS software and checking the data coming from the DLITs and DFITs offices is complete in every manner.
- Any other task assigned by the Project Coordinator.

Procurement Officers – LIT (DioAH) and FIT (DioF)- 2 positions

Qualifications:

- Bachelor degree in commerce, business, finance, engineering or management with a post graduate diploma or certification in procurement or Material/Supply Management from any recognised university or institute or a degree in engineering (preferably civil).

Experience:

- About 3-5 years of professional experience in international and national bidding procedure, procurement procedure, especially preparation of Expression of Interest, Notice Inviting Tender, Terms of Reference, Request for Proposal and bidding document for procurement of consultant services, goods and works.
- Good written and verbal communication skills, proficient in English, computer literacy general MS package, proficient in computer based spread sheets for data analysis, proactive, work with minimum supervision, and as a team builder

Job Description:

- Prepare annual Procurement Plan and ensure that the Plan is updated in accordance with the procedure and procurement plan agreed with IFAD.
- Co-ordinate with concerned subject matter specialists on procurement matters, especially preparation of ToR, technical specification etc.
- Collaborate closely with the Procurement Specialist and others for preparing advertisements, short listing, bidding documents, evaluation, letters of awards, draft contracts etc. in the procurement of good/works and services including consultancies.
- Co-ordinate with Procurement Specialist regarding submission of advertisements bidding documents, letters of invitation, evaluation reports, contracts, etc. to IFAD for those items subject to prior review.
- Co-ordinate with project team, organize and support evaluation committees for prompt evaluation and contract signatures.
- Maintain Contract Management forms (contract register and contract monitoring forms) as per the formats of IFAD and prepare amendment letters to the contracts. As part of the contract management, in coordination with the concerned officials monitor the contractual provisions for compliance.
- Monitor the progress of procurement activities of LIT and FIT against procurement timetables, highlight variations in progress, record reasons and identify remedial actions, if any.
- Assist the Procurement Specialist and the Project Coordinators of LIT and FIT for placement of various documents/papers before appropriate authorities for review and approval.

- Provide documentations and data to IFAD fielded Supervision Mission and Implementation Support Missions.
- Perform any other relevant work related to the project assigned by the Project Coordinator – LIT (DioAH) and Project Coordinator- FIT (DioF).

District Project Manager – DLIT (DioAH) and District Project Manager-DFIT (DioF) – 24 positions

The District Officer of the Directorate of Animal Husbandry and the Directorate of Fisheries will be nominated as the District Project Manager – DLIT, DioAH and District Project Manager – DFIT, DioF respectively. The functions of the District Project Managers include:

- Undertaking day-to-day management of the DLITs/DFITs.
- Planning and executing project activities.
- Supervising AWPB preparation at the DLITs/DFITs including the block level activities and also coordination with the respective LIT/FIT for submission of the AWPB.
- Supervising all project activities and ensuring that all project activities are being implemented in a timely manner.
- Exercising powers related to the financial approvals, procurement and staff engagement as approved by the respective Project Coordinator.
- Undertaking regular staff meeting to review the progress and to mitigate implementation challenges.
- Supervising the activities of the project staff in the DLITs/DFITs and
- Overseeing implementation of project activities by the DLITs/DFITs and block teams and undertaking regular review of activities.
- Performing such functions as may be delegated by the Project Coordinator.

Finance Officer – DLIT (DioAH) and DFIT (DioF) – 24 positions

The Finance Officer will be deputed by the Government

Qualification:

- Post-graduate Degree in Commerce and Accounting/Bachelor degree in Commerce and Accounting.

Experience:

- 2-3 years of experience in financial accounting of project/ company for candidates with post-graduation in commerce and accounting and 5-7 years experience for candidates with graduation in commerce and accounting
- Computer literacy and proficiency in Tally or other accounting software and use of spread sheets
- Good knowledge of accounting
- Working knowledge of audit requirements for financial compliances.

Job Description:

- Maintaining the project accounts of the DLIT/DFIT.
- Preparing Bank Reconciliation Statements of the DLIT/DFIT every month

- Preparing monthly progress report month with the actual and budgeted figures for each activity and the variance thereof.
- Facilitating timely disbursement of project funds for project activities.
- Following up with the implementation partners and project staff to ensure that they submit their monthly statements within the stipulated time.
- Preparing the financial statements and the withdrawal application for submission to LIT/FIT.
- Providing accounts, statements and other documents as may be required by the Statutory/ Internal Auditor to ensure the timely completion of their assignment.
- Providing response on the internal audit report and external auditor's management letter.
- Maintaining the record of fixed assets, contract register and contract monitoring forms.
- Performing such functions as may be delegated to him by the District Project Manager.

Planning and M&E Officer –DLIT (DioAH) and DFIT (DioF)– 24 positions

Qualification:

- Post Graduate degree in Agriculture Economics/Statistics/Economics

Experience:

- About 2-3 years of experience in rural development undertaking research/studies related to impact assessment, evaluating project performance and establishing systems for preparation of AWPB and monitoring results.

Job Description:

- Consolidating and finalizing the AWPB and Procurement plan of the district.
- Collating and analysing district level data, entering into computerised MIS and submission data analysis reports to DLITs/DFITs and the Deputy Commissioner.
- Providing input to prepare semi-annual and annual progress reports of DLIT/DFIT for submission to the respective LIT/FIT.
- Undertaking annual outcome surveys and collating data of the survey as required by respective LIT/FIT.
- Supporting the agencies engaged for conducting Baseline survey, End-line survey to assess the impact of the project.
- Assisting the Manager Knowledge Management to identify success stories and facilitate dissemination of best practices from field level implementation.
- Any other task assigned by the District Project Manager.

Chapter IX: Monitoring & Evaluation and Knowledge Management

A. Objectives of M&E

1. The integrated M&E and knowledge management (KM) system of this project will be developed with three main objectives:

- **Steer project implementation:** To provide project stakeholders with information and analysis required to measure programme outputs and outcomes to support decision-making to improve project performance that include: (i) assessment of project effects on the livelihoods of participating small livestock and fish farmers; (ii) assessment of the relevance of the project strategy, methodologies and implementation processes; and (iii) detection difficulties and successes.
- **Support economic decisions and policy-making:** To provide grassroots level stakeholders, and, in particular producer groups and organisations, with the information and analysis they need to assess the results to scale up profitable activities and to adapt their strategies accordingly, by monitoring both quantitative (production, productivity, costs and benefits) and qualitative results (members'/clients' satisfaction). Furthermore, it should provide stakeholders and government with the information needed to make policy decisions that can positively benefit economic activities within the value chains.
- **Share knowledge:** to develop lessons learnt, capture good practices and successful innovation, and share knowledge under appropriate formats to support project performance and policy dialogue. Specific areas of interest in this respect comprise inclusive business models, public-private partnerships for farmers' access to services, and innovative financial instruments.

B. Strategic Principles

2. The system will be: (i) open and easily accessible, i.e. its use will not be restricted to project or government agencies' staff, but also provide information and learning for value chain stakeholders; (ii) participatory, i.e. associate project stakeholders, and specifically, producer groups and organisations in the definition of indicators, data collection, analysis and dissemination of results; (iii) growing, thus small initially and develop progressively as needs and capacities develop; (iv) focused on analysis and learning in support of decision-making and policy dialogue, and not merely on data production; (v) inclusive so that women, youth and marginalised groups participate in the system; and (vi) support accountability towards project stakeholders.

3. The M&E and Management Information System (MIS) systems established at the PSU/LIT/FIT level will provide a venue for discussing project achievements and innovations, identifying successes and problems as well as good practices, discussing possible solutions including non-project based solutions and identify policy issues. They will also contribute to the preparation of Annual Work Plans and Budgets (AWPB).

C. M&E System

4. **Framework and implementation plans.** The M&E system will be setup and managed by the PSU and efforts would be made to link with all ongoing systems that are being used by the government. These systems should capture both monitoring inputs and outputs and will have to be developed to meet IFAD's requirements. These will include reporting forms starting output indicators disaggregated by gender, SC/ST and youth.

5. **Indicators** Output and outcome indicators will be developed with the help of stakeholders. These will be coherent and SMART (specific, measurable, achievable, relevant, time-bound), easy to collect and gender, SC/ST and youth disaggregated. They will include relevant Operational Impact Management (ORMS)/Result Impact Management System (RIMS) indicators, required by IFAD at corporate level.

6. Baseline and Completion surveys: A baseline study measuring the status of the main indicators (including ORMS/RIMS indicators) will be carried out by the government by engaging a service provider immediately after the project gets in principle agreement. A completion survey – which is the repetition of the baseline survey – will be carried out at the end of the project in order to measure the final outcomes and impacts and will support the preparation of the Project Completion Report (PCR). In addition to the outcome and impact indicators specified in the logframe, the baseline and completion surveys will document specific result indicators related to the project being classified as gender transformative and nutrition sensitive : the pro-WEIA and the % of women reporting minimum diet diversity score.

7. Project planning: The M&E/KM cycle will start with the preparation of the project Annual Work Plan and Budget (AWPB), which will be a key instrument for implementation and operational control. It will cover detailed annual planning of activities and implementation responsibilities, physical results targeted, outputs expected, budget and procurement plan. Such plans prepared at each cluster/block level aggregated separately at DLITs and DFITs. These will be consolidated at the state level by the respective LIT and FIT. Subsequently, the two sectoral AWPBs will be consolidated into a project AWPB by the PSU. The project AWPB will be collated at the PSU by the Planning and M&E Specialist (PME Specialist) and the Finance Specialist (for budgeting) under the supervision of the Project Director, The AWPB will be submitted to IFAD for obtaining no-objection and thereafter the AWPB will be submitted to PMC for approval. Once it is approved by the PMC, it will be incorporated into the budget of the DoAHR. A model AWPB for the year 2020/21 is provided as Attachment ME 1 and this could be used as a model template.

8. Data collection: Data will be collected using adequately designed forms designed by the PME Specialist and organised along three levels:

- a. *at village level*, information will relate to number of goat and fish farmers and their organisations, goat mortality, goat herd size increase, fish production per hectare, household nutrition and production/income evolution, and it will be provided by farmers' and their producer groups and channelled to the M&E system by community level workers supported by block and district teams – to avoid multiple counting of beneficiaries, activities will be recorded by household with unique identification number.
- b. *at goat and fish value chain level*, information will be provided on the incomes of DISHA workers (DWs) and Fisheries Transformative Agents (FTAs), increase in farm gate price of goat and fish, loan portfolio details income of business partnerships, financial instruments, value chain development and policy research, and it will be managed by the respective district level Planning and MIS Officer.
- c. *at project level*, information will encompass *overall* programme performance and it will be the responsibility of the PME Specialist. All stakeholders will have an active and important role in identifying and reporting data, either formally or informally. The PME Specialist will make sure that women are adequately represented in this process.

9. Analysis: Data from different sources will be consolidated and analysed so as to provide information on the performance of the various components, identify problems, identify possible solutions and track good practices to share through the knowledge management system. Information will also be shared with and discussed by the project stakeholders with a view to assessing the overall progress in implementation and discussing measures to improve performance.

10. **MIS**: A MIS will be set up to facilitate the flow of data. The MIS will track *financial and technical data* on project outputs and outcomes, lessons learnt, good practices, and other important sector information to analyse performance of the project including information regarding price and export statistics. The MIS will process information and present it along visual formats such as dashboards and charts linked to GIS for location

identification with latitude and longitude coordinates where project investments will be made to avoid duplication. Where possible, the project will also link the MIS system with the Aadhar numbers of the households to ensure verifiable service delivery. The MIS will be set up by a service provider, which will also provide training to relevant staff. Regular updates will incorporate new information requirements arising during programme implementation.

11. **Reporting:** Brief quarterly reports will be prepared by district teams, mainly consisting of the record of activities, outputs and financial transactions. They will be channelled to PSU through LIT and FIT, where these will be consolidated prior to submitting them to PMC and PSC. Consolidated biannual and annual reports will be more comprehensive, cover both technical and financial information, and include an analysis as above. Annual reports will cover outcomes (based on annual outcome surveys below), lessons learnt, innovations and good practices, and knowledge gaps identified.

12. **M&E capacity development:** Capacity building for the M&E staff at all levels is required. The short-term *M&E/KM consultants* will design a capacity building plan as part of the services to support staff of PSU, LIT, FIT, DLITs and DFITs. An M&E training curriculum will be developed on the basis of capacity assessment. Training programmes will be delivered to the management staff on the strategic issues of M&E, especially on how M&E data could be used for result-based management. With regard to the M&E staff, training courses will focus on both concepts and practical skills to manage the M&E system, especially data collection, data analysis and reporting.

13. **Webpage on IFAD Asia:** The M&E system will provide information on outputs, outcomes, impacts, lessons learnt, good practices, and other key sector information to analyse performance of the programme, including information regarding price and export statistics. In addition, this information will also be available through IFAD, Asia, which makes available to the public key information about the project, its achievements, good practices, policy studies and other key documents. The webpage will be maintained by PSU Knowledge Management Manager.

D. Inception and Reviews

14. **Inception:** An inception workshop will be organised with project stakeholders and implementing partners to: (i) ensure that all partners understand and agree on the scope and implementing modalities of the project; (ii) introduce key processes, tools, strategies and reporting needs; and (iii) act as a networking event to build relationships for future knowledge sharing.

15. **Supervision:** The project will be supervised directly by IFAD. Annual supervision missions, followed initially by short follow-up missions as required, will be organised jointly with the government and other stakeholders, in close collaboration with project districts and the participating farmers. Supervisions will be conducted not as a general inspection or evaluation, but rather as an opportunity to assess achievements and lessons jointly, to review innovations, and to reflect on improvement measures. These supervision missions will therefore be an integral part of the KM cycle, with mission members playing a supportive role. To ensure continuity in this process, missions will be carried out by a core team of resource persons returning regularly, joined by specialists to address specific needs of a given year.

E. Knowledge Management System

16. In the first year the project will prepare a project level KM strategy in line with the IFAD India and headquarters policy on KM. The KM strategy will set out a plan to build a robust KM system for the project. This system will enable the project to generate, capture, share and disseminate relevant information and knowledge to various stakeholders in a timely manner. The project website will be used as a knowledge sharing tool, and will be linked to the IFAD Asia website. The KM team will extensively document and share knowledge generated in the project. The quarterly review meetings will be used as potential knowledge sharing venues for capturing lessons learned and best practices

leading to development of related knowledge products. Key information from M&E studies, reviews and exposure visits, lessons and best practices will be disseminated through knowledge products such as newsletters, project briefs, technical manuals, working papers and case studies.

- The project will nurture a culture of learning and sharing across partner agencies and across local groups.
- Reporting lines and channels of communication need to be established for each level of staff.
- The TORs of all professional staff will have KM as a cross cutting deliverable.

F. KM Strategy

- The KM Manager will develop a KM strategy based on the IFAD and Asia Pacific KM strategy in consultation with the subject matter specialists.
- The strategy will also include a needs assessment of the main stakeholders of the project namely the different project functionaries (field, district level, state level etc), the community people (producer groups producer organisations), the government stakeholders, IFAD and other donors.
- The KM Needs Assessment Matrix (below) used in all IFAD projects outline the knowledge need and the possible ways to capture and disseminate it.

Knowledge Area	Who need this information/knowledge	Who will provide this information	What knowledge is needed	How will this knowledge get generated	How will this knowledge get documented	How will this knowledge be shared	Training needs at different level	Constraints	Possible Solutions
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- The Needs Assessment will be done in collaboration with the other subject matter specialists and management. It will look at each component and sub component to make a comprehensive plan.
- The project will also develop a plan of action as part of the strategy in order to plan for the entire period of the project looking at the different knowledge need stages of each stakeholder.
- The plan should have simple deliverables spread out over the period.
- The strategy and plan should also include simple incentives for those who pursue KM as part of their work as KM is very individual oriented. These incentives will build a culture of knowledge sharing among the staff. It can be recognition and awards given to these individuals and can be given on an annual basis at the annual review meeting of the project.

G. Reviews

Quarterly Review meetings

- Through centrally held quarterly reviews of district wise progress, the implementation progress will be assessed by the senior management and the project team.
- These reviews will function as knowledge sharing events within the project. It will be documented and disseminated across all the districts and archived for further use.

- These events will not only assess physical and financial progress but also cross cutting issues like gender, M&E and KM.
- The project will use different knowledge sharing tools (www.kstoolkit.org) – peer assist, world café, open space etc.- in these events.
- Reports will be generated of these meetings and disseminated and archived.

Internal Reviews

- Internal reviews will be held by the LIT and FIT once in six months to select districts with low levels of performance.
- The review team will be established by the Mission Director/Project Director comprising officials from LIT and FIT, and consultants where required.
- The team visits will be for about week and will cover all operational areas. This will be undertaken internally to foster a more knowledge sharing culture and will enable a higher efficiency of project implementation.
- A report will be published on the findings of this team and will be disseminated to all districts and shared with the IFAD supervision missions.

Supervision Missions

- IFAD conducts yearly (and sometime bi annum) mission to each project to assess the implementation progress of the project and to address constrains projects are facing. The project staff also participate in such missions. All reports generated by any mission should be distributed among the project staff.

Linking KM to M&E Systems

- Relevant information should be extracted from the M&E database and validated and synthesized.
- Actual results should be then compared with previously defined objectives. Lessons should be drawn from successes and failures, and best practices and innovations. These should result in success stories, case studies, thematic technical papers and policy briefs.

Studies, documentation and knowledge products

- Special studies will be undertaken within the project cycle to understand the impact of project interventions on women and the poor.
- Learning notes on project implementation (good practices and lessons) in all sectors will be developed with the village communities.
- The project could publish a bi annum newsletter based on good practices and human interest stories that will be disseminated to all important stakeholders.
- For the communities, they will develop contextual specific IEC materials that are required by the non literate communities on good practices for goat, backyard poultry and fish culture, health and nutrition as per the interventions. It must be taken into consideration that the IEC materials must be gender sensitive and must promote gender justice messages alongside.
- Besides this, the project will also produce pamphlets, brochures, calendars, CDs, manuals, posters, videos which are effective ways/ methods of communications, especially at the community level.
- Documenting of indigenous knowledge systems on small livestock management, fish culture, nutrition, and climate change will be an important part of the knowledge products that the project will take out. This will be systematically carried out every year of the project as one of its main publications.

Policy dialogue

- The project will conduct conferences and workshops based on the knowledge gained by implementation of the project.
- All important studies carried out under the project can have a dissemination workshop and invite prominent decision makers to influence policy.
- The project will also promote networks of groups like DWs, FTAs, SLEs and FLEs through knowledge sharing events.

Website development

- A website will be developed which will have facilities for online uploading of monitoring data from the districts.
- It will also contain GIS linked maps of the villages and the fish culture tanks supported by the project. A section on reports and good practices and lessons learned will be included in the website.

IFAD Asia website

- The KM Manager will be the site host for the project page of the IFAD, Asia website and will update on a weekly basis, all activities and events of the project. This will be an indicator of performance for this position.
- All KM focal points at the district level will be linked to this website so that they can post their updates on a regular basis.

Training and workshops

- The KM Manager will carry out at least one training each year for the project staff on (orientation, documentation, knowledge sharing) and organise thematic workshops to build the capacity of the project staff and enhance knowledge sharing in the project.
- The topics for the training can include – good practices in goat rearing and other small livestock and fish culture, how to monitor work effectively, how to plan work, how to conduct meetings, how to do gender analysis for livelihoods, etc.
- Involving producer groups/organizations in thematic workshops will be a way to ensure cross learning of good practices.

Transfer of knowledge

- In order to ensure that the knowledge gained through external workshops, it will be made compulsory for every staff to write a report of the workshop and disseminate the same.
- In order to systematise the transfer of knowledge to the new staff, the project will ensure that the out-going staff record the history of all activities and list all pending actions to be done. This will form part of the archive of the project management systems.

H. Monitoring & Evaluation (M&E)

17. The main purpose of setting up an M&E system in any IFAD-funded project is to provide comprehensive, frequent, periodic and reliable data and information for sound result-based management and decision-making by the project management. The M&E system is designed to inform project management of whether implementation is going as planned and what corrective actions are needed in planning, target setting, budget allocation, etc. M&E system will generate relevant knowledge based on analysis and disseminates lessons learned in a targeted and strategic manner to comprehend achievements in development objectives of the project. The M&E system is expected to perform and achieve four essential objectives: (i) to monitor and manage project progress; (ii) assess project outcomes and impact; (iii) capture and disseminate lessons learned and good practices; and (iv) build local/community capacities for participatory M&E. However, the M&E system would operate in four interlinked domains:

a) *Setting up the M&E system* by identifying information needs to guide the project strategy, ensure effective operations and meet external reporting requirements (of IFAD and Government) – *prime responsibility* of the PME Specialist in the PSU supported by the PME Managers in LIT and FIT, and KM Manager in PSU, TIG Managers in LIT and FIT. It will also be very useful to get inputs from IFAD at this stage.

b) *Implementing the M&E system*-gathering and managing information/data-information will need to be collected from the 12 districts, 64 blocks and 9,216 villages. The district level Planning and MIS officers will be supported by Community Facilitators, DWs, FTAs, SLEs and FLEs. Their prime responsibility will be the monitoring of the progress of physical implementation against project targets and the AWP&B, along with collecting some key outcome data from each village - especially concerning changes in land use. Information on project outcomes and the results of processes will be collected via Annual Outcome Surveys (AOS) commissioned by the PSU and implemented via DWs, FTAs. Baseline survey at start up and Impact evaluation surveys at completion will be contracted to an external agency.

c) *Involving project stakeholders in critical reflections* - once information has been collected it would be analyzed and discussed by project stakeholders (via monthly/quarterly/half-yearly/annual meetings)- prime responsibility of the PME Specialist and PME Managers who will interact with project implementing partners including partner line agencies for a smooth information flow and results generation. This will include preparation of monthly/quarterly/half-yearly/annual physical and financial progress reports against AWPB targets.

d) *Communicating results of M&E* to all stakeholders including policy makers, project participants, Government and IFAD. The key combined M&E results will include Annual Progress Report, Mid-Term Review Report and Project Completion Report⁴. As part of good practice such report will include details of project implementation and adequate information about what has been achieved and worked well. However, in the end, what makes the difference is how people interact, how ideas are shared and developed, and by doing so, how people are motivated and supported to learn and contribute to benefit all by meaningfully investing in rural people.

18. **M&E framework.** BAaLI will set up its M&E system following IFAD's M&E guidelines⁵. The basic M&E framework to support in development of M&E system is the systematic collection, analysis and reporting of information/data at three different levels of project implementation results: **(i) outputs** (from inputs and activities); **(ii) outcomes;** and **(iii) impact,** encompasses result-chain approach. A key element of the M&E framework is the M&E matrix - an expanded version of the logframe which identifies exactly when information will need to be collected and the methods of collection. The overall M&E framework will also include other M&E tasks annually or during the course of project implementation. These include conducting / reporting Annual RIMS, Annual Outcome Surveys, and Baseline & Completion Impact Assessments. The project will also carry out a Mid-Term Review and draft a Project Completion Report following IFAD guidelines.

19. **Output monitoring** will measure the progress of activities and achievement of outputs against annual targets in the AWPB for each project component. AWPB outlines the inputs and activities to be undertaken and data on outputs would be collected or measured for each indicator at the end of each month/quarter/year. This can be linked to the financial expenditure on the concerned activities, and data will be stored and report via a computerised MIS. The type of output data to be collected and monitored will be carefully dovetailed with the project logical framework indicators. The computerised MIS will also record village profiles for each village where the project is working, which will be drawn up before work starts to collect basic human, economic and natural resource information against which progress can be measured. The project will also implement a

⁴For each of these reports, IFAD's appropriate guidelines would be provided and IFAD will support the project in understanding and applying these guidelines.

⁵See Managing for Impacts in Rural Development – A Guide for Project M&E, IFAD.

GIS based identification of support for fish pond construction and rehabilitation and also aadhar based identification for beneficiaries. Physical and financial progress data and reports for each component/sub-component in each village will be recorded in the computerised MIS. Village level data would be collected by the DWs in respect of livestock and FTAs in respect of fisheries. Where required data will be disaggregated by gender, age (youth) and social groups, particularly related to training and access to services. The output monitoring indicators are provided in Attachment M&E 2.

20. Although output monitoring would appear to be a straightforward process, the experience of a number of IFAD projects in India and elsewhere have highlighted the need to pay adequate attention to the details of how data is collected (formats used, frequency of data collection, etc.) and reported. Overlapping components can mean households participate in more than one activity with the risk of double counting when calculating the number of households reached by project services. These problems can be overcome by training of staff responsible for progress reporting to use a common reporting format and carefully defining how participating households will be counted. The PSU will take the lead in harmonizing the different formats for data collection and reporting, and if at all possible a list of all households in each village will be maintained in the MIS - referenced by village geocode numbers and the head of household's national identify card (*Aadhar* card) number.

21. **Outcome monitoring** measures the immediate changes coming about as a result of project interventions. A few outcome indicators are shown in the project logical framework, but others will need to be added to create a results chain of evidence of change linking project outputs to the objective and goal. However, it is difficult to collect information from all households on indicators such as productivity, fodder development, nutrition security, etc., the project will conduct Annual Outcome Surveys (AOS) as per IFAD's guidelines. The outcome monitoring indicators are provided in Attachment ME 2. In addition, and given the project is classified as gender transformative and nutrition sensitive, specific outcomes related to these aspects will be covered in terms of gender roles/ workload, economic empowerment and voice/ representation, and nutrition (diet diversity, food security and access to the Government's nutrition schemes).

22. Related to outcome monitoring is **process monitoring**, which involves monitoring the processes leading to outputs and outcomes. Examples of specific areas where process monitoring will be useful in BAaLI may include effectiveness of DWs in service delivery and their sustainability, effectiveness of FTAs and their sustainability, effectiveness of light touch PG and FPO promotion efforts of the project. Information on these may be gathered via Participatory M&E or PME (*see section on PME below*). In addition, the project can undertake specific studies related to goat and fisheries value chains.

23. **Impact evaluation** is the process which will assess the contribution of project activities in achieving the overall goal of the project. The main tool for impact evaluation will be baseline and end-of-project surveys of project households. These surveys will be undertaken by the PSU M&E unit by engaging an external agency, with specific expertise in such assessments. The indicators on which data to be collected by these surveys include those shown at objective and goal levels in the project logframe and also in the monitoring indicators provided in Attachment ME 2 in order to show evidence of a results chain from project activities, through outputs and outcomes to objectives and goals. This helps relate changes in impact indicators to participation in project activities and delivery of project outputs, and also to other logframe. As indicated for the baseline survey, the pro-WEIA and the % of women reporting minimum diet diversity score will be assessed given the project is classified as gender transformative and nutrition sensitive.

24. **Participatory Monitoring and Evaluation (PME)**: This tool will be used particularly for outcome monitoring. At project level, one of the strategies could be to invite the PG and FPO members from both small livestock and fisheries sectors, partner agencies and banks, etc., to the district level review meetings and give them the opportunity for sharing their views about the project and identify mechanisms for

improvement. In PME, the primary stakeholders - the project target communities – are active participants in all stages of project cycle, not just sources of information. PME will also focus on building the capacity of the local communities to analyse, reflect and take decisions and actions. PME attempts to provide opportunities for joint learning of various stakeholders at various levels of the project cycle.

25. PME facilitates greater stakeholder commitment and ownership on the project activities, in turn empowering them to take corrective actions to help themselves. At the implementation and community level, participatory M&E is a kind of social process; it generally involves intense negotiations between different target communities having different needs, expectations and worldviews. In a way PME is also a kind of grassroots political process which addresses issues of equity, power and social transformation. Above all, PME could be a highly flexible process, continuously evolving and adapting to the programme specific circumstances and needs. PME is but the building block for successful M&E system in all IFAD projects and the project staff will be oriented and sensitized on the need for sharing of project information and knowledge on regular basis with all stakeholders including the project target communities with open mind and transparent attitudes. The project will use PME to evaluate the performance of DWs, FTAs, SLEs and FLEs.

26. **RIMS indicators.** The Operational Results Measurement System Results (previously Results Impact Management System) of IFAD generates annual report tables on a number of first and second level results indicators that correspond to the output and outcome indicators (of the project logframe). IFAD has produced a standard list of these indicators, but only some of these will apply to an individual project. Prior to mid-term review, the project will report on only the *first level results*, but after the mid-term report it will report on *second level indicators*. The selection of first level indicators and second level indicators will be done on the basis of specific project characteristics, which the project would develop and discuss during project start-up workshop. All indicators would be reported on sex-disaggregated basis and to the extent relevant differentiation of results by gender, age and other social groups would be made.

27. **Mid-Term Review (MTR).** A joint mid-term review will be organised by government and IFAD at the end of the third year of the project, in close collaboration with the above-mentioned agencies and stakeholders. The MTR will: (i) assess project achievements and interim impact, the efficiency and effectiveness of the project management, and the continued validity of BAaLI design; (ii) identify key lessons learnt and good practices; and (iii) provide recommendations for the remainder period of the project. However, specific TOR for the mission will be mutually discussed and agreed to between IFAD, GoI and the State Government.

28. **Project Completion Review and Report.** At the end of the project, the PSU will draw up a Project Completion Report (PCR) based on IFAD's guidelines⁶ for project completion. IFAD will provide support to the project in this work. IFAD will carry out a PCR Validation on the basis of the project PCR at least 3 months before the loan closing. IFAD's Independent Office of Evaluation (IOE) may also undertake a formal Evaluation of the project well after the closure of the project (which is usually known as Project Performance Assessment or PPA).

29. **Annual Outcome Survey (AOS).**⁷The AOS is a short and quick household survey that is undertaken annually by project staff. This aims to provide regular or timely information about results that can be used to take corrective action during project implementation. In particular, the AOS is intended to set out to identify positive and negative changes taking place at the household level, provide early evidence of project success or failure, and also assess targeting efficiency. These changes are measured relative to non-project households and normally an AOS covers a small sample of 300 to

⁶ Guidelines for Project Completion Review, IFAD, October 2015. This includes stakeholder workshops to gather feedback on results and lessons learned

⁷See Designing and Implementing ANNUAL OUTCOME SURVEYS -- a guide for practitioners –IFAD, 2016

400 households per sector in total covering about 600 households selected randomly in project areas (project beneficiaries). Since the project works on two sectors, it would be appropriate to conduct two separate AOSs covering beneficiaries of these two sectors. Annual Outcome Surveys will be undertaken by the PSU and LIT and FIT.

30. **Special thematic/diagnostic studies.** The project may carry out, or commission, a number of relevant thematic special studies. The project will allocate budget in its AWPB and some of the thematic studies could include, for example, Feasibility of cage culture, co-management of ox-bow lakes, etc. These studies will be carried out taking into account through gender lens.

I. Implementation Responsibilities of M&E

31. **M&E Staff:** The project will recruit staff experienced in M&E for the PSU, LIT and FIT. In the first year of the project, the M&E staff will focus on establishing a functional M&E system for the project. This would include reviewing the results framework and indicators with the project management and IFAD to ensure that they are relevant, refining the M&E plan and M&E matrix, assessing staff training needs on M&E, organising M&E training at all level (PSU, LIT, FIT, DLITs and DFITs), coordinating and conducting the baseline survey, designing the various reporting formats, developing databases, setting up the MIS, and training of the DWs and FTAs on some elements of data to be monitored, etc. From the second year, the M&E staff will amongst others focus on timely conduct of AOS, annual ORMS/RIMS Report, etc.

32. The PSU PME Specialist will be responsible for coordinating project planning - such as consolidation of the AWPB. This person will also oversee the preparation and submission of project reports (such as Annual/Half Yearly Progress Report, RIMS and AOS) - with support from the KM Manager. M&E staff in PSU, LIT and FIT would also provide support during IFAD supervision, implementation support, MTR and PCR missions, and will organise all data and information relating to the project for reference by the IFAD missions.

33. **Key M&E tasks and implementation arrangements during project implementation cycle.** The overall key M&E tasks and implementation steps during various cycles of project implementation are summarised in Table 1 below:

Table 1: Summary of key M&E tasks

Key stages of project cycle	Key M&E tasks ⁸
Project initiation (loan effectiveness) to project start-up workshop (usually PY 1)	<ul style="list-style-type: none"> • Recruitment of all M&E staff • Review the project design/detail project report in relation to M&E with key stakeholders; • Review the PIM in relation to the section on M&E and KM in particular; • Develop a detailed M&E plan and system including appreciation of project M&E culture and practices that would be emerging taking into consideration the various project results chain; • Review / develop various M&E formats (data collection and reporting formats); • Undertake and complete the baseline surveys (outsource/procure an agency); • Develop project MIS (outsource the task / procure an agency); • Prepare the KM strategy and action plan; integrate M&E and KM. • Prepare the knowledge management strategy and link it up with • Put in place necessary conditions and capacities for M&E to be implemented.
Main implementation period	<ul style="list-style-type: none"> • Ensure all data and information needs for management and key stakeholders are regularly met; • Coordinate information gathering and analysis, as also data storage and data management; • Facilitate and support regular review meetings and processes with all implementers and stakeholders;

⁸Should be read along with the overall KM tasks to have link between M&E and KM

Key stages of project cycle	Key M&E tasks ⁸
	<ul style="list-style-type: none"> • Prepare for and facilitate the project reviews/ review meetings (monthly/ quarterly/ half-yearly/yearly or annual); • Coordinate/prepare for supervision missions; implementation support missions, etc.; prepare the action taken report on recommendations of IFAD's missions. • Organise meeting of IFAD mission and government during supervision missions, etc. • Conduct focused studies on emerging questions including documentation of good practices and missed opportunities (those not working well; suggest alternatives); • Disseminate / communicate project results with various stakeholders; • Prepare/undertake and ensure timely submissions of various reports as per IFAD's norms and requirements including documentation of success case studies, half-yearly/annual progress report, Annual Outcome Survey, Annual ORMS/RIMS Report, etc. • Consolidate the various types of supervision mission and implementation support mission feedback.
Mid-term	<ul style="list-style-type: none"> • Collate information for the mid-term review (MTR); • Coordinate for conduct of the MTR; • Facilitate internal review processes to prepare the external review processes. • Adjust the M&E system as required. • Revise the draft exit strategy and post-project sustainability. • Organise project workshop to review, share and disseminate changes proposed at MTR with all project staffs and partners.
Phasing-out and completion	<ul style="list-style-type: none"> • Assess what the implementers and communities can do to sustain project interventions, impacts and M&E/KM activities could be sustained after closing down; implement these specific ideas; revise and update the project exit strategy and post-project sustainability strategy or action plan. • Undertake end-line surveys / impact studies (outsource/procure an agency) • Organise workshops to review the key elements of project exit and post-project sustainability strategy. • Organise workshops and field studies with key stakeholders to assess project impacts; identify lessons learned for next phase of the project and/or other projects to be designed in future. • Prepare the Project Completion Report (PCR) as per IFAD's guidelines. • Facilitate and coordinate IFAD's PCR validation mission. • Organise closure workshop to share and disseminate lessons learned with all key stakeholders.

34. **Annual M&E Activities Calendar.** The key M&E activities and reporting requirements to be performed by the project by date/month are illustrated below. This does not include the higher level project coordination meeting such as Project Steering Committee (PSC) meeting.

Key activities	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar
Annual Progress Performance Review												
AWPB preparation and submission												
Annual Progress Report												
Half-yearly Progress Report												
Annual ORMS Report submission												
Annual Outcome Survey Report submission												
Annual Audit Report submission												
Quarterly Results Report Preparation (Outputs)												
Quarterly Review Meetings at PMU												
Focus Groups and Key Informant Interviews												
Monthly physical & financial data collection/ MIS entry												

35. **Management Information System (MIS).** The project will establish an MIS system in the first year of project implementation. The MIS system will have separate modules for the small livestock sector and the fisheries sector. The MIS will be linked to GIS and the on-going activities such as GIS mapping of the water bodies being undertaken

by the DioF will be integrated into the MIS. The MIS would generate, monthly, quarterly and annual progress reports on physical and financial progress and on project outputs and outcomes - and will have a GIS interface so that key data can be shown on maps.

36. The DWs and FTAs would work with the Planning and MIS Officer at the respective district office who would in turn report to the Planning and M&E Manager at the respective Directorate. The project will engage suitable software/computing company or technical experts to develop the MIS software (or adapt an existing package) and then train staff and provide continuing support. It is likely that the system will need to be modified in the light of practical experience and emerging needs. In each district there will be a Planning and M&E Officer who will be responsible for operation of the MIS in the DLITs and DFITs. However much data will be actually entered by DWs, FTAs and block level staff. Tablet computers will be used down to the village level to enter data. A major part of the job for MIS staff at the district level will be helping these people enter accurate and complete data, and checking on data quality.

J. Reporting and Communicating Project Results

37. As part of the MIS, the PSU will develop common reporting formats to be used by both LIT and FIT and their respective DLIT and FIT. All data would be gender disaggregated and the analytical reports are to be used for taking timely corrective actions and to learn from implementation experiences to further improve project management effectiveness and efficiency. As required, monthly, quarterly and annual reports may be produced at different levels within the Project. For IFAD corporate reporting the following are needed: Half-yearly progress Report (only against the AWPB), Annual Progress Report, RIMS Annual Reports and AOS.

38. Monthly Progress Reports (MPR) will be prepared from the project MIS developed to generate information at the block levels for reporting to the DLIT and FIT and onward to the LIT and FIT and PSU. Information in the report will contain component/sub-component wise physical and financial progress against annual targets. This report will form the basis for monthly progress reviews at all levels and subsequently feed to the quarterly progress report.

39. Quarterly Progress Reports (QPR) will have physical and financial progress with information on challenges encountered in implementation and corrective actions and solutions to address constraints as well as communities response to project initiated activities. QPR would also be useful for consolidating ORMS/RIMS Annual Report each year.

40. Half yearly and Annual Progress Reports (HR/APR) will be prepared from information compiled by the PSU on component/sub-component wise physical and financial progress, and loan category wise financial progress. The information will be generated via the project MIS and could contain summarised information and data from blocks and findings from PME and annual outcome surveys, showing progress towards development objectives, usefulness of training, benefits from component/sub-component interventions, gender issues and knowledge management. The reports could be dovetailed with case studies of successful interventions. The PMU will prepare the half-yearly progress report by the end of October (primarily progress against the AWPB) and a more detailed annual progress report by April end to mid-May every year and send to IFAD India Country Office and other stakeholders.

41. ORMS/RIMS Annual Report. The key ORMS/RIMS indicators corresponding to the project outputs and outcomes by components are included in the project's Logical Framework and will be reported annually by the end of January every year. In the first year the project information on RIMS first level indicators (list of indicators included in RIMS Handbook) associated with outputs would be reported. After mid-term review the report will include 2nd level indicators.

42. Annual Outcome Survey (AOS) Report: Each year the project will undertake AOS and report to IFAD. The first AOS will be done in the second year of project implementation after completing a full first year of project implementation. The AOS would be for a

calendar year of January to December. Each year the project will submit the AOS report by February.

43. Mid-Term Review Report (MTR): IFAD in cooperation with the GoB would undertake a mid-term review by the third year of the project lifecycle (or as would be specified in financing agreement). Details in para 27 above.

44. Project Completion Report (PCR): As the project reaches completion point, the PSU would prepare a draft Project Completion Report based on IFAD's Guidelines for Project Completion. IFAD and the Government will then carry out a Project Completion Review and validation based on the information in the Project Completion Report and other data. This review is usually done during the intervening period of project completion date and loan closing date.

45. Case studies on project innovations and success stories⁹: The project will undertake case studies of project innovations and success stories on regular basis and report them through Annual Progress Report and in the India Country Newsletters. The project will also report them and communicate through its IFAD Asia webpage managed by IFAD and on the project's own webpage.

K. Learning and Knowledge Management (KM)

46. **KM Staffing**: In line with IFAD's policy, learning and knowledge management would be key element in BAaLI with integrated approach in which M&E will feed to generating learning for the project and from the project. While the KM functions in the project would be cross-cutting and would be responsibility of every sector head or manager, the project will have KM Manager in PSU. Knowledge services would be important element in BAaLI management systems. The M&E and KM units of the project at PSU will function in tandem as M&E will provide the building blocks for KM in the project.

47. **Knowledge Management in BAaLI**. The project will prepare a Knowledge Management Strategy building on IFAD's Knowledge Management Strategy in the first year of project implementation. This will be the responsibility of the KM Manager and Training, Institutions and Gender Managers. Staff responsible for KM activities at the district level would undergo training on KM.

48. The project **learning system** would comprise of various activities relating to M&E and KM functions. Some of these would include monthly, quarterly and annual review meetings; capturing information on progress, lessons and finding solutions for implementation constraints. KM and lesson learning would be used as a tool for internal learning by project stakeholders such as staff of various implementing agencies, participating villagers and farmers, both women and men. This will involve a series of regular meetings at village/cluster, block (where useful), district and state levels. At these meetings, progress of project activities will be reviewed and learning from success and reasons for failure identified. Participatory tools such as "most significant change", "story telling" and "participatory monitoring and evaluation" (PME) may be used at these meetings.

49. **Knowledge Products, Dissemination and Communication**. BAaLI will generate various knowledge products such as publications, documented case stories, photo documentation, videos, charts, manuals, posters, etc. However, for meaningful learning and knowledge sharing, knowledge products should be of quality with clearly identified audience and purpose. The characteristics of good knowledge products¹⁰ have the following elements:

- Based on an assessment of needs and demand for the product among targeted users to ensure relevance, effectiveness, usefulness and value of the knowledge product.

⁹IFAD's Communication Division has brought out a guideline for preparing case studies in the field. This will be provided at the time of start-up workshop.

¹⁰Adopted from the "Handbook on Planning, Monitoring and Evaluating for Development Results", UNDP, 2009

- Designed for a specific audience, taking into consideration functional needs and technical levels.
- Relevant for decision-making needs.
- Knowledge products brought out timely.
- Written in clear and easily understandable language.
- Data is presented in a clear and coherent manner; all data and information being from project M&E without any bias, both successful and failure cases.
- Knowledge products developed through participatory process and validated through quality assurance processes with relevant stakeholders or peer reviewed appropriately.
- The knowledge products should be easily accessible to the target audience through most effective and efficient means, and timely.
- Consistency in presentation of products to enhance visibility and learning.

50. Practical tips for developing knowledge products from project M&E and dissemination of the products could include the following steps:

- Identify the target audiences and their information needs.
- Collect and keep at hand the contact information of all key stakeholders.
- Identify and determine the types of knowledge products to be developed (keep in mind the availability of project resources for this purpose as also the capacity of the project to develop the knowledge products, directly or through outsourced).
- Select and determine types of knowledge products that meet the target audience's information needs.
- Identify language requirements per product and audience.
- Determine most likely efficient forms and dissemination methods for each knowledge product.
- Monitor feedback and measure results of dissemination efforts as also quality of knowledge products.

51. **Knowledge Sharing and Learning Culture.** The project will endeavour to capture and disseminate lessons learned, successful case studies and document good practices. The project will adopt various knowledge sharing methods and tools including designing and facilitating knowledge events such as meetings and workshops. BAaLI will adopt some of the best practices in knowledge sharing and learning culture of IFAD funded projects in India around the followings:

- Building strong network by conducting periodic workshops/seminars/conferences on key thematic issues relevant to the project.
- Conduct monthly/quarterly/half-yearly/yearly review meetings of key stakeholders.
- Developing skills and competencies of project staffs to improve human resources in the areas of knowledge management.
- Tailoring knowledge management activities closely to the needs of project staff and stakeholders.
- Developing and actively using project website, newsletter, etc. and contributing in the IFAD Asia website. Adoption of specific knowledge sharing methodologies and tools¹¹ with capacity building components, such as: Tools treasure hunt, Video storytelling, Speed sharing, Chat show, Jumpstart storytelling, World Café, Peer Assist, etc.

Attachments

Attachment ME 1: Model outline of AWPB

Attachment ME 2: Monitoring Indicators

¹¹Details are available at "*Introducing Knowledge Sharing Methods and Tools: A Facilitator's Guide*" by Allison Hewlitt and Lucie Lamoureux. IDRC-IFAD, 2010

Attachment M&E 1: Model outline of AWPB

Part A: Narrative Template

COUNTRY: India

NAME OF PROJECT: BAaLI

ANNUAL WORK PLAN AND BUDGET: PART-A

PERIOD from April 2020 to March 2021

Font sizes

Text 10 Verdana; Tables within Text, Verdana 9

Spacing 1

Table of Contents (Modify, if required)

Fiscal Year

Currency Exchange Rates, historical trends

Weights and measures

Abbreviations and acronyms

Project Area Map

Executive Summary

- I. CONCEPT OF AWPB
- II. CONTEXT
- III. ACHIEVEMENTS
- IV. SUMMARY PRESENTATION AWPB
- V. DESCRIPTION OF AWPB BY COMPONENTS
- VI. AWPB COSTS AND FINANCING PLAN
- VII. STRATEGIC FRAMEWORK
- VIII. PROJECT MANAGEMENT
- IX. ANNEXURES: AWPB TABLES

I. CONCEPTS (Maximum 2 paragraphs)

Previous period: In this Section, some of the basic planning parameters should be defined and explained. Preparation of AWPB begins, usually between October and November¹². To put the proposed AWPB in perspective, results obtained in the previous year should be highlighted.

Currency: The AWPB should use INR as the unit for costs and values. The current exchange rate at the time of writing the AWPB should be indicated and compared with the rate(s) used in Costab tables. Its evolution since the previous AWPB has to be analysed and the effect of devaluations or appreciations on required external financing should be stated.

Prices: The current 12-months inflation or deflation rate for goods and services similar to project inputs should be stated and compared to the rate used in Costab tables for local inflation and the impact on project cost and financing analysed.

II. CONTEXT (Maximum 2 paragraphs)

This Section provides briefly the most important developments in the previous period in the project implementation environment and the expected evolution for the planning period. The following elements may be discussed.

- **Government policies:** Indicate any change or new policies and their effect on project implementation;

¹² In countries where the fiscal year runs from March to April such as in India

- **Institutional framework:** Discuss any constraints, changes in the organization and/or staffing in the Implementing Agencies and the project management units. Evaluate the impact on implementation capacities.
- Any other major determining factor of the implementation environment

III. ACHIEVEMENTS (Maximum 2 pages)

The Section presents the main achievements, issues and constraints of the previous period, including the main recommendations of supervision missions, as well as an appreciation of the impact of the project on the poverty and gender situation. Discussions should include:

Physical results: Highlight the implementation strategy and describe the main physical results obtained so far, indicate positive results as well as implementation problems and the reasons for them, and the latter's impact on next year's plan and implementation. Refer to detailed and summary AWPB tables.

Financial results: Analyse the level of expenditures of the year to date for the main components, compare with the previous budget and indicate any reasons for higher or lower expenditures than expected. Indicate whether these issues will have an impact on the plan for the next year; refer to the detailed and summary AWPB tables.

Supervision issues: Highlight the main recommendations of the previous supervision mission and the manner they are being implemented, discuss any other supervision issue.

Poverty situation Provide a qualitative appreciation of the implementation to date on the poverty situation in the project villages and households. Use some information from the Baseline survey and any other available indicators to underline the statements. Also review any new Government and/or donor initiatives.

Gender Discuss the role of women in project planning and implementation and the project impact on their situation, results and constraints. Analyse both the economic and the social aspects (income generation, agriculture, credit, literacy, education, health, etc...)

IV. SUMMARY PRESENTATION AWPB (maximum one page)

In this Section, present the main characteristics of the Annual Work Plan and Budget, in terms of programming and implementation strategy, physical and financial objectives and expected outputs and impact. Indicate if there are any major changes compared to last year's AWPB.

V. DETAILED PRESENTATION OF AWPB (maximum 4 pages)

In this Section, a detailed discussion of the programming and implementation strategy of each component of the BAaLI is presented as well as a discussion of the expected results and how the implementation modalities eventually differ from the previous year(s)' practices. For each component, present the following:

- **Objectives and targets.** Indicate the component objective and physical targets for the AWPB period and compare with the whole project duration, discuss any trends;
- **Implementation strategy:** Indicate how the activities of the component will be programmed and implemented, discuss participatory approaches and any institutional problems and their required solutions;
- **Results:** Indicate the expected results in terms of quantitative indicators and in terms of qualitative aspects. Indicate the expected number of beneficiaries (women, men) and households. Compare with the overall target of the project and with last year's results;

- **Changes:** Discuss and justify any changes compared to the initial design and previous experiences, in targets, implementation strategy or expected results. Indicate reasons.

VI. COSTS AND FINANCING (maximum one page)

In this Section discuss issues relating to costs and financing of AWPB.

- **Unit Costs:** Any major changes in unit costs due to inflation/deflation and to changes in design compared to previous years and to the Appraisal Report should be discussed and the manner how these changes will be tacked and by whom should be indicated.
- **Financing:** Issues relating to the flow of funds, the timeliness of funds availability, of approval and disbursement procedures for all financiers will be highlighted, and ways to improve or overcome constraints indicated.

VII. STRATEGIC FRAMEWORK (maximum 2 or 3 paragraphs)

This Section deals with how the AWPB objectives and expected results and impact correspond to Government and IFAD objectives. It will be based on concrete experiences and examples and avoid non-committal broad statements. Issues to be included are:

- **Government objectives:** State which project activities contribute to Government's rural development and/or poverty alleviation objectives and indicate the project's incidence in the project area.
- **IFAD Strategic framework:** Discuss if and how AWPB results and impact contribute to:
 - empowerment and strengthening of beneficiary organisations, including gender and participation aspects;
 - access to productive natural resources and technology;
 - Access to financial services and markets.
- **Co-financier:** If the project is co-financed, indicate the expected impact of the AWPB on the Co-financier's objectives and strategy.

VIII. PROJECT MANAGEMENT (maximum 3 or 4 paragraphs)

This Section deals with the PMU status, staff positions, staff vacancies, key issues in staff deployment and ways to handle them. Highlight staff training and orientation and exposure visits. Provide a list of current staff as against original plan.

IX. ANNEXURES (AWPB TABLES)

The outline of AWPB Tables consists of two parts: a) the annual budget and b) indicators for achievements so far and cumulative achievements. The latter are required to put the annual budget in perspective and to help justify it.

Summary table: This table aggregates all financial values by component from the individual AWPB tables. The outline has been so designed that the individual rows in the summary table is linked to the different "Total" bottom lines of in each individual AWPB table. In this manner, corrections and adjustments in the data in the individual tables are automatically re-calculated in the summary table.

Attachment M&E 2: Monitoring Indicators

Outreach indicators

Number of households reached - disaggregated by SC/ST, women headed.

No. of beneficiaries reached - disaggregated by SC/ST, youth, women.

Impact indicators

Percentage of households reporting 100 percent increase in income from small livestock and fisheries activities.

Percentage of women reporting improved quality of their diets.

Net margin from goat rearing (per household)

Net margin from inland fisheries (per household)

Beneficiary women report an increase in score on pro-WEAI survey

Outcome indicators

Percentage of households reporting adoption of inputs, technologies or practices (promoted by project for goat and poultry rearing).

Increase in average live weight at the time of sale.

Increase in herd size.

Reduction in Goat and Goat kid mortality rate.

Percentage of functional DWs – Percentage of DWs operational for more than 3 years.

Percentage of functional SLEs – Percentage of SLEs operational for more than 3 years.

Percentage of households reporting increase in availability of fodder.

Percentage of households reporting no major outbreak of animal diseases for Goat and Poultry.

Percentage of households reporting adoption of inputs, technologies or practices (promoted by project for inland fisheries).

Percentage of functional FTAs – Percentage of FTAs operational for more than 3 years.

Percentage of functional FLEs – Percentage of FLEs operational for more than 3 years.

Percentage increase in fish production yield/Ha from pond/tank fish culture.

Percentage increase in fish production yield/Ha from ox-bow lake/capture fisheries.

Percentage households reporting benefits from digital extension, conventional extension and business led extension.

Existing/new laws, regulations, policies or strategies proposed to policy makers for approval, ratification or amendment.

Output indicators

Small Livestock

No. of staff trained in small livestock – disaggregated by gender and age.

No. of DWs trained - disaggregated by gender and age.

No. of SLEs trained - disaggregated by gender and age.

No. of veterinary dispensary renovated.

No. of dilapidated veterinary dispensaries reconstructed.
No. of Producer Groups established.
No. of Farmer Producer Organizations established.
No. of goat/backyard poultry farmers trained by DWs- disaggregated by gender and age.
No. of goat/backyard poultry farmers trained by SLEs- disaggregated by gender and age.
No. of breeding bucks provided.
No. of Producer groups receiving funds for interface activities and amount released.
No. of Producer groups receiving matching grant support and amount released.
No. of goat sheds supported.
No. of mother units established for production of chicks.
No. of poultry sheds supported.
No. of market sheds constructed.
No. of goat fairs conducted.
No. of model meat stalls constructed.
No. of start-up supported.
No. of Households provided with targeted support to improve their nutrition

Inland fisheries

No. of staff trained in fisheries – disaggregated by gender and age
No. of FTAs trained - disaggregated by gender and age.
No. of FLEs trained - disaggregated by gender and age
No. of Producer Groups established.
No. of Farmer Producer Organizations (FPOs) established.
No. of Producer Groups receiving matching grant support and amount released.
No. of FPOs receiving matching grant support and amount released.
No. of fish producers (pond and tank) trained by FTAs- disaggregated by gender & age.
No. of fish producers (pond and tank) trained by FLEs- disaggregated by gender & age.
No. of fisher folk (ox-bow lake and capture fisheries) trained by FTAs- disaggregated by gender & age.
No. of fisher folk (ox-bow lake and capture fisheries) trained by FLEs- disaggregated by gender & age.
Number of rural producers accessing production inputs and/or technological packages (inland fisheries).
No. and area of backyard ponds and small ponds rejuvenated.
No. and area of new ponds and tanks constructed.
No. and area of ox-bow lakes ranched.
No. of hatcheries rejuvenated.

- No. of fish markets constructed.
- No. of rural haats constructed.
- No. of model fish stalls constructed.
- No. of live fish transport support provided.
- No. of alternate energy fish boxes provided.
- No. of start-ups supported.
- No. of Policy-relevant knowledge products completed

Chapter X - Financial Management

A. Introduction and financing

40. This chapter lays down the basic principles of financial management of the project. It lays down the system of funds flow to the project and within the project, the disbursement systems, submission of withdrawal application for reimbursement of funds, the financial procedures for approval and system of recording transactions, preparing and reporting of the the financial statements and the audit requirements.

41. **Country Inherent Risk:** The overall country inherent financial management (FM) risk is assessed as medium based on the 2018 with Transparency International Corruption Perception Index score of 41 and the 2018 Rural Sector Performance Score (RSP) score of 4.40. The last disclosed Public Expenditure and Financial Accountability (PEFA) assessment dates back to 2010. The August 2018 IMF Article IV consultation in India noted that there is limited fiscal space. India's debt is high with a debt-to-GDP ratio at around 70 percent, but the debt path is sustainable.

42. **Debt Analysis:** The last IMF Article IV consultation in India dated August 2018 noted that there is limited fiscal space as debt is close to thresholds that increase the likelihood of debt distress among emerging market economies. India's debt is high with a debt-to-GDP ratio at around 70 percent of GDP, but favourable debt dynamics and financial repression make the debt path sustainable. Risks are further mitigated because public debt is denominated in domestic currency and predominantly held by residents. Public debt accounted for 89.5 per cent of total outstanding liabilities at end-December 2018, with internal debt and external debt having shares of 83.3 per cent and 6.2 per cent, respectively. Roll-over risk in debt portfolio continues to be low.

43. **Financial Management:** The PSU will report to the Project Director and will be accountable to the Mission Director and PMC for the overall financial management, preparation of consolidated AWPB, procurement plan, consolidated M&E and MIS, withdrawal applications and consolidated financial reports, and compliance requirement of internal and external audit. The Livestock Implementation Team (LIT) of Directorate of Animal Husbandry (DioAH) and Fisheries Implementation Team (FIT) of Directorate of Fisheries (DioF) will be responsible and accountable for the implementation of project activities of their sector, preparation of their AWPB, statement of expenditures (SoEs) for withdrawal application and financial reports, and safeguard of project assets and resources. The initial financial management risk assessment of this project is assessed as high due to use of BLDA for flow of funds, newly established PSU for the project, DioAH and DioF acting as implementing agencies and 12 District Implementation Teams of District Animal Husbandry Offices and District Fisheries Offices with varying financial management capacities. The DioF has experience in implementing the Bihar Kosi Basin Development Project funded by World Bank. However, the risk would reduce to medium with the implementation of mitigating controls.

44. **Lending terms:** India is on IFAD ordinary terms. The maturity period for the loan is at the choice of the borrower, subject to a ceiling of 35 years and to a maximum average repayment maturity of 20 years. IFAD reference rate that the GoI will be charged will be based on the average repayment maturity bucket which is a pre-defined range of average repayment maturities. There are currently six average repayment maturity buckets, and GoI can choose any of the average repayment maturity buckets. The grace period is variable at the choice of GoI, subject to a ceiling of 10 years. Interest is paid on the loan principal disbursed and not yet repaid by the Borrower. GoI can choose either the fixed spread or variable spread and denomination currency in either EUR, SDR or USD. The terms related to the loan assistance will be as per the Guidelines for IFAD Lending Terms and Financing Conditions.

45. **Retroactive Financing:** In accordance with Section 4.07 of the General Conditions (GC), expenditures shall be eligible for financing if they are incurred during the

Implementation Period. With the approval of the Executive Board, project expenditures may be incurred before entry into force, known as retroactive financing. At the request of the GOB, a sum equivalent to USD 0.5 million is provisioned as retro-active financing for meeting the following specific expenditures that are related to the project: (i) undertaking all preparatory works such as staff recruitment, recruitment of services providers and TA services of Worldfish; (ii) goat policy development; (iii) purchasing of critical office equipment for the PSU, LIT and FIT in Patna; (iv) engagement of consultants as start-up facilitator at PSU; (v) preparatory activities related to engagement of a service provider for conducting baseline surveys, surveys of existing hatcheries and block level veterinary hospitals and oxbow lakes in the project area districts; (vi) identification of agencies for developing and installing software for MIS, digital extension, etc.; (vii) identification of candidates for DISHA and FTA by the respective Technical Departments and preparation of the training manual and training materials for DISHA workers; and (viii) capacity building of DioAH and DioAH staff. Expenditures for retroactive financing, to be pre-financed by government, should be preauthorized by IFAD and will only be eligible from 1 November 2019. PSU will have to submit a separate withdrawal application for all such eligible expenditures that are incurred between 1 November 2019 and date of signing of the financing agreement. Further details are provided in the PIM.

46. The expenditures need to be specifically identified as retroactive financing in the project Work Plan and Budget, including the related Procurement Plan that will provide a detailed description of planned activities, related methods of procurement, quantities, estimated costs and the expected dates of finalization of Procurement activities. Both the specific AWPB and Procurement Plan is subject to prior review by IFAD. Upon entry into force and fulfilment of disbursement conditions, eligible expenditures are reimbursed into the nominated Borrower bank account. Retroactive expenditures are pre-financed by the prospective Borrower at its own risk. If the financing is not approved, or does not enter into force, expenditures will not be reimbursed. Expenditures eligible for retroactive financing should be claimed in a separate Withdrawal Application and be included in the first financial statements of the project and audited, with appropriate separate disclosure of the amount in the Notes to the Accounts.

47. **Start-up Advance:** An advance for approved start-up activities is encouraged, such as staff salary, training, office equipment and the initial operating costs, shall be provided on request in the period between project entering into force (financing agreement signed and meeting the conditions precedent to first withdrawal. The activities plan for such advance should be approved in advance. This will provide liquidity if required until the conditions precedent to first withdrawal have been met.

48. **Conditions precedent to First Withdrawal:** No withdrawal can be made in respect of expenditures until:

- (i) PSC, PMC, LIT, FIT, DLITs and DFITs have been duly established and finance staff recruited and trained;
- (ii) PIM has been approved by the PSC and IFAD;
- (iii) Accounting software should have been purchased and is being customized;
- (iv) GoI shall have duly opened the Designated Accounts for IFAD loan and IFAD grant and authorized signatories for operating designated accounts;
- (v) The Project shall have duly opened the project accounts;
- (vi) The first AWPB, including the procurement plan for the initial 18 months of Project implementation, shall have been submitted to, and approved by IFAD; and
- (vii) Memorandum of understanding is entered between the BLDA and state government.

C. Disbursement and Fund Flow Mechanism

49. **Financing:** The project expenditures will be financed from IFAD Loan, IFAD Grant, GoB contribution, Government convergence, bank loans and beneficiaries' contribution. Government contribution will be by way of taxes, salaries and allowances of government staff and counterpart funds for project expenses while convergence will be for various government activities related to livestock and fisheries in the project area through the respective government offices. The commercial banks participating in this project will provide loans to the various producers groups, farmer producer organizations and farmers. The beneficiaries contribution will be in cash or in-kind for labour and goods.

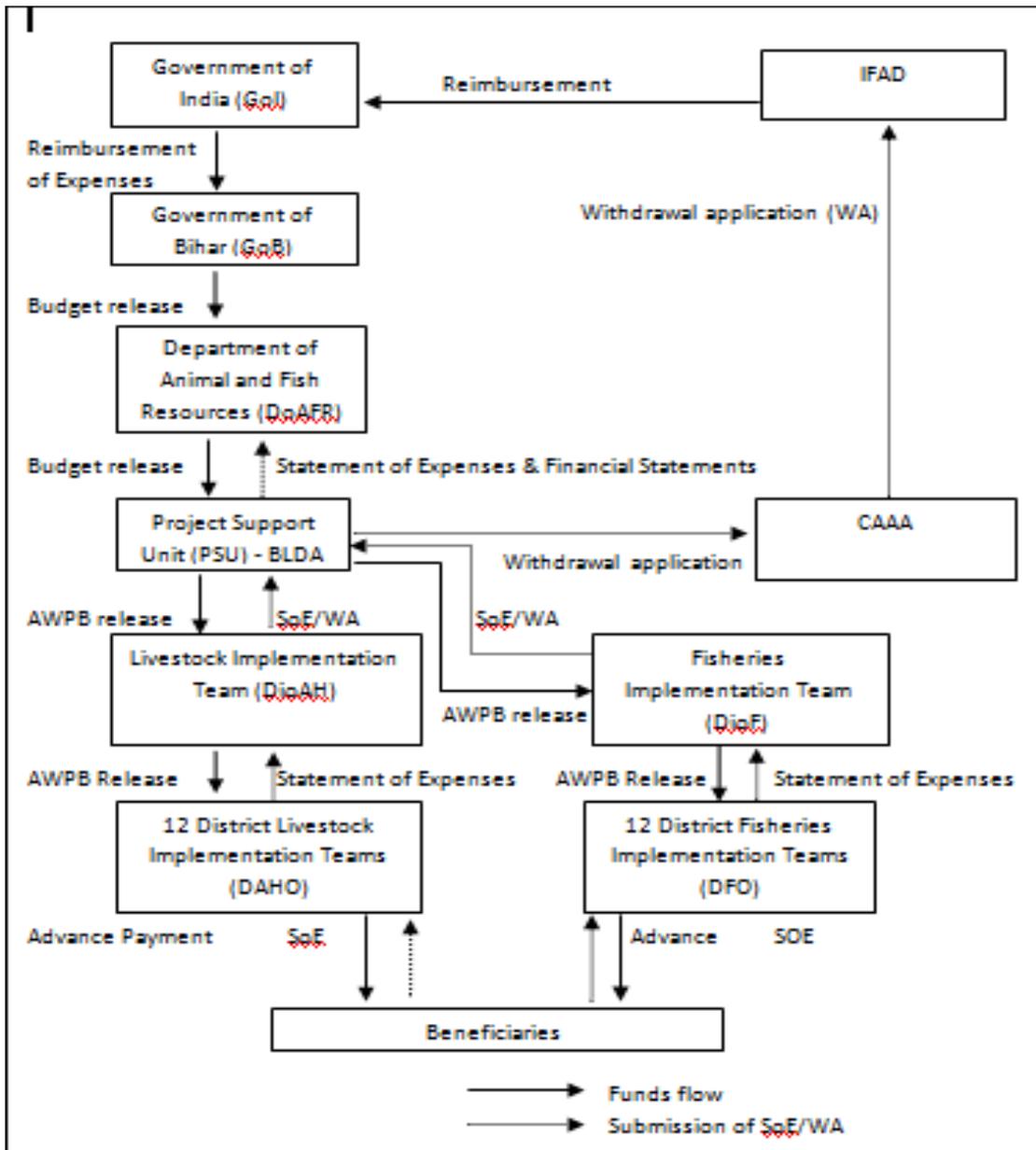
50. **Bank accounts:** The loan and grant accounts will be designated in USD and GoI shall open a separate Designated Account for each of the loan and the grant at Reserve Bank of India (RBI) in USD to which funds will flow from IFAD. All expenditure will be pre-financed from the state budget released to Project Support Unit (PSU) through Bihar Livestock Development Agency (BLDA) by Department of Animal and Fish Resources (DoAFR) and reimbursed to GoI by IFAD based on submission of claims. There are not expected to be any direct payments by IFAD to third parties. The IFAD Loan Disbursement Handbook and the Letter to the Borrower will detail the disbursement arrangements.

51. The PSU in BLDA will open a separate bank account for the purpose of the project in a bank acceptable to DoAFR. The LIT, FIT, DLITs and DFITs will also open separate bank accounts for the project in a banks in which PSU has bank account for ease of fund transfer. The LIT, FIT and DLITs and DFITs will open zero balance bank account linked to PSU bank account wherein an automatic drawdown system from PSU bank account to settle payments made by the respective LIT, FIT and DLITs and DFITs will be authorized. This arrangement will reduce funds lying idle in the bank accounts of LIT, FIT and DLITs and DFITs. The LIT and FIT shall have arrangement with the banks to view bank accounts of DLITs and DFITs so that LIT and FIT can manage its funds, check any large payments and confirm reported expenditures with payments made by the banks.

52. **Flow of Funds:** The GoB will pre-finance the yearly project expenditures. The DoAFR will transfer the amount of approved budget including the government counterpart funds for project expenses, except salaries to the government staff to be paid directly by the LIT, FIT and DLITs and DFITs, to the bank account of PSU. The respective LIT/FIT will issue periodic or yearly payment limit based on funds available as informed by the PSU to the banks of LIT, FIT and DLITs and DFITs. The LIT, FIT and DLITs and DFITs will issue cheques to the banks for payments to the payees electronically through the comprehensive financial management system (CFMS) until Public Financial Management System (PFMS) becomes operational. The PSU, LIT, FIT and DPLITs can pay advance to the staff for petty expenses under petty cash imprest system. The payment to the beneficiaries will be made by the DLITs and DFITs. The banks can pay up to the limit given to the respective LIT, FIT and DLITs and DFITs and withdraw daily paid amounts from the bank account of PSU.

53. The following diagram visualises the fund flow arrangements:

Funds Flow Process



54. **Disbursements:** The Loan Disbursement Handbook for Directly Supervised Projects¹³ (LDH) in conjunction with the Financing Agreement and the Letter to the Borrower (LtB) set out the disbursement procedures. The funds from IFAD loan and grant will be disbursed using one of the following three methods:

- a. Procedure I: Advance withdrawals or replenishments to a bank account(s) designated to receive loan/grant resources
- b. Procedure II: Direct payment
- c. Procedure III: Reimbursement

¹³https://www.ifad.org/documents/38711624/39633845/Loan+Disbursement+Handbook+%28for+projects+approved+under+GCs+effective_e.pdf/af446750-29c5-49e2-a514-85132173bf8

55. The designated account is replenished through the submission of a Withdrawal Application (WA) to IFAD. The Form 100 summary of the WA, Form 101 and/or Form 102/A will be prepared by CAAA (based on financial data provided by the Project) and submitted to IFAD through the IFAD Client Portal (ICP). As report-based disbursement is not used for this project, the list the expenditures being claimed is to be submitted in the specified format with WA. The amount to be replenished is to be requested in the currency of denomination of the designated account as described in the LtB. A WA should be submitted at least every 90 days, or in the case where an advance from IFAD has been provided then when 30% of it has been utilised (should this be earlier than the 90 day normal requirement).

56. CAAA will also submit a Designated Account Reconciliation Statement Form 104 with each WA for replenishment to the designated account for the same reporting period in which the eligible expenditures are being claimed. This form shall be accompanied by bank statement of the designated account ensuring that the closing bank balance for the bank account corresponds to the balance at the end of the same reporting period as indicated in the WA period. Sample templates for the reconciliations, as applicable, are provided in Appendix FM-1 - Designated Account Reconciliation Statement.

57. A Checklist Form 105 is used to assist with the compilation of the WA. It is in the LDH and a sample is provided in Appendix FM-2. **Procedure I - Advance withdrawals or replenishments to a bank account(s) designated to receive loan/grant resources:** The design foresees the possibility of a designated account for the project, although it can be expected that all expenditures will be pre-financed from the budget released by DoAFR to the project and reimbursed by IFAD based on submission of claims. Hence this disbursement procedure may eventually be used in the event that an injection of liquidity is required.

58. This procedure is a mechanism to provide an advance to the government from the IFAD loan and grant account using an imprest mechanism to replenish eligible expenditures incurred for the project as specified in the financing agreement. This modality is used to provide an advance from the IFAD loan and grant account not exceeding a ceiling amount and in the currency as specified in the LtB and/or replenish funds for eligible expenditures not exceeding the limit of advance to a bank account designated by the government. The mechanism helps the government in financing eligible expenditures defined in the financing agreement as payment falls due. During the project implementation, the designated account is replenished when satisfactory evidence of expenditure incurred is received. The designated account can be maintained in a freely convertible currency agreed by the government and IFAD and specified in the LTB.

59. Expenditures above the "Statement of Expenditure" (SoE) threshold stipulated in the Letter to the Borrower shall be documented on a Form 101 and the photocopy of supporting evidence as stipulated in section 3.1(d) of the LDH needs to be submitted to IFAD retaining all supporting documents at the project. Expenditures below the threshold should be listed on a Form 102 mentioning full description of payment, name of payee, contractor, supplier or service provider, reference to the relevant AWPB and budget line/item, contract or invoice number, payment voucher number, contract amount and currency, invoice amount and currency, date of payment, payment reference, exchange rate, withdrawal application amount, country of origin and other details following information in the SOE form and will be examined substantively on a sample basis during supervision and implementation support missions. All original documentation is to be retained by the project and securely located to enable inspection by IFAD representatives and auditors for a period of at least 10 years after the project completion date (PCD), in accordance with article VIII of the General Conditions.

60. Towards project completion, IFAD initiates procedures to ensure recovery of advances by project closure. Recovery of the advance shall start either six months before completion date or when the undisbursed balance of the financing (including outstanding special commitments) is equal to twice the amount of the advance. The project shall

submit advance recovery plan to the IFAD with an information of WA No., date and amount of authorized initial advance in INR, USD & SDR if IFAD loan/grant is in SDR, estimated amounts in INR & USD of each WA No., date and period of WA, amounts in USD and proposed percentage of each WA and cumulative amounts to be recovered and cumulative unjustified balance.

61. The gradual recovery of the advance is achieved by applying part of the amount documented in each replenishment application to reduce the outstanding advance either on receipt of advance recovery plan or even before receipt of advance recovery plan if the advance outstanding is estimated to be more than estimated eligible expenditures for the remaining project period. Gradual recovery offers the most effective means of ensuring that some funds in designated account remain available to finance eligible expenditures to be incurred in the remaining project period. For example, recovery may be made on a 2 to 1 ratio; that is, for each US\$3 of documented eligible expenditure, IFAD replenishes the imprest account of the borrower with US\$2 and applies documentation for US\$1 towards the recovery of the outstanding advance, thus ultimately ensuring that full documentation is gradually submitted to cover the entire advance. If some further withdrawals are projected to be made from other than the designated account, the recovery ratio for subsequent applications is appropriately increased to ensure that recovery is completed in good time before the financing is fully disbursed or before the financing closing date. A recovery plan is provided in Appendix FM-3.

62. **Procedure II - Direct Payment.** Direct payments are not foreseen for this project but are explained here in the unlikely case that the need should arise during the project life. Under this procedure, the government requests IFAD to pay suppliers directly from the loan/grant account indicating in the WA the date on which payment becomes due to the supplier. The procedure is similar to Procedure I described above but the payment is made directly to the supplier as advised and instructed by the Government. This procedure is generally suitable for payment of large civil works progress and retention payments, consultant fees (when these are of substantial magnitude), importation of goods. The threshold of direct payment is specified in the LTB.

63. Under the direct payment procedure, payment is requested by completing separate Form 100 - Application for Withdrawal for each supplier and currency in which the payment is requested. The WA for direct payment should be received by IFAD at least two weeks before the payment to the supplier becomes due. The WA should be submitted along with the corresponding Application Summary Sheet(s) Form(s) 101 for direct payment, together with complete supporting documentation as per the instructions provided in section 2.1 of the LDH.

64. **Procedure III - Reimbursement.** The method is used to claim reimbursement of eligible expenditures pre-financed by the government to the government treasury submitting separate Application for Withdrawal – Form 100, Application Summary Sheets Form 101 & Statement of Expenditure Form 102 as in case of Procedure I above. This type of disbursement will only be used for payment to government treasury from IFAD loan/grant accounts. WA for reimbursement is to be submitted to the IFAD within ninety calendar days from the dates of payments or the period as specified in the LTB.

65. This procedure is followed when expenditures have already been incurred, that is, the supplier of goods, works, consulting or other services and incremental operating costs have already been paid by the Government from its own funds. Reimbursement will be made to the government in the currency of payment made for eligible expenditures. Nevertheless, reimbursement may be made in another currency on request of the government. The amount reimbursed in the requested currency will be calculated in USD and currency of financing agreement by the IFAD, using the IMF rate of exchange on the date of payment by the IFAD Treasury. The reimbursement procedure has the same Forms (100, 101 and 102) and documentary evidence requirements as described above.

66. **Project completion:** Withdrawal Applications may be continued to be submitted up to the Loan Closing date i.e. six months after the project completion date. Submission of

the Project Completion Report making reference to financial management and the final audit report are requirements in order to close the loan and grant accounts. Only payments made, or payments due for goods, works and services, which have been provided prior to the project completion date, qualify for disbursement. The only additional expenditures allowed are for winding up activities (salaries, audit fees, impact assessment study, project completion report and other activities as agreed with IFAD). No replenishment will be made after the project completion date. Care should be taken that costs are eligible only if services have been rendered and goods delivered by the completion date, except that costs for winding up activities are eligible until closing date. No disbursements can be made after loan closing date.

67. **Beneficiary Contribution:** The beneficiaries will make cash or in kind contributions for labour and construction materials for construction of goat sheds, poultry housing, meat stall and ponds and various input for the activities related to livestock and fisheries. The LIT, FIT and DLITs and DFITs shall develop a system to collect information of beneficiary cash and in-kind contribution to the project on a regular and ongoing basis. The labour contribution shall be calculated based on the prevailing wage rates and cost of construction materials of the respective places while cash contribution shall be calculated based on actual contribution made for construction and other input for the activities. The statement of expenditures showing labour contribution and percentage of beneficiaries' contribution of the total expenses incurred shall be used for collecting and accounting beneficiaries contribution. The contribution made in cash by the beneficiaries and participating organizations shall be recorded to expenditures by the DLITs and DFITs based on incurred expenditures. The in-kind contributions for goods and services will be disclosed in the notes to accounts.

D. Budgeting, processing of payments, accounting systems, policies, procedures and financial reporting

68. **Finance unit organization:** The job description of the Finance Specialist, Finance Manager and Accounts Officer shall be as specified in this PIM. Finance Manager of the LIT/FIT and Accounts Officer of DLITs and DFITs will be responsible for accounting and record keeping of all financial transactions, and preparation and submission of financial statements and statement of expenditures for withdrawal application to PSU. The Finance Managers of the LIT/FIT and and Accounts Officers of the DLITs and DFITs shall be responsible for preparation of the financial statements, getting approval of the financial statements from the competent authority for submission to PSU.

69. PSU under the DoAFR will be responsible for overall financial management, preparation and submission of consolidated AWPB, procurement plan, withdrawal application and monthly, quarterly and annual financial statements, internal and external audit and compliance with the terms of LtB, IFAD's general conditions, financing agreement, project agreement and prevailing policies, procedures, rules and laws. PSU will report to the Project Director who is the Director of both the Animal Husbandry and Fisheries Directorates. The Project Director will report to the Mission Director who is the Secretary, DoAFR.

70. **Budget:** The annual Work Plan and Budget (AWPB) shall be prepared based on project design report, cost table, financing agreement, and annual action plan. The project will follow the government budgeting process. The LIT and FIT shall prepare annual plan of the activities to be implemented by them following bottom-up approach and prepare budget and submit to PSU. The PSU shall prepare annual budget on receipt of budget from the LIT and FIT incorporating the activities to be implemented by PSU and project management expenses linking with the annual plan in the format specified by the IFAD showing cost categories outlined in the Schedule II of the Financing Agreement, along with the component, financier and percentage of funding by each financier in the format given in Appendix FM-4. The annual budget of the project will be submitted to the Project Director for submission to the PMC headed by the Mission Director for approval. After PMC approval, the AWPB will be submitted to IFAD for no objection before 31 January of each

year and the Finance Department through DoAFR for budget provision in the state budget by creating a separate budget line under the DoAFR. The DoAFR will provide approved budget to BLDA as grant in aid so that it will not lapse at the end of the fiscal year. The PSU on receipt of approved budget will release budget to the LIT and FIT for project activities to be implemented by them. The LIT and FIT will allocate annual budget among LIT/FIT and DLITs and DFITs based on their budgetary requirements for approved annual work plan and release budget to the DLITs and DFITs based on approved AWPB. The budget of government counterpart funds, except salaries of the staff to be paid directly by the LIT, FIT and DLITs and DFITs, will also be released to PSU.

71. If the AWPB is required to be revised within the approved budget allocation, a request for budget revision with justification should be submitted by the DLITs and DFITs to LIT/FIT. The LIT/FIT will review, revise the budget allocation and submit to the PSU for approval. The PUS will review to ensure that the activities planned are in line with the project activities and submit to the PMC for approval. In case of requirement of additional budget, the LIT/FIT has to submit requests for supplementary budget over and above the approved budget to PSU. The PSU shall submit the consolidated supplementary budget to PMC for approval. After approval of the supplementary budget by PMC, it shall be submitted to the Finance Department through DoAFR for approval of the GoB. The DoAFR will release supplementary budget approved by the GoB to the PSU. If any of the LIT/FIT and DLITs and DFITs confirms that it will not be able to spend allocated funds for the specified activities due to certain reasons, the surplus funds may be reallocated to another activities requiring more funds after obtaining the approval of the PMC.

72. GoB will release quarterly or yearly budget of the project to the DoAFR and it will release funds received from the GoB for the project as per the annual budget to bank account of PSU opened for the project. PSU will release budget and provide payment withdrawal limit based on budget received to the LIT, FIT and DLITs and DFITs from their bank accounts. The PSU will monitor the monthly budget execution in the format given in Appendix FM-5 and fund utilization status of each LIT, FIT and DLITs and DFITs on a monthly and quarterly basis based on funds utilization certificates which is given in the Appendix FM-6. The LIT and FIT will monitor the statement of expenditures of the previous quarter and cash forecast of the next quarter which are given in Appendix FM-7 of financial reporting table.

73. **Processing of payments:** The expenditures are to be incurred for the project related activities as specified in the financing agreement, project design report, and cost table. The payments of such expenditures are to be made with due care of internal check and internal control to avoid ineligible expenditures and unauthorized payments. There should be segregation of duties in processing the payments. The supporting documents of expenditures checked and voucher prepared by one staff should be reviewed, recommended and approved by other staff. All the financial transactions are to be carried out only upon approval by the Project Coordinator at PSU, LIT, FIT and District Animal Husbandry/Fisheries Officers. Before processing the payment of expenditures, the availability of budget and eligibility of expenditures should be checked. The accountant should check all the supporting documents related to expenditures based on nature of expenditures and forward to the Finance Specialist in PSU, Finance Manager in LIT/FIT and Account Officer in DLITs and DFITs for review the completeness of supporting documents, correctness of the amounts, and eligibility of expenditures and recommend for approval to the Project Director in PSU, Project Coordinator in LIT/FIT and District Animal Husbandry/Fisheries Officers in DLITs and DFITs. In case of procurement, the procurement staff should check the related documents to ensure quality, specification and price of the goods supplied or services provided. If any discrepancy is identified, the payment should be withheld till required explanation/justification is provided for the requested payment.

74. For all payments, the Finance Specialist in PSU, Finance Manager in LIT/FIT and Accounts Officer in DLITs and DFITs should ensure that the following steps are performed:

- A payment voucher should be prepared for each payment,

- The availability of sufficient supporting documents to justify the expenditures,
- The supporting documents (original copies of invoice, receipt, quotations, purchase order, goods received note, inspection report of the technical committee or specialist, contract, travel order, travel claim, travel report, participants attendance, distribution list, photographs, etc) should be checked to validate the amount and nature of expenditure,
- Arithmetic correctness of expenditures, and
- Cross verification of all supporting documents to ensure correctness of the amount of expenditures.

75. **Consultants' Services:** The payment to the consultants either individual or consulting firm shall be made in accordance with payment terms and other terms and conditions of the contract. The consultants may be hired either based on a lump sum contract or a time based contract. In case of a lump sum contract, payments will be made against the delivery of outputs/milestone as specified in the contracts while in case of time based contract, payments will be made against the submission of a time sheet and a summary of activities performed. The individual consultants will be hired on monthly basis or on the basis of number of days if required on intermittent basis and they will be paid against the submission of a time sheet and a report of activities performed. The report submitted by the consultants is required to be reviewed and approved by the concerned specialist to ensure quality of the expected report and compliance with the terms and conditions of the contract in case of lump sum contract. The payment will not be made unless the report is approved.

76. **Training and capacity building:** The expenditures incurred for training and capacity building of the project staff and beneficiaries will be approved only on verification of all supporting documents related to such expenditures. The documents required for approval of the cost estimate and training by the Project Director/Project Coordinator include invoices and receipts of the expenditures, invitations to the participants, participants' attendance, payees' signatures for payment of allowances, distribution list of materials, photographs of training, completion report, etc.

77. **Incremental operating costs:** The expenditures will be incurred for the incremental operating expenses as provisioned in the project design report and cost table and incurred for the project management. Such expenditures must be incurred for the project management during implementation of the project and eligible for funding. All the required supporting documents are to be made available for processing payments and the concerned finance staff should check the sufficiency, correctness and eligibility of the expenditures and availability of budget before recommending the payment. The project management expenditures should be correctly classified to the respective component and category.

78. **Travel Expenditures:** Staff need to travel for implementation and monitoring of the project activities as well as for meeting, workshops, study tours and staff training. The person wishing to travel must get prior approval of the Project Director/Joint Director/District Office Heads and IFAD if it is required. The approved travel request and No Objection are to be submitted to the Drawing and Disbursing Officer/Finance Manager/Accounts Officer for travel advance if required. The staff has to submit all the necessary supporting documents and travel report within one week from the date of return from travel. The finance staff will check accuracy and completeness of travel expenses with the supporting documents and submit through the Drawing and Disbursing Officer in PSU, Finance Manager in LIT/FIT and Accounts Officer in DLITs and DFITs approval of the Project Director/Joint Director/District Office Heads. Upon approval of the travel expense, the advance if provided will be settled or amount due to the staff will be reimbursed.

79. **Matching Grant:** The grants will be provided to the beneficiaries for rejuvenation of ponds, construction of ponds, goat sheds and poultry housing, inputs (goat, breeding bucks, fish seed, fish feed, meat stall and mobile slaughter house, etc.) for the project activities and revolving funds. The grants will be provided only for the activities provisioned

in the project design report and approved in the AWPB. The first instalment of the grant will be paid on signing of the grant agreement with the farmers. The farmers have to submit the statement of expenditures and grant utilization certificate in the format given in Appendix FM-8 with the supporting documents to request for the second or final instalment. The Account Officer will check the supporting documents and forward to the concerned technical officer who will recommend for payment based on physical progress and compliance with the terms and conditions of the grant said agreement as per project grant guidelines. The District Animal Husbandry/Fisheries Officer shall approve the second or final instalment on recommendation of the concerned technical officer. The record of grant provided by the project to the farmers will be maintained by the DLITs and DFITs in the format given in Appendix FM-9. The record should include description of activity, name of grantee, grant agreement date, grant completion date, total amount of the activity, grantee contribution, project grant amount, instalments of grant payment, milestone to be achieved to be eligible for instalment payment, date and amount of each instalment payment, completion date, and remarks. All supporting documents related to the expenditures should be marked with "PAID" stamp immediately after approval of payment voucher to avoid double payment of same expenditures.

80. The matching grant to be used for giving internal loan to the members and insurance support fund to be used for payment of insurance claim of goats against mutual insurance of goats will also be provided to producer groups (PGs) and farmer producer organizations (FPOs). The matching grant will be used for giving loan to the farmers and maintained as revolving fund as per project guidelines. While insurance support fund and insurance premium collected from the members will be used to pay insurance claim of goats. The matching grant and insurance support fund will be provided to the producer groups and farmer producer organizations on signing the grant agreement. The DLITs and DFITs shall recommend for approval of matching grant and insurance support fund to the FIT and LIT respectively. The concerned Technical specialist will review all supporting documents required to be submitted as per grant guidelines and recommend for approval. The Finance Specialist will check the budget and approved activity and forward to Project Director for approval. The approved matching grant and insurance support fund will be sent to the concerned DLITs and DFITs for payment. The DLITs and DFITs will make payment of approved matching grant and insurance support fund to the concerned PGs and FPOs. The PGs and FPOs shall appoint auditor and get annual audit of matching grant and insurance support fund conducted and submit the audit report to the project within four months of the end of the fiscal year.

81. **Accounting:** The PSU, LIT, FIT and DLITs and DFITs will maintain separate accounts of the project, following double entry government cash basis of accounting using accounting software based on charts of accounts accounting for expenditures by category, component, funding source and activity. The off-the-shelf ERP Tally Accounting software will be purchased and customized to account financial transactions of the project to generate financial statements showing expenditures by category, component and funding source and to meet accounting and reporting requirement of IFAD. The contribution made in cash by the beneficiaries and participating organizations shall be recorded to expenditures by the DLITs and DFITs based on incurred expenditures. In-kind contributions will be quantified and disclosed in the notes to accounts. The advance provided to the project staff shall be accounted on receipt of SoEs with the supporting documents. The implementing agencies shall maintain all required records of financial transactions. All related calculations and documents shall be retained and made available for verification during supervision mission of IFAD and audit. The accounts and records are to be maintained consistently to reflect the operations, resources and expenditures related to the project until the financing closing date, and shall retain such accounts and records for at least ten (10) years thereafter.

82. The accounts shall be computerized at all levels of the implementation to maintain the books of accounts by PSU, LIT, FIT and. A uniform chart of accounts shall be developed as given in Appendix FM-10 indicating implementing agency, district, Income/expenses,

source of funds, component, sub-component, activities, category and expenditure heads. The Finance Specialist will provide code to the chart of accounts and instruct to LIT, FIT and DLITs and DFITs to maintain accounts using this chart of accounts. The chart of accounts will help to identify nature of expenditures incurred by each cost center in each district for each activity of the component and category so that software can generate consolidated statement of expenditures by component, category, and financiers, expenditure heads, and financial statements. The accounting software to be purchased shall have features of maintaining books of accounts viz. cash book, bank book, journal, edger, trial balance, bank reconciliation statement, expenditure by components, categories, and financiers in each cost center and consolidation at LIT, FIT and PSU. The sample of the terms of reference of accounting software is given in Appendix FM-11. Software vendor should provide training to operate and understand the various features of the software. The vendor of the accounting software available off-the-self shall be requested for required customization to meet accounting and reporting requirement of IFAD.

83. The staff of the PSU, LIT, FIT and DLITs and DFITs will be given an advance to maintain petty cash on imprest system for incurring petty expenses. The staff taking advance for petty expenses shall maintain petty cash statement for control of advance and to avoid use for personal purpose. The formats of petty cash voucher, statement of petty cash and request form and petty cash reconciliation are given in Appendix FM-12.

84. PSU, LIT, FIT and DLITs and DFITs shall maintain accounts of financial transactions on the same day so that updated information can be generated as required for submission to the management and PSU/PMC. Besides the books of accounts, the PSU, LIT, FIT and DLITs and DFITs shall maintain the following registers/ records (i) register of procurements (ii) register of fixed assets (iii) register of advances (iv) register of contract monitoring forms (vi) vehicle record forms (vii) tax register (viii) salary register (ix) cheque issued register (x) stock book (xi) tour register etc. PSU, LIT, FIT and DLITs and DFITs shall take back up of the data daily or weekly depending on volume of transactions and stored off site.

85. The DioAH, DioF, DAHOs and DFOs will provide the details of expenditure incurred for salaries and allowances of the staff working for the project and any other expenditures incurred for the project by the government for accounting and reporting of government counterpart fund in total expenditure of the project.

86. **Asset Management:** The detail record of fixed assets purchased from the project funds shall be maintained at the PSU, LIT, FIT and DLITs and DFITs in the fixed assets register provided in Appendix FM-13. The fixed assets register shall include the description of fixed assets, identification number, manufacture serial No., supplier, date of purchase, invoice No. & date, source of funding, cost, date of receipt, the location, user if the asset is allocated to any staff, verification date, signature of verifier, date and amount of transfer or disposal, and remarks if any. The producer Groups and Farmer Producer organizations shall also maintain register of fixed assets purchased from project funds and the register shall be submitted to the concerned DLITs and DFITs within 15 days of the year-end. All fixed assets shall be physically verified at least once in a year and the evidence thereof shall be recorded in the asset register. Physical verification report reconciling with the fixed assets register shall be prepared by the team of physical verification mentioning the condition of assets and any shortage. The statement of fixed assets together and the physical verification reports shall be submitted to PSU together with the financial statements. All assets procured by the project shall be adequately insured.

87. PG and FPO will own the equipment procured from IFAD fund for the effective utilization of the machinery/equipment for the intended productive purpose. The concerned PG and FPO will maintain fixed assets register of such equipment, a log book for the use of equipment and income earned from use and expenses incurred for running of the equipment so that they can know surplus or deficit from use of the equipment.

88. **Internal controls:** The internal control system relating to financial procedures, accounting, procurement, record maintenance, preparation of financial statements and reporting will be based on internal control system prescribed in this PIM for PSU and GoB procedures for LIT, FIT and DLITs and DFITs and also for PSU where applicable. There shall be segregation of duties for accounting, payment, bank reconciliation, procurement, inventory management and approval of financial transactions at all levels of implementation. Finance Specialist of PSU and Finance Managers of LIT/FIT shall be responsible for the effective implementation of the overall internal control system. The PSU, LIT, FIT and DLITs and DFITs shall maintain vehicle record form for recording movement of vehicle in the vehicle log and vehicle history with regard to repair in the format given in Appendix FM-14.

89. **Reporting:** DLITs and DFITs shall submit to the concerned LIT/FIT and LIT/FIT to PSU monthly and quarterly financial statements in the agreed format with the statement of expenses incurred in the previous month and quarter showing the expenditure by components, categories, and financiers, comparative statement of actual and budgeted expenditure, bank reconciliation statements, funds utilization certificate, trial balance etc. by the 7th of the month. The DLITs and DFITs will submit annual financial statements to LIT/FIT within one month of end of fiscal year. The LIT and FIT will consolidate the financial statements with its financial statements for submission to PSU within two months of end of fiscal year. The PSU will prepare consolidated financial statements in the prescribed format obtaining consolidated financial statements of the LIT and FIT.

90. The LIT/FIT will provide support to the DLITs and DFITs in preparing the financial statements in the beginning of the project. The expenditures showing cumulative expenditures by component and financiers, AWPB, actual and percentage of each component and financiers, appraisal, disbursement and percent of each financiers, financial performance by component and financiers, and disbursement status of IFAD loan/grant against allocation should also be reported in the formats given in Appendix FM-15. These financial statements and funds utilization certificate of the DLITs and DFITs should be signed by the Accounts Officer and District Animal Husbandry/Fisheries Officer while consolidated financial statements of LIT/FIT should be signed by the Finance Manager and Project Coordinator. PSU shall consolidate the financial statements received from LIT and FIT with its financial statements and prepare quarterly interim financial reports in the format given Appendix FM-16 and submit these to IFAD within 45 days of the end of each quarter. The LIT and FIT shall prepare annual financial statements and submit the same to PSU within 45 days of the end of fiscal year. The PSU will prepare annual project financial statements in the format given in Appendix FM-17 based on the IFAD Handbook, on cash basis of accounting, within four months of the end of each financial year for submission to the IFAD and also to the auditor for audit.

E. Audit procedures and arrangements

91. The project shall hire a chartered accountant firm empanelled with C&AG to conduct the annual audit of the project's (PSU, LIT, FIT and DLITs and DFITs) consolidated financial statements in accordance with IFAD's General Conditions, the IFAD Handbook for Financial Reporting and Auditing of IFAD-financed projects¹⁴ ("the Handbook") and Standards on Auditing issued by the Institute of Chartered Accountants of India, in order to meet the deadline for submission of the audit reports (within six months of the closing of fiscal year). The Handbook, inter alia, requires public disclosure of the audited financial statements.

92. The audit report submitted by the project shall contain a clear expression of the auditor's opinion on the project's financial statements. It should include a financial statement's audit, a compliance audit and should include a Management Letter. It should also include a section on the project's compliance to loan covenants particularly those dealing with the financial matters. The auditor shall review the financial statement and

¹⁴ <https://www.ifad.org/en/document-detail/asset/39641638>

SOEs and give an opinion on the financial statements. The audit of the Designated Account shall be conducted by Office of C&AG. The auditor will also conduct audit of the matching grant award process to ensure compliance with grant guidelines.

93. The standard ToR for the auditors is provided in Appendix FM-18. The appointment of the auditor shall be through a fair, transparent and competitive process within 90 days after loan effectiveness for the first year and also for each of the subsequent fiscal years of the project period in accordance with the IFAD approved Audit Terms of Reference. The ToR should be sent to IFAD for review and "No-objection". The PSU shall start procurement process after obtaining approved ToR from IFAD using the agreed ToR subject to IFAD prior review and inform IFAD the name of the proposed auditor and the procurement process followed for the selection. The PSU shall appoint the auditor on receipt of "No-objection" from the IFAD. The auditors so appointed shall issue a formal engagement letter confirming their acceptance of the appointment and outlining the methodology, scope and responsibilities under the audit. The representatives of the PSU will sign and return a copy of the engagement letter to the auditor. A sample audit engagement letter is given in Appendix FM-18 to this chapter. At least 30 days before the end of the fiscal year, the PSU confirms to IFAD that an auditor has been appointed.

94. In general, and in accordance with international best practice and as recommended by IESBA, contracted audit firms cannot provide consultancy services to the project or have done so in the previous two years. Hence, auditors should not be appointed as consultants hired for designing accounting and control systems because of conflict of interest as they require to comment on such work.

95. In making a proposal for appointment of a private auditor, the project should provide IFAD with relevant supporting documentation and should address the following questions:

- Does the firm adhere to internationally accepted auditing standards or standards on auditing agreed by the IFAD? The firm's audit procedures and methods should ensure compliance with such standards.
- Is the firm independent of the project entity to be audited and of the people appointing the auditor?
- What is the legal status of the firm? This includes such aspects as partners' status and any limited liability provision in the firm's articles.
- Are any of the assigned audit staff employed by or closely linked to the project entity to be audited, or to any government body or public agency?
- Can the auditor confirm that there is no conflict of interest or lack of independence implicit in accepting the appointment?
- Is the auditor committed to providing qualified and experienced staff that can ensure timely submission of audit reports? In particular:
 - What is the staffing plan for the audit?
 - What are the qualifications of the assigned staff?
- Do the assigned staff belong to professional audit or accounting body, the Institute of Chartered Accountants India?

96. The auditors shall conduct audit of the project accounts and statement of expenditures following the applicable Standards on Auditing as specified in the ToR acceptable to IFAD. In reviewing the project accounts and financial statements, the auditor will:

- verify that acceptable accounting standards have been consistently applied and indicate any material deviation from these standards, and the effect of such deviation on the annual financial statements;
- assess the adequacy of accounting and internal control systems (procedures and responsibilities) for monitoring expenditures and other financial transactions (commitment, review, approval, payment and accounting) and ensuring safe custody of project-financed assets, and document any instances where controls are lacking or need strengthening;

- determine whether the PSU, LIT, FIT and DLITs and DFITs have maintained adequate documentation for all transactions; e.g. procurement documents, contracts, suppliers. invoices, letters of credit and evidence of payment, and ascertain that expenditures were properly authorized and in compliance with legal requirements;
- verify SOEs, accounting records and supporting documentation;
- establish that expenditures claimed for reimbursement under this procedure are eligible for financing in accordance with the provisions of the financing agreement;
- verify the numerical accuracy of statements and accounts;
- verify that disbursement requests for expenditures submitted to IFAD are eligible for financing under the loan agreement, and identify clearly any ineligible expenditures;
- verify the correctness of transactions;
- carry out a physical verification of any significant assets purchased and confirm their existence and use for project purposes;
- from the second year audit onwards, follow up and on the remedial actions taken by the PSU in response to previous audit findings and recommendations, and report on the status of implementation of recommendations issued in the previous years.

97. The auditor has to issue a management letter describing any weaknesses identified in the project accounting and internal control systems and non-compliance with financing agreement, project agreement, prevailing Laws, policies, directives and decisions of the management and the recommendation to resolve them or for improvement after discussion with the finance staff and the Project Director/Coordinator/District Officer of the concerned PSU, LIT, FIT and DLITs and DFITs. The PSU has to submit the audit report and management letter to the Mission Director and PMC for discussion together with management response. The management responses shall be provided to the auditor and IFAD for clarification and corrective actions to be taken to avoid such audit observations within one month of receipt thereof. The auditors shall include the management responses in the final version of the management letter and submit along with the audit report.

98. The audited consolidated project financial statements together with the audit report, management letter and response to the management letter have to be submitted to the IFAD within six months of the end of each financial year during the project period and by the loan closing date for the last year of the project to comply with the deadline for submission of the audit report. In accordance with the IFAD Handbook, the audited financial statements and audit report will be disclosed publicly.

99. The PSU shall maintain a Log of Audit Observations reported in the management letter by the auditor and also a Table of Summary Status of Audit Observations of each year separately and get the settlement of audit observations validated by the auditor during the subsequent fiscal year at the time of audit of next fiscal year or earlier. The format of Table of Summary Status of Audit Observations and Log of Audit Observations is given in Appendix FM-18 to this chapter. LIT and FIT shall submit the updated status of settlement of audit observations to PSU which will consolidate and submit to PMC. PSU will maintain consolidated Log of Audit Observations and a Table of Summary Status of Audit Observations which will be made available to the IFAD missions upon request. The LIT and FIT will also maintain log of audit observations of its office and DLITs and DFITs.

100. **Internal Audit:** The PSU will engage a firm of Chartered Accountants to conduct internal audit of the project related financial transactions on six monthly basis under terms of reference agreed with the IFAD in accordance with the Standards on Internal Audit (SIA) prescribed by the Institute of Chartered Accountants of India (ICAI). The internal auditor (IA) will include such tests and controls, as the auditor considers necessary under the circumstances. According to the SIA, internal audit is defined as "Internal audit is an independent management function, which involves a continuous and critical appraisal of the functioning of an entity with a view to suggest improvements thereto and add value to and strengthen the overall governance mechanism of the entity, including the entity's

risk management and internal control system.” The IA will assess the effectiveness of operation of the project’s financial management system and review of internal control mechanisms. The IA will check the maintenance of required records for the financial transactions of the project, eligibility of expenditure for intended purposes, supporting documents to substantiate the nature and amounts of expenditures, proper authorizations, reliability of financial reports and timely reporting to LIT/FIT by DLITs and DFITs and PSU by LIT and FIT, in compliance with the prevailing Laws, financial rules and procedures, financial and project agreement, letter to the borrower/recipient, IFAD's general conditions, and procurement guidelines, and review the internal controls.

101. The IA will submit six-monthly internal audit reports covering deficiencies and validation of corrective actions taken by the management for audit deficiencies reported in the previous internal audit reports and status of outstanding audit observations to the Mission Director. The internal audit report will help the management to identify weaknesses in the financial management system and internal control system and take corrective actions in a timely manner. The management of the PSU, LIT and FIT have to take immediate corrective measures to avoid reoccurrence of issues and strengthen the internal control system and revise the financial procedures. The internal audit reports are to be submitted to the Mission Director and copy of the respective part of the internal audit report will be submitted to the PSU, LIT and FIT for taking necessary action to resolve audit observations and avoid recurrence. The internal audit report along with the actions taken to resolve audit observations shall be submitted to the PMC and made available to IFAD missions upon request. The ToR of the Internal Auditor is provided in Appendix FM-19.

102. **Ineligible Expenses.** The internal and external auditors are required to identify clearly any ineligible expenditures incurred against the provisions of Financing and Project agreements, AWPB, procurement plan and project design report and report them regardless of their materiality. If the ineligible expenditures already claimed in withdrawal applications and reimbursed are subsequently identified, the auditors will report these expenditures separately and GoI has to either adjust from the next claim or refund the amounts of ineligible expenditures to IFAD.

103. **Financial Reporting:** PSU, LIT and FIT will maintain accounts of the project separately, following double entry government cash basis of accounting. Accounts will be maintained for transactions by category, component, funding source and activity, identifiable as pertaining to the Project in the PSU, LIT, FIT and DLITs and DFITs. The financial management procedures suitable for the implementation of this project activities and as prescribed in this PIM would be followed so that accounts are maintained to generate financial reports and periodic progress as per requirement of IFAD. A recognized off-the-shelf accounting software such as Tally will be procured and customized to maintain accounts and generate the required financial reports and withdrawal application.

104. The PSU, LIT, FIT and DLITs and DFITs shall maintain all required records of financial transactions for 10 years after project closing date as required by the Letter to Borrower. All related documents shall be retained for verification during supervision mission of IFAD and audit.

105. The financial statements of the project for each fiscal year should consist of:

- Statement of Cash receipts and Payments (by category);
- Statement of Cash receipts and Payments (by component);
- A statement of comparison of budget and actual expenditures by category;
- A statement of comparison of budget and actual expenditures by component;
- SOEs by withdrawal application and category of expenditures; and
- Notes to the project financial statements with respect to accounting standards, basis of accounting, foreign currency transactions, budget, government counterpart funds, other donor funds, other receipts, yearly procurement; statement of fixed assets, cumulative status of funds by category, reconciliation between the amounts shown as received by the GoI and those shown as being disbursed by IFAD.

- The formats of the PFS are provided in Appendix FM-17 to this chapter.

106. **Taxes:** Section 11.01 of the General Conditions stipulates that the Loan and all Loan Service Payments shall be exempt from all Taxes, and all loan service payments shall be made free and clear of taxes. Taxes on signature, delivery or registration shall also be exempted. It is the policy of the Fund that Loan proceeds are not to be used to pay Taxes, including (but not limited to) any taxes levied on the imports, procurement or supply of any good, civil work or services financed by the Loan but excluding income taxes on the overall income. If taxes are not exempted to the project, they shall be paid from the government fund. If taxes are exempted by the Government, they will be recorded under the government counterpart contributions maintaining a separate record.

107. **Materiality:** Misstatements, including omissions, are considered to be material if they, individually or in the aggregate, could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements. Materiality depends on the nature or size of the item or nature of misstatement, or a combination of both which is judged in the light of surrounding circumstances and the auditor's perception of the financial information and needs of users of the financial statements. In the public sector, materiality includes compliance with policies, legislative concern or public interest. In the context of IFAD-financed operation will include compliance with the Financing and Project Agreements and in particular the requirement that IFAD funds may only be used for the purpose stated therein.

108. **Preventing Fraud and Corruption:** The project will promote and adhere to the highest standards of probity and accountability in the use of its funds and implementation of project activities as planned to achieve intended objectives. The project will take appropriate action to prevent, mitigate and combat Prohibited Practices through compliance with the IFAD Policy on Preventing Fraud and Corruption in its Activities and Operations. IFAD's policy requires that the staff of IFAD and the project, beneficiaries of IFAD loans, as well as all bidders, suppliers, contractors and consultants under IFAD-financed contracts observe the highest standard of ethics and integrity during the procurement and execution of such contracts. Mechanisms for whistle-blowers to access IFAD systems are provided at the following link: <http://www.ifad.org/governance/anticorruption/how.htm>.

109. Particular attention will be paid to: including clauses in procurement documents and contracts that would establish an obligation for bidders and contractors to disclose information; encouraging the dissemination of government confidential reporting channels and whistle-blower protection measures; and procurement documents and contracts would inform implementing partners of IFAD's jurisdiction to conduct investigations and impose sanctions for prohibited practices.

110. **Investigative Authority:** Under IFAD's Policy on Preventing Fraud and Corruption¹⁵, the independent and competent authority responsible for receiving, reviewing and investigating allegations of fraud and corruption will be the Additional Secretary, Livestock and Fisheries Resources Department, Chief Vigilance Officer, Vigilance Department of Bihar, Tel.0612-2217544

The appendices to this section are listed below:

Appendix FM-1: Designated account reconciliation statement

Appendix FM-2: Checklist for a Withdrawal Application

Appendix FM-3: Recovery Plan

¹⁵<https://www.ifad.org/en/document-detail/asset/40189695>

- Appendix FM-4: Annual Work Plan and Budget
- Appendix FM-5: Sample Monthly Budget Execution Report
- Appendix FM-6: Fund Utilization Certificate
- Appendix FM-7: Financial Reporting Tables
- Appendix FM-8: Grant Utilization Certificate
- Appendix FM-9: Grant Register
- Appendix FM-10: Indicative chart of accounts
- Appendix FM-11: Sample TORs for accounting software
- Appendix FM-12: Petty cash forms
- Appendix FM-13: Fixed Asset Register
- Appendix FM-14: Vehicle Record Forms
- Appendix FM-15: Expenditure record forms
- Appendix FM-16: Quarterly Interim Financial Reports
- Appendix FM-17: Project Financial Statements
- Appendix FM-18: Sample Terms of Reference for the Auditor
- Appendix FM-19: Sample Terms of Reference of the Internal Auditor

Appendix FM-1: Designated Account Reconciliation Statement

(only if advance is provided to designated account); - to be prepared by CAAA

For the Year ended _____

IFAD Financing Agreement Number: _____

Designated Account Number: _____

Section 1		Denomination currency	Local currency (if applicable)
1	Total advanced by IFAD		
2	Less Total amount recovered by IFAD		
3	Equal present outstanding amount advanced by IFAD		
Section 2			

4	Balance of Designated Account as per attached bank statement as of(date, Month & Year)					
5	Plus balance of operating accounts					
	Plus cash on hand					
	= Total bank balances as of(date, Month & Year)					
6	Plus amount claimed in this application					
	WA No.					
7	Plus amounts withdrawn from Designated Account and not yet claimed					
	WA No.					
	WA No.					
	Provide reasons for not yet claimed.					
8	Plus amounts claimed in previous applications and not yet credited at the bank statement date, or claimed after the bank statement date					
	W. A. No.	Date	US\$	Amount		
9	Less: interest earned (to be completed. If zero, please enter zero)					
10	Total advance accounted for (Line 5 through line 9)					
11	Explanation of any difference between total outstanding advance (line 3) and advance accounted for (line 10)					
	Insert explanations: e.g.					
	Non eligible amount to be refunded to the designated account					
	calculation errors in application of percentage financing					
	counterpart financial resources to be reimbursed					
	cheques not yet cleared/presented to Bank					

Date:

Signature:

Name in Full:

Title in Full:

Key Check:

Opening and closing balances of the designated and project account should match with corresponding figures reported in the Sources and Uses of funds report (report 1).

Explanatory Notes:

1. The projects should prepare the report using the same accounting basis/standard that they use when they prepare the annual financial statements
2. The currency of the report, should be the same currency as the project annual financial statements.
3. The financial information presented in the report should always be generated by a proper accounting software. Excel is not an acceptable accounting software and it should only be used to edit and combine data to fit the agreed format
4. "Reporting period" refers to transactions occurred in the quarterly/semi-annual reporting period as agreed with IFAD, "cumulative annual" refers to the occurred transactions from the beginning of the fiscal year until the end of the reporting period and "cumulatively" refers to the occurred transactions from the beginning of the project life until the end of the reporting period
5. The sources of funds for each individual financier should include all income and all disbursement methods (replenishments, direct payments, special commitments and reimbursements)
6. Note that an exchange gain / loss is not an eligible expenditure by itself, and should not be reported as a separate expenditure item. Instead, if there are realized gains / losses these should be booked to specific approved expenditures/expenditure categories
7. Only cash Beneficiary contribution should be reported. Not in-kind
8. The rows for "receivables and payables" are designed to fit the report to modified cash and accrual basis of accounting. Under 100% pure cash basis these rows should be 0.
9. "Opening cash balances" reflect the opening balances of each bank account opened and maintained by the project including the (petty) cashbook.
10. "Closing cash balances" reflect the closing balances of each bank account opened and maintained by the project including the (petty) cashbook.

Appendix FM-2: Checklist for a Withdrawal Application

IFAD Financing No. _____ WA No. _____ Reporting period [from date/to date]

Form 100	Yes or No
1. Sequential numbering of WA	
2. WA amount tallies with sequentially numbered summary sheets	
3. Categories/sub-categories charged as per Schedule 2 of Financing Agreement	
4. % of financing applicable for each category or sub-category	
5. Availability of funds in categories and the overall financing amount	
6. Currency of payment	
7. Completeness and accuracy of banking instructions	
8. Complete name and address of correspondent bank	
9. WA is signed by Authorized Representative	
Statement of Expenditure	
1. Eligibility of expenditures claimed	
a) Within SOE financial ceiling	
b) Expenditures under specific Category [____] eligibility	
2. Form 102 signed by designated Project Accountant, Project Director, Authorized Representative	
3. Form 102 supported by signed Form 101 (for items reported in 2. but above over the financial ceiling)	
Designated account - Replenishment Requests	
1. Amount within ceiling figure agreed as a reasonable limit (____ USD or ____)	
2. Amount at least equal to 20% of the agreed reasonable limit	
3. Exchange rate used	
4. Completeness of designated account banking and account details	
5. Enclosed designated account Reconciliation and Bank Statements	
Supporting Documentation (attached if required)	
1. Copy of contract	
2. Copy of invoice, certified by Project Director	
3. Copy of bank guarantee and performance guarantee (for advance payment)	
4. Copy of delivery receipt	
5. Copy of evidence of payment	
6. Completed Form 101 (A or B)	
7. Completed Form 102 (A or B)	
Procurement	
1. Copy of "No objection/s" provided by IFAD	
2. Copy of Contract Monitoring Record/s Form/s	
Compliance with Condition/s for Disbursement	
1. In accordance with terms in Section E. para --- of the Financing Agreement	
2. In accordance with terms in Section ____ of the Letter to the Borrower	
Expenditure incurred/committed before Project Completion Date (PCD)	
1. Expenditure verified as eligible:	
a) contract signed before PCD	
b) goods delivered before PCD	
c) services completed and/or rendered before PCD	

Remarks:

Prepared by Finance Manager
Dated: _____

Certified by Project Director
Dated: _____

Appendix FM-3: Recovery Plan

(only if advance is provided to designated account);

RECOVERY PLAN

Designated Account No.

IFAD Loan/Grant No.:

Borrower:

Loan Effective Date

Today) Date:

IFAD Loan/Grant Amount
(Denominated Currency SDR
or USD)

0.00

Loan Completion Date:

Loan Closing Date

Remaining # of months to
closing date

	WA No.	Date	INR	USD	SDR	Unjustified balance	
						USD	SDR
Authorized Initial Payment(s)							

JUSTIFICATION:								
Period covered by WA	WA No.	(Expected) Date of WA	Estimated value (INR)	Estimated value (USD)	Proposed Recovery %	Recovery Amount (USD)	Cumulative (USD)	Cumulative Unjustified Balance (USD)
Month, Year								
Month, Year								
Month, Year								
Month, Year								
Month, Year								
Month, Year								
TOTAL								
Note: Unjustified balance at the time of loan closing will be refunded to IFAD								
Prepared by:	(Project title)					Date		
Certified by:	(Project title)					Date		
Approved by:	(Project title)					Date		

2: Summary Annual Work Plan and Budget by component and by financier

Components	IFAD Loan	IFAD Grant	GoB	Convergence	Banks	Beneficiaries	Total
Component 1							
Sub Component							
Sub Component							
Sub Component							
Sub Component							
Sub-total							
Component 2							
Sub Component							
Sub Component							
Sub Component							
Sub Component							
Sub-total							
Component 3							
Sub Component							
Sub Component							
Sub-total							
Total							

3: Summary Annual Work Plan and Budget by category and by financier

Categories	IFAD Loan	IFAD Grant	GoI	Convergence	Banks	Beneficiaries	Total
Category I							
Category II							
Category III							
Category IV							
Category V							
Total							

4 : Summary Annual Work Plan and Budget by category and component

Category/Components	Comp 1	Comp 2	Comp 3	Total
Category I				
Category II				
Category III				
Category IV				
Category V				
Total				

Appendix FM-5: Sample Monthly Budget Execution Report

Project: _____

Fiscal year: _____

Month: _____

Description	Up to previous Month		Month		Year to Date			Commitments
	Budget	Actual	Budget	Actual	Budget	Actual	%	Yet to be paid
Component 1								
Sub-component 1.1								
Activity								
Activity								
Sub-component 1.2								
Activity								
Activity								
Sub-component 1.3								
Activity								
Activity								
Component 2								
Sub-component 2.1								
Activity								
Activity								
Sub-component 2.2								
Activity								
Activity								
Sub-component 2.3								
Activity								
Activity								
Component 3								
Sub-component 3.1								
Activity								
Activity								
Sub-component 3.2								
Activity								
Activity								
Total								

Appendix FM-6: Fund Utilization Certificate (To be issued by DLITs and DFITs)

Project Name _____
Project Number _____
For the Period _____

Certified that out of budget of Rs..... released, the expenditure of Rs.has been incurred during the period as per state statement of expenditures submitted along with this fund utilization cetificate.

Signature.....
Designation (DAHO/DFO).....
Date.....

Appendix FM-7: Financial Reporting Tables

1: Statement of expenditures by category (Amount in INR)

Description	Upto Last Year	Upto Last Month	For the Month	Year to date	Cumulative to date	AWPB Allocation	Closing Balance
Category 1							
Category 2							
Category 3							
Category 4							
Category 5							
Category 6							
Category 7							
Total							

2: Financial performance per expenditure category and financier (Amount in INR)

Category	Description	IFAD Loan		IFAD Grant		GoB		Convergence		Banks		Beneficiaries		Total	
		For the Period	Cumulative												
I															
II															
III															
IV															
V															
VI															
VII															
Total															

3: Financial performance per component and financier (Amount in INR)

Component	Description	IFAD Loan		IFAD Grant		GoI		ICAR		Banks		Beneficiaries		Total	
		For the Period	Cumulative												
Component 1															
Sub com 1.1															
Sub com 1.2															
Sub com 1.3															
Component 2															
Sub com 2.1															
Sub com 2.2															
Sub com 2.3															
Component 3															
Sub com 3.1															
Sub com 3.2															
Total															

4: Projected fund flow forecast

Source of Fund	AWPB Allocation	Expenditures up to last quarter	AWPB Allocation Balance	Funds forecast for the quarter
IFAD Loan				
IFAD Grant				
Government of Bihar				
Convergence				
Banks				
Beneficiaries				
Total				

5: SOE withdrawal application statement (Amount in INR)

WA No:	Date	Cat 1 in INR	Cat 2 in INR	Total in INR	USD Equivalent	Rejected by IFAD		Net Reimbursed in USD
						in INR	In USD	
Withdrawal Application submitted to IFAD								
W.A. No.								
W.A. No.								
W.A. No.								
Sub-total								
B. Direct Payment								
W.A. No.								
W.A. No.								
W.A. No.								
Sub-total								
Total								
WA Pending for Submission:								
A. Replenishment								
W.A. No.								
W.A. No.								
Sub-total								
B. Direct Payment								

W.A. No.								
W.A. No.								
Sub-total								
Total								
Grand Total								

7: Contract Payment Monitoring Form

Project _____

Contract Number: as per contract register

Description of Contract:

Procurement File No. _____ Component _____ Contract Officer: _____

Date of "No Objection": _____

Name and Address of Supplier: _____

Bank Details:

Email:
Telephone

--

Contract Summary
(In INR/USD)

Document	Contract Reference	No.	Amount (IN USD)	Amount (IN INR)	Dates (start/end)
Original Contract					
Amendment (AM-1)					
Amendment (AM-2)					
Total Amount					

Bank Securities or Bonds (in INR/USD)

Document	Name of Financial Institution	Date	Amount	Expiry Date	Extension
Advance Payment					
Performance Bond					
Other					

Monitoring of Payments (In INR/USD)

Payment Schedule		Progress Certificate		Payments Issued				Balance Due on Contract
Milestone	Expected Amount	No.	Date	Invoice No.	Payment Date	Amount Paid	Cheque or WA No.	
Total								

Drawing and Disbursing Officer: _____ Project Director: _____

8: Physical progress report

Category	Project Activity by component/Sub-component	Original Plan			Physical Progress to date		Cost to date			Revised plan for completion	
		Physical	Cost	Completion date	Actual	Planned	Actual	Planned	% of Actual to plan	Total Cost	Completion date
	Component - 1										
	Sub-Comp 1.1										
	Activity 1										
	Activity 2										
	Sub-total										
	Component - 2										
	Sub-Comp 2.1										
	Activity 1										
	Activity 2										
	Sub-total										
	Component - 3										
	Sub-Comp 3.1										
	Activity 1										
	Activity 2										
	Sub-total										
	Total										

Appendix FM-8: Grant Register

Activity				
Grantee				
Grant Agreement Date		Grant completion date		
Grantee Contribution		Instalment	Milestone to be achieved	
Project Contribution		1st		
Total Amount		2nd		
		Final		
Instalments	As per Agreement		Paid	
	Date	Amount	Date	Amount
1st				
2nd				
Final				
Total				
Remarks				

Appendix FM-9: Fund Utilization Certificate (Beneficiary)

Utilization Certificate
Utilization Certificate for the Year

Name of Beneficiary :
District :
Block :
Description of grant :

Start Date :
Completion :

SUMMARY OF RECEIPTS and PAYMENTS

CONTRIBUTION	Project			Beneficiary			Total
	1st	2nd	Total	Up to Previous Period	Current Period	Cumulative to Date	
Installment							
RECEIPTS:							
Opening Balance							
Grant received							
Total							
DATE OF RECEIPT							
EXPENDITURES:							
Materials							
Labour							
Other Costs							
Total Expenditures							
Closing Balance:							
Cash in Hand							
Cash at Bank							
Total							

Secretary / Chairperson

Name	
Signature	
Date	

District Officer Counter signature

Name	
Signature	

Comment

Date	
------	--

Appendix FM-10: Indicative chart of accounts

1. Number of code assigned to each group and sub-group

Group/Sub-group	Implementing Agencies	District	Income/Expenses	Source of Fund	Component	Sub-component	Activities	Category	Expenditure Heads
Number of Code	1	2	1	1	1	1	2	1	2

2. Example of code assigned to each group and sub-group

Group & Sub-group	Code Assigned for	Number of Code	Assigned code
Implementing Agencies	PSU	1	1
	PIU (DioAH)	1	2
	PIU (DioF)	1	3
District	Districts	2	0 to 16
Income		1	1
Expenses		1	2
Source of Fund		1	1 to 6
	GOB	1	1
	IFAD Loan	1	2
	IFAD Grant	1	3
	Convergence	1	4
	Banks	1	5
	Beneficiaries	1	6
Component		1	1 to 3
Sub-component		1	1 to 3
Activities		2	1 to 99
Categories		1	1 to 7
Account Heads	Income	2	1 to 99
	Expenses	2	1 to 99

3. Example of account code of account head for livestock staff training

Group/Sub-group	Implementing Agencies	District	Income/Expenses	Source of Fund	Component	Sub-component	Activities	Category	Expenditure Heads
	PIU (DioAH)	Madhubani	Expenses	IFAD Loan	Livestock	Creating the enabling environment	Capacity building of AH staff	Training	Staff training
Account Code	2	1	2	2	1	1	1	3	1

The account code for conducting staff training from IFAD loan by PIU (DioAH) for sub-component 1 of component 1 and category 3 of training 212211131.

Appendix FM-11: Sample TORs for accounting software

1. Accounting Information System

A. Background

The Govt of Bihar (GoB) is currently in the process of implementing an IFAD funded Project Bihar Livestock and Aquaculture Promotion Project for doubling income of Smallholders (BILAS). The project is implemented through a project support unit (PSU) under the DoAFR and its two Directorates (DioAH and DioF). DoAFR uses BLDA a society under its aegis for flow of funds from the central and state sector projects and programmes to two of its directorates and avoid lapse of budget. The project is being implemented in 16 districts of Bihar. In order to comply with IFAD's reporting requirements the PSU, PIUs and DPIUs will need to procure an Accounting Software to meet reporting requirement of the project for the following purposes:

- to record all financial transactions to maintain books of accounts and required records and generate trail balance, periodic financial reports, balance sheet, income and expenditure account and receipts and payments accounts.
- to collect, analyze, store, and distribute information that is useful for decision making by comparison of budget and actual expenditure.
- to provide transparency and accountability of the project activities.
- to provide timely reports, help detect errors and deficits during project implementation and indicate necessary corrections.
- to prepare and present progress reports to the PSU, PIU, PMC and IFAD.

The project will be implemented by the PSU, PIUS and DPIUs where the project will be implemented. The accounts of expenses incurred by the respective implementing agencies will be maintained by the respective implementing agencies. The financial reports will be consolidated by the PIUs for the respective Directorate and PSU for auditing, submitting withdrawal application to IFAD through CAAA, and reporting to IFAD.

B. Specifications of the Software

General features

1. The Accounting software should have features of a modular solution and the different modules should be suitably integrated, the following are the basic modules:

- Chart of Account
- Accounting of expenditures based on chart of accounts
- Financial Reporting
- Budget accounting and Comparison of budget with actual expenditures
- Cost Centres
- Financial Reporting in accordance with IFAD requirements
- Consolidation of accounts at the PSU and PIUs
- Preparation of Withdrawal Application
- Contract Management, and integrating other modules if needed.

2. Classifying the levels of the Chart of account to enable generation of reports;

- by implementing agency
- by district
- by financiers
- by components and sub-components
- by categories

- by expenditure
3. Project financial reports including cash receipts and payments by component and category, statement of comparative budget and actual.
 4. Handling all the financial transactions of the Project according to the chart of account, that is used to:
 - Capture the financial data under the appropriate account headings
 - Classify and group financial data for the various financial reports. The structure of the Chart of Accounts caters data to be captured by:
 - The Project components and sub-components
 - Expenditure items under each component and sub-component
 - The IFAD disbursement category for the Project
 - Sources of funding
 5. All vouchers used in the system are based on double entry accounting system.
 6. Ability to account under different bases of accounting (cash, modified accrual, Accrual)
 7. Use of adjusting entry when needed through the Journal
 8. Capacity to customize reports and also exporting data to excel.

Financial reporting

9. Produce the periodic Financial Reports as requested by IFAD:
 - Statement of Cash Receipts and Payments per Project components showing quarterly, yearly and cumulative balances for the quarter and cumulative;
 - Statement of Cash Receipts and Payments per Project categories showing quarterly, yearly and cumulative balances for the quarter and cumulative;
 - Statement of Comparison of Budget and Actual per Project categories showing quarterly, yearly and cumulative balances for the quarter and cumulative;
 - Statement of Comparison of Budget and Actual per Project component showing quarterly, yearly and cumulative balances for the quarter and cumulative;
 - Statement of Project commitments, i.e., the unpaid balances under the Project's signed contracts;
 - Generation of bank reconciliation statements
 - Statement of fixed assets,
 - Statement of SOEs - Withdrawal Application Statement.
10. Consolidated report (financial report) of all implementing agencies managed under the software.
11. Recording the budget of all the activities of the project, and enable comparison of the actual performance with budgets/targets (quarterly, annual, and cumulative for the Project).
12. Enhancement on the Withdrawal Application report to include the SOE and Summary sheet

Security

13. Handling the required security according to predefined system security and privileges.
14. The program has adequate security features including password protection, not possible to delete a posted transaction, controlled access and maker-checker system
15. Includes proper backup and system maintenance procedures.

Training and support

16. Training of the finance and accounts team at the PSU, PIUs and DPIUs on all features of the software.
17. Provide a complete and a user friendly manual.
18. Configuration and Full installation of the software in computers of PSU, PIUs and DPIUs.

C. Delivery time table

1. The commencement of services for this assignment is expected to be no later _____.
2. The main objective of the firm is to deliver a well designed software, that facilitates reflection of project needs and be designed to provide the financial information required by all interested parties (the PSC, PIUs, DPIUs, GoB and IFAD) and fulfil the legal and regulatory requirements of the GoB and GoI.
3. The firm is expected to deliver the system during the phase mentioned below:

Duration of Deliverables

Deliverable 1: install the present system 15 days

Deliverable 2: needed modifications should be applied on the system within 45 days

Deliverable 3: Training sessions on the system one week.

Appendix FM-12: Petty cash form

1: Petty Cash Disbursement Voucher

Petty Cash Voucher No.		Date:	
Payee: (Name)		Rs.	
Rupees in words: _____ only			
Account Head		Account Code	Activity Code
Particulars:			
_____ Received by Date	_____ Prepared by Designation Date	_____ Recommended by Designation Date	_____ Approved by Designation Date

3: Petty Cash reconciliation Form

Part 1 - Petty Cash Reconciliation

Date _____

Description	Amount (INR)
Opening balance of Petty cash	
Received during the period	
Total petty cash balance	
Payments during the period	
Petty cash closing balance	
Physical petty cash balance as per Cash count	
Difference	
Explanation for difference, if any:	

Part 2 - Cash Count

Denomination	Number	Amount (INR)

Counted & Reconciled by

Reviewed by

2: Vehicle History Record

Vehicle No. _____ Assigned Driver _____

Date	Repairs			Service & Maintenance			Insurance			Fitness Test	
	Description	Garage	Cost	Description	Garage	Cost	Type	Period	Cost	Date	Cost

Appendix 22: Expenditure record forms

1: Cumulative expenditure by component as on

Component	IFD Loan	IFAD grant	Government	Convergence	Banks	Beneficiaries	Total
Component 1							
Component 2							
Component 3							
Total							

2: Budgeted expenditure and performance against AWPB

Component	AWPB (INR)	Actual (INR)	Per cent of Actual to AWPB
Total			

3: Budgeted expenditure and performance against AWPB

Financier	AWPB (INR)	Actual (IN)	Per cent of Actual to AWPB
IFAD Loan			
IFAD grant			
Government			
Convergence			
Banks			
Beneficiaries			
Total			

4: Financial performance by financier (Amount in USD)

Financier	Appraisal (USD '000)	Disbursements (USD '000)	Per cent disbursed
IFAD Loan			
IFAD grant			
Government			
Convergence			
Banks			
Beneficiaries			
Total			

5: Financial performance by financier by component as on(Amount in USD)

Component	IFAD Loan			IFAD grant			Government			Convergence			Banks			Beneficiaries			Total			
	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	Appraisal	Actual	%	
Component 1																						
Component 2																						
Component 3																						
Total																						

6: IFAD loan/grant disbursement as at(Amount in USD)

Category Code	Category Description	Original Allocation	Revised allocation	Disbursed	WA Pending	Available Balance	Percent Disbursed
	Total						

Appendix FM-16: Quarterly Interim Financial Reports

1. Quarterly financial reports

	Type of Report	The Focus/Scope of the report	Remarks
	Quarterly Financial Reports	These reports are a formal requirement by IFAD and they are to be sent to IFAD and to be used by the management to monitor the project's medium term financial performance. The report must be submitted to IFAD within 45 after the end of the respective reporting period, The exact content and format is agreed between IFAD and the Borrower/ Recipient.	
1	Sources and Uses of Funds (all financiers)	This report discloses how much funds the project has received from different financiers how these funds have been spent by expenditure category during the reporting period as well as cumulative. This report also discloses the projects cash balances.	
2	Summary of Expenditures by Loan & Grant Categories and By Financiers (USD)	This report discloses how much funds the project has spent by expenditure category and by financier.	Variation of this report already part of the Project financial statements (sources and uses of funds)
3	Financial performance by financier by component	This report discloses how much funds the has project received from each financier and how these sources have been spent by project component during the reporting period and cumulatively. The report also compares these figures with the targets set in the Annual Workplan and Budget and the Project design report (PDR).	
4	Cash forecast by financier	This report discloses the breakdown of the project's cash forecast for the following two quarters by financier. The breakdown includes opening and closing balances of the different accounts as well as estimated income and from different financiers and estimated expenditures by category.	Required by IFAD only on adhoc basis. Should be part of the project's monthly internal reporting (for management use)
5	Progress report on Audit recommendations	This report summarises all the recommendations made by the external auditors of the project, the project management's action plan to address these recommendations and the current status of these planned actions.	

2: Sources and Use of Funds by Category (all financiers)

Project Name : _____

Lead Project Implementing Agency: _____

Reporting Period: _____

Description	Reporting Period (Quarterly)	Cumulative annual	Cumulative project life
	Amounts in INR		
Sources of Funds (income)			
IFAD Loan			
IFAD Grant			
Government Funds			
Convergence			
Banks			
Beneficiary			
Exchange rate differences (gain/loss)			
Total			
Use of Funds (expenditures) by Project Category			
Category 1			
Category 2			
Category 3			
Category 4			
Category 5			
Category 6			
Category 7			
Total expenditures			
Income less Expenditures			
Other			
Payables/commitments			
Receivables (including advances)			
Total			
Opening Cash Balance (Comprising of):			
IFAD Loan project Account			
IFAD Grant project Account			
Project Account			
Beneficiary Project Account			
cash book			
etc.			
Closing Cash Balances (comprising of):			
IFAD Loan project Account			
IFAD Grant project Account			
Project Account			
Beneficiary Project Account			
cash book			
etc.			

Key checks:

- Opening cash balances the report should match with the closing balances of the same report for the previous reporting period.
- Sources of funds from the IFAD loan and grant for the reporting period should match with the totals of the WA-SOE schedule (report no. 5)

- The total uses of funds (expenditures) for the reporting period and cumulatively (from the start of the project until the end of the reporting period) should equal total the expenditures in report 2 and 3. and the report to the Government
- The total expenditures for the "cumulative" and "reporting period" should equal the corresponding figures reported to the national government.

Explanatory Notes:

- The projects should prepare the Interim financial progress reports (IFPR) using the same accounting basis/standard that they use when they prepare the annual financial statements.
- The currency of the IFPR, should be the same currency as the project annual financial statements.
- The financial information presented in the IFPR should always be generated by a proper accounting software. Excel is not an acceptable accounting software and it should only be used to edit and combine data to fit the agreed format
- "Reporting period" refers to transactions occurred in the quarterly/semi-annual reporting period as agreed with IFAD, "cumulative annual" refers to the occurred transactions from the beginning of the fiscal year until the end of the reporting period and "cumulatively" refers to the occurred transactions from the beginning of the project life until the end of the reporting period.
- The sources of funds for each individual financier should include all income and all disbursement methods (replenishments, direct payments, special commitments and reimbursements).
- Note that an exchange gain / loss is not an eligible expenditure by itself, and should not be reported as a separate expenditure item. Instead, if there are realized gains / losses these should be booked to specific approved expenditures/expenditure categories.
- Only cash Beneficiary contribution should be reported. Not in-kind
- The rows for "receivables and payables" are designed to fit the report to modified cash and accrual basis of accounting. Under 100% pure cash basis these rows should be 0.
- "Opening cash balances" reflect the opening balances of each bank account opened and maintained by the project including the (petty) cashbook.
- "Closing cash balances" reflect the closing balances of each bank account opened and maintained by the project including the (petty) cashbook.

3: Summary of Expenditures by Loan Categories and By Financiers

Project Name : _____

Lead Project Implementing Agency: _____

Reporting Period: _____

Category	Description of category	Financing Source (in currency of the financial statements)																			
		IFAD Loan				IFAD Grant				Government			Convergence			Beneficiaries			Total		
		Category allocation as per financing agreement	Cumulative	Reporting period	Cash forecast for Next reporting period	Category allocation as per financing agreement	Cumulative	Reporting period	Cash forecast for Next reporting period	Cumulative	Reporting period	Cash forecast for Next reporting period	Cumulative	Reporting period	Cash forecast for Next reporting period	Cumulative	Reporting period	Cash forecast for Next reporting period	Cumulative	Reporting period	Cash forecast for Next reporting period
I																					
II																					
III																					
IV																					
V																					
VI																					
VII																					
	Unallocated																				
Total																					

Key checks:

- The total expenditures for the "cumulative" and "reporting period" should equal the corresponding figures disclosed in the sources and uses of funds report.
- The total expenditures for the "cumulative" and "reporting period" by financier should equal the corresponding figures disclosed in the "Financial performance by financier by component" report.

Explanatory notes:

- The financial information of the report should be based on the same accounting basis/standard as the project annual financial statements.
- The currency of the report, should be the same currency as the project annual financial statements.
- The financial information presented in the report should always have been generated by a proper accounting software. Excel is not an acceptable accounting software and it should only be used to edit and combine data to fit the agreed format
- The categories of expenditure should mirror the categories of the Financing Agreement
- "Reporting period" refers to transactions occurred in the quarter/semi-annual reporting period as agreed with IFAD period and "cumulative" refers to the occurred transactions from the beginning of the project until the end of the reporting period
- An exchange loss should not be reported as a separate expenditure item. Instead, it should be linked to specific expenditures/expenditure categories
- Only cash Beneficiary contribution should be reported. Not in-kind.
- "Cash forecasts" refers to the estimated expenditures for the following reporting period.

4: Financial performance by financier by component

Project Name : _____

Lead Project Implementing Agency: _____

Reporting Period: _____

Component	IFAD Loan						IFAD Grant						Government (Budget & tax)						Convergence						Beneficiaries						Total											
	Reporting period			Cumulative			Reporting period			Cumulative			Reporting period			Cumulative			Reporting period			Cumulative			Reporting period			Cumulative			Reporting period			Cumulative								
	Planned (AWPB)	Actual	%	Planned (Design report)	Actual	%	Planned (AWPB)	Actual	%	Planned (Design report)	Actual	%	Planned (AWPB)	Actual	%	Planned (Design report)	Actual	%	Planned (AWPB)	Actual	%	Planned (Design report)	Actual	%	Planned (AWPB)	Actual	%	Planned (Design report)	Actual	%	Planned (AWPB)	Actual	%	Planned (Design report)	Actual	%						
Component-1																																										
Sub Component 1.1																																										
Sub Component 1.2																																										
Sub Component 1.3																																										
Sub-Total																																										
Component-2																																										
Sub Component 2.1																																										
Sub Component 2.2																																										
Sub-Total																																										
Component-3																																										
Sub Component 3.1																																										
Sub Component 3.2																																										
Sub-Total																																										
Total																																										

Key checks:

- The total expenditures for the "cumulative" and "reporting period" should equal the corresponding figures disclosed in the sources and uses of funds report
- The total expenditures for the "cumulative" and "reporting period" by financier should equal the corresponding figures disclosed in the "Summary of Expenditures by Loan Categories and By Financiers" report
- The Planned AWPB figures should match with the figures from the most recent approved AWPB
- The Planned AWPB figures should match with the figures from the most recent approved cost tables/ Project Design Report (PDR)
- The total expenditures for the "cumulative" and "reporting period" should equal the corresponding figures reported to the national government.

Explanatory notes:

- The projects should prepare the report using the same accounting basis/standard that they use when they prepare the annual financial statements
- The currency of the report, should be the same currency as the project annual financial statements.
- The financial information presented in the report should always be generated by a proper accounting software. Excel is not an acceptable accounting software and it should only be used to edit and combine data to fit the agreed format
- "Reporting period" refers to transactions occurred in the quarter/semi-annual reporting period as agreed with IFAD period and "cumulatively" refers to the occurred transactions from the beginning of the project until the end of the reporting period
- Similar to the project annual statements, only cash Beneficiary contribution should be reported, not in-kind contributions
- Planned (AWPB) refers to the total annual planned expenditures as expressed in the relevant annual workplan and budget (AWPB). The planned (AWPB) expenditures should be expressed in the same currency as the actual expenditures expenditure to enable comparison of budgeted expenditures against actual expenditures.
- "Planned (design report)" refers to the total project expenditures as expressed in the project design report. The planned (design report) expenditures should be expressed in the same currency as the expenditures to enable comparison of expenditures at design against actual expenditures.
- "Actual" refers to the actual expenditures already incurred in the specified time period.
- % this column compares the planned (AWPB or design report) expenditures with the actual expenditures - actual expenditures are divided by the planned (AWPB or design report) expenditures.

5: Semi-annual cash flow forecast by financier (in currency of the DA)

Project Name : _____

Lead Project Implementing Agency: _____

Reporting Period: _____

Time period	Quarter 1					Quarter 2				
	IFAD Loan	IFAD Grant	Govt	Convergence	Total (all financiers)	IFAD Loan	IFAD Grant	Govt	Convergence	Total (all financiers)
Financier										
Opening balances consisting of:										
Operating account - IFAD grant										
Operating account - IFAD loan										
Government funding account										
ICAR										
Cash at hand										
Total										
Cash Inflow from										
IFAD Loan										
IFAD Grant										
Government										
ICAR										
Other Sources										
Total Cash Inflow										
Cash Outflow (expenditures)										
1- Civil works										
2- Goods, Equipment & vehicles										
3-Training and Studies										
4-Credit Line										
5-PIU Salaries and operating costs										
Total Cash Outflow										
Net Cash flow										
Closing balance										
Operating account - IFAD grant										
Operating account - IFAD loan										
Government funding account										
ICAR										
Cash at hand										
Total										
Total Funds Available										

Key Checks:

- The opening balances should match with the closing balances of the sources and uses of funds report
- The cash outflows in the different categories should match with the cash forecast outlined in the "Summary of Expenditures by Loan Categories and By Financiers" report.
- Explanatory notes:
- The currency of the report should be the currency of the Designated Account, usually in USD. When converting expenditures in to the Currency of the DA one should apply the prevailing exchange of the last day of the reporting period.
- When reporting the opening and closing balance for accounts with pooled funds from different financiers such as the operating account, these funds should be attributed to the original financing source in the respective column.

6: Progress report on Audit recommendations

Project Name: _____

Lead Project Implementing Agency: _____

Reporting Period: _____

Recommendation	Date of the recommendation	Planned action to address the recommendation	Current Status of the planned action

7: Statement of Expenditures/ Withdrawal Application Statement by financing source and Disbursement Method

Project Name : _____

Lead Project Implementing Agency: _____

Reporting Period: _____

WA submitted to IFAD during the reporting period - IFAD Loan										
	WA no 1 (currency of the DA)	WA no. 1 (Currency of the PFS)	WA no 2 (currency of the DA)	WA no 2 (Currency of the PFS)	WA no 3 (currency of the DA)	WA no 3 (Currency of the PFS)	WA no 4 (currency of the DA)	WA no 4 (Currency of the PFS)	Total (currency of the DA)	Total (currency of the PFS)
Disbursement Method										
DA replenishments										
Direct payment										
Special commitments/letter of credit										
Reimbursements										
Total										
Rejected from IFAD										
Net Reimbursed										
WA submitted to IFAD during the reporting period - IFAD grant										
	WA no 1 (currency of the DA)	WA no. 1 (Currency of the PFS)	WA no 2 (currency of the DA)	WA no 2 (Currency of the PFS)	WA no 3 (currency of the DA)	WA no 3 (Currency of the PFS)	WA no 4 (currency of the DA)	WA no 4 (Currency of the PFS)	Total (currency of the DA)	Total (currency of the PFS)
Disbursement Method										
DA replenishments										
Direct payment										
Special commitments/letter of credit										
Reimbursements										
Total										
Rejected from IFAD										
Net Reimbursed										

WA pending submission to IFAD - IFAD Loan										
	WA no 1 (currency of the DA)	WA no. 1 (Currency of the PFS)	WA no 2 (currency of the DA)	WA no 2 (Currency of the PFS)	WA no 3 (currency of the DA)	WA no 3 (Currency of the PFS)	WA no 4 (currency of the DA)	WA no 4 (Currency of the PFS)	Total (currency of the DA)	Total (currency of the PFS)
Disbursement Method										
DA replenishments										
Direct payment										
Special commitments/letter of credit										
Reimbursements										
Total										
WA pending submission to IFAD - IFAD Grant										
	WA no 1 (currency of the DA)	WA no. 1 (Currency of the PFS)	WA no 2 (currency of the DA)	WA no 2 (Currency of the PFS)	WA no 3 (currency of the DA)	WA no 3 (Currency of the PFS)	WA no 4 (currency of the DA)	WA no 4 (Currency of the PFS)	Total (currency of the DA)	Total (currency of the PFS)
Disbursement Method										
DA replenishments										
Direct payment										
Special commitments/letter of credit										
Reimbursements										
Total										

Key checks:

- The figures disclosed in the "WAs submitted to IFAD" -section should match with the corresponding figures of the historic transaction report of the IFAD Loans and Grant System (LGS).
- The figures disclosed in the "WAs pending submission" -section should match with the corresponding figures in the "cash inflow"-section of the Cash forecast report (report no. 6).

Explanatory notes:

- The "Currency of the DA" refers to the currency in which the Designated Account is maintained and the Withdrawal applications are submitted. In cases of Direct payments, special commitments or reimbursements the currency of the WA might differ from the currency of the Designated Account. In these cases the sums should be converted to the currency of the Designated Account for the purpose of the report.
- The "Currency of the PFS" refers to the currency in which the project financial statements (PSF) are prepared.
- In addition to the IFAD loan and grant, other financing sources going through IFAD (e.g. OFID, GEF, Spanish Trust Fund et..) if applicable, should also be included in this report separately.

Appendix FM-17: Project Financial Statements

Sample of Project Audited Financial Statements

Project Name.....
Implementing Agency.....
IFAD Loan/ Grant Number (s).....

PROJECT FINANCIAL STATEMENTS

FOR THE YEAR ENDED March 31, 20XX

PROJECT NAME and NUMBER FINANCIAL STATEMENTS FOR THE YEAR ENDED MARCH 31, 20XX

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PROJECT NAME and NUMBER

PROJECT INFORMATION and PERFORMANCE

- **Institutional Details/Information:** Implementing agency, status, location, names, account numbers and address of bankers (Special and Project accounts) name and address of independent auditors
- **Members of the Project Implementing Unit:** Names and roles
- **Background Information on the Project:** Source of financing: size of Loan/Grant(s), effective and closing date(s)
- **Project Objectives:** As per Design Completion/Appraisal Report
- **Project Costs:** By component and category of expenditures as per Financing Agreement and Design Completion/Appraisal Report
- **Summary of Performance:** Physical progresses as per Progress/Supervision Reports

PROJECT NAME and NUMBER

**STATEMENT OF DRAWING and DISBURSEMENT OFFICER and MISSION DIRECTOR'S
RESPONSIBILITIES**

(INDEPENDENT AUDITOR'S LETTERHEAD)

REPORT OF THE INDEPENDENT AUDITORS

(Auditor's report on the Project Financial Statements and Statements of Expenditures)

PROJECT NAME and NUMBER
STATEMENT OF RECEIPTS and PAYMENTS (BY CATEGORY OF EXPENDITURES)
FOR THE YEAR ENDED MARCH 31, 20XX

		Notes	20XX-XX	20XX-XX	Cumulative to date
			In INR	In INR	In INR
Sources of Funds					
IFAD Financing					
	Replenishments to Special Account		XXX	XXX	XXX
	IFAD Direct Payments	5	XXX	XXX	XXX
	Government Funds	6	XXX	XXX	XXX
	Other Donors	7	XXX	XXX	XXX
	Other Receipts	8	XXX	XXX	XXX
TOTAL FINANCING			XXX	XXX	XXX
Application of Funds					
Project Expenditures: (By Category Of Expenditures)					
Cat	IFAD Credit				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
3	CCC		XXX	XXX	XXX
4	DDD		XXX	XXX	XXX
5	EEE		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	IFAD Grant				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	Government Funds				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
3	CCC		XXX	XXX	XXX
4	DDD		XXX	XXX	XXX
5	EEE		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
2	TOTAL PROJECT EXPENDITURES		XXX	XXX	XXX
SURPLUS/DEFICIT			XXX	XXX	XXX

PROJECT NAME and NUMBER
STATEMENT OF COMPARISON OF BUDGET and ACTUAL AMOUNTS BY CATEGORY
FOR THE YEAR ENDED MARCH 31, 20XX

Cat	Description	Notes	20XX-XX Budget	20XX-XX Actual	Variance
			In INR	In INR	In INR
	FINANCING				
	IFAD Financing				
	Replenishments to SA		XXX	XXX	XXX
	IFAD Direct Payments		XXX	XXX	XXX
	Government Funds				
	Other Receipts		XXX	XXX	XXX
	TOTAL FINANCING		XXX	XXX	XXX
	Project Expenditures: (By Category Of Expenditures)				
	IFAD CREDIT				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
3	CCC		XXX	XXX	XXX
4	DDD		XXX	XXX	XXX
5	EEE		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	IFAD Grant				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	Government Funds				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
3	CCC		XXX	XXX	XXX
4	DDD		XXX	XXX	XXX
5	EEE		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	TOTAL PROJECT EXPENDITURES		XXX	XXX	XXX
	Surplus/Deficit for the period		XXX	XXX	XXX

The excess/deficit of actual expenditures over the Budget of X% was due to...

PROJECT NAME and NUMBER
STATEMENT OF COMPARISON OF BUDGET and ACTUAL AMOUNTS BY COMPONENT
FOR THE YEAR ENDED MARCH 31, 20XX

Com	Description	Notes	20XX-XX Budget	20XX-XX Actual	Variance
		Notes	In INR	In INR	In INR
	FINANCING				
	IFAD Financing				
	Replenishments to SA		XXX	XXX	XXX
	IFAD Direct Payments		XXX	XXX	XXX
	Government Funds		XXX	XXX	XXX
	Other Receipts				
	TOTAL FINANCING		XXX	XXX	XXX
	Project Expenditures: (By Component Of Expenditures)				
	IFAD CREDIT				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
3	CCC		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	IFAD Grant				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	Government Funds				
1	AAA		XXX	XXX	XXX
2	BBB		XXX	XXX	XXX
3	CCC		XXX	XXX	XXX
	TOTAL		XXX	XXX	XXX
	TOTAL PROJECT EXPENDITURES		XXX	XXX	XXX
	Surplus/Deficit for the period		XXX	XXX	XXX

The excess/deficit of actual expenditures over the Budget of X% was due to....

PROJECT NAME and NUMBER
STATEMENT OF DESIGNATED ACCOUNT ACTIVITIES – to be completed by CAAA
FOR THE YEAR ENDED MARCH 31, 20XX

Account No: _____
 Bank: _____
 Address: _____

			USD (or as otherwise denominated)	Local Currency Equivalent
1 Opening Balance		Notes	XXX	XXX
Add:				
2 IFAD Replenishments:				
Date	WA No	XXX		
Date	WA No	<u>XXX</u>		
		XXX	XXX	XXX
3 Bank Interest (If any)			XXX	XXX
Total			<u>XXX</u>	<u>XXX</u>
Deduct:				
4 Transfers to Operating Accounts/Government Treasury:				
Date		XXX		
Date		<u>XXX</u>		
		XXX	XXX	XXX
5 Bank Charges			XXX	XXX
6 Exchange Rate Difference				XXX
7 Closing Balance as at 31/03/20XX (as per Bank Statement) (1+2+3-4-5-6)			<u>XXX</u>	<u>XXX</u>

Designated Account Reconciliation Statement – to be completed by CAAA

(only if advance is provided to designated account)

For the year ended March 31, 20XX

Project Title:

IFAD Loan/Grant No.:

Designated Account No.:

Bank:

Amount in (Currency of DA)

1.	TOTAL ADVANCED BY IFAD	XXX	0.00																
2.	LESS: TOTAL AMOUNT RECOVERED BY IFAD	-XXX	0.00																
3.	EQUALS PRESENT OUSTANDING AMOUNT ADVANCED TO THE SPECIAL ACCOUNT (NUMBER 1 LESS NUMBER 2)	XXX	0.00																
4.	BALANCE OF SPECIAL ACCOUNT PER ATTACHED BANK STATEMENT AS OF DATE: DATE, MONTH, YEAR	XXX	0.00																
5.	PLUS BALANCE OF THE PROGRAMME ACCOUNT(S)	+XXX	0.00																
	PLUS BALANCE OF SUB-ACCOUNTS	+XXX	0.00																
	PLUS CASH ON HAND	+XXX	0.00																
	Sub-total of 5:		0.00																
	TOTAL OF BANK BALANCES, PA, SUB-ACCOUNTS & CASH IN HAND BALANCE (4+5):	=XXX	0.00																
6.	PLUS: TOTAL AMOUNT CLAIMED IN THIS APPL. No. XXX	+XXX	0.00																
7.	PLUS: TOTAL AMOUNT WITHDRAWN FROM THE SPECIAL ACCOUNT/PA and NOT YET CLAIMED (=3-4-5-8-11)	+XXX	0.00																
	Eligible amount for which disb. Appl. has not yet been																		
	REASON: <u>prepared.</u>		0.00																
8.	PLUS: AMOUNTS CLAIMED IN PREVIOUS APPLICATIONS NOT YET CREDITED AT DATE OF BANK STATEMENT and CLAIMED AFTER DATE OF BANK STATEMENT																		
	<table border="0" style="width: 100%;"> <thead> <tr> <th style="text-align: left;">APPLICATION No.</th> <th style="text-align: left;">Date</th> <th style="text-align: left;">USD</th> <th style="text-align: left;">AMOUNT</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>USD</td> <td>0.00</td> </tr> <tr> <td></td> <td></td> <td>USD</td> <td>0.00</td> </tr> <tr> <td></td> <td></td> <td>USD</td> <td>0.00</td> </tr> </tbody> </table>	APPLICATION No.	Date	USD	AMOUNT			USD	0.00			USD	0.00			USD	0.00		
APPLICATION No.	Date	USD	AMOUNT																
		USD	0.00																
		USD	0.00																
		USD	0.00																
	SUBTOTAL OF PREVIOUS APPLICATIONS NOT YET CREDITED	+XXX	0.00																
9.	MINUS: INTEREST EARNED	-XXX	0.00																
10.	TOTAL ADVANCE ACCOUNTED FOR (NO.4 THROUGH NO.9)	=XXX	0.00																
11.	EXPLANATION OF ANY DIFFERENCE BETWEEN THE TOTALS APPEARING ON LINES 3 and 10	+XXX	0.00																
	Non-eligible amount to be refunded to PA XXX		0.00																
	Non-eligible amount to be refunded to PA XXX		0.00																

12. DATE: _____

SIGNATURE: _____

Name in Full: XXX

Title in Full: XXX

PROJECT NAME and NUMBER
SOEs-WITHDRAWAL APPLICATION STATEMENT
FOR THE YEAR ENDED MARCH 31, 20XX
by Category of Expenditures in Local Currency

WA No:	Date	Cat 1 In INR	Cat 2 in INR	Total in INR	USD Equivalent	Rejected by IFAD		Net Reimbursed in USD
						In INR	In USD	
A. Replenishment								
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Sub-total		XXX	XXX	XXX	XXX	XXX	XXX	XXX
B. Direct Payment								
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Sub-total		XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX	XXX
WA Pending for Submission:								
A. Replenishment								
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Sub-total		XXX	XXX	XXX	XXX	XXX	XXX	XXX
B. Direct Payment								
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Sub-total		XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total		XXX	XXX	XXX	XXX	XXX	XXX	XXX
Grand Total		XXX	XXX	XXX	XXX	XXX	XXX	XXX

Explanatory notes:

- Withdrawal Applications are submitted for reimbursement to IFAD using the historical exchange rate of the transfers to the Operating Account
- Expenditures partially or totally rejected by IFAD (if any) should be detailed here.
- This statement should be reconciled with the Statement of Receipts and Payments.

PROJECT NAME and NUMBER

**NOTES TO THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED March 31, 20XX**

1 FINANCIAL REPORTING UNDER INTERNATIONAL PUBLIC SECTOR ACCOUNTING STANDARDS (IPSAS)

In accordance with International Public Sector Accounting Standards (IPSAS), notes to the financial statements of an entity should:

- Present any information about the basis of preparation of the financial statements and the specific accounting policies selected and applied for significant transactions and other events, and
- Provide additional information which is not presented on the face of the financial statements but is necessary for a fair presentation of the entity's cash receipts, cash payments, cash balances and other statements as statement of financial position

2 SIGNIFICANT ACCOUNTING POLICIES

The principle accounting policies adopted in the preparation of these financial statements are set out below:

A Basis of Preparation

The financial statements have been prepared in accordance with International Public Sector Accounting Standards (IPSAS)/ International Financial Reporting Standards (IFRS). – as above

B Basis of Accounting

The basis of accounting recognizes transactions and events when they occur rather than when cash is received or paid by the entity. Expenses are therefore recognised when incurred and income when earned.

C Foreign Currency Transactions

Foreign currency translation for the income and expenditure account items are converted using the actual historic exchange rate at the conversion from special to local account. Where part of the expenditures has to be met from the proceeds of subsequent draw downs from special to local account, this is done on First in First out (FIFO) basis. All local expenditures paid from the local accounts/currency are translated back to the USD at the actual rate used for the transfer from special to local account. Cash balances held in foreign currency are reported using the closing rate. Gains/Losses on foreign currency transactions/balances are dealt within the Statement of Special Account Activities.

3 BUDGET

The budget is developed on a cash basis, and with the same classification and for the same period as the financial statements, while the financial statements are prepared on an accruals basis. The approved budget covers the period from 1 April 20xx to 31 March 20xx. Material variances (above XXX) have been explained as notes to the financial statements.

4 CASH/FUND BALANCES

Reconciliation

	20XX-XX In INR	20XX-XX In INR
A/c No _____ Project Account	XXX	XXX
A/c No _____ Other Project Account	XXX	XXX
	XXX	XXX

5 GOVERNMENT COUNTERPART FUNDS

Details here. Cumulative contributions, yearly contributions (compared to budget). For information only Include details of tax treatment and counterpart contributions as tax exemption.

6 OTHER DONOR FUNDS

List of Donors	20XX-XX	20XX-XX
	In INR	In INR
1	XXX	XXX
2	XXX	XXX
3	XXX	XXX
Total	XXX	XXX

Add details of cumulative and expected contributions

7 OTHER RECEIPTS

Description	20XX-XX	20XX-XX
	In INR	In INR
Interest Income	XXX	XXX
other income (specify)	XXX	XXX
Total	XXX	XXX

8 NON-CURRENT ASSETS (For disclosure purpose only)

Amount in INR

Description	Cat 1 -Infrastructure		Cat 2 Vehicles		Cat 3-Equipment	
	20XX-XX	20XX-XX	20XX-XX	20XX-XX	20XX-XX	20XX-XX
Costs						
Opening Balance	XXX	XXX	XXX	XXX	XXX	XXX
Additions (Statement of Receipts and Payments)	XXX	XXX	XXX	XXX	XXX	XXX
Disposals	(XXX)	(XXX)	(XXX)	(XXX)	(XXX)	(XXX)
Closing Balance	XXX	XXX	XXX	XXX	XXX	XXX

This schedule includes all assets acquired from the commencement of the Project. These assets are stated at cost. Existence and beneficial ownership have been verified by the auditors. Apart from the summary schedule, detailed schedules for annual changes to be included.

9 YEARLY PROCUREMENTS

Include here a list of the yearly procurements including methods

10 ALLOCATION and USE OF THE FUNDS OF THE LOAN

Category	Allocated		Disbursed		Available Balance	
	Amount SDR	Equivalent USD (or otherwise)	Amount SDR	Equivalent USD (or otherwise)	Amount SDR	Equivalent USD (or otherwise)
AAA	XXX	XXX	XXX	XXX	XXX	XXX
BBB	XXX	XXX	XXX	XXX	XXX	XXX
CCC	XXX	XXX	XXX	XXX	XXX	XXX
DDD	XXX	XXX	XXX	XXX	XXX	XXX
EEE	XXX	XXX	XXX	XXX	XXX	XXX
Total	XXX	XXX	XXX	XXX	XXX	XXX

11 RECONCILIATION OF FUNDS DISBURSED BY IFAD and FUNDS RECEIVED BY THE PROGRAMME

Category	Disbursed by IFAD			Received by Project			Difference		
	Amount INR	Amount SDR	Equivalent USD (or otherwise)	Amount INR	Amount SDR	Equivalent USD (or otherwise)	INR	SDR	USD
AAA	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
BBB	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
CCC	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
DDD	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
EEE	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Total	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Appendix FM-18: Sample Terms of Reference for the Audit of BILAS Project

1: Terms of Reference for the Audit of BILAS Project

The template terms of reference (ToR) can be found in Annex 7 of the Handbook.

2 : Letter of Engagement of Auditor

To the Project Management (or appropriate Project Director/Coordinator):

You have requested that we audit [insert names of financial statements – e.g. statement of receipts and payments and statement of comparison of budget and actual for the year ending 31 March 20XX. We are pleased to confirm our acceptance and our understanding of this engagement by means of this letter. Our audit will be carried out in accordance with International Standards on Auditing (ISA) or International Standards of Supreme Audit Institutions (ISSAI) or national Standards on Auditing (NSA) promulgated by the ICAI, with the objective of our expressing an opinion on the financial statements, including the use of the statements of expenditure.

In forming our opinion on the financial statements, we will perform sufficient tests and reviews to obtain reasonable assurance as to whether the information contained in the underlying accounting records and other source data are reliable and sufficient as the basis for the preparation of the financial statements. We will also determine whether the information is properly communicated in the financial statements.

Because of the nature of the tests and other inherent limitations of an audit, and the inherent limitations of any system of internal control, there is an unavoidable risk that some material misstatements may remain undiscovered. However, we expect to provide you with a separate management letter concerning any material weaknesses in internal control that come to our notice.

May we remind you that project management is responsible for the preparation of financial statements, including adequate disclosure of relevant information. This includes maintenance of adequate accounting records and internal controls, selection and application of accounting policies, and safeguarding of assets. As part of our audit process, we will request from management written confirmation of representations made to us in connection with the audit.

We should be given access to all legal documents, correspondence, and any other information associated with the project and deemed necessary by us for the audit.

We look forward to receiving the full cooperation of your staff. We trust that they will make available to us whatever records, documentation and other information we may request in connection with our audit.

Our fees mutually agreed are based on the time required by the staff and other resources assigned to the audit, plus direct out-of-pocket expenses. Individual hourly rates are based on the degree of responsibility involved and the experience and skills that staff require for the audit.

Please sign and return the attached copy of this letter as confirmation that it is in agreement with your understanding of the arrangements for our audit of the financial statements.

Name of firm or company, (Chartered accountants)

NOTE: Additional items may be included in the engagement.

Appendix FM-19: Terms of Reference of the Internal Auditor

The Internal Auditor shall be a member of the Institute of Chartered Accountants of India. The internal auditor will conduct internal audit on half yearly basis in accordance with Auditing & Assurance Standards prescribed by the Institute of Chartered Accountants of India, include such tests and controls as the auditor considers necessary under the circumstances and shall be responsible for the following:

- Check eligibility of expenditure with supporting documents to substantiate the nature and amounts of expenditures for intended purpose and compliance with the prevailing Laws, financial rules and procedures, financing agreement, project agreement, letter to the borrower, general conditions of IFAD, and procurement guidelines, and memorandum of understanding.
- Ensure that all project funds received under the project have been used with due attention to economy, efficiency and effectiveness and only for the purposes for which the financing was provided.
- Ensure that all required books of accounts for the financial transactions of the project are being maintained and updated, bank accounts are being reconciled and financial reports are being prepared correctly.
- Ensure that the accounting and financial management systems remain reliable and effective in design and assess the extent to which they are being followed.
- Review the efficacy, adequacy and application of accounting, financial and operating controls and thereby ensure the accuracy of the books of accounts.
- Verify that the system of internal check is effective in design and operation in order to ensure the prevention of and early detection of defalcations, frauds, misappropriations and misapplications.
- Assess the effectiveness of operation of the project's financial management system, review effectiveness of internal control mechanisms in project implementation, Identify areas of significant inefficiencies in existing systems and suggest necessary remedial measures for improvements if required.
- Review that allocation of the expenditure between IFAD and counterpart funding is in accordance with the IFAD financing agreement.
- Review statutory compliances as may be applicable such as proper deduction and filing of TDS, Income tax, GST, PF returns and other applicable.
- Review the efficiency and timeliness of the funds flow mechanism at the PSU and the concerned two implementation teams and whether there are delays impacting the timely implementation of project. The auditor should also identify and report the reasons for such delays and possible remedial measures.
- Ensure that the records of all procurement, agreement, work / purchase orders, invoices, receipts, stock registers etc. are properly maintained and retained for the required period.
- Review the contract management and ensure compliance with the terms and conditions of the contract.
- Check that the Statements of Expenditure (SOE) submitted to PSU by the two implementation teams and by PSU to IFAD are reconciled with the expenditures reported in the financial reports.
- Ensure that the SOEs are submitted in timely manner to PSU by the two implementation teams.
- Check whether adequate records are maintained regarding the assets created and assets acquired by the project, including description, details of cost, identification and location of assets. Carry out physical verification of a sample of assets created out of the project and comment on its utilization and whether they are adequately safeguarded.

- Ensure whether the physical verification of assets is being carried out with due diligence by the PSU and two implementation teams at least once in a year.
- Check the accounting for the advances to project implementing agencies, project staff, suppliers and service providers and monitoring of settlement of advances.
- Ensure that all necessary supporting documents and records have been separately maintained in respect of all project activities and that clear nexus exist between supporting documents, accounting books and records and the periodic financial reports of the implementation teams and the PSU.
- Confirm that the agreed procurement procedures and arrangements have been followed for works, goods and services and basic principles of economy, efficiency and social equity have been followed.
- Check that the monthly/quarterly expenditure statements showing approved budget, expenditure during the month, and cumulative expenditure against the activity / sub activity during the period in accordance with the books of accounts, statement of outstanding advance and fund balance, requisition of funds, fund utilization certificate, and cash forecast of the next quarter are being submitted on time to PSU.
- Check that project accounts have been prepared in accordance with International Public Sector Accounting Standards (IPSAS) "Financial Reporting under the Cash Basis of Accounting".
- Check corrective actions taken by the management for audit deficiencies reported in the previous quarter and status of outstanding audit observations.

The Internal Auditor shall visit each cost center of the livestock and fisheries and the PSU for conducting the internal audit and submit half yearly reports to the Mission Director/Chief Project Director along with the actions taken to resolve audit observations.

Chapter XI : Procurement Arrangements under BAaLI

Applicable Guidelines and Procedures

52. Procurement of goods, works and services under the project financed from resources provided or administered by IFAD will be undertaken in accordance with IFAD's Procurement Guidelines and Handbook (dated September 2010) and as amended from time to time. (The IFAD Procurement Guidelines can be accessed from https://www.ifad.org/documents/38711624/39421027/procure_e.pdf/e1a99511-d57d-4695-a05b-3d9b597d0149 and the IFAD Procurement Handbook can be accessed from https://www.ifad.org/documents/38711624/39421018/proc_handbook_e.pdf/2febc53a-4244-4447-a788-d06a632fd3b5). In the absence of national law which safeguards the interests of transparency, fairness, and grievance redressal of the participating bidders/suppliers, IFAD Procurement Guidelines shall be followed both at the central level and at the decentralised level by all implementing entities.

53. The implementation responsibility of the proposed Project lies with Project Implementation Unit at the Directorate of Livestock and the Directorate of Fisheries with overall coordination and compliance responsibility at a unit established under Bihar Livestock Development Agency (BLDA). The activities will be implemented by the District and Block level offices of the two Directorates with the support of other service providers. The project will engage with private sector players for the marketing and scaling up of pilot initiatives. In addition, the project will engage with other consultancy service providers and partners.

Guiding principles

Transparency, Competition, Fairness and Elimination of Arbitrariness

54. Public buying should be conducted in a transparent manner to bring competition, fairness and elimination of arbitrariness in the system. This will enable the prospective bidders to formulate competitive bids with confidence. The following are some important measures to achieve the same and, thus, secure best value for money:

(a) The text of the bid document/Request for Proposals (RFP) should be user-friendly, self-contained, comprehensive, unambiguous, and relevant to the objective of the procurement. The use of terminology used in common parlance in the industry should be preferred.

(b) The specifications of the required goods should be framed giving sufficient details in such a manner that it is neither too elaborately restrictive as to deter potential bidders or increase the cost of purchase nor too sketchy to leave scope for sub-standard supply. The specifications must meet the essential requirements of the project. Efforts should also be made to use standard specifications, which are widely known to the industry.

(c) The bid document/Request for Proposals should clearly mention the eligibility criteria to be met by the bidders such as minimum level of experience, past performance, technical capability, manufacturing facilities, financial position, ownership or any legal restriction etc.

(d) Restrictions on who is qualified to bid should conform to extant Government policies and be judiciously chosen so as not to stifle competition amongst potential bidders.

(e) The procedure for preparing and submitting the bids/RFP; deadline for submission of bids/proposals; date, time & place of public opening of bids/proposals; requirement of earnest money and performance security; parameters for determining responsiveness of bids; evaluating and ranking of bids and criteria for full or partial acceptance of bid and conclusion of contract should be incorporated in the bid enquiry in clear terms.

(f) Bids should be evaluated in terms of the criteria already incorporated in the bid document, based on which bids have been received. Any new condition, which was not incorporated in the bid document, should not be brought into consideration while evaluating the bids.

(g) Sufficient time should be allowed to the bidders to prepare and submit their bids.

(h) Suitable provisions should be kept in the bid document allowing the bidders reasonable opportunity to question the bid conditions, bidding process, and/or rejection of its bid and the settlement of disputes, if any, emanating from the resultant contract.

(i) It should be made clear in the bid document that bidders are not permitted to alter or modify their bids after expiry of the deadline for receipt of bid till the date of validity of bids.

(j) Negotiations with the bidders for procurement of goods and works must be avoided. In case of consultancy services negotiations should be conducted with the highest combined ranked consultant, to clarify certain aspects and to confirm the team of experts proposed. For negotiations with the consultants, please refer to the Guidelines for negotiations.

(k) The name of the successful bidder to whom the contract is awarded should be appropriately notified by the PIU for the information of general public, including display at notice board, periodical bulletins, website etc.

Efficiency, Economy and Accountability:

55. Public procurement procedures must conform to exemplary norms of best practices to ensure efficiency, economy and accountability in the system. To achieve this objective, the following key areas should be taken care of:

(i) To reduce delays, PIU should prescribe appropriate time frame for each stage of procurement; delineate the responsibility of different officials and agencies involved in the purchase process and delegate, wherever necessary, appropriate purchase powers to the lower functionaries with due approval of the competent authority.

(ii) PIU should ensure conclusion of contract within the original validity of the bids. Extension of bid validity must be discouraged and resorted to only in absolutely unavoidable, exceptional circumstances with the approval of the competent authority after duly recording the reasons for such extension.

Eligibility

56. Firms/entities/individuals from any country are eligible to participate in this BAaLI Project, except: (i) as a matter of law or official regulation, India prohibits commercial relations with that country, or (ii) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, India prohibits any import of goods from, or payments to, a particular country, person, or entity. Where India prohibits payments to a particular firm or for particular goods by such an act of compliance, that firm may be excluded; and (iii) those who are included in the IFAD's debarred list.

Misprocurement

57. IFAD shall have the right not to finance contracts which are not procured strictly following the procedures as set forth in the Procurement Guidelines and Procurement Handbook, IFAD Letter to the Borrower, and will cancel such portion of the Financing. If misprocurement continues, IFAD may suspend the Financing or even go up to the cancellation of the Financing.

Good Governance and Accountability Policies

58. The IFAD Procurement Guidelines and Anti-Corruption Policy, which are adapted to this Project through the Financing Agreement and IFAD General Conditions for Agricultural

Development Financing, require zero tolerance to prohibited practices. Therefore, the procurement process also requires a strict adherence to these Guidelines and Policy.

Prohibited Practices

59. The Borrower/Recipient (including the Department of Animal Husbandry and Fisheries Resources, Government of Bihar, Bihar Livestock Development Agency and oversight committees), as well as bidders, potential bidders, suppliers, grant recipients, contractors and consultants financed through the proceeds of this Project, shall observe the highest standard of ethics during the selection and execution of such contracts/grants.

60. Pursuant to this policy, the following provisions shall be applied throughout the project implementation:

- (a) For the purpose of this provision, the terms set forth below are defined:
 - (i) "Corrupt Practices" mean the offering, giving, receiving, or soliciting directly or indirectly of anything of value to influence improperly the actions of another party.
 - (ii) "Fraudulent Practices" is any act or omission including a misrepresentation that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation. ;
 - (iii) "Collusive Practices" is an arrangement between two or more parties, designed to achieve an improper purpose, including to influence improperly the actions of another party;
 - (iv) "Coercive Practices" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party, or the property of the party to influence improperly the actions of a party.
 - (v) "Obstructive Practices" mean: deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an IFAD investigation into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or acts intended to materially impede the exercise of the IFAD's inspection and audit rights provided for under sub-clause (e) below.
- (b) The Borrower and IFAD will reject a proposal for award if it determines that the bidder or consultant recommended for award, or any of its personnel. Or its agents, or its sub-consultants, subcontractors, service providers, suppliers and/or their employees has directly or indirectly engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question;
- (c) IFAD will declare mis-procurement and cancel the portion of the loan allocated to the contract if it determines at any time that representatives of the borrower or of a recipient of any part of the proceeds of the loan engaged in corrupt, fraudulent, coercive, collusive or obstructive practices during the procurement or implementation of the contract in question without the borrower having taken timely and appropriate action satisfactory to the DP to

address such practices when they occur, including failing to inform the DP in a timely manner at the time they knew of the practices.

- (d) IFAD will declare a consultant or firm ineligible, either indefinitely or for a stated period of time, to be awarded a future IFAD financed contract if it at any time determines that the bidder, supplier, contractor, service provider or consultant has engaged in corrupt, fraudulent, coercive, collusive or obstructive practices in competing for, or in executing, an IFAD-financed contract; and
- (e) All contracts financed out of the proceeds of BAaLI Project has a provision requiring supplier, contractor or consultants to permit both the Borrower and IFAD to jointly or separately inspect their accounts and records relating to the performance of the contract and to have them audited by auditors appointed by the Borrower and/or IFAD.

61. All staff involved in the procurement process has a duty to report to the Project Director and IFAD (i.e. through its Country Program Manager) for any suspected instances of prohibitive practices when identified.

62. In the case of collusive behaviour, if the evidence suggests that all or some of the bidders or consultants are involved, the evidence should be reviewed by the Project Director, BAaLI, and if necessary the procurement process is cancelled and all of the involved firms or individuals are sanctioned which could be up to the debarment. If the procurement is still in process, then the procurement must be cancelled and reinitiated only after the matters have been addressed properly.

Complaint Handling Mechanisms (CHM)

63. There are three distinct types of complaints that are typically found in a Project; i.e., (a) complaints concerning bid protest from aggrieved contractors, suppliers, service providers and consultants, which are addressed during or immediately after the bid process, (b) performance disputes, which are governed by the General Conditions of Contract (GCC) and Special Conditions of Contract (SCC), and, (c) non procurement related complaints from any parties, which are addressed in the PIM.

64. A complaint is any notification regarding an alleged illegal or improper procurement action and/or conduct of procurement officials, consultants, and/or sub-contractors directly or indirectly supporting a project or associated with its implementation, which the complainant believes is wrong, either under the law or on the grounds of unacceptable behaviour.

65. The Lead Implementation Agency shall ensure the confidentiality of any complainant and shall hold harmless any person reporting a complaint, oftentimes referred to as a "whistle blower", with provisions to shield complainant(s) or public official(s) from retaliation when they provide information that they reasonably believe to be a violation of the provisions of the agreed procedures.

66. All procurement related complaints shall be addressed to the Project Director, to which the LIA shall respond within 7 business days. If LIA needs more time due to complex investigation related to the complaints, then it shall state so in writing to the complainants, but in any case a complaint shall be put into closure within 30 business days.

67. The complainant need not be personally aggrieved or impacted, and may be acting merely in accordance with a sense of civic duty, such as an NGO or private citizen, in bringing an occurrence to the attention of project authorities.

68. All complaints, whether notified by persons who feel personally aggrieved or acting out of a sense of civic duty, will be acknowledged and acted upon by responsible authorities in accordance with the procedures specified in this section.

69. Concerning bid protests, from time to time, with and without justification bidders, suppliers, contractors, service providers and consultants may choose to lodge a complaint concerning some aspect of the contract award process. In the event the contract has been awarded and a contractual relationship exists between the parties, there are established dispute mechanisms in the GCC that shall be followed, up to and including judicial review.

70. A formal mechanism to satisfactorily respond to bid protest complaints must be followed, consistent with this Manual and the steps to be followed by aggrieved bidders, suppliers, contractors and consultants in the complaints procedure will be specified in the Bid/Request for Proposal documents

71. Complaints may also be addressed directly to IFAD, to which IFAD will resolve the complaints within its service standard.

Conflicts of Interest

72. A firm/entity/individuals participating in a procurement process under this Project shall not have a conflict of interest. Any firm/entity/individuals found to have a conflict of interest shall be ineligible for award of a contract.

73. A conflict of interest is a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations, and that such conflict of interest is not acceptable under the Project. The Borrower will take appropriate actions to manage such conflicts of interest which may include rejecting a proposal for award if it determines that a conflict of interest has flawed the integrity of any procurement process.

74. A firm shall be considered to have a conflict of interest in a procurement process if:
- (a) such firm is providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of a project that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm.; or
 - (b) such firm submits more than one bid, either individually or as a joint venture partner in another bid, except for permitted alternative bids. This will result in the disqualification of all bids in which the Bidder is involved; or
 - (c) such firm (including its personnel) has a close business or family relationship with a professional staff of the Borrower (or of the project implementing agency, or of a recipient of a part of the loan) who: (i) are directly or indirectly involved in the preparation of the bidding documents or specifications of the contract, and/or the bid evaluation process of such contract; or (ii) would be involved in the implementation or supervision of such contract unless the conflict stemming from such relationship has been resolved acceptable to IFAD throughout the procurement process and execution of the contract; or
 - (d) such firm does not comply with any other conflict of interest situation as specified in the Bidding Documents relevant to the specific procurement process.

75. It is the duty of all project staff and any other public employee directly or indirectly involved with the procurement process and particularly the preparation of bid documents, bid evaluation, contract negotiations, contract management and payments to avoid any potential conflicts of interest. A conflict of interest arises when the individual has a direct or indirect relationship with a bidder, consultant, contractor, service provider or supplier.

76. In the event that a project staff or a member of the PC or an employee who is directly involved with the procurement process feels that there is the potential for a conflict of interest they shall declare it to the PC and remove themselves from the procurement process.

Standard of Business Ethics

77. All Borrower staff and consultants involved in procurement activities shall observe the Code of Business Ethics as outlined below.

78. No individual shall use his/her authority or office for personal gain. Personal gain includes accepting or requesting anything of material value from bidders, prospective bidders or suppliers for the individual, his or her spouse, parents, children or other close relatives, or for other persons from whom the individual might gain direct or indirect benefit of the gift.

79. An individual shall seek to maintain and enhance the reputation of the Government by:

- (a) Maintaining the highest standards of honesty and integrity in all relationships both inside and outside the Entity in which he works;
- (b) Developing the highest standards of professional competence; and
- (c) Using funds and other resources for which he/she is responsible to provide the maximum benefit to the Government

80. Conflict of interest - An individual shall declare any personal interest that may affect or might reasonably be deemed by others to affect impartiality in any matter relevant to their duties.

81. Disclosure of personal relationships – an individual shall declare any relationship with a bidder, supplier, contractor, service provider or consultant and shall take no part in either the decision making process or the implementation of any contract where such a relationship exists. A personal relationship is defined as consanguinity or affinity up to the third civil degree.

82. Confidentiality and accuracy of information - An individual shall respect the confidentiality of information gained in the course of duty and shall not use such information for personal gain or for the unfair benefit of any bidder, supplier, contractor or consultant.

83. Information given by an individual in the course of their duty shall be true, fair and not designed to mislead.

84. Competition - All bidders, suppliers, contractors and consultants shall be treated with fairness and impartiality, and avoid any business arrangement that might prevent the effective operation of fair competition.

85. Business gifts - No business gifts will be accepted from current or potential Government suppliers unless such gifts are of very small intrinsic value (normally below USD 50 equivalent).

86. Hospitality - An individual shall avoid any business hospitality would be viewed by others as having an influence in making a government business decision as a result of accepting that hospitality.

87. Reporting - All individuals have a moral and ethical responsibility to report any unethical conduct by a colleague, a bidder or a supplier to their superiors, oversight agencies, IFAD or to the auditors.

88. Examples of Unethical Conduct - The following are examples of the type of conduct prohibited by this Code of Ethics:

- (a) Revealing confidential or "inside information" either directly or indirectly to any bidder or prospective bidder;
- (b) Discussing a procurement with any bidder or prospective bidder outside the official rules and procedures for conducting procurements;
- (c) Favoring or discriminating against any bidder, prospective bidder or consultant in the Preparing of technical specifications, terms of reference or standards or the evaluation of bids and proposals;
- (d) Destroying, damaging, hiding, removing, or improperly changing any formal procurement document;
- (e) Accepting or requesting money, travel, meals, entertainment, gifts, favours, discounts or anything of material value from bidders or prospective bidders, suppliers, contractors or consultants;
- (f) Discussing or accepting future employment with a bidder or prospective bidder, suppliers, contractors or consultants;
- (g) Requesting any other person to violate the public procurement rules or procedures;
- (h) Ignoring evidence that the Code of Ethics has been violated; and
- (i) Ignoring illegal or unethical activity by bidders or prospective bidders, suppliers, contractors, service providers or consultants, including any offer of personal inducements or rewards or otherwise.

Debriefing

89. All bidders and consultants whose offers are unsuccessful have the right to request a de-briefing from the Project Manager, however no debriefing will be delivered until after the contract has been signed. The debriefing will be limited to the content of the bidder's bid or consultants' proposal and in no way will cover the content of any other firms offer or provide any information on the details of such other than information in the public domain such as minutes of opening and the Summary of Evaluation. The reasons for this are four-fold:

- (a) It increases the levels of transparency in the procurement process,
- (b) It will provide essential guidance (especially to local firms) on the relative strengths and weaknesses in their offers. Local firms will be able to take the opportunity to strengthen their bids and proposals in the future leading to a more competitive local market.
- (c) The more equitable potential bidders and consultants feel the process to be, the more likely they are to submit bids or pursue shortlisting again increasing the overall levels of competition.
- (d) It will provide a benchmark for unsuccessful bidders and/or consultants, i.e. they will become aware of the quality and pricing levels required to win contract awards.

90. The overall goal of this debriefing process is to improve competition both from international and national sources. The primary benefit of increasing both national and international competition as stated above is increasing the level and quality of competition.

91. When de-briefing bidders and consultants care should be taken to ensure that no commercial confidences are breached, i.e. it is acceptable to give an indication of where a

bid or proposal was weak but not acceptable to disclose details of other bids and proposals received. Debriefing's should be requested in writing and may either be delivered in writing or in a meeting chaired by the Project Manager at the Project Manager's option. If a meeting is held it must be minuted and signed by both parties and a copy of the minutes of the meeting placed on the relevant contract file.

92. To facilitate the de-briefing process simultaneously to the notice of award or award of contract (services) being sent to the successful bidder or consultant, all un-successful bidders and consultants will be sent a in a Notice of an Awarded Contract, the following details:

- The name of each bidder or consultant submitting an offer
- Bid prices as read out at bid opening¹⁶
- When services the technical points score of each consultant
- The name and evaluated price of each bid or proposal and in the case of services the financial score
- The name of bidders or consultants whose bids or proposals were rejected and the grounds for the rejection
- Name of the winning bidder or consultant, the amount of the contact, the duration and final scope of the contract.
- Details of how to request a de-briefing from the Project.
- The following wording will also be contained in the covering letter

"An unsuccessful bidder or consultant may request a de-briefing from [insert name and address of the Project Manager]. Who will either respond in writing within five working days or schedule a de-briefing meeting.

In the event that the response from the responsible officer from BLDA does not satisfy the unsuccessful bidder or consultant or there is no response within 14 calendar days the issue should be referred to Department of Animal Husbandry and Fisheries Resources with a copy sent to the IFAD Country Director, IFAD India Country Office, New Delhi.

In addition to the above an unsuccessful bidder or consultant feels that is has valid grounds for a complaint regarding the procurement process, may lodge a complaint in accordance with the process outlined in the Bidding Document or Request for Proposals as the case may be.

Procurement Planning

93. It is a requirement of the IFAD Procurement Guidelines that at the outset of each project, the Borrower/recipient, in conjunction with IFAD, establishes a procurement plan covering the first 18-months of the project followed by 12 month successive plans synchronised with the Annual Work Plans and Budget during implementation.

94. Planning is a critical part of the procurement process to enable objectives and priorities to be set, workloads to be estimated and resources allocated. It enables the procuring entity to plan, organise, forecast and schedule its procurement activities and to identify potential areas for aggregation of needs. For IFAD, it provides a tool by which it can monitor project implementation. As far as possible, procurement planning should be integrated with financial planning of a project so that budgets and procurement needs are synchronised as far as is practical.

95. As a minimum, each procurement plan must contain the following information:

¹⁶ Except in Quality Based Selection of Services where only the highest ranked firm's financial proposal is opened.

A brief description of each procurement activity to be undertaken during the period or the plan;

The plan should be divided into goods, works and services and a brief description of each individual activity given. A 'brief description' is one which is sufficient to be clearly identifiable as an individual procurement activity but not so detailed that it becomes a specification.

The estimated value of each activity;

To ensure that the plan and budget are, as far as possible, harmonised, it is necessary to include the estimated expenditure for each procurement activity.

Estimated prices can be obtained from a number of sources, including but not limited to:

- previous similar purchases (these could be from a previous/existing project or recent projects in an adjoining country);
- published prices available from potential suppliers;
- any national price lists which exist;
- the internet.

The key is having a realistic budget based on informed data as the estimated value of a procurement activity may have a direct influence on the method of procurement to be adopted and the IFAD method of review for that activity.

It is the Borrower/recipient that is required to complete this information in the draft procurement plan.

The method of procurement to be adopted for each activity;

The plan should state the procurement method to be adopted for each separate procurement activity.

The method of review IFAD will undertake for each activity;

The plan must contain the agreed method of review which IFAD will adopt for each individual procurement activity. This will need to be determined by IFAD during its review of the plan.

Other data

In addition to the minimum information above it is considered good practice for a procurement plan to capture additional information such as:

- planned timing of the procurement activities¹⁷ (or at least the commencement and completion dates);
- procurement by project component;
- dates for IFAD prior review;
- the responsible entity, in case different entities are carrying out project procurement (such as the Project Coordination Unit, District A, Implementing partners).

Whilst this is not compulsory data, this information aids the management of the project by making the procurement plan more of an active tracking and monitoring tool as opposed to just an initial list of procurement activities.

¹⁷ When plans are updated or amended, it is good practice to retain the original planned dates as a point of reference.

Country/Organisation:		Project/Programme:											Loan #:				
Description*	Lot Number	Issue # of Invitation for Bids	Lumpsum or Bill of Quantities	Procurement Method	Estimated Amount in US \$	Pre-or Post Qualification	Prior or Post Review	Plan vs. Actual	Bid Documents		Bidding Period		Bid Evaluation		Contract Finalization		
									Date Proposed	Date No-objection	Bid Invitation Date	Bid Closing-Opening	Bid Evaluation Report	No-objection	Contract Amount in US \$	Date Contract Award	Date Contract Signature
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All civil works under the project will be initiated and procured through competitive bidding by BLDA, without transferring the funds to the Building Construction Department. BLDA will engage consulting engineers to prepare design estimates for technical and administrative sanction and also to monitor the progress of the civil works. The engineers of the Building Construction Department in the districts may be used for certification.

Selection methods for Consultancy Services

Procurement of consultancy services under BAaLI will be done by selecting any one of the following selection methods:

- i. QCBS
- ii. Fixed Budget Selection
- iii. Consultants' Qualification Selection
- iv. Single Source Selection
- v. Selection of Individual Consultants

The Letter to the Borrower will provide the recommended threshold limits for the procurement methods and selection methods.

IFAD Prior review

IFAD will review arrangements for procurement of goods, works and services proposed by the project, to review that the procurement process is carried out in conformity with IFAD Procurement Guidelines and with the agreed Procurement Plan. The extent to which these review procedures will be applied will be contained in the Letter to the Borrower and the Procurement Plan. The prior review will involve the detailed review of the following:

- i) Contract packaging
- ii) Applicable procedures and procurement methods
- iii) Bidding documentation
- iv) Composition of bid evaluation committees
- v) Bid evaluations and award recommendations; and
- vi) Draft contracts and contract amendments

All procurement, which were not subject to prior review, will be reviewed during IFAD Implementation Support Missions/Supervision Missions for the compliance to the Guidelines and agreed procurement plan. Any procurement, which is not in compliance to the Procurement Guidelines and Procurement Plan, will not be eligible for IFAD financing.

IFAD Prior Review Portal – NOTUS

IFAD has introduced a new system to manage 'No Objections' for project procurement and non-procurement related activities requiring prior review. The system, known as NOTUS (No Objection Tracking Utility System), has been rolled out across IFAD-financed projects/programmes.

NOTUS is a user-friendly tool that will systematize the submission, monitoring, review, commenting, and archiving of documents sent by projects to IFAD for 'No Objection'. It will significantly mitigate risks (e.g. data loss) from use of different and often manual methods of document naming, versioning, submission and archiving, as well as streamline the no-objection process. Ultimately, NOTUS will ensure better organization and efficiency in these processes, and in turn help project implementing agencies and IFAD realize important productivity gains.

All actions, which require IFAD prior review, will only be uploaded in NOTUS portal by the project team. BLDA will nominate 3-4 staff members to IFAD for providing access to the portal. This access requires a two factor authentication. Only the staff members who have been granted access will be able to upload the documents/comments/replies. BLDA will inform IFAD about the changes in the nominations forthwith during implementation.

Award of contracts

All award of contracts will be publicly disclosed in the BLDA website. The disclosure should contain the minimum details of: (i) Description of goods/works/consultancy services; (ii) Contract price; (iii) Contract duration; (iv) Name of the supplier/contractor/consultancy firm with address and contact details.

Contract Management

Good contract management is necessary for all contracts therefore the guidelines below applies equally to goods, works, consulting and non-consulting services. Effective contract administration is critical to successful contract implementation and meeting the objectives of the procurement requirement. Contract administration procedures are designed to ensure that:

- i. the supplier performs the contract in accordance with the terms and conditions specified in the contract;
- ii. the procuring entity fulfils its obligations and duties under the contract; and
- iii. swift remedial or preventative action is taken when problems arise or are foreseen.

The procuring entity has the overall responsibility for contract management, but will draw on other resources, such as technical expertise, payment services, legal services and supply management systems, as required. Where such other services and systems are used, the procuring entity will remain responsible for monitoring their performance and ensuring that their activities, in relation to the contract, are completed on time and in accordance with procurement rules. Day-to-day contract management/administration will often be assigned to an end user or technical expert.

Contract management responsibility

The procuring entity will always retain overall responsibility for contract management but not necessarily the day-to-day functional activity which can often be undertaken from outside the procuring entity if deemed to be appropriate.

For example, the procuring entity will normally retain control of contract amendments, payments and dispute resolution, but may allocate day-to-day liaison with the supplier, contractor or consultant to the end user.

When considering the most appropriate person or team to manage/administer the contract the procuring entity should take into account:

- a) whether supervision needs to be conducted by a person with appropriate technical skills, such as for construction contracts or the installation of complex plant and machinery. If so, contract administration is best allocated to the end user or an external consultant;
- b) where contract administration is likely to be time-consuming or require skills not available within the procuring entity, an external contract administrator should be appointed, such as a project manager for a major construction contract;
- c) where goods are to be delivered directly to the end user, contract administration is best allocated to either the end user or procurement staff;

- d) where a consultant is required to work with the end user in conducting a study, providing advice or building capacity, contract administration is best allocated to the end user and particular counterpart staff may need to be designated to work with the consultant.

Where services are provided in support of the general management or administration of the procuring entity, contract administration is best allocated to the member of staff responsible for that function.

The nominated Contracts Manager or Contracts Management Team should:

- a. carry out a review of the contract to assimilate the details of the requirements and the program for fulfilling them;
- b. ensure that a signed copy of the contract is received from the supplier, contractor or consultant;
- c. ensure that any required performance security or advance payment security is received from the supplier, contractor or consultant;
- d.** ensure that the procuring entity meets any immediate obligations, such as payment of an advance payment, opening of a letter of credit or assistance with obtaining visas for the supplier's foreign staff;
- e.** for larger contracts, prepare a contract implementation plan, showing key milestones, such as dates for mobilisation, deliveries or completion of certain deliverables or sections of work, and the procuring entity's obligations, such as providing access to a works site, payment or approval of reports.

The contract implementation plan is a key management tool to ensuring that the contract is performed as intended and within the obligations undertaken in the contract by both parties. It enables the Contract Manager to formulate an expediting plan for the contract to proactively ensure that deliverables are received on time.

Monitor implementation of contracts

The task of contract monitoring is to ensure that both parties to the contract perform in accordance with that contract and to take action as required to address any problems or delays, whether actual or anticipated.

For goods contracts, this goods focuses on ensuring that goods are delivered on time, that the goods are acceptable to the procuring entity, in terms of quantity, quality and supporting documentation, and that the procuring entity meets its obligations to pay for the goods delivered.

Contracts administration for works is often complex and time-consuming, as it involves supervision of the progress of the works, ordering variations where unforeseen conditions are encountered and measuring the work completed for payment purposes. For major contracts, the procuring entity will normally use a full-time supervising engineer or project manager, who will exercise control and supervision of the contact on behalf of the procuring entity.

When managing services contracts, the focus is on ensuring that services are delivered on time and to an acceptable quality. This can be difficult, as the quality of services, particularly consultancy services, can be subjective and difficult to measure. A good working relationship with the consultant and ongoing monitoring of services is therefore important, to ensure successful contract performance. The procuring entity must also ensure that it meets its obligations, particularly where the performance of consultancy services is dependent on certain inputs or information from the procuring entity or where staff must be made available to benefit from capacity building initiatives.

Documents/Records Required:

All correspondence and documentation relating to contract administration must be kept on the procurement file. In particular, records are required of:

- i. all invoices and other payment documents;
- ii. all documentation relating to contract performance, such as delivery notes, progress reports and other deliverables;
- iii. all contract variations;
- iv. all contract amendments;
- v. all documents relating to claims under the contract, including warranty claims;
- vi. all documents relating to contract disputes and dispute resolution.

Procurement Manual

BLDA will develop a detailed Procurement Manual, which will contain the processes, procedures and standard document templates for the use of the project team. Procurement Manual, will be prior reviewed by IFAD.

India

Bihar Aquaculture and Livestock Improvement Project Project Design Report

Annex 9: Integrated Project Risk Matrix (IPRM)

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Overall Summary

Risk Category / Subcategory	Inherent risk	Residual risk
Country Context	Moderate	Low
<i>Political Commitment</i>	<i>Low</i>	<i>Low</i>
<i>Governance</i>	<i>Moderate</i>	<i>Low</i>
<i>Macroeconomic</i>		<i>N/A</i>
<i>Fragility and Security</i>	<i>Substantial</i>	<i>Moderate</i>
Sector Strategies and Policies	Moderate	Low
<i>Policy alignment</i>		<i>N/A</i>
<i>Policy Development and Implementation</i>	<i>Moderate</i>	<i>Low</i>
Environment and Climate Context	High	Moderate
<i>Project vulnerability to environmental conditions</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Project vulnerability to climate change impacts</i>	<i>High</i>	<i>Moderate</i>
Project Scope	Moderate	Low
<i>Project Relevance</i>		<i>N/A</i>
<i>Technical Soundness</i>	<i>Moderate</i>	<i>Low</i>
Institutional Capacity for Implementation and Sustainability	Substantial	Moderate
<i>Implementation Arrangements</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Monitoring and Evaluation Arrangements</i>	<i>Substantial</i>	<i>Moderate</i>
Financial Management	High	Substantial
<i>Organization and Staffing</i>	<i>High</i>	<i>Substantial</i>
<i>Budgeting</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Funds Flow/Disbursement Arrangements</i>	<i>Substantial</i>	<i>Substantial</i>
<i>Internal Controls</i>	<i>High</i>	<i>Substantial</i>
<i>Accounting and financial reporting</i>	<i>High</i>	<i>High</i>
<i>External Audit</i>	<i>High</i>	<i>Substantial</i>
Project Procurement	High	Substantial
<i>Legal and Regulatory Framework</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Accountability and Transparency</i>	<i>High</i>	<i>Substantial</i>
<i>Capability in Public Procurement</i>	<i>High</i>	<i>Substantial</i>
<i>Public Procurement Processes</i>	<i>Substantial</i>	<i>Moderate</i>
Environment, Social and Climate Impact	Substantial	Moderate
<i>Biodiversity Conservation</i>		<i>N/A</i>
<i>Resource Efficiency and Pollution Prevention</i>	<i>Substantial</i>	<i>Moderate</i>
<i>Cultural Heritage</i>		<i>N/A</i>
<i>Indigenous People</i>		<i>N/A</i>

Risk Category / Subcategory	Inherent risk	Residual risk
<i>Labour and Working Conditions</i>	<i>Moderate</i>	<i>Low</i>
<i>Community Health and Safety</i>	<i>Moderate</i>	<i>Low</i>
<i>Physical and Economic Resettlement</i>		<i>N/A</i>
<i>Greenhouse Gas Emissions</i>	<i>Moderate</i>	<i>Moderate</i>
<i>Vulnerability of target populations and ecosystems to climate variability and hazards</i>	<i>High</i>	<i>Moderate</i>
Stakeholders	Moderate	Low
<i>Stakeholder Engagement/Coordination</i>	<i>Moderate</i>	<i>Low</i>
<i>Stakeholder Grievances</i>		<i>N/A</i>
Overall	Substantial	Moderate

Country Context	Moderate	Low
Political Commitment	Low	Low
Risk: There is a minor political and governance risk on account of impending elections to the State legislature in 2020 remains.	Low	Low
Mitigations: (i) the project negotiations will be completed before the elections and all the preparatory activities would start during this financial year itself. (ii) Legal and regulatory framework is weak but substantial improvement is seen during the last five years. (iii) Experience from the country portfolio will be applied and training and support to the PSU and PIUs with backstopping from IFAD-ICO.		
Governance	Moderate	Low
Risk: Bihar State is among the weaker performing states on government effectiveness (Source: http://pai.pacindia.org/#!/themes/ggov/map)	Moderate	Low
Mitigations: For the purpose of the project, the State of Bihar has established satisfactory systems for governance : (i) policy framework in place for agriculture and livestock, and under development for fisheries; (ii) commitment of DoAFR to build its own capacity, through seeking external technical assistance with support of BMGF for livestock sector, or hiring qualified agencies from the Government budget; (iii) the project will assist in expanding the outreach of the DoAFR through digital and conventional extension, as well as network of entrepreneurs and community based extension workers and paraveterinary service providers, rendering services to producers for a fee.		
Fragility and Security	Substantial	Moderate
Risk: The main risk is that the project area is prone to floods and droughts.	Substantial	Moderate

<p>Mitigations:</p> <p>(i) The State has a disaster recovery mechanism that helps it limit loss of lives. (ii) in-depth mitigation actions are addressed in the SECAP under the section on vulnerability to climate change.</p>		
<p>Sector Strategies and Policies</p>	Moderate	Low
<p><i>Policy Development and Implementation</i></p>	<i>Moderate</i>	<i>Low</i>
<p>Risk:</p> <p>The main risks pertains to the small livestock and fisheries sectors, where there are aspects that should still be addressed at policy level such as : (i) preparation for facilitating regulations to bring fisheries on par with agriculture in terms of utility fees and taxation; (ii) municipal regulations for hygienic slaughtering and sale of meat and fish products; and (iii) research and studies for promotion of goat breeds and climate resilient feed resources best suited for the state.</p>	Moderate	Low
<p>Mitigations:</p> <p>The project will assist the DOAFR in the development of the remaining policies, based on technical evidence, stakeholder consultation, and taking into consideration poverty, environment and gender aspects.</p>		
<p>Environment and Climate Context</p>	High	Moderate
<p><i>Project vulnerability to environmental conditions</i></p>	<i>Substantial</i>	<i>Moderate</i>
<p>Risk:</p> <p>The major environmental risks emanate from flooding in north and drought in south Bihar. Recurring flood results in degradation of soil health and deterioration of water quality. Damage to life and properties is integral part of flooding. Human and livestock health impacts post floods are of concern. Other major environmental risks are the poor levels of hygiene of slaughterhouses and the poor disposal of waste.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>Beyond the disaster recovery effort deployed by the State and Central Governments following extreme weather events, the project will address floods through a number of environment friendly activities such as: (i) expanding area under fodder production (dual purpose food/ fodder crops, fodder trees and shrubs, etc.), (ii) setting up clear mechanism for disposal of silt from the rejuvenation works in ox-bow lakes, and disposal of waste from fish/goat markets and abattoir/slaughter facilities, and recycling of the waste in agricultural inputs (such as fishmeal).</p>		
<p><i>Project vulnerability to climate change impacts</i></p>	<i>High</i>	<i>Moderate</i>
<p>Risk:</p> <p>The climate risk is high, as the project area is vulnerable to both drought (Southern area) and flood (Northern area).</p>	High	Moderate

<p>Mitigations:</p> <p>Risk mitigation measures included in the project design are: (i) developing fodder in private lands and fodder trees in villages to ensure that the villages have required feeding capacity for goat expansion; (ii) goat breed improvement to withstand local changes due to climate change induced weather variations; (iii) support for goat housing to enable the households to adapt to climate change events; (iv) implementing soil erosion control measures in fish ponds; (v) focus on rejuvenating ox-bow lakes by desilting inlet and outlets to ensure water availability round the year; (vi) developing a mutual insurance for goats. Furthermore, the project promotes reduced emission of enteric methane from goats through improved nutrition and increased off-take of the animals.</p>		
Project Scope	Moderate	Low
Technical Soundness	Moderate	Low
<p>Risk:</p> <p>The envisaged risk pertains to staff of the line departments not having undertaken this kind of entrepreneurial approach to the development of the sector and integrating both production and marketing considerations.</p>	Moderate	Low
<p>Mitigations:</p> <p>(i) The project has only two components with clear demarcation of activities between the implementing agencies. The project's activities are simple and straight forward. The design is in line with the expectation of GoB; (ii) the project entails substantial capacity building effort to be implemented for the staff of the line departments; (iii) the project design incorporates training of trainers of DoAFR staff, and development of curriculum and training materials to master higher level of technical competency required to manage and implement the project activities.</p>		
Institutional Capacity for Implementation and Sustainability	Substantial	Moderate
Implementation Arrangements	Moderate	Moderate
<p>Risk:</p> <p>Risk:</p> <p>1.The human resource capacity of project implementing partners remains an issue. Moreover, the DoAFR has not operated as a nodal agency for an externally aided project before.</p> <p>2. Financial Institutions' reluctance to provide timely and sufficient credit to the community members is a concern.</p>	Moderate	Moderate
<p>Mitigations:</p> <p>1 (i) The Department is actively filling up long pending vacancies in both the Directorates at the field level; (ii) DoAFR has agreed to engage the staff required for implementing this project at the block level and has completed initial round of recruitment; (iii) the project design incorporates substantial capacity building efforts into the project; (iv) The project will allocate funds for engagement of technical expertise to guide project implementation with specific emphasis on commercial orientation; (v) DoAFR has agreed to issue guideline to the district administration to ensure that DOAFR staff are full time devoted to the project activities; (vi) DoAFR is an implementing partner in the World Bank assisted project entitled Kosi River Basin Development Project. It is therefore familiar with the financial management and procurement requirements of the World Bank. DoAFR made provisions for hiring a fully dedicated finance team at district and state levels and a procurement officer at state level for the BAaLI project.</p> <p>2 (i) Alternate financing mechanisms will be explored.</p>		
Monitoring and Evaluation Arrangements	Substantial	Moderate

<p>Risk:</p> <p>Envisaged risk is substantial, as the DoAFR has yet to develop an M&E system that is aligned with the new Livestock Master Plan</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The mitigation strategy planned in the project consists of: (i) the project will support establishment of a M&E unit within PSU and each of the Directorate level implementation teams; (ii) The project will fund establishment of a computerised and GIS linked Management Information System (MIS); (iii) Allocations for knowledge generation and dissemination, thematic studies, baseline survey, end-line survey and project completion report have been made. In addition, BMGF is equipping DOAFR with a management information system that will act as dashboard providing updated information on outreach and effectiveness of the Department in achieving its mandate The project M&E would need to align accordingly and feed into the Department's M&E and MIS systems.</p>		
<p>Financial Management</p>	High	Substantial
<p>Organization and Staffing</p>	High	Substantial
<p>Risk:</p> <p>The chiefs of the Accounts in the DioAH and DioF are not career finance professionals, rather they are technically qualified in non-finance disciplines. • Number of qualified staff insufficient • No experience on IFAD-funded projects. • No written job descriptions except to the government staff</p>	High	Substantial
<p>Mitigations:</p> <p>Adequate finance staff with required qualification for the project will be recruited. • Clear job description and accountability lines will be specified in the Term of Reference. • Training will be provided to the finance to maintain accounts and prepare AWPB, withdrawal application and financial statements as per requirement of IFAD.</p>		
<p>Budgeting</p>	Substantial	Substantial
<p>Risk:</p> <p>Staff are not aware about the IFAD format of AWPB. • Budget is being prepared in February while AWPB is to be submitted to IFAD by end of January. • No periodic review of the budget performance</p>	Substantial	Substantial
<p>Mitigations:</p> <p>Separate budget line for the project will be in the state budget. • The country system for budget is working very well but the arrangement will be made to prepare and submit 60 days before start of the fiscal year. • Preparation of periodic statement of budget with actual.</p>		
<p>Funds Flow/Disbursement Arrangements</p>	Substantial	Substantial
<p>Risk:</p> <p>Unspent budget of the DoAFR is lapsed and not carried over to next fiscal year. • Budget is being released to BLDA only in the last month of the fiscal year.</p>	Substantial	Substantial

<p>Mitigations:</p> <p>Budget will be released in the first week of the fiscal year to PSU to be formed under BLDA (Society can keep funds for 18 months from the date of transfer by the government irrespective of the budget year) to avoid freezing the unspent budget. • Separate zero balance bank accounts will be opened at LIT, FIT, DPITs authorizing to withdraw amounts paid from bank account of PSU to ease payments and fund transfer.</p>		
<p>Internal Controls</p>	High	Substantial
<p>Risk:</p> <p>No written financial procedure manual in BLDA. No qualified staff in the Finance Section. Internal audit not conducted in DioAH and DioF. IFAD did have access to some BLDA internal audit reports during the Jan 2020 implementation support mission.</p>	High	Substantial
<p>Mitigations:</p> <p>Project Implementation Manual (PIM) will be prepared explaining the financial management system and segregating of duties. Restricting access to accounting files and documents. Periodic physical verification of inventories and fixed assets. Periodic reconciliation between programme and DCGO files. Hiring of a Chartered Accountant firm to conduct internal audit of all spending units of the project on six monthly basis with PSU taking actions on internal audit findings and recommendations under the oversight by Project management Committee.</p>		
<p>Accounting and financial reporting</p>	High	High
<p>Risk:</p> <p>No written accounting policies and procedures in BLDA. DioAH is maintaining accounts manually (somewhat mitigated due to payments being made through Comprehensive Financial Management System). Beneficiaries contribution are not accounted. Weekly back-up of accounting records. Entity level financial statements of BLDA has not been prepared from the establishment of 2005 till date (although the financial reports of the individual Schemes are being prepared annually). Staff are not yet aware about the reporting requirement of IFAD.</p>	High	High
<p>Mitigations:</p> <p>Tally accounting software will be customized as per requirement of the project. Finance staff will be trained to use the accounting software. Daily back-up of accounting records to be kept. Maintenance of fixed assets register. Detail financial procedures of accounting grant to beneficiaries and their contribution. PIM will specify detail reporting and monitoring requirements. Use of financial statements templates consistent with IFAD reporting requirements. Preparation of monthly, quarterly and yearly financial reports within due date.</p>		
<p>External Audit</p>	High	Substantial
<p>Risk:</p> <p>No external audit of BLDA entity level since establishment although the individual Schemes are being audited annually.</p>	High	Substantial
<p>Mitigations:</p> <p>A Chartered Accountant firm hired for the project will conduct external audit. • Conduct audit for submission of audit report to IFAD within due date. • Implementation of auditor's recommendations.</p>		
<p>Project Procurement</p>	High	Substantial

Legal and Regulatory Framework	Substantial	Moderate
<p>Risk:</p> <p>The risk that the Borrower's regulatory and institutional capacity and practices (including compliance with the laws) are inadequate to conduct the procurement in a manner that optimizes value for money with integrity.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The mitigation strategy consists of :</p> <p>1) Project Level Procurement Manual - modeled and customised based on IFAD Project Procurement Handbook version 2020 which would include standard bidding documents.</p> <p>2) Oversight through the review of the Procurement plan that procurement method (competitive) is used and applied. LTB to include provision of the applicable method based on range (value).</p> <p>3) making communities aware of the robust grievance redressal mechanism in the state which they can use to redress their concerns. The Govt of Bihar offers five major platforms for grievance redressal. These include : Grievance receiving counters established at Sub-Division, District and State HQ level; online web portal www.lokshikayat.bihar.gov.in; Call centre through toll free number; mobile App 'Jan Samadhan', and email (info-lokshikayat-bih@gov.in)</p>		
Accountability and Transparency	High	Substantial
<p>Risk:</p> <p>The risk here is High, as there are concerns of fraudulent practices and un-competitive bidding in procurement.</p>	High	Substantial
<p>Mitigations:</p> <p>The mitigation strategy depends on:</p> <p>1) IFAD Policy Fraud and Corruption to be applicable;</p> <p>2) Disclosure of contract awards on project website;</p> <p>3) the effective implementation of stakeholder consultation and consists of : (i) community feedback during supervision: focus group discussions and consultations will be done with livestock rearers and fisher group members during supervision missions to get their feedback on the quality and extent of services being provided, the extent of their engagement etc. (ii) annual outcome surveys to assess impact effect of activities on beneficiaries and their satisfaction with services. (iii) making communities aware of the robust grievance redressal mechanism in the state which they can use to redress their concerns.</p>		
Capability in Public Procurement	High	Substantial
<p>Risk:</p> <p>The Directorates have limited capacity in managing procurement as required under IFAD procurement guidelines. This is indicated in the procurement risk assessment matrix where the score is 1.76</p>	High	Substantial

<p>Mitigations:</p> <p>The major risk mitigation measures recommended are adoption of (i) annual procurement plan with flexibility to review and revise as per requirement/ implementation; (ii) Standard Bidding Documents including contract templates embedding the bid process, clarifications, evaluation and complaint handling mechanism and policy on preventing fraud and corruption and dispute resolution; (iii) preparation and adoption of procurement manual; (iv) Incorporating measures to establish strong contract management processes; (v) Conduct initial procurement training and refresher trainings; and (iv) engagement of a Procurement Specialist and two other Procurement Assistant staff. After the mitigation measures are implemented with full compliance, the risk may be reduced to Medium.</p>		
<p>Public Procurement Processes</p>	Substantial	Moderate
<p>Risk:</p> <p>The main risks are : no uniform procedures or standard bidding contracts nor contract templates; inconsistency of procurement and selection methods with IFAD Guidelines; inadequate contract management.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>The mitigation strategy consists of :</p> <p>1) Including a covenant in the financing agreement that the IFAD procurement guidelines would apply to the project.</p> <p>2) IFAD Procurement Guidelines and Procurement Handbook will be adopted. IFAD Standard Bidding documents and contract templates will be prescribed for compliance to the project. A Procurement Manual will be developed. IFAD will also undertake capacity building measures for the procurement staff.</p> <p>3) Letter to the Borrower to indicate the methods and the threshold values.</p> <p>4) Contract Registers and Payment Monitoring Form will be introduced.</p>		
<p>Environment, Social and Climate Impact</p>	Substantial	Moderate
<p>Resource Efficiency and Pollution Prevention</p>	Substantial	Moderate
<p>Risk:</p> <p>The main risk is related to disposal of waste from markets, abattoirs and slaughterhouses and was addressed above , under environment and climate context.</p>	Substantial	Moderate
<p>Mitigations:</p> <p>(i) Setting up clear mechanism for disposal of waste from fish/goat markets and abattoir/slaughter facilities, and recycling of the waste in agricultural inputs (such as fishmeal). Details elaborated in SECAP note.</p>		
<p>Labour and Working Conditions</p>	Moderate	Low
<p>Risk:</p> <p>The State of Bihar ranks 3rd in India in terms of Child Labour.</p>	Moderate	Low
<p>Mitigations:</p> <p>(i) GoB has developed a state action plan to eliminate child labour and the Government of India considers child labour a criminal offense; (ii) the financing agreement will refer to the project adhering to national legislation on prohibition of child labour.</p>		
<p>Community Health and Safety</p>	Moderate	Low

<p>Risk:</p> <p>The risk is that given projection of hotter climates, heat stress will increase on producers and disease burden will increase on livestock.</p>	Moderate	Low
<p>Mitigations:</p> <p>The extension services will include modules on health and hygiene for the rearers and will set up an effective paraveterinary and community based disease alert system through the community animal health workers, and DISHA workers.</p>		
<p>Greenhouse Gas Emissions</p>	Moderate	Moderate
<p>Risk:</p> <p>It is estimated that annual carbon balance will be 3,204,048 tCO₂eq for the project or 230 tCO₂eq/ha (EX-ACT tool developed by FAO, 2011). As the value is positive, the project interventions such as goat-keeping and fisheries will be the sources of the GHG emissions.</p>	Moderate	Moderate
<p>Mitigations:</p> <p>The project will incorporate an inventory of proven measures to adapt to climate change and reduce greenhouse gas emissions. Main measures include (i) support to local breed development as they are better adapted to local conditions; (ii) scientific management practices including stall feeding and fodder development through agro-forestry interventions; (iii) construction of flood shelter for livestock.</p> <p>Similarly, soil erosion control measures including agro-forestry on bunds and de-silting and construction of ponds and ox-bow lake rejuvenation to conserve water will be undertaken.</p>		
<p>Vulnerability of target populations and ecosystems to climate variability and hazards</p>	High	Moderate
<p>Risk:</p> <p>The project area is vulnerable to drought and flood and this exacerbates the levels of food unavailability and rural poverty.</p>	High	Moderate
<p>Mitigations:</p> <p>(i) The project aims to increase the returns of rural poor households from small livestock and fisheries and improve their diet. (ii) The full project design constitutes a strategy to improve the resilience of the poor to severe climate events.</p>		
<p>Stakeholders</p>	Moderate	Low
<p>Stakeholder Engagement/Coordination</p>	Moderate	Low
<p>Risk:</p> <p>Currently the two Directorates of Livestock and Fisheries are under staffed and there is no established coordination mechanism with other departments/Externally Aided Projects to ensure regular stakeholder participation.</p>	Moderate	Low

Mitigations:

The project will be developing coordination mechanisms at state and district levels to ensure inclusion of all the stakeholders, and convergence with existing schemes. The overall cohesive implementation of the project will be ensured by (i) the Project Steering Committee (PSC) acting as the apex Governing body; (ii) the Project Management Committee (PMC); (iii) the District Project Co-ordination Committee (DPCC) and the Project Support Unit (PSU) under the DoAFR. The design mission consulted communities widely and there was general consensus and support to the project approach.

India

Bihar Aquaculture and Livestock Improvement Project Project Design Report

Annex 10: Exit Strategy

Document Date: 02/03/2020
Project No. 2000002417
Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 10: Exit Strategy

- Exit strategy:** The project's exit strategy is founded on three core elements of project design. They include: (i) barefoot animal health service to improve access and affordability of services; (ii) entrepreneur led extension service coupled with digital extension; and (iii) formation of producer groups and organization. First, the project will develop a cadre of animal health workers (DISHA workers) with adequate training and continuous backstopping through link ups with the block level veterinary hospitals to provide fee based services to the goat rearing farmers. This strategy will also include pathways for them to emerge as goat entrepreneurs. The support to these animal health workers will be phased out within the first three years to ensure that they emerge as sustainable service providers before project completion.
- Second, the project will establish entrepreneur led and market oriented extension and training services. The project will select and build capacity of the Lead entrepreneurs at the block level and DISHA workers under the small livestock value chain and Lead Entrepreneurs and FTAs in the fisheries value chain to provide extensions service and training to the producers. These services will be based on the symbiotic relationships established between the entrepreneurs and the producers making exit seamless at project completion. In addition, the project will also develop digital extension service to complement the extension service provided by the Lead Entrepreneurs.
- Third, the project will establish producer groups at the village/panchayat level and Producer Organizations at the block level to empower the community to take their own decisions to ensure that the participating households access to all fee based services (animal health, credit, extension, feed and fodder and marketing) and convergence support to enhance production and productivity on a sustainable basis. This institution building and self-financing modality will create the institutional framework for project exit.
- Sustainability:** Sustainability of activities implemented under the project is embedded in to the design. The project proposes to implement a DISHA Worker modality which comprises training and technical support for provision of fee based service. Sustainability of service provision will be built with intensive training, standardized kits, regular technical support meetings with the Veterinary Officers and sliding scale of honorarium to ensure that the DISHA workers do not become dependent on project support. It is expected that most of the DISHA workers will emerge as private entrepreneurs by project completion.
- The project will build a cadre of Lead Entrepreneurs who will be trained and supported to supply seed, feed, quality goat kids, breeding buck and other services to the producers. The Lead Entrepreneurs will provide market oriented service to the producers. The B2C relationship between the Lead Entrepreneur and Producers will provide backward linkages to the producers and the forward linkages related to aggregation and marketing are expected to emerge. This strategy when successfully implemented will become a sustainable service delivery model and reduce the stress on the government sector to continue providing extension service.
- Productive investments proposed under the project in the small livestock and fisheries value chain are profitable. Access and affordability of animal health and extension service will reduce the risks related mortality and contribute significantly to production and productivity. As a result, these will become sustainable. In addition, the community led goat mutual will further reduce the risks in goat farming. The project will support promotion of producer groups and producer organizations to further enhance sustainability.

India

Bihar Aquaculture and Livestock Improvement Project Project Design Report

Annex 11: Mainstreaming themes – Eligibility criteria checklist

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Asia and the Pacific Division
Programme Management Department

Mainstreaming themes – Eligibility criteria checklist

	<input type="checkbox"/> Gender transformational	<input type="checkbox"/> Youth sensitive	<input type="checkbox"/> Nutrition sensitive	<input type="checkbox"/> Climate finance
Situation analysis	<input type="checkbox"/> National gender policies, strategies and actors <input type="checkbox"/> Gender roles and exclusion/discrimination <input type="checkbox"/> Key livelihood problems and opportunities, by gender <input type="checkbox"/> Use (pro-WEAI) assessment for M&E baseline	<input type="checkbox"/> National youth policies, strategies and actors <input type="checkbox"/> Main youth groups <input type="checkbox"/> Challenges and opportunities by youth group	<input type="checkbox"/> National nutrition policies, strategies and actors <input type="checkbox"/> Key nutrition problems and underlying causes, by group <input type="checkbox"/> Nutritionally vulnerable beneficiaries, by group	
Theory of change	<input type="checkbox"/> Gender policy objectives (empowerment, voice, workload) <input type="checkbox"/> Gender transformative pathways <input type="checkbox"/> Policy engagement on GEWE	<input type="checkbox"/> Pathways to youth socioeconomic empowerment <input type="checkbox"/> Youth employment included in project objectives/activities	<input type="checkbox"/> Nutrition pathways <input type="checkbox"/> Causal linkage between problems, outcomes and impacts	
Logframe indicators	<input type="checkbox"/> Outreach disaggregated by gender <input type="checkbox"/> Women are > 40% of outreach beneficiaries <ul style="list-style-type: none"> ● Pro-WEAI indicator 	<input type="checkbox"/> Outreach disaggregated by age	<input type="checkbox"/> Outreach disaggregated by gender <ul style="list-style-type: none"> ● Further details to be confirmed 	
Human and financial resources	<input type="checkbox"/> Staff with gender TORs <input type="checkbox"/> Funds for gender activities <input type="checkbox"/> Funds for Pro-WEAI surveys in M&E budget	<input type="checkbox"/> Staff with youth TORs <input type="checkbox"/> Funds for youth activities	<input type="checkbox"/> Staff or partner with nutrition TORs <input type="checkbox"/> Funds for nutrition activities	IFAD Adaptation Finance N/A IFAD Mitigation Finance N/A Total IFAD Climate-focused Finance \$0
ECG Remarks	Gender Nutrition Youth <input type="checkbox"/> No social inclusion themes			

India

Bihar Aquaculture and Livestock Improvement Project Project Design Report

Annex 12: List of eligible activities to be financed by FIPS

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Report No. 5312-IN

Asia and the Pacific Division
Programme Management Department

Annex 12: List of Eligible activities for retroactive financing

1. Activity by components

Component #	Activity description	Amount (INR 000)	Expenditure category
Small Livestock Promotion	Selection process of SLEs	500	Training, capacity building
	Mobilisation of PGs & FPOs	1,000	Training, capacity building
	Staff training and exposure visits	2,000	Training, capacity building
	TA for TOT	1,000	Training, capacity building
	Printing of manuals	1,000	Goods services and Inputs
	Preparation of guidelines	1,000	Training, capacity building
	Process of selection of DISHA workers	3,000	Training, capacity building
	Mobility allowances to district staff	2,000	Office operating costs
Sub-Total		11,500	
Inland Fisheries Promotion	Selection process of FLEs	500	Training, capacity building
	staff training and exposure visits	2,000	Training, capacity building
	Selection process for FTAs	1,000	Training, capacity building
	WorldFish TA	1,000	Technical Assistance
	Preparation of training manual	500	Training, capacity building
	Mobility allowance to district staff	2,000	Office operating costs
Sub-Total		7,000	
Project Management	HR agency for staff recruitment	2,000	Technical Assistance
	Start-up facilitator	500	Technical Assistance
	Technical assistance (unclassified)	2,000	Technical Assistance
	Baseline survey	3,000	Technical Assistance
	MIS development	1,500	Technical Assistance
	key staff costs	2,000	Salaries and allowances
	Office operating costs	3,000	Office operating costs
	Miscellaneous office equipment	3,000	Equipment & materials
Sub-Total		17,000	
Total		35,500	

2. Activity by category

Expenditure category	Amount (INR '000)	Activity
Goods services and Inputs	1,000	Printing of manuals
Sub-total	1,000	
Equipment & materials	3,000	Miscellaneous office equipment
Sub-total	3,000	
Office operating costs	2,000	Mobility allowances to district staff
Office operating costs	2,000	Mobility allowance to district staff
Office operating costs	3,000	Office operating costs
Sub-total	7,000	
Salaries and allowances	2,000	key staff costs
Sub-total	2,000	
Technical Assistance	1,000	WorldFish TA
Technical Assistance	2,000	HR agency for staff recruitment
Technical Assistance	500	Startup facilitator
Technical Assistance	2,000	Technical assistance (unclassified)
Technical Assistance	3,000	Baseline survey
Technical Assistance	1,500	MIS development
Sub-total	10,000	
Training, capacity building	500	Selection process of SLEs
Training, capacity building	1,000	Mobilisation of PGs & FPOs
Training, capacity building	2,000	Staff training and exposure visits
Training, capacity building	1,000	TA for TOT
Training, capacity building	1,000	Preparation of guidelines
Training, capacity building	3,000	Process of selection of DISHA workers
Training, capacity building	500	Selection process of FLEs
Training, capacity building	2,000	staff training and exposure visits
Training, capacity building	1,000	Selection process for FTAs
Training, capacity building	500	Preparation of training manual
Sub-total	12,500	
Total	35,500	