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Enabling poor rural people
to overcome poverty

President's report on proposed grants under the global/regional grants window to CGIAR- supported international centres

Note to Executive Board representatives

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Abbreviations and acronyms

ARC	Atlas for Rural Development and Conflict
CA	conservation agriculture
CGIAR	Consultative Group on International Agricultural Research
CLV	Cambodia-Laos-Viet Nam (development triangle)
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
COE	centre of excellence
COSOP	country strategic opportunities programme
CRP	CGIAR Research Program
CPWF	CGIAR Challenge Program on Water and Food
FAO	Food and Agriculture Organization of the United Nations
ICRAF	World Agroforestry Centre
IFI	international financial institution
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IWMI	International Water Management Institute
M&E	monitoring and evaluation
MENA	Middle East and North Africa
NARES	national agricultural research and extension system
NRM	natural resource management
PPP	public/private partnership
PTA	Policy and Technical Advisory Division
R&D	research and development
RiU	research into use
SC	steering committee
TLC	Total LandCare
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VLA	village learning activities

Recommendation for approval

The Executive Board is invited to approve the recommendation for grants under the global/regional grants window to CGIAR-supported international centres as contained in paragraph 7.

President's report on proposed grants under the global/regional grants window to CGIAR-supported international centres

I submit the following report and recommendation on five proposed grants for agricultural research and training to Consultative Group on International Agricultural Research (CGIAR)-supported international centres in the amount of US\$5.25 million.

Part I – Introduction

1. This report recommends the provision of IFAD support to the research and training programmes of the following CGIAR-supported international centres: International Center for Tropical Agriculture (CIAT); International Maize and Wheat Improvement Center (CIMMYT); International Food Policy Research Institute (IFPRI); International Livestock Research Institute (ILRI); and International Water Management Institute (IWMI).¹
2. The documents of the grants for approval by the Executive Board are contained in the annexes to this report:
 - (i) CIAT: Improved Forage-based Livestock Feeding Systems for Smallholder Livelihoods in the Cambodia-Laos-Viet Nam Development Triangle;
 - (ii) CIMMYT: Understanding the Adoption and Application of Conservation Agriculture in Southern Africa;
 - (iii) IFPRI: Decreasing Vulnerability to Conflict in the Middle East and North Africa through Rural Development;
 - (iv) ILRI: Enhancing Dairy-based Livelihoods in India and the United Republic of Tanzania through Feed Innovation and Value Chain Development Approaches; and
 - (v) IWMI: Disseminating CPWF Innovations and Adoption Processes for Water and Food, and Piloting their Mainstreaming in the IFAD Portfolio.
3. The objectives and content of these applied research programmes are in line with the evolving strategic objectives of IFAD and the Revised IFAD Policy for Grant Financing.
4. The overarching strategic goal that drives the revised grant policy, which was approved by the Executive Board in December 2009, is to promote successful and/or innovative approaches and technologies, together with enabling policies and institutions that will support agricultural and rural development, empowering poor rural women and men in developing countries to achieve higher incomes and improved food security.

¹ IWMI acts as legal representative of the CGIAR Challenge Program on Water and Food.

5. The policy aims to achieve the following outputs: (1) innovative activities promoted and innovative technologies and approaches developed in support of IFAD's target group; (2) awareness, advocacy and policy dialogue on issues of importance to poor rural people promoted by, and on behalf of, this target group; (3) capacity of partner institutions strengthened to deliver a range of services in support of poor rural people; and (4) lesson learning, knowledge management and dissemination of information on issues related to rural poverty reduction promoted among stakeholders within and across regions.
6. The proposed programmes support the goal and desired outputs of the revised grant policy:
 - (i) The programme on Improved Forage-based Livestock Feeding Systems for Smallholder Livelihoods in the Cambodia-Laos-Viet Nam Development Triangle will focus on increasing the production skills of smallholders and encourage adoption of improved livestock feeding/management technologies. It will also enhance awareness of demand and increase market access through the establishment of more effective and efficient linkages between value chain stakeholders. Technical and institutional interventions will focus on feed – in particular forage – and address health, marketing and environmental factors impacting smallholder livestock production. Through capacity-building and knowledge-sharing, the capacity of and integration between partner institutions and stakeholders in the value chain will be strengthened.
 - (ii) The programme on Understanding the Adoption and Application of Conservation Agriculture in Southern Africa will continue to develop and promote conservation agriculture as an innovative technology suitable for maize-based farming systems. It will empower smallholder farmers (many of them women) to achieve higher incomes and improved food security. Local institutions that promote the interests of poor rural people will also be strengthened in this regard. The proposed project will contribute to achieving three of the four outputs of IFAD's grant policy: (1), (3) and (4).
 - (iii) The proposed programme for Decreasing Vulnerability to Conflict in the Middle East and North Africa through Rural Development is in line with the goal and the following outputs of the revised IFAD grant policy: (1), (2) and (4). Its goal is to provide recommendations on how policies, investments and, in particular, IFAD-financed rural development programmes can improve the resilience to conflict of households and communities in MENA region.
 - (iv) The proposed programme for Enhancing Dairy-based Livelihoods in India and the United Republic of Tanzania through Feed Innovation and Value Chain Development Approaches contributes especially to outputs (1), (3) and (4) of the revised grants policy. Through the activities of local "innovation platforms", we expect a number of innovative technologies and organizational innovations associated with enhanced feeding to emerge, be evaluated and tested through action research for the benefit of smallholder dairy-cow raisers and other dairy value-chain actors. Moreover, by working with local actors through innovation platforms, we will strengthen the capacity of partner institutions to analyse value chains, identify bottlenecks and implement solutions aimed at enhancing support for improved feed quality and availability for poor rural dairy farmers. Finally, and again through local innovation platforms, the programme will catalyse identification of knowledge gaps by local partners and will set in place a knowledge management and dissemination strategy that builds on existing knowledge pathways.

- (v) Through the proposed activities for the programme on Disseminating CPWF Innovations and Adoption Processes for Water and Food, and Piloting their Mainstreaming in the IFAD Portfolio, IWMI will:
- (a) elaborate a compendium of CPWF best practices, approaches, concepts and theories in support of IFAD's target group;
 - (b) disseminate and communicate these to a range of stakeholders;
 - (c) through its partners (CGIAR and non), pilot knowledge-brokerage services to IFAD and other development partners to mainstream this knowledge base;
 - and (d) extract lessons and key messages to be capitalized on through a multi-purpose resource package and further disseminated by the brokerage services.

Part II – Recommendation

7. I recommend that the Executive Board approve the proposed grants in terms of the following resolutions:

RESOLVED: that the Fund, in order to finance, in part, Improved Forage-based Livestock Feeding Systems for Smallholder Livelihoods in the Cambodia-Laos-Viet Nam Development Triangle, shall make a grant not exceeding one million five hundred thousand United States dollars (US\$1,500,000) to the International Center for Tropical Agriculture (CIAT) for a four-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, Understanding the Adoption and Application of Conservation Agriculture in Southern Africa, shall make a grant not exceeding seven hundred fifty thousand United States dollars (US\$750,000) to the International Maize and Wheat Improvement Center (CIMMYT) for a two-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, Decreasing Vulnerability to Conflict in the Middle East and North Africa through Rural Development, shall make a grant not exceeding one million United States dollars (US\$1,000,000) to the International Food Policy Research Institute (IFPRI) for a two-and-a-half year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, Enhancing Dairy-based Livelihoods in India and the United Republic of Tanzania through Feed Innovation and Value Chain Development Approaches, shall make a grant not exceeding one million United States dollars (US\$1,000,000) to the International Livestock Research Institute (ILRI) for a three-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

FURTHER RESOLVED: that the Fund, in order to finance, in part, Disseminating CPWF Innovations and Adoption Processes for Water and Food, and Piloting their Mainstreaming in the IFAD Portfolio, shall make a grant not exceeding one million United States dollars (US\$1,000,000) to the International Water Management Institute (IWMI) for a two-year programme upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

Kanayo F. Nwanze
President

International Center for Tropical Agriculture (CIAT): Improved Forage-based Livestock Feeding Systems for Smallholder Livelihoods in the Cambodia-Laos-Viet Nam Development Triangle

I. Background

1. In South-East Asia, a nutrition transition is occurring, with economic and population growth driving higher per capita meat consumption levels and increased demand for livestock products. Socio-economic and market trend shifts are presenting poor smallholder farmers in the Cambodia-Laos-Viet Nam (CLV) development triangle with significant opportunities to improve their livelihoods and increase household security. In taking advantage of the opportunities presented and engaging with the market, farmers must overcome a number of challenges currently inhibiting their ability to compete with larger, more specialized producers in both domestic and regional markets.
2. Ensuring a regular supply of produce to markets is one of the greatest obstacles small-scale livestock producers face. Limited access to tangible assets – land, credit and improved technologies (related to fodder and water availability) – has rendered farmers unable to provide an adequate quantity and quality of feed to livestock. Additionally, smallholders have a limited understanding of market functioning. Together, these factors severely constrain their ability to convert livestock into income-generating commodities. In the absence of effective linkages to markets, farmers have little incentive to invest in improved livestock management systems.
3. CIAT will work directly with national research and extension partners in Cambodia, the Lao People's Democratic Republic and Viet Nam, providing farmers with access to improved forage-based technologies and creating more effective market linkages. This will enhance the livelihood security of smallholder livestock farmers significantly, as well as contribute to increased food security and reduced poverty in the CLV development region. The programme will demonstrate the linkages between forage and fodder technology adoption and income generation and market output, thereby increasing the likelihood of such technologies being considered by farmers as competitive and attractive in terms of land and labour input returns.
4. Projects undertaken in the past by CIAT and national partners in areas socio-economically and geographically similar to the CLV region have shown that when the benefits of improved management and feeding systems are demonstrated to farmers, technology adoption rates are high. A testament to the success of these projects – such as the recently completed programme for Enhancing Livelihoods of Poor Livestock Keepers through Increased Use of Fodder (IFAD technical assistance grant [TAG] 853) – is the fact that spontaneous scaling-up processes have occurred. Methodologies and approaches promoted by CIAT (including improved forage grasses, market access and, as a consequence, a change in mindsets and systems) have been adopted by provincial governments and independent extension activities have been initiated.
5. Projects in Cambodia and the Lao People's Democratic Republic funded by the Australian Centre for International Agricultural Research¹ have been similarly successful in increasing the livelihood security and resilience of poor smallholder farmers.
6. In introducing forage-based livestock systems to farmers, CIAT considers it important to draw lessons from past experience, but the limited success of scaling

¹ Forage Legumes for Supplementing Village Pigs in Lao PDR (L4PP) and Improved Feeding Systems for More-Efficient Beef Cattle Production in Cambodia (Fodder for Beef Project – F4B).

up attempts in new regions shows that further, specific, applied research and innovation are required to model the geographical/climatic factors and evolving market/socio-ethnic conditions of the CLV region. IFAD's TAG 853, designed to facilitate investigation into the possibilities for knowledge transfer across countries and systems, demonstrated that technologies considered viable and effective cannot simply be transferred from one system to another.

7. Building on past successes, the proposed programme will develop appropriate production approaches and market linkages for diverse socio-economic and environmental contexts in order to improve market-oriented production and create new income opportunities for smallholder livestock farmers.
8. The CLV development triangle has existed since January 2002, and has facilitated the establishment of a broad regional development programme, as well as increased collaboration between Cambodia, the Lao People's Democratic Republic and Viet Nam. Spearheaded by Viet Nam, the initiative has stimulated improvements in market access, trade and transport, and has encouraged knowledge and technology dissemination.
9. Although significant benefits have already been derived from CLV triangle cooperation, development is occurring inequitably. Smallholder livestock farmers have been unable to capitalize on the new livelihood opportunities and improved income sources that have emerged. This is primarily due to their limited access to modern infrastructure and information. Access to knowledge of improved production systems is poor, as is farmers' awareness of demand and access to markets. Ethnic minority farmers face additional challenges, as their marginal socio-economic status is exacerbated by their knowledge and resource gaps.

II. Rationale and relevance to IFAD

10. According to national censuses, smallholders in the CLV triangle are particularly disadvantaged in terms of access to information and markets, resulting in low productivity and poverty. However, new infrastructural investments in the region are opening up opportunities for livelihood improvement. Meat demand in the region and in linked urban centres is still greater than supply, making improved forage-based livestock systems an interesting option for smallholder household income generation.
11. The majority of livestock feeding and care activities are undertaken by women and children. Through this programme, they will benefit significantly from a reduction in the time and labour investment requirements of forage-based livestock production.
12. Experience in promoting forage adoption by smallholder farmers in all three countries, as well as sound experience with tropical forage, seed systems and livestock management, provides CIAT with a strong technical platform for implementing the proposed programme.
13. In terms of ongoing IFAD grants and investment projects in the CLV region, CIAT will develop close working relationships with those projects to facilitate scaling up, increase project impact and ensure widespread outcomes. This will also be achieved through "learning alliances" between development partners, which have proved to be powerful tools in creating information exchange forums for development programme stakeholders.
14. Committed to pursuing and capitalizing on opportunities for scientific exchange, CIAT in Asia aims to enhance the impact of development processes for poor rural people through the use of "innovation systems".

III. The proposed programme

15. The overall goal of the programme is to enhance the livelihoods and incomes of marginalized poor smallholder farmers in the CLV development triangle by improving the productivity of smallholder crop and livestock systems; and by enhancing engagement with markets based on increased demand awareness and more effective/efficient linkages between livestock value-chain stakeholders.
16. The programme's objective is to improve the livelihoods of resource-poor livestock farmers through forage-based livestock feeding and management technologies, as well as through technical and institutional interventions in animal health, marketing and environmental factors that impact on smallholder livestock production. Market conditions and the position of smallholders in value chains will be enhanced through capacity-building and the establishment and use of innovative knowledge sharing/transfer mechanisms.
17. The target group is composed of poor smallholder livestock farmers in the CLV development triangle, with a particular focus on ethnic minorities. Depending on the situation of individual farmers, the most profitable and sustainable option will be selected. Ultimately, programme intervention approaches will be determined by the market environment and technical feasibility.
18. The programme will comprise three main components:
 - Improving smallholder livestock production systems in the target area through improved forage and agricultural by-product-based feeding and management.
 - Identifying market opportunities for smallholder livestock producers, and fostering better value chain linkages to domestic and cross-border markets.
 - Establishing knowledge-sharing/transfer mechanisms (both within and between countries), and building up institutional capacity to create South/South linkages capable of responding, in particular, to the needs of ethnic minority smallholders.

IV. Expected outputs and benefits

19. These are the following:
 - Better understanding of the potential of improved forage and agricultural by-product-based livestock systems, adapted to prevailing socio-economic and cultural customs.
 - Innovative integrated approaches developed to support smallholder livestock farmers in making better use of available resources and improving their livelihoods.
 - Knowledge and understanding of commercialization processes in the specific smallholder livestock sector improved, and linkages to markets facilitated by engaging other stakeholders (e.g. traders, meat companies or restaurants) or potentially supportive players (e.g. banks), making market opportunities accessible to farmers.
 - Capacity-building of partners and knowledge-sharing on the local level facilitated through village learning activities (VLAs), cross visits, training and workshops.
 - In-country knowledge dissemination facilitated through national learning alliances and production of appropriate extension material.

- Mechanisms developed to disseminate programme outcomes among relevant agencies and to communicate research results effectively to policymakers.
- Cross-country institutional (South/South) collaboration on the improvement of livestock systems in the uplands strongly supported.

V. Implementation arrangements

20. The programme will be implemented by the CIAT office in Asia, in Vientiane, the Lao People's Democratic Republic. Throughout the programme cycle, the expertise of national and regional research partners from government agencies and selected universities in the region will be mobilized. This will enable acquisition of baseline information, conducting of participatory research activities and implementing the identified programme interventions, taking into account specific socio-cultural contexts.
21. CIAT will work with programme partners, particularly national agricultural extension partners, at both the individual and collective level, to develop and implement annual workplans. CIAT will be the executing organization responsible for managing the programme budget and reporting on progress to the donor.
22. A programme coordinator will be appointed by CIAT with responsibility for overall management, implementation and coordinated execution of the programme in the three target countries. S/he will be based at CIAT's regional office, and will manage inputs of international, regional and national research partners and private-sector consultants supporting the programme. Programme staff will work with research partners through national coordinators from national agricultural research system partner institutions.
23. A steering committee will be established representing the programme's key implementing partners – IFAD/CIAT and key national programme partners. This committee will meet on an annual basis and as required to review and evaluate implementation progress. The objective of the committee will be to ensure that the programme succeeds in meeting the needs of its intended beneficiaries.
24. Overall programme impact will be measured by comparing initial and final baseline study results. Baseline information on smallholder livelihood systems and livestock production will be collected at focus sites during initial diagnosis and engagement, with mid-term and end-of-programme data collection for monitoring and impact assessment. The M&E system established at the beginning of programme implementation will include output level indicators disaggregated by gender and ethnicity.
25. Programme partners and institutions will report to the programme manager on activities undertaken, enabling the formulation of annual progress reports on quantitative and qualitative progress in implementing programme activities, as set out in the workplan. Yearly programme meetings will allow for M&E by IFAD representatives and critical internal examination of programme progress.
26. The programme will be of four years' duration. Given the seasonal dependency of the approach, at least four planting seasons will be necessary to follow an iterative approach and maximize the lessons learned.

VI. Indicative programme costs and financing

27. The total cost of the programme is US\$2.0 million over four years. Approximately US\$500,000 will be contributed by CIAT and its programme partners through in-kind contributions. Programme partner institutions will receive funding based on their capacities, responsibilities and requirements in undertaking activities as set out in the annual workplan and budget. Funds transferred by CIAT to partner organizations will be closely monitored, with sub-recipients required to provide

detailed financial reports documenting the use of funds. CIAT will be ultimately responsible and will remain accountable to IFAD for ensuring that grant resources are used in accordance with the provisions of the financing agreement and are fully accounted for.

28. The following budget is requested from IFAD to support implementation of the programme:

Summary of budget and financing plan

(Thousands of United States dollars)

<i>Number</i>	<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing</i>
1	Personnel costs	395	170
2	Implementation support	145	35
3	Action research, market extension	615	40
4	Training and workshops	150	25
5	Overhead	195	230
	Total	1 500	500

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	Poor smallholder farmers in the CLV development triangle benefit from increased incomes and livelihood security.	Productivity increase: <ul style="list-style-type: none"> >10% increase of animals/HH/year >10% increase in animal performance >10% increase in HH income 	Baseline surveys before and after intervention. Regular stakeholder feedback during programme implementation.	
Objectives	<ol style="list-style-type: none"> 1. Improve smallholder livestock (LS) production systems through improved feeding and management. 2. Identify and improve access to market chances for smallholder LS producers. 3. Establish knowledge sharing/transfer mechanisms and build capacity within and between countries. 	<ol style="list-style-type: none"> 1a. Increased HH capacity to produce LS by >10% 1b. Increased use of improved systems by >10% 2a. Increased HH income from LS sales by >10% 3a. Increased capacity of extension services to support smallholders (self-assessment) 3b. Fodder innovation actor networks function effectively and are found to be useful by farmers 	Publications. HH surveys, extensionists' self-assessments	National policies support livestock sector and smallholder development. Institutional and policy environment does not preclude functional partnerships. The government supports pro poor and livestock development policies
Outputs	<ol style="list-style-type: none"> i. Effective delivery systems (innovative communication strategies and on-farm interventions to improve LS systems). ii. Linking farmers to markets, improving market access for smallholder products. iii. Mechanisms for establishing multi-stakeholder alliances, strategic South/South linkages, enable scaling up of improved LS systems. Enhance programme partner capacity. 	<ol style="list-style-type: none"> i & ii.a) Detailed information on agricultural systems and markets available. i.b) Operational improved forage-based feeding and management intervention for scaling-up. ii.b) >200 farmers benefit from effective linkages to down-stream market stakeholders. iii.a) >4 Annual stakeholder & PMC meetings iii.b) > 25 Partners trained iii.c) Innovative communication systems developed and applied 	Databases; Technical leaflets and similar publications;	Government policies support poor smallholder livestock farmers Markets for livestock products continue to grow Convention on biological diversity and intellectual property rights does not limit access to forage genetic resources
Key Activities	<ol style="list-style-type: none"> i.1 Baseline information analysis to identify opportunities and constraints i.2 Participatory development of appropriate LS feeding and management technology i.3 Test and disseminate new system ii.1 Rapid Market Appraisal ii.2 Development of a country specific market linking strategy with traders ii.3 Encourage traders to participate in LS commercialization iii.1 Researcher meetings for progress assessment and South/South linkages iii.2 Establish learning alliances iii.3 Linking to loan projects iii.4 Organize farmer & extensionist training iii.5 Initiate smallholder exchange platforms iii.6 Produce information/extension material 	<ul style="list-style-type: none"> >10 stakeholder workshops & meetings 3 Market linking strategies developed >12 Cross visits and VLAs to promote the developed forage-LS systems >25 farmers benefit from contracted livestock production Regular meetings and cross visits between institutions and sites (>2 per year) >500 farmers & extensionists trained in new methods, program internal up-scaling >10 Farmer clubs, groups or networks established or integrated in the programme Communication and information material developed 	Communication networks Leaflets and technical bulletins Groups records Training feedbacks Impact assessment	Access to forage germplasm is granted Poor livestock keepers demand income generation via improved livestock systems

International Maize and Wheat Improvement Center (CIMMYT): Understanding the Adoption and Application of Conservation Agriculture in Southern Africa

I. Background

1. The livelihoods of many farm families in the Southern Africa region are based on the small-scale production of maize, which accounts for 50-90 per cent of the population's caloric intake. However, due to declining soil fertility and unreliable rainfall, traditional maize farming systems have become economically and environmentally unsustainable.
2. Based on experiences elsewhere, and results in Southern Africa over the last seven years, conservation agriculture (CA) has been shown to be a viable solution to these twin challenges. CA is based on three principles: (a) minimum soil disturbance – i.e. no hoeing or ploughing; (b) retention of crop residues (mulch) on the soil surface; and (c) crop rotation. However, the differences between CA and traditional agricultural practices can appear quite complex to smallholder farmers. The implications of the change from conventional agriculture to CA by smallholder farmers in Southern Africa were studied in the previous IFAD grant-funded Programme for Facilitating the Adoption of Conservation Agriculture by Resource-Poor Smallholder Farmers in Southern Africa (grant no. 898), on which the proposed project builds.
3. The previous project worked with a small number of communities, using approaches based on CIMMYT's experience in previous projects in Southern Africa, South Asia and Latin America. Some of the key lessons learned include:
 - Reduced labour for land preparation is one of the major benefits of CA.
 - Weed control with herbicides has proved important in the adoption of CA, due to labour savings and yield and profitability increases.
 - Adopting CA involves changing multiple components of the farming system, requiring innovation systems based on bringing together multiple agents, especially innovative farmers, to test CA under local conditions.
 - Partners in the "innovation networks" must share the same goal and apply their own comparative advantages to resolve bottlenecks hindering increased smallholder productivity. A Malawi NGO worked to overcome problems of information transfer, credit and input supply to successfully encourage the uptake of CA by thousands of small farmers.
 - The dedication, knowledge and dynamism of local extension officers is crucial to scaling out. "Local champions" need to be identified, trained, encouraged and supported in further promoting CA.
 - Private-sector involvement is necessary, including manufacturers of machinery. Local production of animal-powered ripper-tines, direct seeders and manual jab-planters is essential for CA uptake.
4. While many of the above lessons have already benefited regional CA initiatives, a number of knowledge gaps remain:
 - What principal factors have led to differences in farmer adoption in the communities targeted in the initial phase of the project?
 - Are CA-based systems economically attractive to women and resource-poor farmers? What are the technological and policy implications?

- What are the long-term effects of CA systems on soil organic matter and crop/water relationships? Will CA increase the resilience of smallholder cropping systems to climate change in the region?
 - How much mulch needs to be retained on fields? What are the trade-offs between using crop residues for mulch and feeding them to livestock?
 - What are the benefits of crop rotation, its economic implications, its effects on soil quality, and which crops are most beneficial in rotation with maize?
 - What are the long-term effects of weed control under CA? What is the optimum and most economical weed control strategy for different soils and rainfall conditions?
5. In order to answer these and other questions, the project will continue the participatory adaptation of CA systems in representative target communities in Malawi, Zambia and Zimbabwe. Community-based work will be maintained, focusing on catalysing and developing multi-stakeholder innovation networks, supported by farmer discussion groups, farmer-to-farmer exchange visits and planning meetings. Some key areas of research also require follow-up from the previous project. This work will be supported by socio-economic studies to better understand farmers' challenges and constraints in implementing CA technologies and finally building the capacity of extension services.
 6. The project will build on successful partnerships and foster new partnerships in Malawi, Zambia and Zimbabwe to enhance the scaling up of project methodologies and the scaling out of CA systems.

II. Rationale and relevance to IFAD

7. The proposed project contributes to IFAD's goal of empowering smallholder farmers to achieve higher incomes and improved food security. The project aims to do this through more sustainable cropping systems, which reduce the negative impact of agriculture on the environment, enabling and empowering smallholder farmers and the most vulnerable farming groups – women and children – to better cope with climate change, thus improving food security, self-sufficiency and sound management of natural resources.
8. The project builds on previous efforts to increase the capacity of farmers to experiment with and adopt CA; to support the efforts of multiple stakeholders, including research and development (R&D) networks, in creating options for poor people to improve their food security and incomes; and to foster resource-conserving and even resource-enhancing farming systems.
9. The previous IFAD-funded CA project developed links with IFAD development projects in the region such as the Rural Livelihood Support Programme in Malawi. The present project will collaborate closely with the newly prepared Sustainable Agricultural Production Programme, also in Malawi.

III. The proposed programme

10. The overall goal of the programme is to increase the food security of smallholder farm households in Southern Africa and enhance their livelihoods, while conserving and improving the natural resources used in agriculture.
11. The programme's objectives are to:
 - identify impediments to the adaptation and adoption of systems based on the principles of CA and facilitate their resolution through multiple agents involved in local innovation systems;

- Support and catalyse the development of locally adapted CA systems through participatory evaluation of CA technologies and adaptive research to resolve problems observed in farmer-managed field plots;
 - Understand the longer term effects of CA on farming system productivity, sustainability and resilience to the challenges imposed by likely scenarios of climate change in Southern Africa;
 - Assess, evaluate and document the impact of CA on labour requirements, farm productivity and risk, with reference to diverse household member groups, especially women and children;
 - Facilitate the scaling out of sustainable systems through increased knowledge and awareness of the benefits and management of CA technologies among farmers, researchers, extension agents and policymakers.
12. The project will target smallholders with maize-based farming systems in areas of Southern Africa with annual rainfall exceeding 500 mm (which represents the majority of smallholder maize farmers in the region). The project will involve nine farming communities in Malawi, two in Zambia and five in Zimbabwe. To complement the project, CIMMYT, in collaboration with ILRI and the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), will address the relevance and adoption of CA for maize smallholders in drier areas through parallel projects funded by other agencies.
13. Smallholder farmers will benefit from the project through reduced risk of crop failure and increased and more stable crop yields. With the expected improvement of maize productivity and income generation, farmers can dedicate more of their land to the production of higher-value crops. They will further benefit from reduced labour through no-till direct seeding systems. This will liberate time for on- and off-farm remunerative activities, schooling, etc. Ideally, the additional income accrued will be used to purchase inputs (such as seed and fertilizer) to further increase returns to land and labour, and to improve soil fertility.
14. The programme will be implemented over two years and will include five main components: (i) identify and resolve impediments to the adaptation and adoption of systems based on the principles of CA; (ii) support and catalyse the development of locally adapted CA systems; (iii) understand the longer-term effects of CA on farming system productivity, sustainability and resilience to the challenges imposed by climate change; (iv) assess, evaluate and document the impact of CA on labour requirements, farm productivity and risk to household members, especially women and children; and (v) facilitate the scaling out of sustainable systems through increased knowledge and awareness of benefits and management of CA technologies.

IV. Expected outputs and benefits

15. The expected outputs and benefits of the project include:
- Economically viable CA systems adapted to the circumstances of different groups of smallholder resource-poor farmers, especially women, developed through farmer participatory adaptation within multi-stakeholder innovation networks.
 - Local innovation systems that function in at least five communities in the region with solutions to bottlenecks in the value chains surrounding locally adapted CA systems.
 - Benefits of retaining different amounts of mulch on the soil surface assessed, as well as the trade-offs for smallholder farmers who use crop residues as animal feed.

- Effects of CA and different weed control strategies on weed population dynamics (including *Striga* spp.) assessed, and the implications of this for the viability and profitability of CA-based smallholder farming systems.
- Longer-term effects of CA systems on soil fertility, pest and disease dynamics, cropping system productivity and sustainability assessed, as well as the potential effects of these factors on the resilience of smallholder farming systems to climate change.
- Benefits of crop rotation under CA conditions and the longer-term effects of maize-based crop rotations on soil quality and economic viability quantified.
- Effects of CA on farm family labour requirements assessed, disaggregated by gender and age, as well as the implications of this on family livelihoods.
- Effects of CA systems on farm-family income and total farm productivity in different agroecological zones assessed.
- Knowledge of stakeholders of the management of CA systems improved through training courses, decision guides and publications.

V. Implementation arrangements

16. The project will be implemented by CIMMYT, an internationally funded, not-for-profit organization that conducts research and training related to maize and wheat in more than 100 countries throughout the developing world.
17. CIMMYT will coordinate implementation of the project and be responsible for technical and financial management and project reporting, as required in the grant agreement. The project will be implemented in conjunction with local national agricultural research and extension systems (NARES) partners. In Malawi, CIMMYT will work closely with the NGO Total LandCare (as was the case with the previous project). In both Zambia and Zimbabwe, the project will be implemented jointly with the appropriate government agricultural research organizations and NGOs (Development Aid from People to People) and, in Zimbabwe, also Catholic Relief Services.
18. CIMMYT will liaise with IFAD loan-financed development projects in the Eastern and Southern Africa regions (especially Malawi), and endeavour to ensure that outputs from the proposed grant project link with the activities of IFAD investment projects. CIMMYT will also establish links with new IFAD initiatives in Botswana and Zambia with a view to collaboration.
19. As part of the implementation arrangements, a steering committee (SC) will be convened to provide oversight control of the project. The SC will comprise representatives of major stakeholders, including national agricultural research systems, NGOs, participating institutions and donors, and will meet annually. IFAD will be invited to SC meetings, and the cost of IFAD staff participation will not be met from grant funds.
20. The project coordinator will be an experienced CIMMYT scientist resident in the region, supported by other CIMMYT scientists. National coordinators, selected by partners in each of the countries, will liaise with the project coordinator on national workplan development and execution.
21. Before each cropping season and after consultations with farmer groups in the target communities, annual workplans and budgets will be developed for each site/country by CIMMYT, the national coordinators and the collaborating NARES organization(s). These will be reviewed by the SC at the annual meeting before being submitted to IFAD in accordance with the grant agreement.

VI. Indicative programme costs and financing

22. The total budget of the proposed project is US\$0.75 million over two years as a grant from IFAD. US\$0.227 million will be financed out of core funds, other projects and from NARES.

Summary of budget and financing plan (Thousands of United States dollars)

<i>Number</i>	<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing</i>
1	Personnel (including subcontractors)	242	65
2	Travel costs	35	11
3	Equipment/vehicles	24	15
4	Operational costs, reporting and publications	278	96
5	Training/workshops/capacity-building	73	15
6	Overhead (11%)	85	25
7	CGIAR system costs (2%)	13	-
	Total	750	227

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	To increase the food security of smallholder farm households in Southern Africa and enhance their livelihoods while conserving and improving the natural resources used for agriculture.	Target communities: 20% yield increase; 20% reduction in child malnutrition; 20% reduction in soil degradation	Impact survey in 10 yrs. - benefits after project	The political situation in southern Africa remains stable.
Objectives	<ol style="list-style-type: none"> 1. Identify impediments to the adaptation and adoption of CA systems 2. Support and catalyse the development of locally adapted CA systems through participatory evaluation and adaptive research 3. Understand the longer term effects of CA on productivity, sustainability and resilience to climate change 4. Assess, evaluate and document the impact of CA on labour requirements, farm productivity and risk 5. Facilitate the scaling out of CA systems through increased knowledge and awareness of the benefits of CA 	<ul style="list-style-type: none"> - 5000 farmers are practicing CA and 50% of farmers report yield increases on their CA plots - Farmers practicing CA use 20% less labour, and produce more grain with less risk - At least 50% of farmers in the target have a working knowledge of CA 	<ul style="list-style-type: none"> Partner reports and surveys. Project reports and evaluations Impact assessment reports Peer-reviewed papers 	CIMMYT's partner organizations continue to prioritize CA in their extension
Outputs	<ol style="list-style-type: none"> 1. CA systems adapted to the needs of smallholder farmers 2. Functional local innovation systems in at least five communities 3. Benefits and trade-offs of crop residue retention evaluated and assessed 4. Different weed control strategies under CA evaluated and documented 5. Long-term effects of CA on soil quality assessed and documented 6. Benefits of crop rotation under CA conditions evaluated and quantified 7. The effects of CA systems on labour, disaggregated by gender and age 8. The effects of CA systems on family income and total farm productivity 9. Improved knowledge of CA systems through trainings and capacity building 10. At least five new hubs of CA activities established to develop and scale out CA 	<ul style="list-style-type: none"> - Results from 15 target communities in three target countries analysed - At least 5 innovation networks are functional in the target areas - Results from 25 research and LT trials analysed and documented - Results of at least three socio-economic surveys summarized - 100 extension agents are conversant and fully trained on CA systems 	<ul style="list-style-type: none"> Project reports and evaluations Socio-economic reports Workshop reports 	Severe drought or other abnormal weather conditions do not prevail in the target communities in more than one season of the project duration.
Key Activities	<ol style="list-style-type: none"> 1. Local multi-agent CA innovation networks catalysed and facilitated; value chains surrounding the major components CA systems evaluated; Bottlenecks in the value chains of CA systems assessed. 2. Farmer-managed validation plots of CA systems continued; Farmer experimentation with CA in the target communities supported; adaptive research trials designed and conducted based on problems observed; effects of different rates of residue retention evaluated; effects of different grain legumes and cover crops assessed; weed control strategies evaluated under different agroecological conditions 3. Effects of CA practices on soil quality, crop water balance and soil erosion monitored; SOM dynamics and other soil quality indicators investigated; evaluation of longer term 	<ul style="list-style-type: none"> - At least 75 validation plots established in 15 target communities - One soil analysis report on the short and longer term effects of CA on organic matter and water dynamics, crop rotation, soil quality and resilience towards climate change produced. - A review of residue retention strategies and a report on impact assessment compiled - At least one farmer-to-farmer, one training course on CA principles, one 	<ul style="list-style-type: none"> Project reports and evaluations Project reports on soil quality Technical bulletins Peer-reviewed 	Farmers and extension officers continue to collaborate in an efficient manner under this project

Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
<p>effects of crop rotations on soil quality and water relations; assessment of effects of different factors contributing to the resilience of CA systems</p> <p>4. Evaluation of the economic and social benefits of CA-based systems; impacts of CA on labour use, farm productivity and risk for different farm groups; analysis of economic viability and farmer appreciation of crop residue.</p> <p>5. Synthesis of impact assessment reports; farmer-to-farmer exchanges; knowledge of CA principles and practices enhanced through study tours, annual planning meetings, technical bulletins, decision guides and peer-reviewed papers</p>	<p>study tour, one evaluation and planning meeting carried out per target country</p> <p>- At least three technical bulletins, presentation of results at two international meetings and two peer-reviewed papers published at the end of the project</p>	<p>papers</p>	

International Food Policy Research Institute (IFPRI): Decreasing Vulnerability to Conflict in the Middle East and North Africa through Rural Development

I. Background

1. The Middle East and North Africa (MENA) region is known to be particularly exposed to the risk of conflict. Instability and conflict-related effects have a dramatic impact on the levels of food security. It has been shown that, during times of conflict, food production decreases and remains low even after the conflict has ended. Rural communities are particularly affected, due to their dependence on agriculture for food and livelihood.
2. Rural development is widely recognized as an important instrument for supporting the livelihoods of poor rural people. It prepares small farmers and their communities to face the adverse effects of conflict, providing them with additional assets, resources, knowledge and options to rely on in such times.
3. Beyond helping poor rural people cope with the effects of conflict, rural development directly addresses issues related to conflict, such as natural resource scarcity (particularly of land and water), demographic pressure (youth bulge), food insecurity and poverty.

II. Rationale and relevance to IFAD

4. In recent years the development community has become increasingly aware that conflicts are both an important cause and an equally important consequence of underdevelopment. However, research has generally neglected the links between conflict and rural development. A full understanding of these links is critical to enable policymakers and development partners to optimally tailor programmes and projects so that they fully benefit poor rural people.
5. Little is known regarding the specific role of rural development in strengthening resilience to conflicts, particularly in the MENA region. The programme aims to close this knowledge gap through innovative research methods. IFPRI will provide recommendations on how policies, investments and in particular IFAD-financed rural development programmes can improve the resilience of households and communities to conflict in the MENA region.
6. The programme is in line with IFAD's strategy for poverty reduction and will:
(i) foster a better understanding of how rural development can contribute to reducing poor communities' vulnerability to conflict and to further strengthening the resilience of poor rural people; (ii) promote a better understanding of the respective impacts of rural development instruments on these aspects; (iii) generate lessons from past IFAD investments in the MENA region, and provide recommendations for future investments; and (iv) provide a set of knowledge products on the subject, to be shared among stakeholders.
7. The programme is fully aligned with the IFAD Strategic Framework 2011-2015, particularly with Strategic Objective 1, which aims to promote "a strengthened natural resource and economic asset base for poor rural women and men that is more resilient to climate change, environmental degradation and market transformation".

III. The proposed programme

8. The programme's goal is to provide recommendations on how policies, investments and, in particular, IFAD-financed rural development programmes can improve the resilience of households and communities to conflict in the MENA region. It will also provide an initial framework towards understanding how rural development

investments may contribute to conflict prevention. The programme has three key objectives:

- i. To identify, test and evaluate the linkages among conflict, rural development and agriculture;
 - ii. To identify options on how rural and agricultural interventions can be leveraged to improve the resilience of poor rural people to conflict;
 - iii. To share and mainstream the identified options to be adopted by national and international partners (such as IFAD).
9. More specifically, the programme aims to address, among others, the following key strategic questions:
- i. Which specific interventions (rural credit, rural roads, input subsidies, etc.) are more effective in reducing the vulnerability of poor rural people to conflict?
 - ii. Which combination of specific interventions and of projects (spatially and in terms of components) is most likely to improve resilience to conflict?
 - iii. How can IFAD's current project design and active portfolio be integrated and improved for conflict mitigation purposes?
10. The methodology that will be adopted will separate interactions for conflict, food security and poverty on the basis of quantitative analysis. Analysis of these complex relationships will go beyond simple correlations by identifying causal relationships between variables of interest and control variables. The role of rural development, and in particular of IFAD-supported projects, will take centre stage, either as a direct channel to food security and resilience to conflict, or as a mitigating factor. The multilevel nature of this analysis, consisting of quantitative and qualitative methods at regional, country and project levels, constitutes an important methodological contribution.
11. The programme consists of three components:
- i. **Development of an electronic Atlas for Rural Development and Conflict (ARC).** The ARC is a tool that will allow users to produce customized maps and to relate, for example, conflicts and outcome-related poverty and food-security indicators – such as per capita calorie consumption, poverty and child malnutrition – to determinants – such as market access, agricultural potential, water availability, gas and oil deposits, drug production and other economic, social and biophysical parameters and variables. It will also accommodate project-level information, such as data from IFAD's Results and Impact Management System (RIMS).
 - ii. **Conflict and livelihood typology.** The wide variety of conflicts in the MENA region calls for a typology that classifies countries/communities according to types of conflict, and the different relationships these conflicts have to food security and poverty. Given the local nature of many conflicts, this typology will be extended to local levels by building conflict-related development domains.
 - iii. **Multilevel assessment of the conflict/rural development nexus** at three levels: (i) cross-country analysis; (ii) country-specific analysis; and (iii) project-level analysis. Cross-country analysis consists in identifying the main determinants of conflict in the region, in order to assess the likelihood of conflict onset or duration, and a series of explanatory-variables such as food insecurity. Country-specific analysis draws on and refines findings from cross-country analysis to focus on

subnational variations. Project-level analysis assesses the impact and efficiency of IFAD-supported interventions in reducing the vulnerability of households and communities to conflict.

12. IFPRI will make extensive use of RIMS data at the first, second and impact levels, to be complemented by secondary data sources when required. Moreover, qualitative analysis based on interviews with project staff and beneficiaries, field visits to project sites and review of related literature will deepen understanding of the links between conflict and resilience. This qualitative analysis will be based on structured interviews and possibly field surveys.
13. The primary target group of the programme is poor rural people and the food insecure that suffer the consequences of and/or are vulnerable to conflict in the MENA region. They will benefit directly from the development and implementation of innovative policies and projects that improve resilience to conflict. The programme will also support governments, international organizations and other stakeholders in leveraging rural development to improve the resilience of poor rural people through transformative and action-oriented research.

IV. Expected outputs and benefits

14. The programme is expected to deliver the following outputs and benefits:
 - i. **Knowledge products.** An approach paper; a paper on conflict typology and cross-country analysis; a paper for each country case study (including Egypt, Somalia, The Sudan, Tunisia and Yemen); a paper on rural development interventions and an assessment of their relevance in reducing vulnerability to conflict; a final report; various peer-reviewed articles on case studies with specific recommendations; and at least two policy briefs;
 - ii. **Dialogue and dissemination workshops.** Discussion of cross-country and country-level results with IFAD staff at headquarters and country offices; dissemination of results through participation in international seminars and conferences; a mid-term review workshop; and a final workshop with key stakeholders to share results; and
 - iii. **Atlas for rural development and conflict.** Production and distribution of 500 ARCs on compact discs; creation of an online version of the ARC linked to satellite imagery; and an ARC launch and training workshop for stakeholders.
15. The programme will establish direct links with IFAD country programmes in the region, particularly in The Sudan and Yemen.

V. Implementation arrangements

16. IFPRI will work with local partners to: (a) derive and test hypotheses and build on local knowledge; (b) collect and analyse data, particularly for development of the ARC; (c) share knowledge throughout the programme and participate in planning workshops. National collaborators from Egypt, Gaza and the West Bank, Iraq, Jordan, Lebanon, Somalia, The Sudan, the Syrian Arab Republic, Tunisia and Yemen will be involved throughout implementation. The list of collaborators and their roles will be further specified during the first workshop, and collaboration modalities will be defined. IFPRI will be responsible and accountable to IFAD for ensuring that grant resources are used in accordance with the provisions of the financing agreement and are fully accounted for.
17. A programme steering committee (PSC) will be set up, consisting of relevant IFAD staff and leading experts in conflict resolution with experience in the region. It will meet at least once a year to review and approve the programme workplan and budget.

18. The PSC will ensure that the programme is undertaken with the highest possible level of scientific quality, and that the activities are relevant to the target audience and to IFAD. Activities will be reviewed by IFPRI on a regular basis and, where necessary, adjustments will be made in consultation with the PSC and IFAD.
19. Programme monitoring will be based on a results-based logical framework. Regular consultations will take place with the PSC to solicit suggestions and advice in the course of implementation. A mid-term review of programme progress will be conducted. A detailed M&E plan based on the attached logical framework will be developed at the outset of the programme.

VI. Indicative programme costs and financing

20. Total programme costs amount to US\$1,609,372. The programme will be implemented over a period of two and a half years. It is financed by an IFAD contribution of US\$1,000,000, while IFPRI will contribute US\$609,372, of which US\$276,038 derives from other IFPRI projects related to the MENA region.

Summary of budget and financing plan

(Thousands of United States dollars)

<i>Number</i>	<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing</i>
1	Personnel	619	317
2	Travel costs	85	10
3	Conference/workshops/publications	105	17
4	Service centres	191	47
5	Overhead		218
6	Total	1 000	609

Results-based logical framework

Objectives Hierarchy	Objectively verifiable indicators	Means of Verification	Assumptions
<p>Goal: To have stakeholders and international actors considering the policies/strategies recommended by the project</p>	<p>Min. 10 cases where the project provided inputs for new policies and contractual arrangements by policymakers, international organizations and NGOs</p> <p>No. of rural development intervention designed according to proposed policy recommendations</p>	<p>Analysis/screening of Government and Donors' country strategies and programs</p> <p>Rural development projects' design documents</p>	
<p>Objectives:</p> <p>1. To have rural development interventions in the region conforming to policies recommended by the project</p> <p>2. To have information generated through data analysis and validation transferred into policy briefs</p>	<p>Min. 500 users of ARCs and 10 media reports in national/international newspapers/TV/online reports, 1000 ARC online website visits</p> <p>An approach paper, a paper on conflict typology and cross-country analysis, 5 papers for country case studies, 1 paper on rural development interventions, 1 final report; various peer-reviewed articles on case studies min. 2 policy briefs;</p> <p>No. of cases of adoption of new policies and contractual arrangements by policymakers, international organizations</p> <p>1 seminar on pilot ARC at IFAD HQ, 1 ARC launch with min. 50 participants and 1 seminar in each study country with min. 5 participants</p>	<p>Projects' progress reports</p> <p>Policy briefs, articles in journals, dedicated publications</p> <p>Website downloads</p>	<p>Openness of international partners in changing their strategy</p>
<p>Outputs/Activities:</p> <p>1. Analysis and testing of instruments to assess the correlation between rural development and conflict</p> <p>2. Validation of these instruments leading to knowledge products</p> <p>3. Knowledge products disseminated among stakeholders</p>	<p>Number of databases and no. of IFAD projects whose M&E and RIMS data have been used for ARCs</p> <p>Online data available on conflicts, poverty and food security indicators for the countries³</p> <p>No. of countries for which an ARC is created</p> <p>Food security typology available for the countries</p> <p>4 presentations at international conferences, 1 mid-term WS with min. 20 participants, 1 final WS with min 40 participants (Steering committee excluded)</p> <p>Percentage of satisfaction with knowledge products among stakeholders</p> <p>No. of instruments available to projects (e.g. specific recommendations, thematic studies, case studies)</p>	<p>ARC on CDs and online</p> <p>Workshop reports and records</p> <p>Monkey surveys</p> <p>Stakeholder feed backs and participants self-assessments</p>	<p>Sufficient buy-in by IFAD-funded country programs and partners in the proposed activities is achieved.</p> <p>Availability of national collaborators with adequate capacity, or their willingness and ability to develop their capacity</p> <p>Culture of knowledge sharing and learning in participating projects</p>

³ The study will focus on Egypt, Gaza and West Bank, Iraq, Jordan, Lebanon, Somalia, Sudan, the Syrian Arab Republic, Tunisia and Yemen.

International Livestock Research Institute (ILRI): Enhancing Dairy-based Livelihoods in India and the United Republic of Tanzania through Feed Innovation and Value Chain Development Approaches

I. Background

1. Small-scale dairy production is an almost universal component of farming among smallholders in mixed crop/livestock systems in sub-Saharan Africa and South Asia. The lack of sufficient high-quality feed is a key constraint on improving milk yields, and hence dairy income for smallholders, through the intensification of smallholder dairy systems.
2. One response to this situation has been the attempt to introduce or promote improved feed technologies at the farm level, but this has rarely had the intended benefits and new approaches are required. This proposal places feed in a broader context and acknowledges that enhancing feed supply has both technical and institutional dimensions. It also builds on previous work, including the IFAD-funded Fodder Adoption Programme (TAG 853); the Fodder Innovation Project (www.fodderinnovation.org) funded by the Department for International Development (DFID); an OFID-funded programme on dairy intensification and milk marketing; and the East Africa Dairy Development Project (<http://eadairy.wordpress.com/>), funded by the Bill & Melinda Gates Foundation. The proposed programme will tackle feed scarcity from a value chain perspective and will employ innovation system principles. The emphasis on innovation and value chain approaches will necessarily involve consideration of issues beyond feed, including enhancing the breed quality and health status of dairy cows. These elements will be addressed by embedding the proposed programme within the larger context of CGIAR Research Program (CRP) 3.7: More Meat, Milk and Fish for and by the Poor.
3. The programme will work on dairy value chains in India and the United Republic of Tanzania; in both countries milk is already an important commodity, while projected supply/demand gaps for milk and milk products indicate a need for intensification. Present diversity in institutional settings will allow lessons to be learned that can be applied in a range of contexts beyond this programme. Moreover, as mentioned, the programme will be implemented in the context of CRP 3.7, providing opportunities to consider wider value chain issues beyond feed and connecting the research with a larger body of work on dairy value chains in these two countries.

II. Rationale and relevance to IFAD

4. Given the lack of progress in enhancing feed supply for smallholders using technology-led approaches, new approaches are needed that place feed enhancement in a larger context. Two key concepts help us do this. The first relates to the need to consider value chain issues when dealing with feed constraints. The second emphasizes the need to enhance "innovation capacity" in the local stakeholder network. The programme will experiment with ways to bring innovation and value chain approaches together to enhance dairy cow productivity for the benefit of poor dairy farmers.
5. The proposed programme contributes especially to outputs (1), (3) and (4) of the 2009 Revised IFAD Policy for Grant Financing. Through the activities of local innovation platforms, we expect a number of innovative technologies and organizational innovations associated with enhanced feeding to emerge, be evaluated and tested through action research for the benefit of smallholder dairy-cow raisers and other dairy-value-chain actors. Moreover, by working with local actors through innovation platforms, we will strengthen the capacity of partner

institutions to analyse value chains, identify bottlenecks and implement solutions aimed at enhancing support delivery related to improved feed quality and availability for poor rural dairy farmers. Finally, and again through local innovation platforms, the programme will catalyse the identification of knowledge gaps by local partners and will set in place a knowledge management and dissemination strategy that builds on existing knowledge pathways. The programme will support a number of IFAD programmes, including the Agricultural Services Support Programme (2007-2014) and the Rural Micro, Small and Medium Enterprise Support Programme (2007-2014), in the United Republic of Tanzania, and the forthcoming Uttarakhand Integrated Livelihood Support Project in India.

III. The proposed programme

6. The overall goal of the programme is to contribute to improved dairy-derived livelihoods in India and the United Republic of Tanzania through intensification of smallholder production, focusing on the enhancement of feed and feeding through innovation and value chain approaches.
7. The objectives of the programme are three-fold:
 - Institutional strengthening. To strengthen the use of value chain approaches and innovation among dairy stakeholders to improve feeding strategies for dairy cows;
 - Productivity enhancement. To develop options for improved feeding strategies, leading to yield enhancement with potential income benefits;
 - Knowledge-sharing. To strengthen knowledge-sharing mechanisms on feed development strategies at local, regional and international levels.
8. The target group is smallholder dairy farmers in India and the United Republic of Tanzania. Benefits of the programme will accrue to poor dairy farmers through enhanced feeding strategies for their dairy animals, which will increase productivity and hence dairy-derived incomes. Women will be natural beneficiaries as they are primarily responsible for dairy management and feeding in both countries, although a proactive gender focus should be adopted to maintain the integral role of women under intensifying systems. Although the programme will work directly with farmers, the major impact pathway will be indirect: we will aim to strengthen innovation capacity and value chain approaches among local actors involved in dairy development, and especially those concerned with feed upgrading.
9. The three-year programme will comprise three main components:
 - **Institutional strengthening.** By bringing together diverse actors through innovation platforms, including from the private sector, the programme will foster analysis of feed-related elements of dairy value chains by local actors, especially research actors such as the Indian and Tanzanian NARES and other partners.
 - **Productivity enhancement.** Potential feeding interventions emerging from innovation platforms will be tested through action research by platform members, especially extension actors working with farmers and farmer organizations. Organizational or market-level interventions involving feed enhancement will also be tested through action research involving appropriate actors, including microentrepreneurs involved in input supply, as well as other relevant milk-value-chain actors.
 - **Knowledge-sharing and learning.** Innovation platforms will also be the central mechanism for sharing knowledge and for enhancing local learning pathways. They will be used to assess and build on current learning pathways and to plug gaps in knowledge at different points along the value chain. A local knowledge-sharing strategy will be

developed and implemented in a participatory fashion through the local platforms.

IV. Expected outputs and benefits

10. A series of outcomes (which serve to frame the programme outputs) are expected to emerge from this programme in the longer term (most likely after the programme lifetime):
 - Sustained use of innovation and value chain approaches among dairy stakeholders to address value chain bottlenecks beyond programme lifetime;
 - A basket of options for improved feeding strategies in target sites, leading to yield enhancement with potential income benefits;
 - Stronger knowledge-sharing mechanisms in feed development strategies at local, regional and international levels.
11. The programme will deliver a range of outputs in the areas of institutional strengthening, productivity enhancement and knowledge-sharing regarding improved feeding strategies for dairy animals. Planned outputs are:
 - 1.1 Mechanisms for enhancing innovation capacity through local stakeholder platforms to address dairy-value-chain constraints;
 - 1.2 Approaches for involving local stakeholders in analysis of feed-related aspects of the dairy value chain;
 - 1.3 Identification of intervention strategies emerging from dairy-value-chain analysis;
 - 2.1 Strategies for implementing local feed-related innovations emerging from stakeholder platforms with the potential to enhance dairy incomes;
 - 2.2 Methods for enhancing diffusion of local feed-related innovations among dairy smallholders, with the potential for income benefits through productivity increases;
 - 3.1 Mechanisms for sharing knowledge at local and regional levels;
 - 3.2 Mechanisms for sharing knowledge across programme countries and among global research-for-development projects.

V. Implementation arrangements

12. The programme will be coordinated by ILRI with CIAT acting as a major partner. Overall coordination will be led by an ILRI scientist with substantial experience in innovation systems and approaches for feed enhancement. Activities in the two target countries will be managed by a regional coordinator. In the case of India, local coordination will be the responsibility of ILRI, while in the United Republic of Tanzania, CIAT will provide local coordination. National programme implementation will be achieved through substantial research agreements, with one research and one development partner per country. A steering committee composed of the programme coordinator, regional coordinators, representatives of the Indian and Tanzanian national partners, a development partner representative, a representative(s) of IFAD and a representative of CRP 3.7 will meet annually to assess the programme's progress, provide guidance on future activities and develop opportunities for linking the ongoing activities of the programme with wider national and CGIAR programmes.

VI. Indicative programme costs and financing

13. The programme will be financed by a 79 per cent contribution from IFAD, with remaining contributions coming from CGIAR centres (16 per cent) and national research partners (5 per cent). The overall cost of the programme will be US\$1,266,386, with the IFAD contribution amounting to US\$1,000,000. In addition we anticipate this programme becoming part of the larger initiative for dairy development in India and the United Republic of Tanzania embodied in CRP 3.7. This will provide opportunities to leverage additional funds, particularly those associated with developing a global knowledge-sharing component, and also to bring in supplementary expertise on value chain analysis and development.

Summary of budget and financing plan (Thousands of United States dollars)

<i>Number</i>	<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing</i>
1	Personnel (including subcontractors)	221	266
2	Travel costs	41	
3	Equipment	16	
4	Operational costs, reporting and publications	552	
5	Training/capacity-building	55	
6	Overhead	115	
	Total	1 000	266

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	Improved dairy-derived livelihoods in India and the United Republic of Tanzania via intensification of smallholder production focusing on feed enhancement			
Objectives	<p>Institutional: Strengthen use of value chain and innovation approaches among dairy stakeholders to improve feeding strategies for dairy animals.</p> <p>Productivity enhancement: Develop options for improved feeding strategies leading to yield enhancement and income benefits.</p> <p>Knowledge sharing: Strengthen knowledge sharing mechanisms on feed development strategies at local, regional and international levels</p>	<ul style="list-style-type: none"> Value chain and innovation approaches prominent in planning and reporting documents of major local development actors New feeding strategies (technical and organizational) involve at least 10% of farmers in study sites. Feed –related innovations emerging from the programme feature in at least 2 knowledge sharing media channels per programme site 	<ul style="list-style-type: none"> Annual planning and reporting documents on local development actors Post-hoc village survey report Copies of media outputs 	No adverse climatic or political conditions
Outputs	<ul style="list-style-type: none"> Value chain and innovation approaches used by dairy stakeholders to improve feeding strategies for dairy cows. Tested options to improve feeding strategies leading to yield enhancement and income benefits. Functional knowledge sharing mechanisms established on feed development strategies at local, regional and international levels. 	<ul style="list-style-type: none"> Local technical and organizational innovations in 2 broad areas per value chain documented and dairy value chain analysis reported by local stakeholders Stakeholder platform reports document two intervention strategies and one scaling out strategy per value chain Intervention strategies emerging from stakeholder platforms feature in local knowledge sharing media outside programme target sites on at least 3 occasions. 	<ul style="list-style-type: none"> Value chain analysis reports Stakeholder platform minutes and reports Copies of media outputs 	Willingness of local actors to experiment with stakeholder platforms
Key Activities	<ul style="list-style-type: none"> Identify learning sites, establish local stakeholder platforms, and assess current intervention strategies and innovation processes Participatory value chain assessments, micro-business training, techno-economic analysis of suggested interventions, action research to test promising interventions, use of scaling out approaches to foster change in feeding Identify key existing knowledge pathways, identify knowledge gaps, design and implement local knowledge sharing strategy, establish knowledge sharing fora, synthesize lessons 	<ul style="list-style-type: none"> Learning sites identified, 2 stakeholder platforms per country established, local innovation processes documented in one programme report per country One value chain assessment for each site complete, one micro-business training conducted in each site as appropriate, one techno-economic analysis of interventions conducted in each country, approaches scaled out Knowledge pathways and gaps identified, knowledge sharing strategy designed and implemented, knowledge sharing fora established. 	<ul style="list-style-type: none"> Site descriptions Stakeholder platform inception reports Synthesis report on local innovation processes Value chain assessments Report analysing economic feasibility of interventions Training reports Knowledge sharing strategy document Knowledge sharing fora reports 	Identification and engagement of competent local partners.

International Water Management Institute (IWMI): Disseminating Challenge Program on Water and Food Innovations and Adoption Processes for Water and Food, and Piloting their Mainstreaming in the IFAD Portfolio

I. Background

1. Global attention has refocused on issues of food productivity, NRM and ecosystem conservation, but achievement of the Millennium Development Goals seems ever-more remote for the poorest and most vulnerable populations. Against this background, the CGIAR Challenge Program on Water and Food (CPWF) seeks to ensure that approaches that have been recognized as successful and innovative and that have achieved useful results will see better uptake, in particular for development interventions.
2. In its first phase (2004-2008), CPWF has funded over 60 projects in 10 river basins across Latin America (Andes, São Francisco), Africa (Niger, Nile, Limpopo, Volta), Central Asia (Kharkeh) and South Asia (Indo-Ganges, Mekong, Yellow). An initial evaluation of these projects⁴ found that many of them provided valuable lessons and innovations, informing the design of the second phase of the CPWF programme and its activities.⁵ CPWF - Phase 1 experiences include projects that unlocked the potential of new NRM technologies so as to generate new wealth and provide opportunities for poor people, giving them access to resources they could not benefit from before.
3. These phase 1 outcomes, appropriately documented and shared, will further benefit other R&D in general, and the design and implementation of IFAD projects in particular.

II. Rationale and relevance to IFAD

4. CPWF - Phase 1 (2004-2009) has produced an array of results (approaches, methods, tools or technologies) that are effective, innovative ways of increasing knowledge about benefit-sharing and that may be useful in improved R&D interventions. Although several projects yielded such valuable, marketable innovations or adoption processes, these may be outside the current geographical or topical focus of CPWF - Phase 2 funding. Yet their outcomes need to be capitalized on and shared with partners outside the research field. A larger, integrated effort will build on CPWF - Phase 2 secured funding to scale up, document and analyse these results, and will directly benefit IFAD, among others, with more easily accessible, useful information on methods for scaling up innovation.
5. With its own resources, CPWF has launched a "research into use" (RiU) programme, that will revisit five Phase 1 projects to ensure that lessons learned on innovative technical outputs and project management methods are documented and made widely available – in order to unlock opportunities for benefit-sharing by poor people.
6. CPWF's comparative advantage lies in its being a consortium of institutions inside and outside the CGIAR system, designed to implement problem-solving research. As such, key characteristics of CPWF projects include: (i) well-integrated approaches; (ii) a wide diversity of partners, with national partners increasingly

⁴ <https://sites.google.com/a/cpwf.info/phase1>

⁵ CPWF - Phase 2 concentrates its work in six river basins to ensure maximum impact: the Andes (seven small basins), Ganges delta (Bangladesh, India), Limpopo (Botswana, Mozambique, South Africa, Zimbabwe), Mekong (Cambodia, Lao People's Democratic Republic, Viet Nam), Nile (mainly the Ethiopian highlands) and Volta (Burkina Faso and Ghana).

taking the lead; (iii) well-articulated links to the policy arena; and (iv) improved M&E of outcomes and impacts.⁶ In addition, CPWF's current work in the policy arena will be strengthened by the targeted information made available, which will also support IFAD's work in evidence-based policy dialogue. Moreover, CPWF's enhanced focus on rural poverty through its innovations and adoption processes is of direct interest to IFAD's ongoing poverty reduction portfolio.

7. The activities proposed are consistent with all four pillars of IFAD's grant strategy: 1) innovative technologies and approaches in support of IFAD's target group; 2) awareness, advocacy and policy dialogue; 3) strengthened capacity of partner institutions to deliver a range of services in support of poor rural people; and 4) lesson learning, knowledge management and dissemination of information.
8. The activities also support IFAD strategic objectives 1) enabling better access to natural resources; 2) facilitating productivity improvement; and 6) influencing local and national policy processes.

III. The proposed programme

9. The overall goal of the programme is to improve the food security and livelihoods of poor rural communities, which are supported in the use of CPWF approaches to improved water management – allowing higher production per units of land, water and labour. The programme's objectives are to: (a) scale up validated CPWF innovations to reach more communities, after having developed appropriate policy, institutional and technical spaces; and (b) support increased use of CPWF innovations in planning and operations by key national/regional planning agencies, development partners and IFAD.
10. The target groups are development practitioners, government planners and managers, NARES, the country programmes of IFAD and other donor agencies, and NGOs. These groups will have access to field-tested innovations, adoption processes and other knowledge related to NRM. Primary beneficiaries will be poor rural populations with little access to natural resources, who will benefit from the learning processes and increased capacity of development planners in project design and implementation.
11. The two-year programme will comprise three main components:
 - Elaboration of a multi-purpose resource package on CPWF innovations and adoption processes, based on repackaging the results generated by 19 projects from CPWF - Phase 1;
 - Scaling up of five selected CPWF projects;
 - Setting up of a brokerage service for targeted requests from IFAD and other development partners.

IV. Expected outputs and benefits

12. These are the following:

Output 1: Publication and dissemination of a multi-purpose resource package compiling CPWF pertinent project experience

13. This resource package is a set of implementation, educational and advocacy materials produced for specific target groups. The materials build on one another and should be seen as complementary.

⁶ CPWF was the first CGIAR initiative to test and adopt the "impact pathway" approach that is now being taken up by the whole CGIAR system, especially in its new programmatic organization into Consortium Research Programs.

14. This package will be a compendium of best practices, approaches, concepts and theories on a particular topic, taking scientific information and packaging it in a way that is accessible to diverse target audiences.
15. The package will focus not just on technical issues, but also on approaches and processes that were at the heart of CPWF - Phase 1 research and that proved to be useful for wider application.



16. The materials will be developed primarily in a knowledge management exercise, in which complex science is repackaged into compelling materials for further use by a range of stakeholders. Materials will be identified and rewritten with key messages and processes extracted.
17. These materials will be used to support pilot brokerage services to IFAD and other donor and partner agencies, in order to provide better-aligned development interventions (see output 3 below). It is expected that materials developed in this repackaging effort will be used as vehicles of communication in CPWF – Phase 2 as well.

Output 2: Scaled-up development interventions based on CPWF – Phase 1 tested, and project experience analysed, in respective watersheds

18. By investing in scaling up RiU projects, particularly effective ways of learning from CPWF – Phase 1 experiences will be achieved. To produce this output, CPWF, together with local and national development institutions, will test the pertinence and acceptability of previous research results for development interventions. This will result in the scaling up of successful processes and in the publication of innovative methods in the multi-purpose resource package to facilitate adoption by decision makers.
19. RiU projects consist of a small number of projects from CPWF – Phase 1 that have great potential for larger impact through scaling out and up. From the list of 19 proposed projects for assessment, five will be selected and supported for an additional two years to reap the benefits of their innovations. Project activities will include the development of models, policy interventions and targeted infrastructure. Analyses will also be developed that capture common innovations, mechanisms and approaches.

Output 3: Brokerage service in place and contributing to improved IFAD country programmes

20. A total of 27 countries are covered by the 19 preselected CPWF projects. In these countries, IFAD country programmes will directly benefit from CPWF innovations and adoption processes. This output constitutes a CPWF effort to mobilize resource people who can provide specific support at COSOP and project levels (design or implementation).
21. The proposed brokering of services consists of design or implementation support missions that will make use of the more useful, easier-to-access information. The information made available will feed more systematic replication and scaling up of opportunities. For IFAD designs, in particular, methods and successful experiences in a given context have proved to be of interest.
22. This output will only be achieved through excellent coordination and collaboration between IFAD's Policy and Technical Advisory Division (PTA) and CPWF. It is based on PTA's ongoing effort to analyse water-related activities of the ongoing portfolio in order to better identify which innovation or adoption processes will be most useful for a given IFAD-supported project.

V. Implementation arrangements

23. CPWF will implement this programme through its legal representative IWMI. CPWF's Innovation and Impact Director will be responsible for overall coordination. S/he will be assisted by the six phase-2 basin leaders and the CPWF Knowledge Management Team. RiU projects will be overseen by the CPWF Research Director.
24. In the CPWF, monitoring is understood to be a continuous process involving data collection on milestones and indicators in order to provide CPWF management and main stakeholders with indications of progress along previously-agreed outcome pathways, and of how funds are being spent. The tools used by the projects are inception, progress (six-monthly) and annual reports, which are discussed with CPWF management to ensure progress and allow for adjustments if needed.
25. Periodic evaluation involves the use of this monitoring data, and information from other sources, to determine one or more of the following: continuing relevance of outcome pathways, emerging opportunities, need for changes in work plans, quality of science, development effectiveness, impact and sustainability. In addition, the CPWF monitors and evaluates programme learning as to how the generation of programme outputs does or does not lead to developmental outcomes, the so-called M&E of learning. This programme proposal is the result of these integrated M&E processes, which will in turn be applied to this project.
26. A programme steering committee will be set up, consisting of CPWF and IFAD PTA staff. The committee will meet once a year to evaluate progress against agreed milestones and to suggest revisions and adjustments if necessary.

VI. Indicative programme costs and financing

27. The total cost of the programme is US\$2.874 million, of which US\$1 million is requested from IFAD's "large grants" category. Matching funds are provided from the CPWF core budget, specifically for component 2 on RiU. Additional matching funds will be sought for the brokering of CPWF lessons learned. This additional funding corresponds to the financing of a knowledge management service.
28. CPWF, through its legal representative IWMI, operates within the CGIAR financial guidelines.

Summary of budget and financing plan
(Thousands of United States dollars)

<i>Number</i>	<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing</i>
1	Personnel (including subcontractors)	585	1 417
2	Professional services/consultancies	98	69
3	Travel costs	108	98
4	Operational costs, reporting and publications	94	18
5	Overhead	115	272
	Total	1 000	1 874

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	Improved food security and livelihoods of poor rural communities which are supported to utilize CPWF approaches for improved water management, which allows higher production per units of land, water and labour	Target communities' livelihood indicators show improved income and health	Participating country data and census and FAO statistics	Farmers are able to manage risks of adopting new approaches and have organizational capacities for collective management activities. Weather, crop diseases and other factors do not impede yield improvements
Objectives	Validated CPWF innovations scaled up to reach more communities based on having developed appropriate policy, institutional and technical spaces Key national/regional planning agencies and development partners and IFAD use CPWF innovations in their planning and operations	Innovations and adoptions processes in key project development events. CPWF innovative processes, tools and technologies considered beyond the initial project intervention sites. Some IFAD country programmes actively use CPWF brokerage service in the development of country strategies	Strategic documents	Policy makers, water management project staff and IFAD staff are convinced to integrate the innovative approaches developed during CPWF Phase 1 and documented through this project. Social outreach by implementing partners / mobilizes communities beyond project sites
Outputs	1. Publication and dissemination of a multi-purpose resource package compiling CPWF pertinent project experience. 2. Scaled up development interventions based on CPWF Phase 1 tested and analysed project experience, in respective watersheds. 3. Brokerage service in place and contributing to improved IFAD and others country programmes.	Sourcebook available in print and on website Peer-reviewed publications about up scaling synthesis available	CPWF website COSOP documentation Register of client interaction	Human resources available. Full documentation of Phase 1 projects accessible to project actors. Synergies and synchronization with similar knowledge services incorporated
Key Activities	1. Elaboration of the multi-purpose resource package: 1a. Revisiting of 19 projects from CPWF Phase 1 for marketable innovation outputs and/or adoption processes (leads into 2a); 1b. Stakeholder workshops in each of the 10 Phase 1 basins (part of the documenting process) to identify innovations & processes; 1c. Documentation of lessons learnt in appropriate form (resource package of implementation, educational and advocacy materials e.g. impact stories, briefing notes, sourcebook, video, website etc.); 1d. Publishing and dissemination of resource package. 2. Scaling up of selected CPWF projects: 2a. Assessment of innovation outputs &/or adoption processes; 2b. Developing models for scaling up research outputs in close interaction with policymakers in the respective basins; 2c. Documentation of lessons learnt - feeding into 1c. 3. Brokerage services provided to IFAD and other agencies with respect to best practices	Project assessment reports published Stakeholders workshop held and reported incl. participants' evaluations Multi-purpose resource package available in print and on website Peer-reviewed publications about up scaling synthesis available Customer's satisfaction annual surveys	Reports, publications, Steering Committee reports	Agreement of milestones and timeline. Timely budget availability. For 2: previous project teams are still available to continue and scale up project activities.