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Investing in rural people

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

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Abbreviations and acronyms

AHBFI	Africa Harvest Biotech Foundation International
AR4D	agricultural research for development
ASAP	Adaptation for Smallholder Agriculture Programme
CBO	community-based organization
CGIAR	Consultative Group on International Agricultural Research
CoP	community of practice
CRP	CGIAR Research Program
CSP	cost-sharing percentage
EC	European Commission
FBFS	flood-based farming systems
ICARDA	International Center for Agricultural Research in the Dry Areas
ICRAF	World Agroforestry Centre
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IDO	intermediate development outcome
IFRS	International Financial Reporting Standards
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
ISFM	integrated soil-fertility management
IWMI	International Water Management Institute
MSc	Master of Science
NARS	national agricultural research systems
R4D	Research for Development
SF	IFAD Strategic Framework 2011-2015
SLO	system-level outcome
SRF	Strategy Results Framework

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 and to a non-CGIAR-supported international centre as contained in paragraph 7.

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

I submit the following report and recommendation on five proposed grants for agricultural research and training whose total budget is US\$6.4 million (six million four hundred thousand), of which US\$5.1 million (five million one hundred thousand) to four Consultative Group on International Agricultural Research (CGIAR)-supported international centres, and US\$1.3 million (one million three hundred thousand) to a non-CGIAR organization, Africa Harvest Biotech Foundation International (AHBFI), in line with the agricultural research for development (AR4D) grant strategy for 2014, which expanded the recipients of these grants to include non-CGIAR centres.

Part I – Introduction

1. This report recommends the provision of IFAD support to research and training projects of four CGIAR-supported international centres: World Agroforestry Centre (ICRAF), International Livestock Research Institute (ILRI), Bioversity International and International Water Management Institute (IWMI), and one non-CGIAR organization, AHBFI.
2. The documents of the grants for approval by the Executive Board are contained in the annexes to this report:
 - (i) ICRAF: Restoration of Degraded Lands for Food Security and Poverty Reduction in East Africa and the Sahel – Taking Successes in Land Restoration to Scale;
 - (ii) ILRI: Improved Productivity through Crop/Livestock Interventions in Burundi and the Eastern Democratic Republic of the Congo;
 - (iii) Bioversity International: Climate Change, Agriculture and Food Security – Linking Agrobiodiversity Value Chains, Climate Adaptation and Nutrition: Empowering the Poor to Manage Risk;
 - (iv) IWMI: From Africa to Asia and Back Again – Testing Adaptation in Flood-based Farming Systems; and
 - (v) AHBFI: Integrated Farming System for Sustainable Livelihoods of Smallholder Farmers in Eastern Africa.
3. The objectives and content of these applied research projects are in line with the evolving strategic objectives of the AR4D grant strategy and the Fund's policy for grant financing.
4. The overarching strategic goal that drives the Revised IFAD Policy for Grant Financing, 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.

5. The policy aims to achieve the following outputs: (a) innovative activities promoted and innovative technologies and approaches developed in support of IFAD's target group; (b) awareness, advocacy and policy dialogue on issues of importance to poor rural people promoted by, and on behalf of, this target group; (c) capacity of partner institutions strengthened to deliver a range of services in support of poor rural people; and (d) 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 projects are in line with the goal and outputs of the revised IFAD grant policy. They are also consistent with the IFAD Strategic Framework 2011-2015 (SF) and will contribute to achieving several of its strategic objectives. In terms of thematic areas, the projects are particularly relevant to: the natural resource and economic asset base for poor rural women and men; market transformation; access by poor rural women and men to services to reduce poverty, improve nutrition, raise incomes, promote sustainable and resilient farm and non-farm enterprises or take advantage of decent work opportunities; and enabling institutional and policy environments that support agricultural production and the full range of related non-farm activities.

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, Restoration of Degraded Lands for Food Security and Poverty Reduction in East Africa and the Sahel – Taking Successes in Land Restoration to Scale, shall make a grant not exceeding one million five hundred thousand United States dollars (US\$1,500,000) to the World Agroforestry Centre for a three-year project 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, Improved Productivity through Crop/Livestock Interventions in Burundi and the Eastern Democratic Republic of the Congo, shall make a grant not exceeding one million four hundred thousand United States dollars (US\$1,400,000) to the International Livestock Research Institute for a three-year project 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, Climate Change, Agriculture and Food Security – Linking Agrobiodiversity Value Chains, Climate Adaptation and Nutrition: Empowering the Poor to Manage Risk, shall make a grant not exceeding one million United States dollars (US\$1,000,000) to Bioversity International for a one-year project 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, From Africa to Asia and Back Again – Testing Adaptation in Flood-based Farming Systems, shall make a grant not exceeding one million two hundred thousand United States dollars (US\$1,200,000) to the International Water Management Institute for a three-year project 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, the Integrated Farming System for Sustainable Livelihoods of Smallholder Farmers in Eastern Africa, shall make a grant not exceeding one million three hundred thousand United States dollars (US\$1,300,000) to the Africa Harvest Biotech Foundation International for a three-year project 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

Restoration of Degraded Lands for Food Security and Poverty Reduction in East Africa and the Sahel – Taking Successes in Land Restoration to Scale

I. Background

1. Land restoration involves returning the land to a productive state in ways that are profitable for farmers and pastoralists and sustainably improve their livelihoods, while enhancing the capacity of the land to produce now and into the future. Equally important is avoidance of further degradation, because restoration – whose core components are recovery of vegetation and the improvement and maintenance of soil health – is more difficult and costly than preventing degradation. Degradation and restoration are continuous processes, with key thresholds delimiting the degree of collapse from which it is difficult to recover at the low end and the transition from vulnerable to sustainably intensifiable livelihood systems at the high end. There have been few syntheses of the broad effectiveness of land restoration efforts in the developing world, despite accounts of isolated successes, creating a pressing need to critically assess which elements lead to large-scale impact, especially in sub-Saharan Africa. Thus, this project seeks to systematically build on past successes and promote locally relevant land restoration initiatives at scale.

II. Rationale and relevance to IFAD

2. The project is aligned with the IFAD Strategic Framework 2011-2015 (SF) goals and objectives and comprises investments in SF thematic areas, with project outputs expected to feed into the IFAD loan portfolio. It will contribute to the agricultural research for development (AR4D) areas of focus, in particular sustainable systems at farm and landscape levels to intensify production while conserving the natural resource base. The project focuses on two themes:
 - (i) Natural resources, water and energy; and
 - (ii) Improved agricultural technologies and effective production services, their synergies and trade-offs.
3. The project is a component of the Research Program on Dryland Systems of the CGIAR – CGIAR Research Program (CRP) 1.1 – providing a scaling function in two regional flagship projects: East and Southern Africa; and the West African Sahel and Dry Savannah.
4. The project will contribute directly to:
 - (i) Three system-level outcomes (SLOs) of the Strategy Results Framework (SRF): improved food security, reduced rural poverty and sustainable management of natural resources;
 - (ii) Five intermediate development outcomes (IDOs) of CRP 1.1; and
 - (iii) Goals and objectives of the European Commission (EC) Action Fiche, whose goal is to put research into use at scale in sustainable agricultural systems with great potential impacts on nutrition and resilience. Its objective is to develop and test innovative approaches that impact positively on livelihoods, nutrition or resilience and to generate lessons for scaling up.

III. The project

5. The goal of the project is to reduce food insecurity and improve the livelihoods of poor people in African drylands by restoring degraded land – returning it to effective and sustainable tree, crop and livestock production in order to increase land profitability and landscape and livelihood resilience. Project objectives are to:

- (i) Identify and articulate lessons learned and develop good practice guidelines for restoring productive capacity to drylands;
 - (ii) Obtain information on the impact of land restoration on ecosystem services and livelihoods;
 - (iii) Develop and test a set of tools, methods and guidelines for scaling up successes in land restoration for profitable, sustained land management;
 - (iv) Identify areas suitable for scaling out, based on both lessons learned through the review of experiences and application of tools, methods and guidelines in the scaling-up process; and
 - (v) Convert empirical knowledge generated by the project into knowledge products and make these globally available.
6. **The target group** includes 60,000 households, extension staff, and market and policy institutions in the public and private sectors.
7. **Strategy, approach and methodology.** The project:
- (i) Brings together four CGIAR centres, specializing in dryland crops, livestock, trees and systems, to participate in research that is explicitly designed to complement CRP 1.1;
 - (ii) Adopts systems research at the scale of impact – research *in* development rather than research *for* development. The approach embeds research within development practice, linking the project to rural development projects/programmes in order to generate development impact at scale on the ground (scaling up) and in international public goods (scaling out); and
 - (iii) Operates through partnerships with the public and private sectors and institutions through an iterative co-learning cycle and capacity-strengthening locally, nationally and regionally.

IV. Project outputs, activities and benefits

8. Key activities are listed under each output.

Output 1: Ingredients of success and knowledge gaps

- (i) Analysis of past successes/failures from literature and from experiences in five African contexts; and
- (ii) Acquisition of local knowledge of reasons for success/failure and current drivers.

Output 2: Tools for targeting scaling up

- (i) Livelihood and resource characterization and mapping; and
- (ii) Assessment of predicted value addition for different “options and context” combinations.

Output 3: Enhanced knowledge on “what works where, by how much and for whom”

- (i) Formation of communities of practice (CoPs) to implement action research in a co-learning cycle; and
- (ii) Field-testing of options and enabling interventions.

Output 4. Tools for targeting scaling out

- (i) Livelihood and resource characterization and mapping; and
- (ii) Assessment of the adaptation required to match the successes being scaled out to conditions in the scaling out sites.

Output 5: Nested CoPs – taking land restoration to scale

- (i) Impact assessment to capture long-term, system-level impacts in scaling out domains; and
- (ii) Global synthesis of lessons learned in matching options and enabling interventions.

Project benefits

- (i) Improved incomes;
- (ii) Improved food security; and
- (iii) Building of local community's resilience to climate variability.

V. Project implementation arrangements

9. The World Agroforestry Centre (ICRAF) is the grant recipient and executing agency for the project, and is accountable to IFAD for the use of grant funds. It will lead the research in agroforestry and overall project implementation coordination. The International Center for Agricultural Research in the Dry Areas (ICARDA) will be a project partner and will be responsible for monitoring and evaluation. ILRI will be responsible for livestock research, while the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) will lead the implementation of activities for dryland legumes. ICRAF will sign subagreements with the project partners, subject to prior IFAD review and approval. The project will be implemented in line with the conditions set in the grant implementation agreement between ICRAF and IFAD. In addition, it will establish partnerships with public and private actors in the national systems (e.g. the Kenya Agricultural Research Institute and NGOs).
10. ICRAF will ensure that:
 - (i) The entire project implementation period is covered by audit;
 - (ii) ICRAF's institutional accounts are audited yearly in accordance with International Financial Reporting Standards (IFRS) and in compliance with CGIAR financial guidelines; and that a copy of its audited financial statements is submitted to IFAD within six months after the end of each fiscal year;
 - (iii) An audit opinion letter on the statement of expenditures submitted to IFAD is duly completed by its independent auditor, disclosing the amount of funds from various sources received and spent under this operation; and
 - (iv) The annual audit report submitted to IFAD shall include IFAD funds and any cofinancing funds, and shall consolidate expenditures incurred by sub-grantees, which will be accountable for the use of sub-grant funds and be subject to normal audit oversight.

VI. Project costs and financing

11. The project will be funded from the IFAD grant of US\$1,500,000 and US\$6,864,000 from the EC; the total project budget is US\$8,364,000. All funds will be channelled through the World Bank as trustee of the CGIAR Fund. In addition, the project involves development spending of US\$33 million by national partners, also managed by the grant recipient. Detailed project budgets by output, category and financier are presented in tables 1 and 2.

Table 1
Project costs by component and financier
 (Thousands of United States dollars)

<i>Components/outputs</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Total</i>
1. Ingredients of success and knowledge gaps	345	1 579	1 924
2. Tools for targeting scaling up	265	1 212	1 477
3. Enhanced knowledge on “what works where, by how much and for whom”	406	1 857	2 263
4. Tools for targeting scaling out	193	883	1 076
5. Nested CoPs - taking land restoration to scale	136	624	760
6. Monitoring and evaluation	155	709	864
Total	1 500	6 864	8 364

Table 2
Project costs by expenditure category and financier
 (Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Total</i>
Salaries and allowances	428	3692	4 120
Operating costs	105	409	514
Equipment and material	89	426	515
Training	64	447	511
Workshop	211	442	653
Consultancies	137	544	681
Goods and services	76	264	340
Travel and allowances	191	504	695
Subtotal direct costs	1 301	6 729	8 029
Overhead (13 per cent)	169	0	169
Cost-sharing percentage (CSP) (2 per cent)	30	136	166
Subtotal indirect costs	199	136	335
Total	1 500	6 864	8 364

Results-based logical framework

	OVI s	Means of Verification	Assumptions
Goal	Food security, income and ecosystem service provision indicators as monitored for Dryland Systems CRP in the Programme countries (Ethiopia, Tanzania, Kenya, Mali and Niger).	World Food Programme and FAO national statistics.	CGIAR completes consolidation of IDO target setting and monitoring for second generation CRPs.
Objective 1. Lessons and best practice	Analysed information available on successes/failures in land restoration for 5 Programme countries.	Draft report on globally accessible website.	Ready access to records, communities, NGOs and government officials.
Objective 2. Proof of Application	Matrices of land restoration options by context for 5 Programme countries.	Report on globally accessible website, 6 journal articles in peer reviewed publications.	Minimum risk of political and social instability (esp. Mali and Kenya) but experience suggests this is manageable
Objective 3. Tools, for scaling-up	Tools and guidelines for scaling-up available and in use by NARS and NGOs in the 5 Programme countries.	Annual reports of NARS and NGOs with experiences documented through national/regionals.	Sufficient NARS and NGOs; partners in the research adopt the scaling-up tools, and guidelines.
Objective 4. Tools, for scaling out	Tools, methods and guidelines for scaling-out available used by NARS and NGOs in 5 Programme countries.	Annual reports of NARS and NGOs and documented in national/regional CoPs.	NARS and NGOs partners in the research adopt the scaling-out tools, and guidelines.
Objective 5. Knowledge management and capacity strengthening	A nested set of CoP functioning. New approaches, methods and tools used by development partners.	Documentation on national CoP websites in Programme countries	Sufficient actors within the CoP at each scale.
Output 1: Ingredients of success and knowledge gaps	Option by context matrices and associated guidelines available for 5 Programme countries.	Programme country reports on website.	Tangible ingredients of success and their contextual dependence are elucidated
Output 2: Tools for targeting up-scaling	A set of tools and methods for appropriate use in up-scaling developed and tested for scaling domains in Programme area.	Four first generation toolkits and documentation available on national CoP websites.	Options and their codependencies are mapped to spatially available.
Output 3: Enhanced knowledge on "what works where, by how much and for whom"	Set of tools and methods for scaling-up land restoration and modelling of associated impacts incorporating learning from Action Research.	Scaling-out tools, methods and guidelines for Programme countries. Models of impact across these countries.	Local actor partners are re prepared to undertake trial of a sufficient range of options across a range of circumstances
Output 4. Tools for targeting Scaling-out	Scaling-out tools, methods and guidelines developed and available to NARS and NGOs in 5 Programme countries.	Scaling-out tools, methods and guidelines on CoP websites in Programme countries.	Availability of data from previous stages of the project.
Output 5: Nested communities of practice, taking land restoration to scale.	The nested CoP brought together under a single global CoP with business plan developed for expansion and sustainable management.	Monitoring of activities of CoP.	Critical mass of actors at each level within the nested set of communities of practice engage.

Improved Productivity through Crop/Livestock Interventions in Burundi and the Eastern Democratic Republic of the Congo

I. Background

1. Rainfed mixed farming systems, with crops and livestock integrated at the farm level, are predominant in the East and Central African Highlands. These systems provide food, incomes, draught power and employment to smallholders. Food production in the region is based on three annual mixed crop/livestock systems:
 - (i) Maize mixed;
 - (ii) Cereal/legume mixed; and
 - (iii) Root-crop/legume mixed.
2. Livestock is an important component of all three systems, but is underdeveloped. Exploiting the interrelationship of crop and livestock production to provide staple crops and increase the protein content of diets through animal-source foods is key to improving incomes, nutrition and food security in the region.
3. **Increased farm productivity and natural resource integrity** require initiatives to improve soil fertility, and mineral fertilizers are critical. However, use of fertilizer is constrained by high costs and soil variability. Thus promotion of organic resources to increase production is important, but these are inadequate given that the livestock sector is underdeveloped. Quantifying the biological nitrogen fixation potential of legumes under diverse fertilizer treatments (farmyard manure mixed with mineral fertilizer) can increase farm production and productivity. In addition, this can be complemented by intercropping legumes with maize, cassava, bananas and sweet potato in rotation.
4. **Household nutrition and health.** Chronic food insecurity, protein micronutrient deficiency and energy malnutrition are features of the project area. Dietary energy is derived largely from cereal crops, limited legume quantities and some animal products. Zinc is lacking in children's diets, while iron deficiencies for women are severe. Thus the use of high-quality nutritious foods and animal-based proteins to address malnutrition will be a key project focus.

II. Rationale and relevance to IFAD

5. The project is aligned with:
 - (i) IFAD's SF goals and objectives, and it will invest in SF thematic areas. Project outputs will be fed into the IFAD loan portfolio. Moreover, the project will contribute to IFAD's AR4D areas of focus, particularly sustainable systems at farm and landscape levels.
 - (ii) The goals and objectives of the EC Action Fiche, which seeks to put research into use at scale in sustainable agricultural systems with large potential impacts on nutrition and resilience. Its objective is to develop and test innovative approaches that impact positively on the livelihoods, nutrition or resilience of pilot rural communities and smallholder farmers.
 - (iii) CRP 1.2, with links to CRP 4 agriculture for nutrition and health; CRP 3.2 maize; CRP 3.4 roots, tubers and bananas; and CRP 3.5 grain legumes. It will also share tools and approaches with CRP 3.7 livestock and fish.
6. The project contributes:

- (i) Directly to four IDOs of CRP 1.1: income, nutrition, productivity and gender (and youth) and indirectly to two others (the environment and innovation); and
- (ii) To all SLOs of the CGIAR's SRF.

7. **Broad areas of project research**

- (i) Support to increase farm production and productivity;
- (ii) Livestock development investments; and
- (iii) Income-generation initiatives with a specific focus on women and youth.

III. The project

8. The goal is to enable poor rural people to improve their food security and nutrition, raise their incomes and strengthen their resilience. The objective is to improve incomes, nutrition and food security through sustainable intensification of crop/livestock systems linked to markets, with a particular focus on women and youth.
9. **Target groups.** The primary target group is 4,000 smallholders (including women's farm holdings), policymakers, the private sector, input providers, processors and consumers.
10. **Strategy, approach and methodology.** The project:
 - (i) Involves systems research that incorporates livestock development into local farming systems to optimize natural resource use, system productivity, market access and household nutrition;
 - (ii) Is designed on the premise that agriculture improves nutrition, thus research initiatives seek to:
 - (a) Improve diets (quantity and quality); diversify household food production to increase household consumption of the food it produces;
 - (b) Reduce income poverty; sell surplus produce/agricultural labour; take advantage of employment – for a knock-on effect on the quality of diet; and
 - (c) Promote gender empowerment; identify opportunities to address both household food insecurity and poverty as they affect women and youth.
 - (iii) Contribute directly to IFAD's renewed focus on nutrition: promoting higher productivity and income so that target groups access a greater variety of foods, and empowering women to improve their and their families' nutrition;
 - (iv) Promote the family farming concept for continuity and commitment in economic terms (i.e. development of entrepreneurial skills for household-level poverty reduction); and
 - (v) Incorporate lesson-learning and knowledge-sharing in the capacity development and global synthesis aspects of CRP 1.2 in the East and Central Africa flagship project (rather than set up a parallel project knowledge management system) for both scaling up and scaling out.

IV. Project outputs, activities and benefits

11. Key activities are listed under each output:

Output 1: Project functionally embedded within CRP 1.2 and integrated with the Action Site Research for Development (R4D) platform to facilitate scaling up of project outputs

- (i) Conduct situational analysis of the Humidtropics¹ with crop/livestock system-specific information;
- (ii) Identify entry points for technologies, enterprises and institutional arrangements through CRP 1.2 and local innovation platforms; and
- (iii) Raise awareness and relevant training for R4D platform partners across the science-to-development continuum.

Output 2: Farm-level productivity of crop/livestock systems increased at target field sites, while optimizing natural resource use efficiency and minimizing negative environmental externalities

- (i) Validate decision/discussion support tools and materials to intensify crop/livestock systems;
- (ii) Evaluate best-bet integrated soil-fertility management (ISFM) practices in relation to environmental conditions, farmer typology, gender and agro-input availability; and
- (iii) Validate best-bet livestock feed options in relation to land availability, livestock type, markets, farmer typologies and gender.

Output 3: Farming families, particularly women and youth, engaged in profitable crop and/or livestock value chains

- (i) Conduct political economy analyses of important market opportunities;
- (ii) Identify profitable crop and livestock value chains for fresh and processed produce; and
- (iii) Validate value-added processing options for crop and livestock products.

Output 4: Access of women and youth to assets and decision-making increased in relation to crop/livestock system management

- (i) Identify opportunities for women and youth in the profitable intensification of crop/livestock systems;
- (ii) Develop pilot projects for rural and/or urban-based "agripreneurs" around profitable market entry points; and
- (iii) Initiate pilot projects for women and youth around profitable value-addition opportunities based on their comparative advantages.

Output 5: Nutritional status of women and children improved

- (i) Promote diversification of crop/livestock production systems using legumes and nutrient-dense crops and varieties; support initiatives to increase animal-source foods;
- (ii) Demonstrate the benefits of protein-enriched diets through health centres and women's associations; and
- (iii) Develop and validate enriched food baskets specific to young children and women.

¹ "Humidtropics", a CGIAR Research Program, will increase development options and strengthen the capacity of the poor and vulnerable in the humid tropics to improve their livelihoods and living environment based on promising agricultural system innovations and technologies.

Project benefits

- (i) Increased productivity of crop/livestock systems;
- (ii) Improved market access and links to commercial value chains;
- (iii) Improved access for women and youth to assets and decision-making; and
- (iv) Improved nutritional status of women and children.

V. Project implementation arrangements

12. ILRI is the grant recipient and executing agency of the project, and is accountable to IFAD for the use of grant funds. It will coordinate the entire project and lead the livestock and nutrition initiatives, while the International Institute of Tropical Agriculture (IITA) will be responsible for implementation of ISFM and crop-related activities. All implementing partners will work through subagreements, which will be subject to IFAD prior review and approval. A technical advisory group will be established and will meet annually to review project implementation progress.
13. ILRI will ensure that:
- (i) The entire project implementation period is covered by audit;
 - (ii) Its institutional accounts are audited yearly in accordance with IFRS and in compliance with CGIAR financial guidelines, and that a copy of its audited financial statements is submitted to IFAD within six months after the end of each fiscal year;
 - (iii) An audit opinion letter on the statement of expenditures submitted to IFAD is duly completed by its independent auditor, disclosing the amount of funds from various sources received and spent under this operation; and
 - (iv) The annual audit report submitted to IFAD shall include IFAD funds and any cofinancing funds and shall consolidate expenditures incurred by sub-grantees, which will be accountable for the use of sub-grant funds and be subject to normal audit oversight.

VI. Project costs and financing

14. The project will be funded from the IFAD grant of US\$1,400,000 and US\$4,148,000 from the EC; the total project budget is US\$5,548,000. All funds will be disbursed through the World Bank as trustee of the CGIAR Fund, hence the 2 per cent CSP budget line. In-kind contributions from associated bilateral projects are expected. Detailed project budgets by output, category and financier are presented in tables 1 and 2.

Table 1

Project costs by component and financier

(Thousands of United States dollars)

<i>Components/outputs</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Total</i>
1. Humidtropics integration	220	487	707
2. Productivity	350	1 325	1 675
3. Value chains	266	1 134	1 400
4. Gender and youth	201	700	901
5. Nutrition	363	502	865
Total	1 400	4 148	5 548

Table 2

Project costs by expenditure category and financier

(Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Total</i>
Salaries and allowances	576	1 790	2 366
Consultancies	132	267	399
Equipment and materials	122	385	507
Goods, services and inputs	15	322	337
Operating costs	52	127	179
Workshops	162	493	655
Vehicles		167	167
Training	104	405	509
Travel and allowances	27	110	137
Subtotal direct costs	1 190	4065	5 255
CSP (2 per cent)	28	83	115
Management costs	182	0	182
Subtotal indirect costs	210	83	293
Total	1 400	4 148	5 548

Results-based logical framework

Hierarchy	Narrative	Objectively verifiable indicators	Means of verification	Assumptions
Goal	Enable poor rural people to improve their food security and nutrition, raise their incomes and strengthen their resilience.	Food security and income indicators as monitored for CRP 1.2 and CRP 4 respectively.	Country Reports FAO Statistics Household surveys Project monitoring reports.	CGIAR completes consolidation of IDO target setting and monitoring for 2 nd generation CRPs set out in the SRF and CRP 1.2 enacts these.
Objective	Improved income, nutrition and food security through sustainable intensification of crop/livestock systems linked to markets, with a particular focus on gender and youth.	Contribution to 4 SLOs.	The detailed evaluation of the project contribution to the SLOs through the M&E framework of the Humidtropics.	<ul style="list-style-type: none"> • Presence and interest of development initiatives; • Political stability in the region and buy-in by policy makers.
Outputs	1. Project functionally embedded within the Humidtropics programme and integrated with Action Site R4D platform.	All project staff and partners participating in relevant Action Site R4D platforms.	<ul style="list-style-type: none"> • Humidtropics Action Site and Action Area reports. • R4D platform meeting minutes. • Project progress reports, • CRP annual reports. 	<ul style="list-style-type: none"> • Absence of shocks (e.g., displacement of people). • Humidtropics R4D platforms are active. • Interest of women and young people in engaging in agriculture. • Women have decision making power in relation to nutrition and health.
	2. Farm-level productivity of crop/livestock systems increased in project sites.	farm-level productivity is increased by at least 60% in 2,400 farms).		
	3. Farming families, including women and youth, actively engaged in profitable crop / livestock value chains.	4,000 households increase income by 44%.		
	4. Access of women and youth to assets and decision-making in relation to crop/livestock system management increased in target Field Sites.	4,000 households, women and young have increased their access to assets by 35%.		
	5. Nutritional status of women and children improved in target Field Sites.	women of 15-49 years and children of 6-23 months consume a larger number of food groups in 4,000 households.		

Climate Change, Agriculture and Food Security – Linking Agrobiodiversity Value Chains, Climate Adaptation and Nutrition: Empowering the Poor to Manage Risk

I. Background

1. Agricultural biodiversity is an essential asset in rural households, especially for the poor and the marginalized. Diversity allows farmers to respond to different situations and contexts. When responses are accompanied by enhanced capacities to cope with risk along the value chain, this constitutes an effective mechanism to build resilience within livelihood systems to improve food and nutrition security. Community resilience relies on the use of crops adapted to new weather patterns and effective use of resources to generate income in the market. Several stress-tolerant neglected and underutilized species, if marketed, could contribute to resilience, nutrition and food security (e.g. Andean grains, fonio, Bambara groundnut, minor millets), and hence the need to integrate these crops into value chains.
2. Integration of climate change adaptation and value chain development are required to ensure the productivity of crops under new weather patterns. While some farmers have adopted technologies for growing crops under changing weather patterns, the potential impact is limited by a number of factors:
 - (i) Weak linkages between the development of crops more adapted to climate change and interventions targeting agrobiodiversity value chains;
 - (ii) Poor knowledge of the use of genetic diversity in resilient production systems, value chains and nutrition; and
 - (iii) Limited use of local knowledge in the sustainable management of nutritious crop resources.

II. Rationale and relevance to IFAD

3. The project:
 - (i) Is aligned with the goals of IFAD AR4D grants in that it supports effective use of natural resources to enhance resilience and environmental sustainability in small-scale agriculture;
 - (ii) Is aligned with the SF and will contribute to two strategic objectives: enabling poor rural women and men and their organizations to influence policies and institutions affecting their livelihoods; and facilitating institutional and policy environments that support agricultural production and all related non-farm activities;
 - (iii) Is linked with selected IFAD loan projects: in the short term, to contribute to the goals and objectives of ongoing projects; and in the long term, to generate outputs that could inform future loan investments;
 - (iv) Will contribute to all SLOs, particularly SLO 4 (sustainable natural resource management); and
 - (v) Will link with CRP 4, value chains for enhanced nutrition component.
4. **The project's research thrust.** The project will seek to develop appropriate technologies, methods and approaches to exploit the potential of agrobiodiversity in addressing food security, nutrition and poverty at the household level, focusing specifically on poor farmers, especially women and indigenous peoples.

III. The project

5. The goal of the project is to strengthen the capacities of poor farmers, especially women and indigenous peoples, and other value chain actors to manage the risks associated with climate change, poor nutrition status and economic disempowerment. It has four main objectives:
 - (i) Strengthen the capacities of indigenous peoples, smallholders and development practitioners to assess, document, monitor, conserve and manage stress-tolerant varieties of traditional crops;
 - (ii) Reinforce community-based organizations and mechanisms and processes managed by local communities for sharing “best-bet” practices with peers and partners for the sustainable conservation and use of agrobiodiversity;
 - (iii) Strengthen the capacities of national agricultural research systems (NARS) for dealing with climate risks within a holistic value chain approach, and support scaling-up processes;
 - (iv) Enhance scientific understanding of the role of agricultural biodiversity in resilience, nutrition-sensitive production and food systems, and advocate policy change.
6. **Target groups:** 4,000 smallholders, including women and indigenous peoples, and value chain actors.
7. **Strategy approach and methodology.** The project:
 - (i) Sets a precedent in terms of the IFAD Policy on Engagement with Indigenous Peoples for participatory rural development;
 - (ii) Builds on the portfolio of community-based and nutrition-sensitive value chain methods and tools developed by IFAD’s earlier Neglected and Underutilized Species Project; and
 - (iii) Is linked to research on climate change, capacity development and information systems, supplemented by lessons learned from nutrition-focused projects such as the Global Environment Facility’s Multicountry Partnership Framework Support Project.

IV. Project outputs, activities and benefits

8. Key activities are listed under each output:

Output 1: Improved crops, methods, approaches and tools for coping with climate change

 - (i) Survey stress-tolerant crops and assess their conservation status, erosion threats and nutritional use; and
 - (ii) Strengthen documentation and monitoring capacities of custodian farmers and community gene banks for the conservation of selected crops and their associated knowledge.

Output 2: Strengthened market access for stress-tolerant, nutritious crops

 - (i) Do participatory analyses of the value chains for resilient model crops in order to identify constraints, opportunities and entry points for nutrition;
 - (ii) Explore solutions to bottlenecks along the selected value chains;
 - (iii) Design and test information systems on weather conditions for risk management; and
 - (iv) Explore novel, farmer-led market intelligence systems in the project area.

Output 3: Enhanced capacities of farmers and value chain actors for conservation and sustainable use of agrobiodiversity

- (i) Develop a framework to empower local communities, including indigenous peoples, to enhance their knowledge and practices as community-based conservers, innovators and promoters of agrobiodiversity; and
- (ii) Strengthen capacities of local organizations and institutions through community-based training courses.

Output 4: Evidence of the role of agrobiodiversity in nutrition, income and adaptation to climate change and policies recommended to enhance use

- (i) Analyse current policy and legal frameworks and their effect on the use of crop diversity by farmers;
- (ii) Explore policy options for enhancing the efficiency of incentives that promote use of diversity of crops for climate change-coping strategies and nutritional benefits;
- (iii) Create awareness among decision makers on the advantages of agrobiodiversity for farmers and other value chain actors;
- (iv) Carry out systematic reviews and modelling studies to consolidate the evidence base for the conservation and use of agrobiodiversity; and
- (v) Develop indicators for the resilience of the agroecosystem, value chains and the food system.

Project benefits

- (i) Empowerment of poor farmers, including women and indigenous peoples;
- (ii) Strengthened capacities of local, community-based organizations and self-help groups; and
- (iii) Improved use of data exchange on weather, the performance of varieties of crops, nutritional qualities and market information.

V. Project implementation arrangements

9. Bioversity International is the grant recipient and executing agency of the project, and is accountable to IFAD for the use of grant funds. Project partners are Universidad del Valle de Guatemala, Action for Social Advancement in India and Institute of Rural Economy in Mali. They will implement project activities through letters of agreement between them and the recipient clearly outlining financial management and audit requirements.
10. Bioversity International will ensure that:
 - (i) The entire project implementation period is covered by audit;
 - (ii) Its institutional accounts are audited yearly in accordance with IFRS and in compliance with CGIAR financial guidelines, and that a copy of its audited financial statements is submitted to IFAD within six months after the end of each fiscal year;
 - (iii) An audit opinion letter on the statement of expenditures submitted to IFAD is duly completed by its independent auditor, disclosing the amount of funds from various sources received and spent under this operation; and
 - (iv) The annual audit report submitted to IFAD shall include IFAD funds and any cofinancing funds and shall consolidate expenditures incurred by sub-grantees, which will be accountable for the use of sub-grant funds and be subject to normal audit oversight.

VI. Project costs and financing

11. The project will be funded from the IFAD grant of US\$1,000,000, US\$1,320,000 from the EC and US\$503,000 from partners; the total project budget is US\$2,823,000. All funds will be disbursed through the World Bank as trustee of the CGIAR Fund, hence the 2 per cent CSP budget line. Detailed project budgets by output, category and financier are presented in tables 1 and 2.

Table 1

Project costs by component and financier

(Thousands of United States dollars)

<i>Components/outputs</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Partners</i>	<i>Total</i>
1 Cultivation conservation and risk management	384	508	100	992
2 Value addition and marketing	144	190	100	434
3 Institution-building and knowledge-sharing	248	327	150	725
4 Enabling policies and public awareness	113	148	53	314
5 Global coordination	111	147	100	358
Total	1 000	1 320	503	2 823

Table 2

Project costs by expenditure category and financier

(Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Partners</i>	<i>Total</i>
Salaries and allowances	258	633	0	891
Equipment and material	151	102	200	453
Operating costs	152	338	200	690
Travel and allowances	127	79	-	206
Training	46	55	103	204
Workshops	136	86	-	222
Subtotal direct costs	870	1 293	503	2 666
Overhead	110	0	-	110
CSP (2 per cent)	20	27	-	47
Subtotal indirect costs	130	27	0	157
Total	1 000	1 320	503	2 823

Results-based Logical Framework

Objectives hierarchy	Objectively verifiable indicators*	Means of verification	Assumptions
Goal: To strengthen the capacities target group and value-chain actors, including indigenous communities, to manage risks associated with climate change, poor nutrition and economic disempowerment.	Food and nutrition security levels for farmers and farming communities; Income and climate change vulnerability levels.	Ex-post impact assessment.	Favourable political environment; Policymakers and partners actively contributing.
Objective 1: Strengthen capacities of programme target groups and development practitioners to access, document, monitor, conserve and manage stress-tolerant varieties of traditional crops.	20-30% additional HH use traditional varieties; 20-30% increased production of traditional crops; at least 3-5 stress tolerant crops/country; 3-5 stress tolerant crops/country; at least 20 varieties/crop, conserved.	<ul style="list-style-type: none"> Farmer and HH surveys; Field for a training records; Market surveys, Genebank records; National agricultural development strategies and plans etc. Field surveys; Fact sheets; Annual Reports; Project data. 	<ul style="list-style-type: none"> Favourable political environment; Committed community organizations. Crop genetic diversity with respect to climate change available in project sites; cooperate. communities willing to cooperate. Secured level of commitment of research partners. Decision makers open to adopt agrobiodiversity-rich approaches to address climate change, nutrition, income generation.
Objective 2: Strengthen CBOs, mechanisms and processes managed by local communities to share with peers and partners best practices for the sustainable conservation and use of agrobiodiversity.	20-30% more income from traditional crops; at least 3-5 stress tolerant crops/country; 5-10 vars/crop sold in local and national markets.		
Objective 3: Strengthen capacities of NARS to deal with climate risks within a holistic value-chain approach and promote scaling up of successful approaches.	500-800 farmers/country (40% 30% indigenous people), trained in climate change risk management; 30 NARS experts trained in use of agrobiodiversity to manage climate change risks; 300-500 farmers/country, participating in decision-making <i>fora</i> related to climate change.		
Objective 4: Enhance scientific understanding of the role of agrobiodiversity in resilience and nutrition-sensitive production of food systems and advocate policy	linkages with national and int. projects/country 3 countries collaborating with ASAP and CCAFS.		
Output 1: Improved crops, methods, approaches and tools for coping with climate change.	3-5 stress-tolerant/ market valuable crops/country; High quality seed of tolerant vars; 3-5 farmer-led intelligence systems for marketing; 3-5 weather information forecast systems used by communities.		
Output 2: Strengthened market access for stress-tolerant and nutritious crops.	20% increase in production of stress-tolerant traditional crops and vars; at least 30% increase crops demands		
Output 3: Enhanced capacities of farmers and other value chain actors in conserving and use of agrobiodiversity sustainably.	5-10 farmers' networks; 3 000-5 000 farmers/country (40% or more women), enabled to access information on climate change; 300-500 farmers/country, from target communities enabled to document crops for better use; 40-50 practitioners/researchers/ country trained in holistic value chain approaches; 3-8 countries using tools promoted by the Project;		
Output 4: Evidence of role of agrobiodiversity in nutrition, income and adaptation to climate change, with recommendations for supportive policies for its enhanced use.	5-10 scientific papers to show evidence on how strengthens people's livelihoods through local biodiversity; 10-20 policy recommendations to promote use of local crops; collaboration with ASAP and CCAFS established.		

From Africa to Asia and Back Again – Testing Adaptation in Flood-based Farming Systems

I. Background

1. The grant builds on practical knowledge and local capacity to systematically and comprehensively support the productive use of flood-based farming systems (FBFS) for poverty alleviation and inclusive agricultural growth in water-stressed regions of Africa and Asia. The area under these systems in Africa and Asia is estimated at 20-35 million hectares. FBFS cover systems dependent on temporary floods, in particular:
 - (i) Spate irrigation and flood waters spreading from ephemeral rivers;
 - (ii) Flood recession/flood rise systems, inundation canals and flood compartmentalization systems, centred on flood plains; and
 - (iii) Land depression systems (*dambo*), based on temporary land inundation.
2. Whereas floods cause havoc and disaster, FBFS floods are an asset – the main source of water and moisture for multiple uses. In spite of their wide occurrence and potential, however, FBFS are underused, with most attention given to conventional perennial irrigation systems or rainfed agriculture.
3. FBFS serve crop, fishery and livestock production and are the sustenance of local ecological systems. Flood systems are dependent on flood events and are thus subject to climate change, but are a resilience building block in smallholder climate change adaptation.

II. Rationale and relevance to IFAD

4. This grant builds on the 2011-2014 grant (IFAD Grant No. 1230) for Spate Irrigation for Rural Economic Growth and Poverty Alleviation, which focused on four countries with large or emerging spate irrigation systems (Ethiopia, Pakistan, Sudan and Yemen). Initiatives under that grant introduced spate irrigation in policies and programmes, successfully built sustainable capacity and strengthened the network with young professionals and farmers' representatives. The project:
 - (i) Is aligned with IFAD's SF goals and objectives;
 - (ii) Is also linked to CPR 5 and will contribute to one IDO of the project: increased resilience of communities through enhanced ecosystem services in agricultural landscapes; and
 - (iii) Will contribute to three SLOs of the SRF: improving food security, reducing rural poverty and sustainable management of natural resources, and indirectly to the fourth SLO on nutrition and health.

III. The project

5. The overall goal is to help develop FBFS policies and programmes that enhance investment in rural people. This effort is based on action research and South-South documentation of practical experiences, imbedded in long-term capacity-building and programme development at various levels. The overall objective is to develop models and approaches focused on the inclusive and gender-balanced growth of climate-change-stressed areas predominantly relying on FBFS. Specific objectives are to:
 - (i) Strengthen human resources, local institutions and knowledge;
 - (ii) Develop investment programmes and policies;
 - (iii) Support capacity-building for FBFS stakeholders; and

- (iv) Strengthen networks established within and across the target area and other selected countries in Africa and Asia.

6. **Strategy, approach and methodology.** The project:

- (i) Builds on preparatory work on the Spate Irrigation Network (under IFAD Grant No. 1230);
- (ii) Seeks to develop and promote practical, actionable FBFS, which can be scaled up, through solution-oriented research and evidence-based documentation of good practices;
- (iii) Promotes soil-moisture management techniques in Asia that were developed in the Horn of Africa;
- (iv) Invests in people, and supports development of knowledge and practitioners' networks within the context of national and regional centres to bring together "change makers" in FBFS areas; and
- (v) Specifically focuses on eight countries, consolidates existing networks in Ethiopia, Pakistan, Sudan and Yemen, and engages in new countries: Afghanistan, Ghana, Malawi and Uganda.

IV. Project outputs, activities and benefits

7. Key activities are listed under each output:

Output 1: Network on FBFS established in Afghanistan, Ghana, Malawi and Uganda; and strengthened in Ethiopia, Pakistan, Sudan and Yemen

Consolidate achievements under the previous grant in countries in which it was implemented and initiate successful technologies and approaches in new project countries.

Output 2: Knowledge generated and managed

- (i) Prepare practical notes on cross-country relevant themes;
- (ii) Undertake solutions-oriented research linked to capacity-building and support exchange projects between Africa and Asia;
- (iii) Develop a guideline document on FBFS and generate IFAD knowledge products.

Output 3: Capacity-building projects on FBFS developed and implemented

- (i) Consolidate three existing Master of Science (MSc) programmes in Ethiopia, Pakistan and Yemen, and establish two new MSc programmes focusing on FBFS;
- (ii) Train young professionals to be competent in FBFS; and
- (iii) Implement relevant short international courses for key stakeholders and strengthen farmer learning centres.

Output 4: Support investment programmes and policy development

- (i) Prepare proposals for national investment programmes;
- (ii) Exchange proposals between Africa and Asia to increase understanding of FBFS investment strategies; and
- (iii) Provide technical support to IFAD's ongoing investment programmes.

Project benefits

- (i) Informed policy statements and understanding of practical opportunities for developing FBFS;

- (ii) Enhanced skills and attitudes, and access to best practices in Africa and Asia; special attention for women professionals;
- (iii) Increased knowledge on water security, and on productive and sustainable use of FBFS;
- (iv) Guided investments – covering entire range of activities from agricultural/pastoral improvement to governance;
- (v) Increased outreach and leverage – in the shape of educational programmes or thematic investment programmes; and
- (vi) Leadership in the development of FBFS, and enhancement and support of the investment portfolio.

V. Project implementation arrangements

8. The International Water Management Institute (IWMI) is the grant recipient and executing agency of the project, and is accountable to IFAD for the use of grant funds. It will enter into subagreements with the following project partners: ICRAF, UNESCO-IHE Institute for Water Education and MetaMeta, subject to prior IFAD review and approval. ICRAF will appoint a project coordinator assisted by two deputy coordinators from UNESCO-IHE and MetaMeta. The project steering committee will comprise staff members of the four partners. IWMI will be responsible for overall project implementation, and will ensure that technical and financial reports are provided in accordance with the signed grant agreement with IFAD.
9. UNESCO-IHE will lead capacity-building in the sustainable management of land, water and environmental resources in order to empower target groups. MetaMeta will provide its team of 30 enterprise-driven professionals to develop investment programmes and assist in water management. ICRAF will lead initiatives on the use of trees in agricultural landscapes to improve household food security, nutrition, income, health, shelter, social cohesion, energy resources and environmental health.
10. IWMI will ensure that:
 - (i) The entire project implementation period is covered by audit;
 - (ii) Its institutional accounts are audited yearly in accordance with IFRS and in compliance with CGIAR financial guidelines, and that a copy of its audited financial statements is submitted to IFAD within six months after the end of each fiscal year;
 - (iii) An audit opinion letter on the statement of expenditures submitted to IFAD is duly completed by its independent auditor, disclosing the amount of funds from various sources received and spent under this operation; and
 - (iv) The annual audit report submitted to IFAD shall include IFAD funds and any cofinancing funds and shall consolidate expenditures incurred by sub-grantees, which will be accountable for the use of sub-grant funds and be subject to normal audit oversight.

VI. Project costs and financing

11. The project will be funded from the IFAD grant of US\$1,200,000, US\$2,300,000 from the EC and US\$500,000 from the implementing partners; the total project budget is US\$4,000,000. All funds will be disbursed through the World Bank as trustee of the CGIAR Fund, hence the 2 per cent CSP budget line. Detailed project budgets by output, category and financier are presented in tables 1 and 2.

Table 1
Project costs by component and financier
 (Thousands of United States dollars)

<i>Components/outputs</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Partners</i>	<i>Total</i>
1. Programme management and overhead	144	276	100	520
2. Network strengthening	204	391	-	595
3. Knowledge development and management	360	690	200	1 250
4. Capacity-building	360	690	100	1 150
5. Investment programme and policy development	114	219	-	333
6. Collaborative activities with WLE ^a partner	18	34	100	152
Total	1 200	2 300	500	4 000

^a CRP on Water, Land and Ecosystems (WLE).

Table 2
Project costs by expenditure category and financier
 (Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>EC cofinancier</i>	<i>Partner contribution</i>	<i>Total</i>
Salaries and allowances	324	621	140	1 085
Operating costs	96	276	202	574
Consultancies	36	69	-	105
Travel and allowance including hotel	168	322	55	545
Equipment and materials	60	115	14	189
Goods, services and inputs	36	69	14	119
Workshops	48	92	17	1 566
Training	360	690	59	1 108
Subtotal direct costs	1 128	2 254	500	3 882
Overhead - IWMI pass-through fee (4 per cent)	48	0	0	48
CSP (2 per cent)	24	46	0	70
Subtotal indirect costs	72	46	0	118
Total	1 200	2 300	500	4 000

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	Help developing FBFS policies and programmes that will meaningfully invest in rural people, that contribute to eradication of rural poverty and accelerated growth in marginal areas in eight countries	4 policies and programmes; 50 policy shapers with informed policy statements Activities having impact on incomes of 10,000 to 15,000 HH's in the 8 target countries increased by 5%	Project monitoring reports - field observation, household and individual surveys and analyses Policy drafts for each target country	Key stakeholders are fully invested in the development of policies and programmes
Objectives	<i>Overall Objective:</i> Develop models and approaches on inclusive and gender-balanced growth of climate change-stressed areas, which predominantly rely on FBFS. <i>Specific objectives:</i> 1) Human resources, local institutions and knowledge strengthened; 2) investment programs and policies developed; 3) Capacity building undertaken; 4) Strengthened network established	1 local institution in each country demonstrates improved knowledge of FBFS 2 good practices promoted in each country 1600 farmers with increased knowledge on water security 1 capacity building activity implemented for 1 institution in each country with 300 practitioners and professionals.	Reports on capacity building activities Ex and post ante surveys on local knowledge in capacity building and investment programmes Report on formulation and establishment of FBFS network	Local government, local institutions can be mobilized in each country for uptake of FBFS models People and local institutions embrace FBFS recommendations
Outputs and activities per work package	Network on FBFS established in Afghanistan, Ghana, Malawi and Uganda; and strengthened in Ethiopia, Sudan, Yemen and Pakistan	4 existing networks strengthened with farmer membership increased by 20-30% 4 new networks established with 50 members (10% female)	Membership reports from existing networks; design and implementation reports for new country networks	Current and future environment allows for establishment of new country networks
	Knowledge generated and managed: 1) practical notes on cross-country relevant themes; 2) solutions oriented research linked to capacity building and exchange mechanism between Africa to Asia; 3) Guideline document	6 notes on cross-country relevant themes 8 solutions-oriented research linked to capacity building; 4 exchanged between Africa and Asia 1 Guideline on FBFS	Draft notes on cross-country relevant research themes and knowledge products Final guideline on FBFS	All stakeholders participate in development of notes, facilitating exchange of research themes
	Capacity building programmes on FBFS developed and implemented: 1) MSc programmes established and strengthened; 2) young professionals, practitioners and policy shapers trained 3) Farmer Teaching Centres strengthened	3 existing MSc programmes consolidated; 2 new programmes started 60 young professionals; 240 practitioners (30% Female) and 50 policy-shapers (10% female) trained on FBFS; 4 Farmer Learning Centres equipped with training packages on FBFS serve 1600 male and female farmers	Draft MSc-level modules on FBFS Training reports on FBFS Farmer Teaching Centres evaluation reports, both ex and post ante	Institutional space and capacity exists in universities and Farmer Training Centres
	Investment programmes and policy development supported: 1) prepare investment programmes and exchange between Africa and Asia to increase understanding; 2) Provide technical support to IFAD investment programmes	6 proposals for national investment programmes; 3 exchanged between Asia and Africa Contact established and discussion help with IFAD portfolio managers in impact countries	Draft proposals for investment programmes technical support consultation reports	FBFS business case sufficiently convincing to practitioners and policy makers

Integrated Farming System for Sustainable Livelihoods of Smallholder Farmers in Eastern Africa

I. Background

1. Banana, cassava and legumes are important sources of energy and protein in Eastern Africa. However, farming systems in the region are characterized by low productivity due to abiotic and biotic stresses, poor soil management practices, underdeveloped markets and inadequate research and extension capacity. Moreover, low technology use, high post-harvest losses, and policy and institutional constraints impede the sector investment required to engender the uptake of yield-enhancing crop technologies. These constraints result in unsustainable farming practices and land degradation, which impact negatively on food security. Malnutrition is pervasive in the region.
2. There are opportunities to improve crop productivity and profitability:
 - (i) Use of clean planting materials and superior germplasm;
 - (ii) Integration of farmers into market opportunities;
 - (iii) Strengthening capacity of value chain actors; and
 - (iv) Establishment of institutional linkages to foster widespread adoption and sustained use of improved technologies.
3. However, access to markets is limited because smallholdings are scattered and production is low. As a result:
 - (i) Farmers sell small quantities to traders at the farm gate at low prices;
 - (ii) Value chains for crops are long, with several layers of actors between the producer and the consumer, exacerbating low produce prices to farmers. The combined effects of these two factors are low prices and lack of incentives to invest in new technologies and farming practices in order to raise crop yields.
4. In general, smallholders in the region face a major constraint: limited capacity that limits their ability to adopt the new innovations and management practices required to improve productivity and create demand for new technologies. To address this constraint, the following are required:
 - (i) Development of skills in agronomy and soil-fertility management to increase farm production and productivity;
 - (ii) Management and business skills to establish and manage linkages with markets to reduce transaction costs, negotiate contracts with buyers and raise farm-gate prices; and
 - (iii) Training of farm input dealers (for example nursery operators and agro-dealers) in nursery management, safe and efficient use of chemicals, and seed systems development and delivery.

II. Rationale and relevance to IFAD

5. An increase in agricultural production per unit area through diversification and intensification – coupled with commercialization of farm produce and/or value addition – constitute an option to increase productivity for improved food security and reduction of rural poverty.
6. Banana and cassava are household security crops for food, nutrition and income generation for smallholders in Burundi, Kenya and the United Republic of Tanzania. However, production is low because farmers use infected planting materials or degenerated, low-yielding varieties, and the situation has been exacerbated by the

outbreak of diseases such as fusarium and bacterial wilt in bananas, and cassava brown-streak disease.

7. Legumes (groundnut, cowpea, beans and soybeans) constitute an integral part of cropping systems in the project area, but yields are low: about 25-40 per cent of their full potential.
8. **Project research focus.** The project will support activities to enhance productivity and integrate market-level innovation with production systems to commercialize selected crops. The areas of support comprise:
 - (i) Agricultural intensification and diversification, while enhancing production and productivity;
 - (ii) Development and dissemination of technologies to address biotic and abiotic stresses at the farm level;
 - (iii) Promotion of legume production to increase soil fertility and household nutrition;
 - (iv) On a pilot basis, identification and support of value chains with a potential for commercialization (selected legumes and bananas).

III. The project

9. **Overall goal and objectives.** The overall goal is to contribute to poverty reduction, while improving food and nutrition security. Specific project objectives are to:
 - (i) Conduct a situational analysis to establish current household baseline social economic status and identify specific entry points and actions to promote farm production and productivity, and poverty reduction;
 - (ii) Develop local private-sector-based seed systems for banana, cassava and legumes;
 - (iii) Build capacity in post-harvest management;
 - (iv) Build the capacity of farmers and value chain partners to enhance effective dissemination of clean planting materials, seeds, technologies and innovations; and
 - (v) Enhance nutrition and soil fertility through integration of legumes into cropping systems.
10. **Target groups** comprise 10,000 households.
11. **Strategy, approach and methodology.** The project:
 - (i) Has been positioned to achieve outcomes in the short term by building on the successes of the ongoing EC/CGIAR/IFAD-funded project, Sorghum for Multiple Uses, implemented jointly by ICRISAT and the Africa Harvest Biotech Foundation International (AHBFI), through:
 - (a) Targeting existing groups under the ICRISAT/AHBFI project; and
 - (b) Rolling out the "modified grain aggregator model", developed under the project to bring to scale technology adoption, market access and capacity for empowerment of project target groups.
 - (ii) Adopts participatory varietal selection. Collaborating institutions have already identified the high-yielding legume varieties, thus the project will exploit technology transfer through both "technology push" and "demand pull" approaches;
 - (iii) Will use gender-based analysis to identify legume-grain preferred traits;

- (iv) Facilitates private-sector engagement to improve market access;
- (v) Focuses specifically on production and improved access to clean planting material for banana and cassava; and
- (vi) Will develop seed systems and delivery mechanisms for legume varieties resistant to biotic and abiotic stress.

IV. Project outputs activities and benefits

12. Key activities are listed under each output:

Output 1: Analysis of household baseline social economic status and prioritization of required interventions developed

- (i) Literature review; and
- (ii) Baseline study design and implementation.

Output 2: Increased availability of clean tissue culture for banana and cassava and quality seed for high-yielding farmer and market preferred varieties of selected legumes

- (i) Three functional private-sector seedling nurseries established;
- (ii) Training supported in nursery management practice, agro-dealership, improved legume seed varieties management and business management; and
- (iii) Linkages established between nursery operators and clean sources of planting materials; and between agro-dealers and seed companies.

Output 3: Post-harvest losses of banana, cassava, groundnut, beans and cowpea reduced and market linkages established

- (i) Post-harvest needs assessment conducted;
- (ii) Post-harvest training and capacity-building manuals developed;
- (iii) Training in post-harvest management; and
- (iv) Smallholder farmers' groups (240) linked to market outlets and processors.

Output 4: Enhanced capacity of stakeholders to improve productivity and performance of banana, cassava, groundnut, beans and cowpea value chains

- (i) Stakeholder mapping and sensitization completed;
- (ii) Farmers' groups identified, mobilized and organized;
- (iii) Demonstrations given of banana, cassava and legume tissue culture (24);
- (iv) Nine farmer field days held; and
- (v) Smallholder farmers' groups (240) trained in good agronomic practices.

Output 5: Soil fertility enhanced through integration of legumes into cropping systems and adoption of ISFM

- (i) Training manuals developed on composting, terracing, on-farm water harvesting and intercropping;
- (ii) Smallholder farmers' groups (240) trained in composting, terracing, on-farm water harvesting and intercropping; and
- (iii) Establishment of 24 agroforestry nurseries facilitated.

Project benefits

- (i) Equitable income from agriculture for target households;
- (ii) Increased consumption of safe, nutritious foods by the poor and nutritionally vulnerable women and children;

- (iii) Increased total factor productivity of integrated systems; and
- (iv) Farming systems intensification and diversification.

V. Project implementation arrangements

Implementing organization(s)

13. AHBFI is the grant recipient and executing agency of the project, and is accountable to IFAD for the use of grant funds. AHBFI will partner with NARS in project implementation and will establish a project steering committee comprising staff members of AHBFI, IITA, *Institut des Sciences Agronomiques du Burundi* (ISABU), the Department of Research and Development (DRD) of the United Republic of Tanzania and the Kenya Agricultural Research Institute. A steering committee will oversee the planning of project activities. IITA will provide technical backstopping and NARS will lead farmer training initiatives.
14. AHBFI will ensure that:
 - (i) The entire project implementation period is covered by audit;
 - (ii) Its institutional accounts are audited yearly in accordance with IFRS and in compliance with CGIAR financial guidelines, and that a copy of its audited financial statements is submitted to IFAD within six months after the end of each fiscal year;
 - (iii) An audit opinion letter on the statement of expenditures submitted to IFAD is duly completed by its independent auditor, disclosing the amount of funds from various sources received and spent under this operation; and
 - (iv) The annual audit report submitted to IFAD shall include IFAD funds and any cofinancing funds and shall consolidate expenditures incurred by sub-grantees, which will be accountable for the use of sub-grant funds and be subject to normal audit oversight.

VI. Project costs and financing

15. Total cost of the project is estimated at US\$1,790,000. Of this amount, the IFAD grant will be US\$1,300,000, cofinancing by AHBFI US\$150,000 and by IITA US\$240,000. The contribution of NARS partners will be in kind and is estimated at US\$100,000. Detailed project budgets by output, category and financier are presented in tables 1 and 2.

Table 1

Project costs by component and financier (Thousands of United States dollars)

<i>Components/outputs</i>	<i>IFAD</i>	<i>AHBFI</i>	<i>IITA</i>	<i>NARS</i>	<i>Total</i>
1. Baseline study	90		40	20	150
2. Seed systems development	230	75	40	20	365
3. Post-harvest management and market linkages	280				280
4. Farmer organization and capacity-building	465	75		60	600
5. Improved soil nutrient management	235		160		395
Total	1 300	150	240	100	1 790

Table 2
Project costs by expenditure category and financier
 (Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>AHBF1</i>	<i>IITA</i>	<i>NARS</i>	<i>Total</i>
Salaries and allowances	342	50	80		472
Operating costs	101	25	45	40	211
Travel expenses	183				183
Equipment and material	74		60		134
Vehicles ^a	67				67
Training	259	75	55	60	449
Workshops	104				104
Consultancies	42				42
Goods and services	25				25
Subtotal direct costs	1 196				1666
Overhead	104				104
Subtotal indirect costs	104				104
Total	1 300	150	240	100	1 790

^a One 4X4 vehicle and three motorbikes.

Results-based logical framework

Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Risks/Assumptions
<p>The goal: Contribute to poverty reduction, food and nutritional security.</p> <p>The project objective is to support agricultural system intensification for improved nutrition, sustainable agricultural development and build smallholder resilience.</p>	<ul style="list-style-type: none"> • 10 000 households (gender disaggregated) reporting improved incidence of food security. • 25% increase in household income • 25% increase in yields achieved with integrated soil fertility management practices. • Equal improvements in food security and incomes for female- and male-headed households • % reduction of the children malnourished (weight for age/height for age/weight for height) 	<ul style="list-style-type: none"> • Baseline Survey • Project reports • Health department reports • Impact assessment/evaluation report. • Project reports • Training and capacity building manuals • Farmer records. • Impact assessment report • Training and capacity building manuals. 	<ul style="list-style-type: none"> • Target households willing to adopt improved technologies/techniques. • Conducive environment that favours rainfed agricultural production. • Effects of climate variability and climate change will not disrupt project activities. • Suppliers of certified planting materials partner with nursery operators • Financial ability by nursery operators to engage in profitable businesses • Market intermediaries/private sector players partner with project beneficiaries • Target beneficiaries adopt improved methods once trained and willing to adopt new technologies and techniques introduced,
<p>Output 1 Baseline Survey informing project implementation, strategy and evaluation.</p>	<ul style="list-style-type: none"> • Baseline study and findings incorporated in project implementation strategy • Developed M&E reporting system. 		
<p>Output 2: Development of an inclusive and responsive Seed System to needs of smallholder farmers.</p>	<ul style="list-style-type: none"> • 30 entrepreneurs trained in nursery management and business management • 10 supply arrangements initiated to enhance access to planting materials. 		
<p>Output 3 Improved Post harvest management and market linkages</p>	<ul style="list-style-type: none"> • 50% reduction in postharvest losses on-farm • 50% increase in marketable produce from improved post-harvest management • 6 channels to improve market access facilitated 		
<p>Output 4: Strengthened farmer organizations and capacity building for community development</p>	<ul style="list-style-type: none"> • 100% 240 of the farmer organizations trained engaged in additional income generating activities • 50% of the target beneficiaries adopting new technologies 		
<p>Output 5: Adoption of ISFM practices to enhance climate resilience and adaptation by smallholder farmers.</p>	<ul style="list-style-type: none"> • 50% of the target beneficiaries adopting ISFM practices 		