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REPORT AND RECOMMENDATION OF THE PRESIDENT

TO THE EXECUTIVE BOARD ON PROPOSED

**TECHNICAL ASSISTANCE GRANTS
UNDER THE GLOBAL/REGIONAL GRANTS WINDOW**

FOR

AGRICULTURAL RESEARCH AND TRAINING

BY

CGIAR-SUPPORTED INTERNATIONAL CENTRES

TABLE OF CONTENTS

ABBREVIATIONS AND ACRONYMS	iii
PART I – INTRODUCTION	1
PART II – RECOMMENDATION	3
ANNEXES	
I. INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE (IITA): PROGRAMME FOR IMPROVING LIVELIHOODS IN RURAL WEST AND CENTRAL AFRICA THROUGH PRODUCTIVE AND COMPETITIVE YAM SYSTEMS – PHASE II	4
II. INTERNATIONAL PLANT GENETIC RESOURCES INSTITUTE (IPGRI): PROGRAMME FOR OVERCOMING POVERTY IN COCONUT-GROWING COMMUNITIES: COCONUT GENETIC RESOURCES FOR SUSTAINABLE LIVELIHOODS	8
III. INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI): PROGRAMME FOR MANAGING RICE LANDSCAPES IN THE MARGINAL UPLANDS FOR HOUSEHOLD FOOD SECURITY AND ENVIRONMENTAL SUSTAINABILITY	13

ABBREVIATIONS AND ACRONYMS

AsDB	Asian Development Bank
CBO	Community-Based Organization
CFC	Common Fund for Commodities
DFID	Department for International Development (United Kingdom)
GEF/SGP	Global Environment Facility/Small Grants Programme
IITA	International Institute of Tropical Agriculture
IPGRI	International Plant Genetic Resources Institute
IRRI	International Rice Research Institute
NARES	National Agricultural Research and Extension Systems
NARS	National Agricultural Research Systems
TAG	Technical Assistance Grant

**REPORT AND RECOMMENDATION OF THE PRESIDENT OF IFAD
TO THE EXECUTIVE BOARD ON PROPOSED TECHNICAL ASSISTANCE GRANTS
FOR AGRICULTURAL RESEARCH AND TRAINING BY
CGIAR-SUPPORTED INTERNATIONAL CENTRES**

I submit the following Report and Recommendation on three proposed technical assistance grants (TAGs) for agricultural research and training to CGIAR-supported international centres in the amount of USD 3 690 000.

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: the International Institute of Tropical Agriculture (IITA), the International Plant Genetic Resources Institute (IPGRI) and the International Rice Research Institute (IRRI).
2. The documents of the technical assistance grants for approval by the Executive Board are contained in the annexes to this report:
 - (i) International Institute of Tropical Agriculture (IITA): Programme for Improving Livelihoods in Rural West and Central Africa through Productive and Competitive Yam Systems – Phase II;
 - (ii) International Plant Genetic Resources Institute (IPGRI): Programme for Overcoming Poverty in Coconut-Growing Communities: Coconut Genetic Resources for Sustainable Livelihoods; and
 - (iii) International Rice Research Institute (IRRI): Programme for Managing Rice Landscapes in the Marginal Uplands for Household Food Security and Environmental Sustainability.
3. The objectives and content of these applied research programmes are in line with the evolving strategic objectives of IFAD, and the policy and criteria of its TAG programme for agricultural research and training.
4. The strategic objectives of IFAD's support for technology development relate to: (a) IFAD's target groups and their household food-security strategies, specifically in remote and marginalized agro-ecological areas; (b) technologies that build on traditional knowledge systems, are gender-responsive, and enhance and diversify the productive potential of resource-poor farming systems by improving productivity and addressing production bottlenecks; (c) access to productive assets (land and water, financial services, labour and technology, including indigenous technology) and sustainable and productive management of such resources; (d) a policy framework that provides the rural poor with an incentive to reach higher levels of productivity, thereby reducing their dependence on transfers; and (e) an institutional framework within which formal and informal, public and private-sector, local and national institutions provide services to the economically vulnerable, according to their comparative advantage. Within this framework, IFAD also intends to develop commodity-based approaches for the rural poor. Finally, the establishment of a consolidated network for knowledge gathering and dissemination will enhance the Fund's capacity to establish long-term strategic linkages

with its development partners and to multiply the effect of its agricultural research and training programme.

5. The TAGs proposed in this document respond to the foregoing strategic objectives. The Programme for Improving Livelihoods in Rural West and Central Africa through Productive and Competitive Yam Systems responds to objectives (a) and (b). The outputs of the TAG will contribute to the enhancement of the livelihoods of yam producers, processors, traders and consumers. The approach is to address simultaneously the productivity of yam cultivation and the demand for yam products. Programme activities will be conducted in Benin, Cameroon, Côte d'Ivoire, Ghana, Nigeria and Togo. Implementation of the proposed programme activities, in partnership with potential end-users (e.g. farming communities, processors, traders) and relevant research and development agencies, will lead to attainment of a range of outputs. These include:

- the development, validation and promotion of technologies (in plant health, germ plasm, and soil fertility) for enhanced productivity of yam cultivation;
- rapid propagation technologies validated and promoted;
- improved technology for storage of ware and seed yams developed and promoted;
- enhanced understanding of markets and demand for yams;
- new and diverse food products developed and promoted;
- research and development capacity of partners enhanced;
- linkages with IFAD investment and other projects promoted; and
- information products developed and disseminated.

6. The IPGRI TAG programme responds to (a), (b), (c) and (d) as follows. In terms of strategic objective (a), the programme is based on coconut trees as the main source of regular income to marginal smallholders providing opportunities for sustainable livelihood improvements, particularly to socio-economic disadvantaged groups, including women. For (b), the participatory research envisaged for farmers will promote *in situ* conservation and management of coconut genetic diversity making extensive use of local knowledge. For (c), access to viable community-based income-generating processing technologies and credit facilities will be developed, and the availability of more effective genetic material will be improved, together with cropping patterns. Finally, for (d), strategic links will be established in the context of the marketing of coconut-based products between the private and public sector.

7. The Programme for Managing Rice Landscapes in the Marginal Uplands for Household Food Security and Environmental Sustainability responds to strategic objectives (a) and (b), through improved agricultural technologies that directly raise the land and labour productivity of the poor in marginal areas.

PART II – RECOMMENDATION

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

RESOLVED: that the Fund, in order to finance, in part, the Programme for Improving Livelihoods in Rural West and Central Africa through Productive and Competitive Yam Systems – Phase II, shall make a grant not exceeding one million five hundred thousand United States dollars (USD 1 500 000) to the International Institute of Tropical Agriculture (IITA) upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board in this Report and Recommendation of the President.

FURTHER RESOLVED: that the Fund, in order to finance, in part, the Programme for Overcoming Poverty in Coconut-Growing Communities: Coconut Genetic Resources for Sustainable Livelihoods, shall make a grant not exceeding one million United States dollars (USD 1 000 000) to the International Plant Genetic Resources Institute (IPGRI) upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board in this Report and Recommendation of the President.

FURTHER RESOLVED: that the Fund, in order to finance, in part, the Programme for Managing Rice Landscapes in the Marginal Uplands for Household Food Security and Environmental Sustainability, shall make a grant not exceeding one million one hundred and ninety thousand United States dollars (USD 1 190 000) to the International Rice Research Institute (IRRI) upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board in this Report and Recommendation of the President.

Lennart Båge
President

INTERNATIONAL INSTITUTE OF TROPICAL AGRICULTURE (IITA): PROGRAMME FOR IMPROVING LIVELIHOODS IN RURAL WEST AND CENTRAL AFRICA THROUGH PRODUCTIVE AND COMPETITIVE YAM SYSTEMS – PHASE II

I. BACKGROUND

1. Yam is an extremely important crop for at least 60 million rural poor producers, processors and consumers in West Africa. It provides multiple opportunities for poverty reduction and nourishment of poor people in the subregion. However, its production is stagnating, and thus threatening rural livelihoods. Demand for yam may be susceptible to volatility because of the limited number of its processed forms, poor market linkages and inconsistent policies affecting prices of other cheap energy sources. Markets need to be analysed and understood (also from a gender perspective) in order to identify new markets and demand for yam products (fresh yam, yam flour, yam seed, among others) to help producers, processors and other entrepreneurs to participate more effectively in the yam subsector. Participatory approaches will be used to target the needs of poorer producers and women more accurately.

2. High market value and consumer demand in West African urban centres make yam a perfect candidate for market-driven intensification of production. However, high production and transportation costs for fresh tubers result in generally high and seasonally fluctuating market prices. These costs will have to be lowered to reduce consumer prices and open up yam consumption to a much broader consumer base. Production costs can be lowered through more efficient seed production, less labour-intensive techniques and conservation technologies that increase the shelf life of ware and seed yams in storage. Lowering production costs by improving the seed yam sector and streamlining labour requirements in conjunction with the promotion of processed products (such as yam flour) will broaden the consumer base and exploit niches for processed yam products on regional and global markets thereby leading to more stabilized market prices.

II. RATIONALE/RELEVANCE TO IFAD

3. The first phase of IFAD-TAG 457 (2000-2004) brought together teams in five countries to address major yam production problems. Informal working groups were formed in various thematic areas (breeding and genetics, soil fertility, plant health, post-harvest and economics). National teams were also strengthened through research funding, training, annual meetings (regional and national), monitoring tours, and interactions with potential end-users in IFAD investment projects. While good progress was made, much remains to be done to consolidate the gains, address remaining major challenges and capitalize on opportunities. The Programme for Improving Livelihoods in Rural West and Central Africa through Productive and Competitive Yam Systems – Phase II will target the original five countries (Benin, Côte d'Ivoire, Ghana, Nigeria and Togo) covered by IFAD TAG 457, in addition to Cameroon. These six countries account for 92% of the world's annual yam production of about 40 million metric tonnes and have large populations of farmers, processors, traders and consumers who depend heavily on the crop, which supplies up to 757 calories per capita per day in the major production zone of south-east Nigeria.

III. THE PROPOSED PROGRAMME

4. The goal of this research-for-development programme is to enhance the livelihoods of yam producers, processors, traders and consumers. The approach is to address productivity of yam cultivation and demand for yam products simultaneously. Programme activities conducted in the target countries will be geared towards achieving the outputs described below.

5. **Development, validation and promotion of technologies for enhanced productivity.** The technology for clean seed production will be tested with farmers and the adoption of hot water treatment for eliminating/reducing nematode populations on seed tubers will be evaluated. Leguminous cover crops for regenerating degraded soils and suppressing *Imperata cylindrica* will be promoted and the financial viability will be assessed. Surveys will inventory indigenous knowledge, and relevant findings will be validated under controlled conditions. The programme will engage farmers in participatory selection of *D. rotundata* and *D. alata* lines for stable and high yield, pest and disease resistance and good food qualities for fresh tuber and yam flour markets.

6. **Rapid propagation technologies validated and promoted.** Use of minisetts of *D. rotundata* will be promoted through IFAD investment projects as a rapid method for propagation, and adoption of the technology will be analysed. Propagation using yam vine cuttings and the use of tissue culture will be tested in some of the countries.

7. **Improved technology for storage of ware and seed yams developed and promoted.** The use of botanicals, safe insecticides, and the curing and use of GA3 will be tested in collaboration with IFAD investment projects. The benefit cost ratio of fresh tuber storage will be analysed and the technology for management of tuber dormancy and health, and the packaging for exporters of fresh yam will be tested and promoted.

8. **Enhanced understanding of markets and demand for yams.** Urban consumption patterns of yam products will be measured and analysed in addition to actual and potential exportation of yam products. The marketing channels for yams will be studied to identify constraints and ways to improve market efficiency and trade flows. The effects of trade and market liberalization on the incentive structure for technology adoption, and on increasing productivity in the yam subsectors will be studied to help determine if yams can benefit from this trend. The competitiveness of yams with other starchy staples and between *D. alata* and *D. rotundata* will be determined. Linkages to other projects will be exploited to develop a business approach to seed multiplication, distribution and marketing. Particular attention will be given to women's needs when developing new innovative products.

9. **New and diverse food products developed and promoted.** The use of *D. alata* in new food forms (such as fried chips, noodles, dried chips for flour, food colourant, flour for instant pounded yam, yam couscous) will be validated and promoted. Results of chipping, parboiling and drying processes in the preparation of dry chips will be evaluated by end-users. Yam chip flour production and processing will be promoted in non-traditional areas.

10. **Research-for-development capacity of partners enhanced.** Activities will include working with National Agricultural Research Systems (NARS) to formulate proposals to obtain complementary funding. Other training will be undertaken in critical thematic areas such as market evaluation, benefit/cost of technologies and improved processing methods using a combination of group training, individual study visits, exchange visits and degree-related research support. Farmer participation in technology development and evaluation will be maintained throughout the programme cycle. Farmer participation will be incorporated in the annual work programme and budget.

11. **Linkages with IFAD investment and other projects promoted.** Interaction between TAG investigators and investment project workers will be promoted through annual meetings at the national and regional level, workshops and joint monitoring tours.

12. **Information products developed and disseminated.** Posters, leaflets and extension guides will be produced to promote dissemination of technology in areas such as dormancy and storage, hot water treatment of seed, curing, use of botanical insect repellents in storage and nutrient deficiency symptoms.

IV. IMPLEMENTATION ARRANGEMENTS

13. IITA will manage the funds, backstop the technical activities and ensure effective monitoring and evaluation of the programme in collaboration with a steering committee. IITA will also carry out all the administrative duties of reporting financial and management information to the steering committee and IFAD. IITA will assign a scientist as regional coordinator who will provide the overall supervision, leadership and day-to-day management of programme activities. He/she will work with a small team of part-time colleagues (international, regional and local staff) who will assist in specific areas like capacity-building in socio-economics and training in food processing, integrated pest management and sustainable management of cropping systems. The programme will maintain strong links with IFAD investment projects and other ongoing research and development projects on yam in the subregion.

14. A small amount of funds will be made available to each country for regional trials of yam germ plasm and for seed multiplication. These trials should respond to improving livelihood systems. Other research-for-development activities will be funded based on a competitive grant scheme. A research advisory and management committee (RAC) of three members from regional or international organizations will ensure criteria and guidelines are met in the preparation, selection and management of the competitive grant proposals. All grantees and IITA will sign a contract specifying the product of the research, the scheduling and the modality of payment. Competitive grants will be open to national agricultural research institutes, universities and non-governmental organizations (NGOs). The RAC will also review financial and technical reports where necessary to complement review of proposals for continuation or validation. Invitations to participate in the scheme will be sent to all stakeholders once a year, with clear terms of reference and budgets for preparation and submission of proposals. All applicants need to have an IFAD investment project as sponsor. Criteria that the RAC will use to judge proposals will include: (a) IFAD investment or other development programme involvement; (b) clarity of strategy for end-user participation and feedback; (c) scientific quality; (d) relevance for development and rural poverty reduction; and (e) degree of IITA involvement and backstopping. Partial funding from IFAD investment projects will help guarantee acceptance of a proposal. Degree-related research will also be allocated based on a competitive system with major criteria being relevance, scientific quality and feasibility. These grants will be administered through IITA's Contracts and Grants Office as per IFAD's guidelines on management, reporting and auditing of grant funds. An IITA scientist with gender-sensitive technology development and transfer experience will co-supervise the work. Topics to be addressed will be made public.

15. The steering committee will be composed of a representative from each of the six countries, and from the West and Central African Council for Agricultural Research and Development, IFAD and IITA. The steering committee will endorse the recommendations of the RAC, and organize monitoring tours of programme activities and linkages with IFAD development projects.

V. INDICATIVE PROGRAMME COSTS AND FINANCING

16. The total cost of this three-year programme is estimated at USD 2 931 000. The National Agricultural Research and Extension Systems (NARES) will make in-kind contributions of professional and administrative staff time, land, germ plasm, and laboratory and office space equivalent to USD 457 000. IITA will contribute administrative and scientific staff time, and laboratory and office space equivalent to USD 634 000. IFAD investment projects will also contribute in-kind staff time, as well as financial resources for participating in workshops and training. They will also be requested to support some of the costs of collaborative adaptive research in their project zones. Their contribution is estimated at USD 340 000 over three years. IFAD funding of USD 1 500 000 is requested to support IITA technical and administrative oversight of the programme, cost of research, workshop organization, monitoring and capacity-building of collaborators.

Item	Source of Funds				Total USD
	IFAD USD	IITA USD	NARES Collaborators USD	IFAD Projects USD	
Personnel	406 000	100 000	300 000	200 000	1 006 000
Technical backstopping	60 000				60 000
Equipment	0	60 000	40 000	30 000	130 000
Training, workshops, seminars, monitoring tours	205 000	50 000	10 000	10 000	275 000
NARES research costs	354 000			30 000	384 000
Travel	180 000	2 000	5 000	20 000	207 000
Publications	55 000	12 000	2 000	10 000	79 000
Linkage with IFAD and other development projects	79 000	10 000		20 000	109 000
Indirect costs	161 000	400 000	100 000	20 000	681 000
Total	1 500 000	634 000	457 000	340 000	2 931 000

**INTERNATIONAL PLANT GENETIC RESOURCES INSTITUTE (IPGRI): PROGRAMME FOR
OVERCOMING POVERTY IN COCONUT-GROWING COMMUNITIES: COCONUT GENETIC
RESOURCES FOR SUSTAINABLE LIVELIHOODS**

I. BACKGROUND

1. The coconut is a ‘tree of life’ as it provides food, drink and shelter to poor rural communities. Grown on about 11.8 million hectares in 93 countries, it directly supports some 12 million households and 50 million people. About 90% of coconuts are grown in the Asia and the Pacific Region.
2. Coconut farmers belong to the marginalized sector of society. Coconut is grown in rainfed areas, including marginal and erosion-prone upland and hilly areas and in coastal zones where the poorest people live. About 96% of coconut farmers are smallholders who tend four hectares or less, averaging about 4.5 members per household, with an average annual household income of USD 389. Many of them are tenants on land they do not own, are considered non-bankable by the formal banking sector, and are most often without political clout to influence government or private sector policy. Most women members of these households are unemployed or underemployed, and are socio-economically disadvantaged.

II. RATIONALE/RELEVANCE TO IFAD

3. Due to their low incomes, coconut farmers lack the resources to access and invest in new technologies, improved varieties and hybrids, or fertilizers and other inputs for increasing yields of coconut. More than 50% of coconut trees are old and low-yielding, and many important varieties have been lost or are threatened by genetic erosion.
4. Coconut farmers are very poor, mainly because most of them only produce and sell a single product (the low-valued copra) with a declining and unstable international market price. The previous IFAD-funded IPGRI project (TAG 361) demonstrated that farm households could derive more income if they also engaged in activities at all stages of the commodity chain, particularly in processing and marketing diverse products to consumers, as well as in coconut-based intercropping and livestock raising. These multiple products could generate more diversified income streams to allow households to cope with shocks and to take advantage of new livelihood opportunities. TAG 361 demonstrated in pilot countries the potential for increasing farm incomes of coconut farmers five- to tenfold through the promotion of income-generating, value-adding village-level technologies in poor coconut-growing communities. However, as these technologies are located in different countries, there is a need to access and share them through a programme network. Furthermore, many farmers cannot engage in these more profitable activities because they lack access to efficient village-level technologies and machinery, capital and markets.
5. To prevent coconut farmers from being further marginalized, there is an urgent need to undertake large-scale coconut development activities to address the above-mentioned constraints and opportunities. As these are national responsibilities that are beyond the capacity of IPGRI or any international organization to undertake, IPGRI proposes to collaborate with community-based organizations and national research and extension agencies to develop village models through which poverty can be overcome in poor coconut-growing communities. These models should illustrate how marginalized coconut farmers can transform their traditional role as mere supplier of low-priced raw materials into that of village-level entrepreneur.

ANNEX II

6. Based on the research results of TAG 361, on the initial success of a poverty reduction project in coconut-growing communities implemented by the Asian Development Bank (AsDB) in eight Asia/Pacific countries, on the AsDB pledge for USD 1 000 000 as cofinancing for the proposed programme and on the endorsement of the coconut stakeholders' meeting held in Viet Nam in February 2002, the governments of ten coconut-growing countries (China, India, Indonesia, the Philippines, Thailand, Viet Nam, Fiji, Papua New Guinea, Samoa and Tonga) are requesting IFAD, through IPGRI, to support a second phase

III. THE PROPOSED PROGRAMME

7. The programme goal is to help developing countries overcome poverty among marginalized coconut farmers through improved coconut-based farming systems and the diversification and effective use of coconut products and by-products.

8. The objectives of the proposed programme are:

- To undertake capacity-building for community-based organizations (CBOs), NARS and national extension systems through collaborative research, training and institutional development, to enable them to develop sustainable livelihood intervention models for coconut-growing communities;
- To promote farmer participatory activities in *in situ* and on-farm conservation and enhancement of coconut genetic resources;
- To develop viable community-based income-generating technologies in support of sustainable livelihoods that directly benefit resource-poor coconut farmers and socio-economically disadvantaged women; and
- To collaborate with other development organizations in mobilizing additional resources for scaling up and replicating sustainable livelihood interventions nationally and internationally, including funding of the envisaged microcredit system.

9. The key programme activities are:

Activity 1: Establishment of viable CBOs to integrate physical, natural, financial, social and human capital to make coconut production sustainable; and training of researchers and extension workers to provide technical backstopping to these CBOs. Special emphasis will be given to the design of CBOs in order to ensure broad access and participation of several categories of stakeholders, including women.

Activity 2: Establishment of a microcredit system and initial revolving fund for each of the 24 community-managed CBOs.

Activity 3: Development and implementation of farmers and women's action plans for income-generating activities.

Activity 4: Development of training manuals on income-generating technologies and instruments for analysis and promotion of viable technologies.

Activity 5: Development of community-managed income-generating coconut seedling nurseries; and documentation, enhancement, characterization and conservation of promising selected local and introduced coconut varieties.

Activity 6: Training of coconut farmers, women and village-level entrepreneurs on income-generating technologies.

Activity 7: Evaluation of inexpensive village-level oil mills and equipment for producing high-value coconut products.

Activity 8: Market surveys to identify marketable products and development of market channels to make these markets sustainable.

Activity 9: Development and viability testing of the production and marketing of identified marketable high-value coconut products from the kernel, husk, shell, water, wood and leaves; and promotion of varieties suitable for these products.

Activity 10: Pilot production and marketing of high-value products from the coconut's kernel, husk, shell, wood, water and leaves.

Activity 11: Development and viability testing of coconut-based intercropping technologies for enhancing incomes and food security; and of livestock and fodder production to boost total farm productivity and nutrition.

Activity 12: Promoting the use of research results through field days and the replication and adoption of resulting viable development interventions by national governments, development organizations and NGOs.

Activity 13: Strengthening 24 coconut-growing communities and CBOs in ten countries to ensure sustainability.

Activity 14: Establishment of collaborative linkages with IFAD country portfolio managers and project managers from the AsDB, the Global Environment Facility/Small Grants Programme (GEF/SGP) and the Common Fund for Commodities (CFC) and other development organizations in planning, implementation, monitoring and evaluation, and impact assessment.

IV. EXPECTED OUTPUTS/EXPECTED BENEFITS

10. The proposed programme supports IFAD's thrust of promoting income-generation and reducing poverty in developing countries, especially among marginal groups or sectors of society. The programme results would not only help coconut farmers in 24 coconut-producing communities but would also establish community models for poverty reduction that could be replicated nationwide in 15 major coconut growing countries which currently grow about 10.8 million hectares (91% of the world coconut production) with direct benefits to about 50 million people. This replication can be funded by national budgets or through investment projects of IFAD, AsDB or other development organizations.

11. The expected outputs of the programme are as follows.

Output 1: Trained CBO members and leaders capable of managing rural business enterprises, and researchers and extension workers capable of supporting and replicating sustainable community-based income-generating activities and development efforts.

Output 2: Establishment of an efficient CBO-managed microcredit system and initial revolving fund in support of community coconut-based enterprises.

Output 3: Empowered farmers and women's groups formed, demonstrated to be viable, and involved in managing on-farm and off-farm income-generating activities.

Output 4: Training manuals on several essential topics related to the set-up, management and dissemination of village-based activities to overcome poverty in coconut-growing communities published, disseminated and used in capacity-building.

ANNEX II

Output 5: Trained farmers capable of identifying, characterizing, conserving and managing their coconut genetic diversity to enhance incomes; profitable community-managed seedling nurseries; and well-documented, enhanced and conserved coconut genetic diversity in at least 24 coconut-growing communities in ten countries.

Output 6: Farmers trained on income-generating activities from community-managed nurseries, high-value products, coconut-based intercropping and livestock/fodder production.

Output 7: Efficient and inexpensive village-level machinery and equipment for producing high-value products developed and adopted to benefit resource-poor coconut farmers and socio-economically disadvantaged women.

Output 8: Market surveys completed and new and larger consumer markets for coconut products, intercroppings and livestock identified.

Output 9: New viable income-generating on-farm and off-farm technologies using various parts of the coconut (kernel, husk, shell, wood, water and leaves) disseminated and adopted.

Output 10: Pilot production and marketing of coconut high-value products from the kernel, husk, shell, wood, water and leaves disseminated and adopted.

Output 11: Viable intercropping and livestock/fodder production techniques that could enhance total farm productivity, food security and nutrition disseminated and adopted.

Output 12: Farmer and extension field days organized, and extension materials and public awareness materials in English and in national languages and dialects of participating countries published, disseminated and used.

Output 13: Establishment in ten countries of at least 24 sustainable coconut-growing communities that can serve as models for replication nationwide by national programmes and bilateral investment projects of international development organizations. Criteria for selecting the communities will be established and agreed upon among stakeholders at the outset of the programme.

Output 14: Effective linkages established to support IFAD country investment projects and those of the AsDB, GEF/SGP, CFC and other development organizations operating in participating countries.

V. IMPLEMENTATION ARRANGEMENTS

12. IFAD will fund the implementation of the programme in ten countries: China, Ghana, India, Indonesia, Jamaica, Malaysia, Mexico, The Philippines, the United Republic of Tanzania and Thailand. The AsDB will fund the implementation of the programme in eight countries in the Asia and Pacific Region: Bangladesh, Fiji, India, Indonesia, Papua New Guinea, The Philippines, Sri Lanka and Viet Nam. IFAD and the AsDB will jointly fund activities in India, Indonesia and The Philippines. The Department for International Development (DFID) will fund the development of the embryo culture technique, diversity characterization and documentation, the deployment of high-value coconut varieties and the selection of the 54 programme sites based on a socio-economic survey aimed to ensure community and country commitment to the programme. IPGRI will coordinate the programme in collaboration with the 38-member International Coconut Genetic Resources Network. The Philippine Council for Agriculture, Forestry and Natural Resources Research and Development will provide additional funds to the Philippine programme component. A programme steering committee will be formed, comprising representatives from IPGRI, IFAD, DFID, AsDB and NARS partners (national coordinators). The steering committee will meet once a year to review progress, amend and approve the annual work programme and budgets and provide strategic guidance to the programme. IPGRI will provide the services of a project coordinator and technical and administrative support. It will issue letters of agreement with the 15 implementing organizations, monitor the programme and submit annual technical and financial reports to IFAD. Special emphasis will be given

ANNEX II

to the identification, selection and full involvement of traders and private entrepreneurs in the context of a private/public explicit partnership strategy that will be developed by the programme at its outset.

VI. INDICATIVE PROGRAMME COSTS AND FINANCING

13. The total programme budget is USD 4 391 000 as shown in the table below. Cofinancing will be provided by IFAD and AsDB with each one contributing USD 1 000 000. Cofinancing will also be provided by: DFID (USD 180 000); GEF/SGP (USD 300 000); CFC (USD 76 000); and the 15 participating NARS (USD 225 000). Counterpart funding will be provided by IPGRI (USD 210 000) and by the 15 participating NARS (USD 1 400 000). The CFC is being requested to provide an additional USD 1 000 000 to support the programme in at least three African and three Latin American countries and to provide for the salaries of support staff in the third year of the proposed programme.

USD Million									
Cost Category	IFAD	Cofinancing					Counterpart funding		Total
		AsDB	DFID	CFC	GEF/SGP	NARS	NARS	IPGRI	
Personnel/consultants/ coordinator	179	176		61		75		150	641
NARS research support	341	315	144		300		1 400		2 500
Travel	84	75				75			234
Training	85	112							197
Meetings/workshops	90	75							165
Publications	35								35
Equipment: computers and motorcycles	56	48							104
Administrative cost	130	199*	36	15		75		60	515
Total	1 000	1 000	180	76	300	225	1 400	210	4 391

* Including contingencies.

**INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI): PROGRAMME FOR MANAGING RICE
LANDSCAPES IN THE MARGINAL UPLANDS FOR HOUSEHOLD FOOD SECURITY AND
ENVIRONMENTAL SUSTAINABILITY**

I. BACKGROUND

1. More than 40 million people depend directly for their food needs on growing rice in the agriculturally marginal uplands of South and South-East Asia. Rice-based farming systems with shifting cultivation as the predominant mode of land use account for more than three million hectares in north-eastern India, Laos, Nepal and Viet Nam. Although these countries have made important gains in rice productivity in irrigated areas, farmers in the uplands have not benefited directly from such gains. Rural people in these uplands suffer severe poverty and food insecurity.

2. Many upland farmers belong to minority ethnic groups that are economically and socially marginalized, and are often extremely poor. Entire marginal upland communities are caught in a vicious cycle in which high population growth combines with low farm productivity to bring ever-shorter fallows and more widespread environmental degradation, further reducing farm productivity, draining natural resources and deepening poverty. Ethnic minorities in general and women in particular are the worst affected residents as they typically lack other livelihood options.

3. Rice is the major staple in the region, and food security depends heavily on its production as high transportation costs stemming from poor access to markets make food purchases from outside the region too expensive. Yet current rice productivity is very low with yields of around one tonne per hectare. Helping farmers produce rice more efficiently is a key entry point for developing an improved livelihood system with a firm foundation of food security. Higher rice productivity will help release the resources (both land and labour) needed to facilitate the process of income-generation, an important exit pathway from poverty.

4. In line with IFAD's regional strategy of enhancing the productivity of staple food in less-favoured areas, the proposed programme aims to raise food productivity through participatory development, validation and dissemination of suitable improved technologies for rice-based production systems in the uplands of north-eastern India, Laos, Nepal and Viet Nam. Participatory approaches will be used to target better the needs of disadvantaged ethnic groups and women, and to design innovations that adequately use indigenous knowledge while introducing new scientific information and knowledge.

II. RATIONALE/RELEVANCE TO IFAD

5. *IFAD's Strategic Framework for 2002-2006* emphasizes the need to enhance the assets of the rural poor for effective poverty reduction. Such assets include increased knowledge and access to technologies, local leadership ability, and equitable access to markets, land and livestock. The strategic framework also recognizes the need to develop appropriate technologies that improve farm productivity by boosting returns to land and labour so that farmers are empowered to make more effective use of whatever limited assets they have and use the gains to develop new assets. The programme aims to contribute to this process through improved agricultural technologies that directly raise the land and labour productivity of the poor in marginal uplands.

6. Many marginal upland areas are composed of both steeply sloping lands and valley floors. Typically the valley floors, gentler slopes and terraced fields provide more favourable environments for growing wetland (lowland) rice in banded fields with ponded water (or paddies). These wetland rice fields (or paddies) have greater potential for increased rice production, especially where there are

ANNEX III

possibilities for local-scale irrigation. On the steeper slopes, farmers typically grow upland rice in unbunded fields in shifting/rotational cultivation systems.

7. These environments present the opportunity for a two-pronged approach in research and development efforts to enhance rice production in the uplands. From the perspective of the watershed and communities, increasing rice production in the paddies will relieve the pressure on the fragile sloping lands to meet rising rice demand as populations grow. For households having access of use to both the paddies and sloping land, increased rice productivity in their paddies also means releasing more resources, including labour, for them to engage in more diverse and profitable cropping, livestock, and agroforestry activities in the sloping lands to improve their livelihoods.

8. Households without access to paddies will remain dependent on the sloping uplands, primarily to grow rice for domestic consumption. There is scope for developing ways of managing the land during the fallow period to prevent soil erosion, conserve moisture, and enhance the native soil productivity, while at the same time providing additional income for farmers outside the main rice growing period. As both the biophysical and socio-economic conditions of farmers improve, there are greater possibilities of introducing more permanent cultivation systems on the sloping lands, which are ecologically sound and socially acceptable.

9. An innovative aspect of the proposed programme is the use of the concept of landscape management in the context of achieving food security. Improved technologies are often considered in the context of a field or a plot. However, in the fragile ecosystems of the uplands, it is also important to exploit opportunities to raise the overall productivity of the landscape by deploying interventions that also conserve natural resources. Conserving resources through landscape management and achieving food security are seen here as complementary rather than competitive goals.

10. The programme will use a systems approach to improve resource use and impact at the farming-system level in contrasting pilot areas representative of the heterogeneous upland regions of north-eastern India, Laos, Nepal and Viet Nam. Because of the diversity of environmental conditions and farmers' livelihood strategies, a decentralized, participatory approach will form the basis for technology development and validation. Livelihood analyses using both participatory methods and quantitative surveys and reviews of existing information will underpin the technology development efforts and identification of recommendation domains.

11. In the sloping uplands, fallow enrichment, composting and other regenerative natural-resource management options that do not rely on purchased inputs are appropriate. The programme will inventory options that are under evaluation throughout the region, identify best-bet interventions through participatory methods, and refine them through collaborative pilot projects. It will identify productive pockets suitable for intensified crop production and evaluate the potential productivity of rice-based production systems in researcher and farmer-managed trials. It will use participatory breeding and varietal selection methods to identify weed-competitive and weed-suppressive upland rice varieties that tolerate drought and low fertility and resist the pests and diseases associated with rice appearing frequently in crop rotations.

12. Capacity-building, especially of the partners from National Agricultural Research and Extension Systems (NARES), is an important dimension of the potential impact of this programme. NARES partners involved in the programme will have their research, planning and management capacities improved through their direct participation in all aspects of the programme and also through training in participatory research. Programme activities implemented through decentralized and participatory approaches can also be expected to empower local communities by strengthening local leadership and capacity to ensure equitable adoption and dissemination of information and technologies.

III. GOALS AND OBJECTIVES

Goals

13. Poor farmers in the marginal uplands of South and South-East Asia improve household food security through more efficient management of the rice landscape, thereby contributing to poverty eradication and protecting these fragile environments.

Objectives

14. In partnership with NARES, agricultural development organizations and farmers, the programme will:

- identify, validate and deliver improved rice technologies that raise the productivity of paddies, thereby relieving cropping pressure on fragile, sloping uplands;
- identify, validate and deliver improved rice technologies for sloping uplands where farmers currently practise shifting/rotational cultivation; and
- identify institutional and policy improvement options appropriate to local socio-economic conditions to facilitate rapid uptake of improved technologies.

IV. KEY PROGRAMME ACTIVITIES

15. The programme will undertake the following activities.

(a) Identification of constraints, technology needs and opportunities for technological interventions of upland farmers

- Participatory appraisals, baseline surveys, and analyses of men and women farmers' practices and perceptions, attitudes, indigenous knowledge and livelihood strategies. The sustainable livelihoods framework will be used to analyse livelihood strategies.
- Assessment by ethnic group, gender and poverty level, of farmers' technological needs and opportunities for technological interventions.

(b) Validation of regenerative technologies for increased rice production in paddies using participatory approaches

- Identify farm and community-level constraints on rice production in paddies.
- Facilitate the flow of knowledge about resource-efficient rice technologies currently being used in irrigated areas to upland paddies.
- Identify, test, and, if necessary, adapt crop management technologies to suit the conditions of upland paddies.
- Evaluate improved rice varieties through farmer participatory trials.
- Evaluate best-bet technology options in a participatory mode.

ANNEX III

- (c) **Validation of suitable regenerative technologies for efficient, sustainable rice-production systems in the sloping uplands using participatory approaches**
- Identify and validate regenerative technologies, such as fallow enrichment, that increase economic returns to farmers, improve soil fertility and suppress pest infestations.
 - Test the suitability of a range of food, fodder (pasture) and cash crops (vegetables, perennial crops and trees) that are regenerative and that can be integrated economically into the rice-based system.
 - Evaluate improved rice varieties for their suitability to the short rotations and high weed pressure that characterize the uplands.
 - Develop and test integrated weed management options for upland rice.
 - Evaluate best-bet technologies through farmer participation.
- (d) **Identification of options for institutional and policy improvement to facilitate rapid technology uptake**
- Investigate constraints on the adoption and diffusion of improved technologies.
 - Assess crop diversification opportunities through market analysis.
 - Assess the likely impact of technological interventions in different parts of the landscape on household livelihoods.
- (e) **Enhancement of capacity of local stakeholders to plan and implement integrative agricultural and resource management activities**
- Involve local stakeholders in the planning and execution of constraint analyses, validation, and any adaptive research undertaken.
 - Identify opportunities for informal and formal training in order to augment local capacity and to promote uptake of programme outputs.
 - Provide training to local communities to enhance their skills for sustainable management of farm and community resources in order to improve their capacity to influence the future design of development programmes.
 - Train farmers for efficient use and appropriate integration of various technological components to suit their needs and resource endowments.

V. EXPECTED OUTPUTS/EXPECTED BENEFITS

16. The programme will generate the following outputs.
- Inventories of upland farm and community resources, and of indigenous knowledge regarding the use of such resources and potentially viable technology options.
 - Rice technologies for paddies that are validated to be more productive and resource-conserving.

ANNEX III

- Technologies for rice-based systems in sloping uplands that are validated to be more productive and resource-conserving.
- More effective strategies for rapid dissemination of technologies.
- Improved capacity of NARES to plan and implement integrative research and development.

VI. IMPLEMENTATION ARRANGEMENTS

17. The IRRI will be the executing agency responsible for reporting progress to IFAD. A planning workshop will be organized at the inception of the programme. Relevant NARES and local authority representatives along with IRRI staff will participate in the workshop in which a detailed work plan by country will be developed and the pilot sites will be selected.

18. A programme steering committee including representatives of IFAD, IRRI and NARES will be formed to provide guidance to the programme and review progress.

19. Evaluation of programme achievements will be carried out annually and a progress report will be sent to IFAD regularly. In addition to this formal monitoring, stakeholders will also directly monitor achievements through a participatory monitoring and evaluation process. The required indicators for monitoring and evaluation will be developed through a participatory process, and farmers and other stakeholders will assess programme performance against these indicators.

VII. INDICATIVE PROGRAMME COSTS AND FINANCING

20. The total cost of this three-year programme is USD 2.00 million. Of this, a total of USD 1.19 million is requested from IFAD. IRRI will provide a matching in-kind contribution of USD 430 000, NARES will provide the matching in-kind contribution of USD 180 000 and IFAD loan projects will contribute USD 200 000 in-kind.

Cost Category	IFAD USD	IRRI USD	NARES USD	IFAD Loan Projects USD	Total USD
Staff cost	307 000	300 000	80 000	200 000	
Research contracts	408 000	50 000	40 000		
Research support to NARES	145 000	40 000	30 000		
Participatory training and workshop with NARES	150 000	40 000	30 000		
Overheads (18%)	180 000				
Total	1 190 000	430 000	180 000	200 000	2 000 000