



IFAD
INTERNATIONAL FUND FOR AGRICULTURAL DEVELOPMENT
Executive Board –Seventy-Second Session
Rome, 25-26 April 2001

REPORT AND RECOMMENDATION OF THE PRESIDENT

TO THE EXECUTIVE BOARD ON PROPOSED

TECHNICAL ASSISTANCE GRANTS

FOR

AGRICULTURAL RESEARCH AND TRAINING

BY

CGIAR-SUPPORTED INTERNATIONAL CENTRES



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ABBREVIATIONS AND ACRONYMS

AsDB	Asian Development Bank
CBFM	Community-Based Fisheries Management
CBOs	Community-Based Organizations
CGIAR	Consultative Group on International Agricultural Research
CIFOR	International Centre for Forestry Research
DFID	Department for International Development (United Kingdom)
DOF	Department of Fisheries
FAO	Food and Agriculture Organization of the United Nations
FPRE	Farmer-Participatory Research and Extension
ICLARM	International Center for Living Aquatic Resources Management
ICM	Integrated Crop Management
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
IUCN	International Union for Conservation of Nature and Natural Resources
M&E	Monitoring and Evaluation
MOU	Memorandum of Understanding
MSSRF	M.S. Swaminathan Research Foundation
NARS	National Agriculture Research Systems
NGO	Non-Governmental Organization
PRA	Participatory Rural Appraisal
R&D	Research and Development
SCRMP	Sunamganj Community-Based Resource Management Project
TA	Technical Assistance
WRI	World Resources Institute



**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 four proposed technical assistance (TA) grants for agricultural research and training to CGIAR-supported international centres in a total amount of USD 4 760 000.

PART I – INTRODUCTION

1. The present report recommends the provision of IFAD support to the research and training programmes of CGIAR-supported international centres: International Center for Living Aquatic Resources Management (ICLARM); International Crops Research Institute for the Semi-Arid Tropics (ICRISAT); International Plant Genetic Resources Institute (IPGRI); and International Centre for Research in Agroforestry (ICRAF).

2. A description of the TA grants for approval by the Executive Board is contained in the annexes to the report:

- I. International Center for Living Aquatic Resources Management (ICLARM): Community-Based Fisheries Management (CBFM) Programme in South and Southeast Asia
- II. International Crops Research Institute for the Semi-Arid Tropics (ICRISAT): Programme for Farmer-Participatory Improvement of Grain Legumes in Rainfed Asia
- III. International Plant Genetic Resources Institute (IPGRI): Programme for Enhancing the Contribution of Neglected and Underutilized Crops to Food Security and to the Incomes of the Rural Poor
- IV. International Centre for Research in Agroforestry (ICRAF): Programme for Developing Mechanisms to Reward the Upland Poor of Asia for the Environment Services they Provide

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 TA grant programme for agricultural research and training.

4. The strategic objectives of the Fund's support to 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.

5. Within this framework, IFAD also intends to develop commodity-based approaches to rural poverty alleviation, specifically targeting items that are produced and consumed by 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.

6. The TA grants proposed in the present document respond to the foregoing strategic objectives. The CBFM Programme in South and Southeast Asia will address all the above strategic objectives, and specifically (c), (d) and (e), as it will support development-orientated action-research involving poor communities – to test innovative institutional co-management arrangements in unfavourable flood-prone ecosystems; to understand the policy processes operating within the sector; and, eventually, to inform and influence policy and practice in pro-poor participatory fisheries and wetland management in the region. The Programme for Farmer-Participatory Improvement of Grain Legumes in Rainfed Asia, involving farmer-participatory research on pest, soil and nutrient management practices in rainfed legumes farming systems in Asia, will specifically address objectives (b), (d) and (e) inasmuch as it will strengthen national and local capacity to help develop better-adapted varieties, with community-preferred traits ensured through farmer-participatory breeding and improved production technologies. Promising grain legume integrated crop management (ICM) technologies will be validated in IFAD investment project areas to enhance the overall productivity, efficiency and profitability of farming systems among IFAD target groups in the region concerned.

7. The Programme for Enhancing the Contribution of Neglected and Underutilized Crops to Food Security and to the Incomes of the Rural Poor will respond to objectives (a), (c) and (e) as it aims to improve the utilization of valuable plant genetic resources managed by the rural poor through action-research with non-governmental organizations (NGOs) and other partners in Asia and the Pacific, Central and West Asia and North Africa, and Latin America and the Caribbean. It will help poor communities realize the full potential of promising crops through development and application of appropriate processing technologies, commercialization and marketing strategies. Finally, the Programme for Developing Mechanisms to Reward the Upland Poor of Asia for the Environmental Services they Provide will address (a), (c), (d) and (e) through development-orientated action-research. In so doing, it will test, inter alia, a set of transfer mechanisms across diverse agro-ecologies and demonstrate their viability, while catalysing the directing of environmental service payments to the upland poor of Asia.



PART II – RECOMMENDATION

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

RESOLVED: that the Fund, in order to finance, in part, the Community-Based Fisheries Management (CBFM) Programme in South and Southeast Asia, shall make a grant not exceeding six hundred and fifty thousand United States dollars (USD 650 000) to the International Center for Living Aquatic Resources Management (ICLARM) 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 Farmer-Participatory Improvement of Grain Legumes in Rainfed Asia, shall make a grant not exceeding one million three hundred thousand United States dollars (USD 1 300 000) to the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) 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 Enhancing the Contribution of Neglected and Underutilized Crops to Food Security and to the Incomes of the Rural Poor, shall make a grant not exceeding one million four hundred and ten thousand United States dollars (USD 1 410 000) 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 Developing Mechanisms to Reward the Upland Poor of Asia for the Environment Services They Provide, shall make a grant not exceeding one million four hundred thousand United States dollars (USD 1 400 000) to the International Centre for Research in Agroforestry (ICRAF) 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 CENTER FOR LIVING AQUATIC RESOURCES
MANAGEMENT (ICLARM): COMMUNITY-BASED FISHERIES MANAGEMENT
(CBFM) PROGRAMME IN SOUTH AND SOUTHEAST ASIA**

I. BACKGROUND

1. The flood-prone ecosystem in Asia consists in depressed basins and lowland areas adjacent to rivers in the deltas of humid and sub-humid tropics and coastal areas subject to flooding caused by tidal fluctuations. Globally, the flood-prone ecosystem accounts for about 9% of the total rice lands. However, in Bangladesh, Cambodia, Eastern India, Guinea, Nigeria and Sierra Leone, where food insecurity and poverty are widespread, flood-prone lands account for one fourth to one half of the rice land. The population density in this ecosystem is extremely high: in parts of Asia, it accounts for about 1 000 persons per km² and is growing by 2% every year. With expanding population and stagnant productivity of natural and human resources, about 70 million people living in the flood-prone ecosystem are subjected to deteriorating food insecurity and poverty. The daily calorie intake per person is less than 2 000 kcal, corresponding to about 60% of that in developed countries. Women and children are particularly affected by low food availability and, to assist in supporting the household, are forced to engage in poorly productive, tedious occupations.

2. Fisheries constitute a major component of food and livelihood systems in such floodplains. For example, in Bangladesh, fish is a key source of micronutrients and provides about 60% of total animal protein intake; in the floodplains, about 80% of all households catch fish both for domestic consumption and, often, for sale. Similarly, in the lower Mekong region, fish catches from floodplain rice fields have recently been proved to be very substantial, accounting for several times the officially recorded catches. These are natural fisheries based on fish populations that are adapted to the seasonal variations in water levels. Many species overwinter in rivers and the lowest parts of the floodplain (*beels*), and spread into the floodplains to reproduce and grow during the monsoon inundations. These fisheries have historically helped to compensate for the limitations imposed on agriculture by flooding. In some years, the floods destroy crops and, in the deeper flooded areas that are the focus of the present programme, most land is left fallow during the heavy monsoon flooding (2-4 months in Viet Nam and six months in the *haors* of Bangladesh). The development of these areas has been based on public investments to control flooding and on high-yielding rice varieties that can be grown with irrigation and give higher, more stable yields than the earlier, traditional wet-season floating rice or low-yielding rainfed winter rice crops.

3. Not all the results associated with these changes have been positive, however, particularly with regard to environmental impacts and marginalization of the rural poor. Reduced fish habitat is perhaps the greatest problem associated with departure from traditional rice cultivation practices, although some claim that this can be overcome through investments in fish pond culture. However, there is now ample evidence that the poor do not have access to the benefits of pond culture and that it may not even be feasible in the deeper-flooded areas. With this understanding, there is now a growing appreciation of the importance of open-capture fishery for the poor and emerging consensus that more participatory approaches (involving NGOs) to inland fisheries management are essential to ensure sustainability. Inland fisheries in Bangladesh provide a vital source of protein and income to poor people, but there is general agreement that catches are falling and food security is threatened by overfishing and loss of habitat. Sustainable and restored inland fisheries would contribute to the alleviation of poverty in the country and have a direct impact on the food security of the rural poor. These comments apply equally to the lower Mekong region of Cambodia, southern Laos, and southern Viet Nam. Although population densities are lower, dependence on fisheries and wetland resources is



high and under-recorded (for example, actual fish catches in Cambodia are estimated to be over five times higher than official figures). Customary-use rights exist but are often undocumented and at risk of being ignored in legal and institutional development. Some fisheries have been managed for revenue, population is growing, and recent administrative changes give greater opportunities for local government and NGOs to take initiatives in fisheries management.

4. There is now growing evidence that community-based approaches, or community-based fisheries management (CBFM), can empower communities to engage in responsible management practices that lead to sustainable harvests and fair access. CBFM refers to several different models of government-NGO-fisher management partnerships, the basic objective being to transfer management of waterbodies to communities. Testing of these institutional approaches is required and their sustainability has not yet been demonstrated. However, there is growing consensus that co-management offers the best chance of ensuring both more sustainable fishing levels and long-term access for the rural poor to capture fishery resources, given limited government resources and competing demands to exploit fisheries.

5. It is proposed that Bangladesh and Viet Nam be selected as focal points for the proposed research programme because of the high incidence of poverty in those countries, the preponderance of small and marginal farmers and the high proportion of area under the flood-prone ecosystem compared with other countries in South and Southeast Asia. The IFAD grant will be implemented in synergy with the Fund's fisheries projects in Bangladesh, in particular the Sunamganj Community-Based Resource Management Project (SCRMP) (for presentation to the Seventy-Second Session of the Executive Board), in order that research benefits can be scaled up immediately through the loan to impact directly on IFAD target groups.

II. RATIONALE/RELEVANCE TO IFAD

6. The rationale for the action-research programme is based on the knowledge that current approaches to the management of inland fisheries in Southeast Asia have led to the marginalization of the poor and to the destruction of the resource base. It also reflects the fact that inland capture fisheries, if well managed, provide a major source of income and nutrition to poor people. This is borne out by the recent Country Strategic Opportunities Paper for Bangladesh, which highlighted fisheries as a strategic sector for IFAD and as having a major potential to empower the poor. There is now consensus that new institutional models for floodplain fisheries management need to be developed to provide enhanced incentives to local communities to manage their resources in a sustainable manner.

7. The core of the programme is action-research, a process whereby partners in the programme will work in selected local fisheries to develop community fishery and wetland management plans and organizations, and closely monitor in the process, institutional arrangements, impact on fisheries, ecology and people. The resulting evidence and models will be used to raise general awareness and inform and influence policy. The real benefits of the programme will derive from the strategic importance of potential policy changes resulting therefrom. These changes could well have an impact on the lives of millions of poor people who depend of fishing for their livelihood and of many others for whom access to fish is a vital part of their food security.

8. The programme will build on pilot partnership arrangements, using skills and knowledge developed during upstream ICLARM research in Bangladesh and Viet Nam. The Governments (Department of Fisheries (DOF), Ministry of Land and local administrations in Bangladesh; local government in Viet Nam) will provide administrative and technical support for the transfer of fishery management responsibilities to communities in selected waterbodies. In a process facilitated by NGOs, groups of primary stakeholders, especially fishers, will cooperatively plan and undertake the sustainable management of each fishery. By developing local management committees, representing



fishers only or all wetland stakeholders, depending on local resource issues and rights, transfers of management responsibility and overall management planning will take place. The programme will also introduce a more systematic approach to understanding and improving the institutional sustainability of community-based organizations (CBOs), and initiate and develop co-management arrangements in a range of diverse habitats.

9. The programme is expected to bring direct benefits to the pilot communities, developing both social and human capital and stabilizing or increasing the value of the aquatic resources on which they depend. The fishers' incomes will be enhanced, and they will gain access to credit, training and social services, acquire long-term user rights over fisheries and develop expertise in managing the fisheries on a more sustainable basis. Ultimately it is expected that the communities' food security will be improved. Based on past experience, it is expected that the communities will find it easiest to reach agreement on simple fish conservation measures such as local fish sanctuaries. To assess the impact of such fishery management actions and that of community institutions, monitoring will be undertaken on pilot sites and nearby control sites, where existing access arrangements and fishing activities continue.

10. The communities involved are diverse, comprising professional fishers, people fishing for food, landowners in floodplain *beel* areas, fish processors and middlemen. Community participation approaches will vary according to location, providing the variety necessary to test different management and institutional models. In some areas, such as extensive floodplains, the whole wetland user community will be actively involved and represented in decision making, whereas in other areas such as well-defined waterbodies, priority will be given to poorer professional fishers. These models and options will be monitored and assessed during the course of the programme. Appropriate institutions are expected to evolve through interaction among government, NGOs and local people, and between development and research.

11. IFAD support to the CBFM research programme is based on the principle of incrementality. While the Department for International Development (DFID) of the United Kingdom is the major cofinancier of the programme, strategic use of limited IFAD resources will cover incremental activities that generate extremely good value for the Fund's target groups. First, IFAD support will enable the programme to reap great benefit from ensuring linkages to investment projects. This will provide a real-life test of the potential of CBFM technologies and a socio-political and institutional matrix that offers potential for the rapid scaling up of successful approaches. Secondly, IFAD involvement will ensure that the programme includes a focus on agro-ecosystems directly relevant to IFAD target groups (i.e. deeply-flooded basins (*haors*), which are the poorest and most marginal of all the fisheries ecosystems); and thirdly that the research programme benefits IFAD target groups in its ongoing and planned projects (in particular, SCRMP). Finally, for comparatively minor cofinancing, IFAD will have access to a high-profile policy dialogue with government and the opportunity to steer policy change in favour of the target groups of its ongoing fisheries projects. The Fund will benefit from a DFID-funded international project leader together with networking and workshop support. IFAD's grant resources will be used only to cover incremental activities linked to its projects, such as NGO and local government activities to pilot CBFM in IFAD project areas, monitoring and research in these areas including control areas, and exchange visits.

III. THE PROPOSED PROGRAMME

12. The objectives of the proposed programme are to build on pilot experiences within Bangladesh and Viet Nam; develop and test innovative institutional co-management arrangements in a range of diverse habitats; assess the potential for sustainability and equity; understand the policy processes operating within the sector; and (by engaging in wide-ranging partnerships) inform and influence policy and practice. In particular, it will test the expansion of CBFM from communities living around individual waterbodies to link their decisions and management actions in a complementary manner



with communities in adjacent waterbodies that form wider floodplain fishery systems. Studies of the process and impact of CBFM will be used to inform policy making for inland fisheries in Bangladesh and Viet Nam and will apply to similar floodplain fisheries in other countries. The specific set of activities under each component is outlined below.

Testing and Evaluation of CBFM Approaches

- group formation of villagers around selected waterbodies by NGOs;
- NGOs and government facilitate fishery management committees;
- responsibility for waterbodies transferred via appropriate government agency/level (local government or DOF) of management rights to fishers represented by the fishers' management committees;
- NGOs provide training and credit to fisher communities;
- fishers form plans and take up management actions;
- monthly coordination meetings among all partners, linking action and research;
- baseline surveys, including control areas;
- household impact, fish consumption and fishing monitoring;
- impact evaluation surveys covering all stakeholders, but especially the poor;
- monitoring to assess impact of CBFM on different categories of women;
- assessment of alternative income-earning opportunities from communities for the next generation; and
- assessment of institutional sustainability.

Testing of CBFM Coordination and Administration Arrangements

- design and testing of administrative improvements in pilot areas;
- government (DOF and/or local administration), NGOs and fishers jointly form co-management bodies;
- co-management bodies coordinate waterbody-level plans;
- system-level fishery and wetland conservation and restoration taken up;
- legal support to fishing communities;
- undertaking of case studies of legal and administrative framework related to fisheries and wetlands, and review thereof;
- study of policy-making process; and
- assessment of costs and potential scope of scaling up successful approaches.

Policy Advocacy

- study to identify appropriate mass media by assessing access to media and on impact of earlier media;
- appropriate mass media developed and disseminated (e.g. video films, regular radio programmes, cinema fillers, theatre groups in project areas);
- workshops;
- policy-maker briefings;
- development of NGO network in fishery and wetland management;
- development of network on gender in fisheries;
- development of fisheries management and CBO network, including workshops and exchange visits;
- development of network to influence policy;
- production and dissemination of multi-media on CBFM targeted at policy makers;
- publication of scientific findings on CBFM; and
- presentation of papers in international and national fora.

IV. EXPECTED OUTPUTS/EXPECTED BENEFITS

13. These are as follows:

- community-based fisheries management approaches will be developed and tested, and their impact, sustainability and potential for expansion assessed;
- coordination and administration mechanisms for linking local community management arrangements within larger fishery and wetland systems will be identified, tested and assessed, and constraints thereto identified; and
- informing and influencing fisheries policies in general and creating widespread awareness and interest in improved management approaches among rural communities, government policy makers and managers, and NGOs, based on a clearer understanding of policy formulation process.

V. IMPLEMENTATION ARRANGEMENTS

14. The expected duration of the programme is five years. It will comprise a series of linked components, each partner organization receiving grants for its activities through ICLARM, which will manage funds from IFAD and DFID. Arrangements between ICLARM and individual partners will be based on subsidiary memoranda of understanding (MOUs). Where more than one partner is involved in a component, the respective MOUs will be countersigned by the other partners and cover the modalities of their collaboration. In Bangladesh, the DOF component of the overall programme will be covered by a TA programme proforma agreement with the Government of Bangladesh. ICLARM has signed an MOU with the Government of Bangladesh, effective from January 2000 for 10 years, under which it may operate projects such as that proposed with government and non-government partners.

15. In Bangladesh, the programme will be overseen by a steering committee headed by the Secretary, Ministry of Fisheries and Livestock, and comprising representatives of concerned ministries, agencies and organizations (including SCRMP and the semi-autonomous body established for the *haor* region). The committee will meet at least once yearly to review the programme's work plan and policy guidelines. A working committee, comprising senior staff from each programme partner, will meet on a monthly basis to coordinate activities. In the *haor* area, local staff of the partners working in that area (NGOs, National Agricultural Research Systems (NARS) and ICLARM) will attend monthly *upazila* (subdistrict) meetings of SCRMP. Quarterly meetings will be held between the project management unit (PMU) of SCRMP and the CBFM programme leader to review progress and coordinate activities. ICLARM will be responsible for overall programme coordination and for arranging common activities such as workshops. In Viet Nam, there will be a local programme coordination committee comprising members of the local administration and representatives of the community, Can Tho University, ICLARM and NGO partners.

16. As coordinating organization, ICLARM will manage the programme. The combined CBFM programme (DFID and IFAD) will benefit from the services of an expatriate programme leader in Bangladesh, but a programme scientist will be directly responsible for the IFAD programme in both Sunamganj and Viet Nam. ICLARM will also provide a team of national staff and backstopping support from its headquarters. The national staff will be responsible for advising the partners on programme management and development; research and monitoring design; financial and technical monitoring of partners; shared service provision, including training, publications, dissemination of information and workshops; contracting out studies; and managing grants to NGOs and NARS. Local NGOs in the Sunamganj region will be selected jointly by ICLARM and government representatives, in consultation with SCRMP.

17. Local staff recruited by each partner organization will be based in the respective field, regional and headquarters offices. A small, local coordination office will be established in the *haor* region of Bangladesh to coordinate partnership activities. Activities in Viet Nam will be managed by a unit in Can Tho University.

VI. INDICATIVE PROGRAMME COSTS AND FINANCING

18. IFAD and DFID will support the research programme. The latter will provide a grant of approximately USD 7.4 million, which will be used to support activities throughout Bangladesh. IFAD resources of USD 650 000 will cover incremental research activities that will benefit its projects. Research will be undertaken in an IFAD investment project context, and will provide the potential for major scaling up of results through ongoing IFAD projects.

FINANCING PLAN (USD)

Expenditure Item	IFAD	DFID	OXFAM ^a	NARS ^b	ICLARM ^c	Total
1. Personnel	172 000	2 721 000	100 000	30 000	46 000	3 069 000
2. Research expenses	105 500	1 227 000	90 000	20 000	27 000	1 469 500
3. Support to communities for pilot CBFM	126 000	1 566 000	50 000	-	-	1 742 000
4. Equipment/facilities	-	345 000	10 000	20 000	10 000	385 000
5. Workshops/meetings	52 000	628 000	11 000	5 000	-	696 000
6. Logistics/management and incremental admin. costs	194 500	938 000	20 000	5 000	21 000	1 178 500
Total	650 000	7 425 000	281 000	80 000	104 000	8 540 000

Notes on Expenditure Items:

1. Includes all staff dedicated to CBFM activities across all partner organizations.
2. Includes support to NARS for studies, direct survey expenses of partners and ICLARM and operating costs of all partners, including local travel.
3. Direct support from partners (NGOs) for CBFM: training, grants to communities, revolving loan funds.
4. All equipment and capital costs but no operating costs.
5. Includes study visits, training, publications, network support and awareness raising activities.
6. Of this total, IFAD will contribute USD 63 5000 (approximately 10% of the grant) to ICLARM to meet overhead expenses and coordination costs to manage activities, including reporting and follow-up across the networking partners

a In 2000, the Oxford Committee for Finance Relief (OXFAM) provided funding to ICLARM and NARS in Viet Nam to undertake preparatory activities, including capacity building for partners and participatory assessment of problems and planning of potential fishery management activities by the communities. Anticipated budgets for 2001-2002 are included here.

b NARS here include NGOs. Their contributions are nominal and approximate and include, for both countries, inputs of regular staff in the field and headquarters who are not paid through the programme, office accommodation for programme staff, and wider support from NGOs' normal programmes to these communities.

c Includes use of existing computers, fittings, furniture and office equipment and one four-wheel-drive vehicle contributed by ICLARM from the first CBFM in Bangladesh, plus office space and backstopping staff inputs.



INTERNATIONAL CROPS RESEARCH INSTITUTE FOR THE SEMI-ARID TROPICS (ICRISAT): PROGRAMME FOR FARMER-PARTICIPATORY IMPROVEMENT OF GRAIN LEGUMES IN RAINFED ASIA

I. BACKGROUND

1. Approximately one third of Asia's population of three billion people live below the poverty line. This figure is expected to double over the next half century. The limits for expansion of irrigated and rainfed cultivation are already largely reached; agricultural productivity of well-endowed areas is static or declining; and there is more and more cultivation of marginal land. Poverty – especially rural poverty – will present an ever-more acute challenge. Food security and the incomes of the region's future population will depend crucially on successful, sustainable intensification and on the reversal of present trends towards land degradation.

2. The past successes of Asian countries in meeting the food needs of their fast-growing populations have depended largely on the spread of Green Revolution technology for cereal production. Legumes initially received relatively little attention, despite their importance in balancing human and animal diets and their potential, via biological nitrogen fixation and improved phosphate utilization, for improving soil fertility. More recently, legumes have received heightened research and development attention; but yield gains have been less spectacular than with cereals and productivity improvements have been distributed unevenly, both within and between countries.

II. RATIONALE/RELEVANCE TO IFAD

3. Despite their relative neglect in research and development programmes, grain legumes such as groundnut, chickpea and pigeonpea have long been important to Asian diets and health. This is especially true in countries with many vegetarians, such as India and Nepal, and for the many poor people who cannot afford animal protein. Yet regional protein consumption, averaging some 9 kg/head/year, remains at only about one quarter of the level recommended by the Food and Agriculture Organization of the United Nations (FAO). Expanded legume production would help reduce the current protein deficiencies that limit the growth and performance of many people, especially women, children and the poor. Legumes provide additional sources of edible oils (e.g. peanut). As components of crop diversification they can become new cash crops to supplement farmer incomes, while residues can improve the nutrition of livestock. The increased biomass that legumes contribute to cropping systems through nitrogen fixation and better phosphate utilization has a minimal cash cost. Residues from leguminous crops help reverse declines in soil organic matter levels, which are a major contributing cause of dwindling crop responses to more costly added nutrients. The pigeonpea root system can hold back the soil on sloping lands, thereby avoiding soil erosion. Thus legumes can both help to redress restricted or declining productivity of land, and better sustain the intensification of production that is needed to face future challenges.

4. The proposed programme will build on the limited and localized gains in legume productivity achieved thus far and widen their impact throughout the region. A central aim will be to better match the characteristics of new varieties to the needs of farmers and the preferences of local markets, thus securing more widespread adoption than in the past. The adaptations needed to achieve this expansion will be location-specific. Experience shows that for local adaptation to succeed, participation – at the field level – of farmers, researchers and extensionists as equal partners in the research and development process will be crucial. Therefore, where capacity for participatory improvement of legume cultivars and farming systems already exists at the field level, it will be built upon. Where it does not exist, external help and support will be provided for capacity creation.



III. GOAL AND OBJECTIVES

5. The aim of the proposed programme is to improve the well-being of the rural poor in the Asia region through sustainable increases in agricultural productivity based on wider adoption of grain legumes in cropping systems.
6. Specific objectives are to:
 - create or enhance capacity at the field level for farmer-participatory research and extension (FPRE) programmes on grain legumes in rainfed areas;
 - using this enhanced capacity, generate better-adapted grain legume varieties and production technologies so as to expand the role of grain legumes in the sustainable intensification of rainfed cropping systems; and
 - generate sufficient motivation among farmers and participating local institutions, through practical demonstrations of the utility of FPRE and achievement of tangible results, for the approach to be replicated and sustained using local/national resources.

IV. THE PROPOSED PROGRAMME

7. Five trial locations will be selected in China, India, Nepal and Viet Nam – for a total of 20 locations - on the basis of the following:
 - that they are representative of typical situations or cropping systems in marginal rainfed areas, in which grain legume improvement could be expected to bring tangible technical, social or economic benefits;
 - that they are dominated by resource-poor, small-scale farmers with clear evidence of rural poverty;
 - that socio-political conditions in the area would allow the poor and marginalized to participate effectively in legume development;
 - that they are reasonably accessible for external TA provided by ICRISAT or others;
 - that local research, extension or other development organizations – public, private or voluntary – are present in, or have ready access to, the area, and there is actual or potential local capacity for, and commitment to, partnership in legume development; and
 - that, wherever feasible, they are situated within the areas of IFAD investment or other major development projects, and that they have the potential to apply results rapidly and provide complementary support and continuity/replication after TA grant funding ends.
8. With the support of ICRISAT staff and/or consultants, selected local partners at each location will bring together stakeholders (farmers, researchers, extensionists and other development staff – e.g. managers of IFAD investment projects operating in the area) to identify and analyse problems to which legume improvement could have practical relevance. Participatory rural appraisal (PRA) and other diagnostic techniques will be used. Potential solutions emerging from such dialogue will be investigated by the farmers on their land, in association with researchers.
9. The resultant participatory research and development (R&D) programme will be designed by farmers and technicians as equal partners. Farmers will contribute their indigenous knowledge and familiarity with the local resource base and trends. Researchers will, in particular, provide advanced generation breeding lines with traits preferred by farmers, suggested techniques for integrated pest and disease management, and suggestions to improve the use of soil moisture and plant nutrients within cropping systems.
10. Results will be evaluated jointly by farmers and researchers who, together, will decide on follow-up. Over time, farmers are expected to play an increasingly prominent role – for instance in



setting up their own selection programmes and through farmer-field schools that develop local means for improved pest, soil and nutrient management.

11. Integrated crop management (ICM) will involve building synergies among pest, soil and nutrient management practices. In the specific context of pest management, the programme will build on applied research by ICRISAT with the farming communities in Andhra Pradesh and Maharashtra in India, through which a number of promising integrated pest management (IPM) practices have been developed with, and adopted by, farmers. These need to be further validated in IFAD investment project areas to ascertain whether or not such practices impede the overall productivity, efficiency and profitability of the farming system. IPM elements will be further refined and integrated within traditional farming systems and adapted with location-specific farm management practices. Within an ICM framework, the IPM tool box will be based on a combination of cultural practices, host-plant resistance, control of weeds, use of insect viruses such as *nuclear polyhebrovirus virus*, traditional practices such as physically shaking the pigeonpea crop to remove *Helicoverpa*, and application of appropriate plant-derived compounds and bio-rational pesticides. Validated technologies will also be placed within the context of institutional self-sustainability through development of community-based bio-pesticide manufacturing and local marketing/distribution channels, with further studies on commercialization prospects across the Indian sub-continent.

12. The FPRE on the ICM components will begin with PRA surveys to identify priority biological and physical constraints, including socio-economic factors that affect legume production in rainfed Asia. Farmer-participatory breeding will involve drawing up an inventory of traits preferred by farmers, food processors and consumers, and those needed for local adaptation will be prepared for each crop and region following surveys and discussion with all partners. Available advanced generation breeding lines with community-preferred traits will be grown on-farm, for evaluation and selection by farmers. Simultaneously, populations of crosses with desirable traits will be developed on-station, and early generation populations will be evaluated on-farm for selection by participating farmers. Selected lines will be tested across farmers' fields over seasons for adaptability, yield and quality traits. A community-based seed delivery system will be initiated in consultation with farmers' associations, NGOs and the private sector to ensure timely availability of good quality seed of selected cultivars at an affordable price. Other ICM options will include potential tools for management of soil, water and nutrients to be integrated with IPM and fine-tuned with farmer participation. The ICM and IPM technologies will be environment- and user-friendly, drawing heavily upon indigenous knowledge and harmless biocontrol agents. The soil, water and nutrient management options, also to be based on farmers' endowments, will address the issue of restoring and improving soil fertility and productivity of marginal lands to harness the maximum potential of improved cultivars. The optimized technologies will be validated and popularized among farming communities through a wide variety of diffusion methods.

V. EXPECTED OUTPUTS/EXPECTED BENEFITS

13. The TA grant will give equal weight to strengthening national capacities for FPRE on grain legumes on the one hand, and to the generation of better-adapted cultivars and improved production technologies on the other. Of necessity, however, capacity building will precede the emergence of technical outputs.

14. Overall, the expected outputs are as follows:

- *Institutional mechanisms and human capacity* for farmer-participatory improvements to grain legume varieties and cropping systems that have the commitment of farmers and are effective, replicable and sustainable.



- An initial series of *grain legume cultivars* better matched to the needs of resource-poor farmers in the selected areas, that are ready for wider distribution either after, or without the need for, further adaptation.
- A set of associated *soil management practices* showing promising adoptability among farmers.
- A *full range of viable IPM technologies* validated on selected IFAD project sites for scaling up and adoption into existing cropping systems capable of improving overall productivity and sustainability.
- *Profiles of the varietal characteristics* of groundnut, chickpea and pigeonpea *preferred by farmers*, processors and consumers in the selected locations, to guide future selection programmes.

VI. IMPLEMENTATION ARRANGEMENTS

15. The programme will be implemented by a coalition of partners led by ICRISAT. An ICRISAT coordinator and senior representatives of the NARS of each participating country will form the working group. Overall implementation guidance will be provided by a TA grant steering committee comprising the above-mentioned working group and an IFAD representative. ICRISAT will act as the conduit for providing relevant research results to the programme, both its own and from other sources, and for recruiting any external consultant expertise needed – for instance, in PRA or farmer-participatory research and extension methodology –to support field operations.

16. An initial stakeholder workshop will be held with representatives of each participating country for the purpose of planning the research framework. Thereafter, national meetings will be held to select trial locations in accordance with the TA grant criteria and to take stock of existing capacity for participatory R&D at each location. An outline work plan and budget to strengthen/create new capacity at each location and launch R&D operations will be prepared by the NARS and submitted to the steering committee for approval. An annual reporting/planning/budget cycle will be followed thereafter. It is assumed that, in each country, there will be about 200 participating farmers, operating in groups appropriate to the local setting.

17. After individual plans are approved, a system of competitive grants will be set up. Contracts for programme implementation at each location will be awarded to locally-based organizations – government agencies, university departments, NGOs or private entities – considered by the steering committee as demonstrating the most appropriate skills and experience. Contractors will use grant funds to subcontract activities falling outside their core skills. Primary monitoring and evaluation (M&E) systems will be further developed with designated implementers with ICRISAT/IFAD guidance, as their first task after being contracted. M&E will give equal weight to tracking the creation of institutional capacity, quantifying the generation of adapted technologies and the prospects, after TA grant funding ends, for the sustainability and continuity of the FPPE capacity thus created. Primary data will be aggregated at both the national and programme levels. IFAD will attend the annual meetings of the steering committee and mount further supervision missions as appropriate.

VII. INDICATIVE PROGRAMME COSTS AND FINANCING

18. The total cost of the programme is estimated at USD 2.3 million, of which approximately 60% will be allocated to FPPE field operations, 30% to external technical support and coordination, and 10% to stakeholder workshops and minor capital.

**TABLE 1: COSTS
(USD '000)**

	NARS	ICRISAT	IFAD	Total
1. FPRE (location costs)	500	150	500	1 150
2. Technical support and coordination (incl. travel)	-	350	350	700
3. Equipment	-	-	150	150
4. Stakeholder workshops	-	-	150	150
5. Incremental admin. costs	-	-	150	150
Total	500	500	1 300	2 300

**TABLE 2: FINANCING PLAN
(USD '000)**

Country	Cash	In-Kind	Total	IFAD	Total
1. NARS					
China	50	85	135	130	265
India	65	135	200	125	325
Nepal	20	45	65	75	140
Viet Nam	35	65	100	70	170
Subtotal	170	330	500	400	900
2. ICRISAT	235	265	500	900	1400
Total	405	595	1 000	1 300	2 300



**INTERNATIONAL PLANT GENETIC RESOURCES INSTITUTE (IPGRI):
PROGRAMME FOR ENHANCING THE CONTRIBUTION OF NEGLECTED AND
UNDERUTILIZED CROPS TO FOOD SECURITY AND TO THE INCOMES OF
THE RURAL POOR**

I. BACKGROUND

1. Global food security has become increasingly dependent on just a handful of crops. Household food security in poor marginal areas of the developing world still depends on a variety of crops, the importance of which is not adequately recognized by the international research and development community. While over 50% of global requirements for proteins and calories are met by just three crops – maize, wheat and rice – only 150 are commercialized on a significant global scale. Yet humankind has, over time, used more than 7 000 edible species. Many of these species occupy important niches and are adapted to the risky and fragile conditions of rural communities. They have a comparative advantage in marginal lands, where they have been selected to withstand conditions of stress and contribute to sustainable production with low-cost inputs and to enriching diversity, and hence the stability of agro-ecosystems. These species have a strategic place in fragile ecosystems: arid and semi-arid lands, in mountains, steppes and tropical forests.

2. Ethno-botanic surveys indicate that hundreds of such species are still to be found in developing regions, representing an enormous wealth of agro-biodiversity with potential both to contribute to improved incomes and to combat ‘hidden hunger’ caused by micronutrient (vitamin and mineral) deficiencies. However, these locally important species are frequently neglected by R&D, implying that their potential value is underutilized in both household consumption and economic terms. This neglect places them in danger of continuing genetic erosion, further restricting development options for the rural poor.

II. RATIONALE/RELEVANCE TO IFAD

3. The sustainable improvement of rural livelihoods is an important objective for IFAD projects. Rural poverty-alleviation efforts need to address the increasing competition for natural resources, which will require a broader portfolio of crops to meet new environmental conditions and new markets. Some key resources to meet these challenges are already in the hands of the rural poor in the form of a wide range of neglected crop species used on a regular basis to meet household needs. Further research is required to understand the dynamics of the sustainable utilization of these crops in such a way that the rural poor can realize the full potential of the economic value they embody – through making them more widely available, broadening the resource base – thereby increasing livelihood options for rural communities.

4. Neglected and underutilized species are considered ‘minor’ in terms of global trade and the research attention they have received. However, they are often far from minor in the lives of the rural poor. As well as playing significant, if not crucial, roles in household food security and income generation, many are important in local food cultures. Such is the case for *taro* and buckwheat in Asia, *fonio* and bambara groundnut in sub-Saharan Africa or *quinoa*, *oca* and *ulluco* in the Andes. These genetic resources and associated cultural characteristics are important rural poor assets that need to be safeguarded. They also play a strategic role in broadening the portfolio of crops and foods that can improve the livelihoods and food security of poor communities around the world.

5. There are major gaps in knowledge and capacity to conserve and improve the economic importance of such crops, particularly among their custodians – the rural poor. Not enough is known about their agronomy and the improvement of their yields and quality. Little has been done to identify



the most effective commercialization, marketing and policy frameworks to promote their use and maximize their economic value. All of these factors represent, at various levels, bottlenecks for successful promotion.

6. The international community has made clear calls for greater support for development of neglected and underutilized species in agriculture. It is an agreed priority of the Global Plan of Action for the Conservation and Sustainable Utilization of Plant Genetic Resources for Food and Agriculture (FAO 1996), and its importance has been recognized by Agenda 21 and the Global Forum for Agricultural Research for which IFAD chairs the Donor Support Group. It was also reaffirmed at the IFAD-supported Consultative Workshops on Enlarging the Basis of Food Security, organized by the CGIAR and the M.S. Swaminathan Research Foundation (MSSRF) at Chennai, India, in February 1999 and more recently in January 2001. Two similar workshops were held at the regional level in Latin America and in Central and West Asia. While acknowledging the ongoing work of several international research centres, these meetings recognized that, despite the evident demand, R&D activities on neglected species have been sporadic and lacking in terms of a coherent framework and strategy. The meetings called for greater attention to the development of research partnerships with important actors and agents of change in rural areas. The intention is to establish a platform to address work both at the international level and at the local level with the rural communities who are the main stakeholders as owners and managers of these underutilized crop resources.

7. IPGRI has extensive experience of working with partners concerned with neglected and underutilized crops in the three selected regions. Partners include farmers and local institutions in areas where such crops are central to livelihoods and to national plant genetic resources conservation. Implementing development research from the users' perspective will also involve local organizations concerned with promoting and adding value to neglected crops with high potential. Processing, marketing and economics expertise will be employed to identify and mobilize actors within countries to add value to priority species. IPGRI will also work with key international organizations, including other CGIAR centres, the International Centre for Underutilized Crops and MSSRF. Additional partners in the donor community include The Netherlands, which funded the first phase of IPGRI's work on African leafy vegetables. Support has been obtained from the Asian Development Bank (AsDB) for work on tropical fruits. Given the central and overriding concern with resources and livelihoods for the rural poor in marginal lands, who have limited access to other resources, the pioneering role of IFAD is central to the successful launching and implementation of this global effort

III. THE PROPOSED PROGRAMME

8. The programme's goal is to contribute to raising the incomes and strengthening the food security of small farmers and rural communities around the world through securing and exploiting the full potential of the genetic diversity contained in neglected and underutilized species. The programme aims to redress the neglect of valuable plant genetic resources of crops managed by the rural poor through development-oriented research and action in Asia and the Pacific, Central and West Asia, North Africa and in Latin America and the Caribbean, to tackle the major causes of the crops' under-use and genetic erosion.

9. Specific objectives include:

- increasing the remunerative utilization of neglected and underutilized species through development and application of appropriate processing technologies, commercialization and market-linkage strategies;
- enhancing the genetic diversity, improving the quality, and increasing the availability of germplasm of the most promising species and varieties; and



- securing the genetic resource base and expanding the distribution of priority crops through development and application of integrated conservation strategies.

10. IPGRI will link up the regional pilot programme components, each focused on two-to-three priority species, taking a conservation/production-to-consumption approach. Two-to-three countries per region will serve as primary partner countries, while other countries with interest in the chosen crops will be invited to participate in dissemination activities. The results at the regional level will be shared using the global mechanisms provided by the programme and linked to those from other relevant activities on neglected and underutilized species supported by IPGRI or other main players. In this way, specific action at the local and national levels can have maximum impact in securing the resource base and improving production and marketing options for communities living in marginal areas. The mechanism used will also ensure that the knowledge obtained and approaches developed have maximum added value.

11. For the regional components, the following activities will be undertaken for each of the selected crops. These activities will be carried out in close partnership with the users, primarily in poor farming communities, using appropriate participatory approaches.

- Establish or support operational networking arrangements linking all appropriate partners (including gene bank curators, producers, researchers, NGOs, community representatives, processors, marketing agents).
- Survey and secure the resource base through analysis of patterns of germplasm distribution and use, and through collecting, characterization and evaluation of available genetic resources.
- Develop adequate seed production systems to meet user needs.
- Undertake participatory studies of constraints and opportunities in existing crop production systems.
- Implement participatory variety selection and participatory plant breeding programmes.
- Support development of improved processing, distribution and marketing actions.

12. Global programme activities resulting from regional crop-based work will include the synthesis and distribution of information from programme components, annual planning and review meetings and development of general protocols. A synthesis meeting will be held at the end of the programme (under the auspices of a partner of MSSRF) and the proceedings published. Technical Advisory Notes or Knowledge Notes will be produced, in close collaboration with IFAD staff, for the purpose of facilitating development programme design.

13. The bulk of the genetic resources of neglected and underutilized species remain largely in the hands of local communities. They constitute the primary biological assets of poor farmers and the work must recognize this and be based on a participatory and bottom-up approach. Moreover, women are the primary managers and sources of knowledge for many neglected species, making gender-sensitive approaches essential to the successful implementation of the programme.

14. The proposed approach will:

- focus on the local value, indigenous knowledge and uses of the crops, in order to link and promote cooperation between stakeholders;
- identify and overcome the socio-economic and technical constraints to the conservation and use of the diversity;
- analyse and enhance the demand, using market oriented strategies;
- empower the rural poor to retain access to these resources as their value increases;
- mainstream gender-sensitive approaches to genetic resources management and use; and



- establish an operating framework for managing plant genetic resources that can provide a safety back-up for conservation and use.

15. The participation of target beneficiaries will be pursued from the outset of the programme through meetings at the local, country and regional levels. The involvement of women farmers will be emphasized in recognition of their role as main users and custodians of neglected and underutilized species.

IV. EXPECTED OUTPUTS/EXPECTED BENEFITS

16. Both organizational and technical outputs will result from the programme. The major organizational outputs will be:

- networks that provide participatory systems and procedures to support the improved production and use of selected crops;
- operational alliances formed among selected network partners to implement actions that overcome production and marketing constraints (e.g. seed supply systems, processing groups, distribution cooperatives);
- linkages to existing rural and economic development projects where the neglected and underutilized crops could make contributions to incomes, nutritional well-being and the resource base of rural communities;
- increased capacity of marketing associations and producer groups to use improved materials from neglected and underutilized crops, and increased and more stable demand;
- more awareness among policy-makers of issues and options for improved policy and legal frameworks impacting on neglected and underutilized crops; and
- based on the above, inputs to the conceptualization and design of IFAD-financed investment projects aiming at economically attractive options for the use of neglected and underutilized species on the part of rural poor communities .

17. Technical outputs will derive both from the regional components and from the global programme itself. Those from the regional components will include:

- integrated conservation of selected crop genetic resources;
- information on available crop materials: their distribution, variation and potential for improvement and for contributing to nutritional well-being and income enhancement;
- seed and other planting materials available for use by local communities and strengthened local seed production systems;
- improved crop materials made available to rural communities through participatory variety selection and participatory plant breeding;
- information on major production and use constraints throughout the producer-to-consumer chain;
- improved processing and marketing opportunities identified, leading to specific investment and income-generation opportunities through greater demand for the selected crops and their products; and
- enhanced national capacity to work with neglected and underutilized crops and to support rural community needs for such crops.

18. Global outputs will include:

- a secure resource base for the selected crops for use in global development initiatives, including deployment in marginal areas of other regions;
- knowledge of effective procedures to integrate neglected and underutilized crops into development actions;



- publications, including technical guidelines, information on specific crops and an overall synthesis; and
- global experience linking plant genetic resources research with local institutions for managing crop resources.

V. IMPLEMENTATION ARRANGEMENTS

19. IPGRI will be the executing agency of the programme, and will provide the secretariat for coordinating the regional components and for monitoring and impact assessment. Low-cost networks will be established (or supported where they already exist) to bring together stakeholders. Each regional component will be launched through a stakeholder meeting to agree on species and areas covered, activities and time frame for implementation. A participatory priority-setting approach will be followed in these meetings. An IPGRI senior scientist will coordinate the global programme from IPGRI's office in Aleppo, Syria, working with staff in IPGRI's other regional groups, maximizing economies of scale and operational synergies. The Asian regional component covering action-research activities in India and Nepal (at the level of USD 291 000) will be managed entirely through MSSRF, which has already hosted two IFAD-sponsored stakeholder workshops for the global and regional programme concept and design.

20. Given the location-specificity of the issues to be addressed, the proposed programme will be mainly located in three regions (Asia and the Pacific, Central and West Asia and North Africa, and Latin America and the Caribbean), with a pilot research activity in West Africa. A global approach is essential in order to maximize impact and benefit the poor in marginal areas by identifying and adapting the best material to the needs and uses of communities in diverse environments, and by sharing knowledge and tested procedures. A series of related pilot projects will be carried out on priority species. Candidate species include sesame and buckwheat (for Asia and the Pacific region), Andean and Mesoamerican grains (for Latin America and the Caribbean), spices and vegetable species (for Central and West Asia and North Africa) and fonio in West Africa. The selection derives from a participatory decision-making process in each region, based on the species' contribution to sustainable agricultural systems, their potential for increased use, levels of threats of genetic erosion and their local or regional importance for food security, nutrition, processing and marketing opportunities and income-generation for the rural poor. Partners will work with IPGRI to identify both the species and the activities needed for their full valorization and maintenance.

21. Producers and researchers will participate in networking to secure the genetic resource base, and improve the quality and availability of planting materials for farmers. Options for strengthening marketing and income generation will be identified. Key players in the processing and marketing chains will be brought into the networks. Action-research will be designed to produce: (i) direct impact of the pilot projects through enhanced use of the genetic resources and identification of specific investment opportunities; and (ii) global lessons that can be generalized to other species and regions. Thus, IPGRI and its partners in each region will identify opportunities for inter- and intra-regional exchanges of germplasm, information and techniques. Public awareness will also be a key element of the work, as will protecting the rights of farmers and local communities. The action-research component will be located in IFAD-financed loan project areas in the three regions in order to demonstrate the potential of the participatory R&D-led initiative to improve incomes and household food security in IFAD typical target group circumstances.

22. Global meetings of key partners will be held, when appropriate and at the end of the programme, to synthesize the outputs. IPGRI will provide inputs at the senior scientist level on social science methodologies and participatory approaches so as to ensure the full and equitable participation of resource users, particularly women producers, processors and marketers, in programme development. IPGRI will obtain additional economics expertise and provide expertise in genetic resources development and promotion on a regional basis. Links with existing national, regional and



international initiatives on neglected and underutilized species will be pursued and cooperation sought in areas of common interest. IFAD's Technical Advisory Division will backstop the programme from a technical standpoint, while active participation in programme supervision and meetings of the programme steering committee will be sought, among others, to identify further investment options for the regional divisions to develop in their future loan portfolio, based on the outputs of this research programme.

23. A programme oversight committee will be established with representatives of IFAD and IPGRI and from each of the partner countries. The committee will meet at least once yearly and be responsible for monitoring programme progress at the regional and country levels. The IPGRI senior scientist responsible for programme coordination will serve as secretary of the committee. Regional programme component staff should also meet annually to review progress and define work plans. It is hoped that IFAD staff with relevant country experience will participate in the meetings.

24. Other financial and programme supervision and monitoring will be undertaken as part of IPGRI's normal programme management activities, including annual auditing of accounts and six-monthly financial and activity reports from all participating organizations. In addition, the programme will be included in IPGRI's impact assessment and evaluation activities.

VI. INDICATIVE PROGRAMME COSTS AND FINANCING

25. The IFAD-financed subprogramme, amounting to USD 1.4 million, will form part of a larger global programme cofinanced by a number of donors, as reflected in the financing plan given in the table below.

INDICATIVE COST AND FINANCING PLAN FOR THE GLOBAL PROGRAMME (FOR THREE YEARS)
(USD '000)

	IFAD (1)	AsDB (2)	The Netherlands (3)	NARS Counterpart Contributions	IPGRI Cofinancing (4)	Cofinancing to be Identified	Programme Total
Action-research and network operations	807	485	235	610	144	400	2681
Regional meetings	90	110	90	60	5	100	455
Global coordination, incl.:	243		50			50	343
Personnel		185	65	700	620	70	1 640
Training		85	115	45	6	90	341
Travel		45	40	25	6	60	176
Programme management					300		300
Administrative costs (5)	270	136	157	250		167	980
Contingencies		154	33			63	250
Total	1 410	1 200	785	1 690	1 081	1 000	7 166

Notes:

- (1) To support work in Southern Asia, West Asia and North Africa, Latin America and West Africa.
- (2) Cofinancing confirmed by AsDB.
- (3) The Netherlands will support research on leafy vegetables.
- (4) IPGRI cofinancing aggregated for all components of the global programme.
- (5) Including IPGRI overheads and regional coordination costs at IPGRI regional offices.



INTERNATIONAL CENTRE FOR RESEARCH IN AGROFORESTRY (ICRAF): PROGRAMME FOR DEVELOPING MECHANISMS TO REWARD THE UPLAND POOR OF ASIA FOR THE ENVIRONMENT SERVICES THEY PROVIDE

I. BACKGROUND

1. Among the vast multitude of the poor in Asia, the populations most affected by the process of marginalization are those living in the uplands, namely, in the hills and mountainous areas that cover almost half the total area of Asia. Nearly one quarter of Asia's absolute poor (some 250 million people) eke out a meagre existence in these areas.

2. The benefits of national and local investments in economic development have tended to bypass most of these poor upland people as the composition of development initiatives and/or their products are often irrelevant or inaccessible to the upland communities. Being far away and disconnected from administrative and economic power centres means that the political, social, economic and ecological niches occupied by them are not central to national development concerns or priorities. Hence, their development needs and aspirations are often not on the 'map' of decision-makers and rank very low in the hierarchy of national priorities. Even where well intentioned macro-policies are developed to try to improve the situation in the uplands, they are often too 'macro' in their approach, relying on economic models and methods that give insufficient attention to differences between localities.

3. In addition, upland and mountain people often bear a disproportionate share of the negative externalities of the development process, whether it be the loss of production base to land acquisition for development projects or to migration from the lowlands, or the appropriation of natural resources (including forest and water) by national and non-local interests. The lack of security of tenure over livelihood resources has led not only to marginalization but also to unsustainable natural resource management practices.

4. The steepness of slopes and the high risks of erosion, landslides and flooding in downstream villages should make the uplands a priority target for development initiatives to reduce poverty. However, lack of local capital and security of tenure over land and tree resources has resulted in a low level of investment. It has also led to practices that are environmentally unsustainable, such as slash-and-burn agriculture with insufficient fallow periods, farming on steep slopes with inadequate investments in soil and water conservation, or inappropriate exploitation of forest and other biological resources.

II. RATIONALE/RELEVANCE TO IFAD

5. It is increasingly realized that the real plight of mountain and upland poor has been overlooked. The vulnerability of poor areas and poor people to different livelihood shocks and stresses has never been seriously considered, resulting in inadequate measures to safeguard these people. Years of continuous neglect and the recent crises (financial, *El Niño*, *La Niña*, political insurgency) have created a sense of helplessness in the uplands. The first major challenge is to help restore the lost self-confidence of these people in their own abilities to come out successfully from the current situation. There is an urgent need to support a process of self-empowerment so that poor upland people can take the necessary decisions to build a sustainable future based on their resources, improved technology and centuries of accumulated wisdom.

6. The urgency for preventing or reversing the deterioration of livelihood systems of IFAD target groups in upland areas is not justified exclusively by humanitarian concern for these marginalized populations. Many upland and mountain communities in Asia manage landscapes that provide



environmental services to external beneficiaries, but without sharing in the benefits of those services. The services include clean and abundant water supplies from watersheds, biodiversity protection and environmentally sustainable forestry/agroforestry practices. Rewarding the poor upland communities for providing these services would enhance their livelihoods and reduce poverty. Clear opportunities are now emerging in this respect. However, the current successes (in Chile, Colombia, Costa Rica, Malaysia, Venezuela) in environmental transfer payments have generally benefited large landowners and concessionaires. There is actually a danger that some types of transfer payment mechanisms, that are currently evolving, are being designed and implemented to the disadvantage of the upland poor. They may actually exacerbate the displacement of poor people from the uplands, and increase their poverty. There are also risks that the concerns of national and global societies about biodiversity protection, and about the hydrological services of watersheds, may negatively affect the welfare and land rights of poor upland communities.

7. Given the above, there is a pressing need to ensure that the major potential benefits offered by transfer payments are tailored to the specificity of IFAD target groups and directed to them. This, as stated in the Environment Report prepared by IFAD's Asia and the Pacific Division in September 2000, is one of the most strategic and forward-looking interventions that can be undertaken in the coming years. By not acting, IFAD could lose a very crucial opportunity to influence the global climate agenda towards a more pro-poor perspective. That stated aim can best be achieved by initiating an action-research programme aimed at testing, validating and scaling up institutional approaches for transfer payments to IFAD target groups.

8. There are a number of significant questions that need to be addressed as environmental transfer payment mechanisms are put in place to reach the upland poor.

- What kind of institutional arrangements are needed to facilitate transfer payments to the poor?
- How can contractual agreements with upland communities be created and enforced?
- How can the agreements be monitored and verified in a cost-effective way?
- How can transfer payments be disbursed efficiently and equitably to large numbers of households?
- How can an enabling policy environment be put in place to underpin these initiatives?

9. These questions require serious investigation across a range of environmental services, and across a wide range of ecological, social, political and economic conditions in the Asian context. Answers are needed to guide action to establish environmental service payment mechanisms to benefit the poorest upland communities, or they will likely be left out or even disadvantaged by these evolving processes. A coordinated international effort is required to investigate the issues, derive successful methods, and test and refine them through an array of pilot action-research projects. Because of the need for a coordinated international effort, the Asia and the Pacific Division initiated an extensive process of study and consultation as part of the IFAD Enhanced Partnership for the Future of Asia's Upland Poor. Two background papers were commissioned to experts on environmental transfer payment mechanisms¹. The concept was then discussed at a regional consultative workshop in Bangkok, Thailand, in 1999. A revised draft, developed in collaboration with the FAO/Investment Centre, was discussed and finalized at an international planning meeting in October 2000. Participants included representatives of IFAD, International Union for Conservation of Nature and Natural Resources (IUCN), FAO, World Resources Institute (WRI), ICRAF and the donor community (European Union, DFID). The proposal was born out of the Asia and the Pacific Division's regional strategy to single out IFAD target groups (indigenous peoples) in upland areas. The action-research proposed will, where possible, be undertaken in ongoing or planned IFAD project areas with the participation of the target groups.

¹ Wilson et al. (1999) and Aylward, 1999.



III. STRATEGY

10. The immediate goals of the research programme are to: (i) build on, refine and adapt working models or best practices of successful environmental transfer payments adapted to the Asian context; (ii) conduct focused action-research in at least six sites to define methodologies with beneficiaries for best practice in transfer mechanisms; and (iii) demonstrate how benefits can be captured. Simple, practical examples will be provided to show how innovative institutional arrangements and financial mechanisms may be applied to foster local development while simultaneously preserving and restoring the environment. The emphasis will be on conceptually coherent, analytically sound, and financially and institutionally sustainable approaches. There will be a particular focus on the development and strengthening of local institutions associated with transfer payments. Ways to increase flows through the implementation of new arrangements and mechanisms will be identified. In addition, practical, cost-effective methods for monitoring and verifying adherence to agreed protocols between the parties will be examined and tested. Networking at the global, regional and national levels will obviously be a key function.

11. In collaboration with the International Centre for Forestry Research (CIFOR) and WRI, ICRAF has already generated some practical and cost-effective methodologies for quantifying a range of environmental benefits, which appear to be easily transferred to upland settings. The proposed research programme will refine and use these methods to capture and quantify benefits. In addition, to ensure cost effectiveness (in dealing with a multiplicity of small land-users), the proposed programme will join up with local-level institutions (microfinance intermediaries, NGOs, federations of CBOs, etc). The proposal will then allow for aggregating small localized activities as well as streamlining transfer payments from different sources into unified systems/funds that flow directly to participating communities, groups and individuals. After implementing selected pilot activities, the programme will focus on disseminating the lessons learned and on refining the new approaches to bring small producers of environmental services into the market. It will then work on national or sub-national arrangements, which will link into regional or global financial mechanisms that are already in place, or under development.

12. The proposed programme will also provide implementation support to IFAD-funded projects in the region, highlighting likely environmental services and functions that are provided by them. It will direct activities to IFAD projects wherever possible, and provide the methods, models and case studies upon which to base future interventions. The global climate-change agenda needs a champion of the interests of the poorest. The programme will provide a basis for IFAD to become such a credible champion, and to influence projected investments that are estimated to be in the tens of billions of dollars during the coming decades. It will also assist multilateral development banks and other regional and global development organizations to better target their investments in this area. An integral part of the proposed programme will be to facilitate a higher proportion of projects and programmes designed to tap global transfer payment flows to meet the interests of the most disadvantaged populations in the uplands.

IV. THE PROPOSED PROGRAMME

Identification of environmental service functions across a range of settings, and assessment of where and how the benefits of these services are currently distributed.

- Develop a typology that elucidates how environmental services depend upon the land-use practices of upland communities.
- Identify the characteristics of the environmental services, including the degree to which these services can be achieved by alternate solutions, and the degree to which they can be served simultaneously by specific land-use practices.



- Identify the beneficiaries of the environmental service functions who have a stake in these services.
- Quantify the benefits currently received by the various stakeholders

An array of mechanisms is developed and tested in at least 10 sites across a range of settings that will reward the poor for the environmental services they provide.

- Identify and select representative action-research pilot sites.
- Review existing practices for benefit sharing and identification of new opportunities in a range of settings.
- Identify and engage key partners to achieve the outputs.
- Test new environmental service transfer payments methods in an action-research mode in the pilot areas (including methods for aggregating benefits and streamlining payments).
- Develop replicable models for benefit sharing, and identify the factors that contribute to success and risk in the pilot studies.

A transparent enabling institutional environment at the local, subnational and national levels has been supported so as to deliver rewards that are effective, equitable and sensitive to marginalized groups (including ethnic groups and women).

- Identify the enabling environment (institutional, political, legal, financial and social) necessary to enable environmental transfer payments.
- Identify existing supportive institutional environments and frameworks.
- Select promising pilots in support of these frameworks.
- Build the capacity of stakeholders to support and engage in environmental transfer payments activities (including negotiation skills and processes)
- Assist collaborators to put in place a conducive policy framework for environmental service payments to poor communities.

Awareness of the potential for rewards to enhance environmental services has been raised among government officials and the producers and consumers of these services.

- Establish a platform for the exchange of views, initially in the targeted pilot areas, and later expanded to broader domains.
- Develop and deploy tools to educate and increase the awareness of various audiences about the issues and opportunities surrounding environmental service payments systems for the upland poor, through such media as radio, video, in printed form and on the Internet.

Effective partnerships have been developed and managed to accomplish the programme purpose.

- The specific needs for partnerships to accomplish the various outputs will be determined.
- Specific partnerships to achieve each of the outputs are identified and developed.
- The partnerships are managed and monitored effectively.

An appropriate and sustainable institutional approach to foster transfer payments to the poor has been identified.

- An analysis of the strengths, weaknesses, opportunities and threats for existing institutional mechanisms related to environmental services is completed.

- A business plan for a sustainable approach to institutional transfer payments completed, including an exit strategy and mobilization of appropriate resources
- Group of champions identified to oversee evolution of institutional options

V. EXPECTED OUTPUTS/EXPECTED BENEFITS

13. The overall goal of the programme is to ensure *enhanced livelihood and resource security for poor upland communities in Asia*. Improved livelihoods in this context refer to improved food security, income and welfare of poor households and communities in upland areas; improved nutritional status; and greater access to and control over the use of resources. The programme's objective (purpose) is to develop *proven institutional mechanisms for recognizing and rewarding IFAD target groups for the environmental services they provide*. To that end, it will set up an international consortium to create the knowledge to deploy rewards to upland communities. New methods for transfer payments to upland communities will be tested and monitored through action-research. These methods will ensure that the transaction costs for these activities are competitive, and that there is full community involvement in the decision-making process. The programme will also explore the most appropriate means of institutionalizing a sustainable process of transfer payments to the poor.

14. The programme will have six specific outputs, namely:

- the key environmental service functions will have been identified across a range of settings, and an assessment completed of how the benefits of these services are currently distributed;
- institutional mechanisms that will reward the poor for the environmental services they provide will have been tested and applied in at least six sites across a range of settings;
- support will have been provided for the development of a transparent enabling institutional environment at the local, subnational and national levels, so as to deliver rewards that are effective, equitable and sensitive to marginalized groups (including ethnic groups and women);
- awareness of the potential for environmental service payments to improve both environmental functions and upland livelihoods will have been raised among government officials, and the producers and consumers of these services;
- effective partnerships at the international, regional, national and subnational levels will have been developed and managed to successfully achieve the programme's objective; and
- an appropriate sustainable institutional approach to foster transfer payments to the poor will have been identified.

VI. IMPLEMENTATION ARRANGEMENTS

15. The lead implementing institution will be ICRAF, which focuses specifically on integrated natural resources management in upland areas, and has considerable experience with environmental services. The programme will draw on ICRAF's staff capacity and utilize its logistical strengths in Asia. ICRAF will facilitate a research consortium that will include a number of international partners also involved in environmental services (IUCN, CIFOR, WRI, FAO, World Wildlife Fund for Nature (WWF), Nature Conservancy). The research programme will benefit from ICRAF's extensive network of partnerships with local and national institutions. The consortium will be closely linked with CGIAR's Alternatives to Slash-and-Burn Program, which includes seven international agricultural research centres and over 30 national and local organizations. A senior staff member will be appointed to act as the consortium coordinator. The consortium will be governed by a steering committee chaired by the ICRAF regional coordinator. Progress will be measured against the logical framework developed during the full design exercise with stakeholders. Regular monitoring of the programme will be documented in annual reports to IFAD and other cofinanciers. In executing the programme, ICRAF will coordinate its activities with, and provide feedback to, supervision by the

United Nations Office for Project Services in programme countries, so that important synergies are generated for effective implementation of IFAD projects. Such feedback will be incorporated into agreements in aides-mémoire for follow-up activities.

VII. INDICATIVE PROGRAMME COSTS AND FINANCING

16. The financial resources required for the four-year programme are estimated at USD 4 932 000. There are four tiers of financial support for the initiative. The TA grant from IFAD of USD 1.4 million will provide the resources to establish the basic professional staff component and the costs for consultations, awareness-building and basic operations. The second tier, the international partner organizations (including ICRAF, IUCN, WRI, CIFOR, FAO and others) will provide staff time and operational resources that will backstop implementation activities at the key sites. Funding from the third tier, cofinancing from multilateral and bilateral investors, will provide the resources to implement 'test' agreements at the key sites and develop monitoring methods for the environmental services. The fourth tier, national and local institutions, will supply personnel and in-kind costs to enable the development and monitoring of 'test' agreements at the key sites.

FINANCING PLAN (USD)

Cost Category (four years)	IFAD	ICRAF and International Partners	Cofinancing Institutions	National Partners	Total
1. Personnel	400 000	245 000	460 000	-	1 105 000
2. Operational costs	420 000	90 000	625 000	-	1 135 000
3. Consultations and workshops	80 000	-	107 000	-	187 000
4. Action-research	500 000	800 000	735 000	470 000	2 505 000
Total	1 400 000	1 135 000	1 927 000*	470 000	4 932 000

* USD 1 927 000 from cofinanciers represents monies already mobilized for the programme. The programme design is based upon this figure.