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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

ARTS	African Root and Tuber Scale
CBSD	Cassava Brown Streak Virus Disease
CGIAR	Consultative Group on International Agricultural Research
CGM	Cassava Green Mite (<i>Mononychellus tanajoa</i> (Bondar))
CIAT	International Centre for Tropical Agriculture
CIMMYT	International Centre for Maize and Wheat Improvement
CLAN	Cereal and Legumes Asia Network
CMD	Cassava Mosaic Virus Disease
COSOP	Country Strategic Opportunities Paper
CURE	Consortium for Unfavourable Rice Environments Development and Natural Resources Management
ENRAP	Electronic Networking for Rural Asia/Pacific Projects
IARCs	International Agricultural Research Centres
ICARDA	International Centre for Agricultural Research in the Dry Areas
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
IGPs	Indo-Gangetic Plains
IITA	Institute of Tropical Agriculture
INTERSARD	Consortium for Internet-Based Sharing of information on Community
IPM	Integrated Pest Management
IRRI	International Rice Research Institute
M&M	Maghreb and Mashreq Project
MSSRF	M.S. Swaminathan Research Foundation
NARES	National Agricultural Research and Extension Systems
NARS	National Agricultural Research Systems
NENA	Near East and North Africa
NGO	Non-Governmental Organization
NRI	Natural Resources Institute
PRISM	Rice-Wheat Consortium's Information and Communications Technology System
RCT	Resource Conservation Technologies
REWIN	Regional Working Group on Information Management
RWC	Rice-Wheat Consortium for the Indo-Gangetic Plains
TAG	Technical Assistance Grant
TTCs	Technology Transfer Centres



**REPORT AND RECOMMENDATION OF THE PRESIDENT OF IFAD
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I submit the following Report and Recommendation on three proposed Technical Assistance grants (TAGs) for agricultural research and training to international centres supported by the Consultative Group on International Agricultural Research (CGIAR) in the amount of USD 3 431 000.

PART I - INTRODUCTION

1. This report recommends the provision of IFAD support to the research and training programmes of CGIAR-supported international centres, namely the International Institute of Tropical Agriculture (IITA), International Rice Research Institute (IRRI)/International Centre for Maize and Wheat Improvement (CIMMYT) and International Food Policy Research Institute (IFPRI).
2. The documents of the technical assistance grants for approval by the Executive Board are contained in the annexes to this report. These are:
 - I. International Institute of Tropical Agriculture (IITA): Programme for the Development and Application of Sustainable Integrated-Pest-Management Technologies for Cassava Pests and Diseases in Sub-Saharan Africa;
 - II. International Rice Research Institute (IRRI) and the International Centre for Maize and Wheat Improvement (CIMMYT): Multistakeholder Programme to Accelerate Technology Adoption to Improve Rural Livelihoods in the Rainfed Gangetic Plains; and
 - III. International Food Policy Research Institute (IFPRI): Empowering the Rural Poor Under Volatile Policy Environments in the Near East and North Africa Region.
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, and 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 to rural poverty reduction, specifically targeting those 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.

5. The TAGs proposed in this document respond to the foregoing strategic objectives in a number of ways. In particular, the first two proposals relate to the development of new technologies based on enhancing the productive potential of resource-poor farming systems, by explicitly addressing objectives (a), (b), (c) and (e). The third grant, through IFPRI, mainly addresses objectives (a) and (d) but has direct implications for enhancing the impact of IFAD loan operations in the Near East and North Africa region, through improved analysis of the dynamics of the enabling policy environment that impinges on outcomes of rural poverty reduction initiatives. The specific ways in which the strategic objectives are met by the three proposals are further outlined in the annexes to this document.

PART II - RECOMMENDATION

6. 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 the Development and Application of Sustainable Integrated-Pest-Management Technologies for Cassava Pests and Diseases in Sub-Saharan Africa, shall make a grant not exceeding one million United States dollars (USD 1 000 000) 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 Multistakeholder Programme to Accelerate Technology Adoption to Improve Rural Livelihoods on the Rainfed Gangetic Plains, shall make a grant not exceeding one million five hundred thousand United States dollars (USD 1 500 000) to the International Rice Research Institute (IRRI) and the International Centre for Maize and Wheat Improvement (CIMMYT) 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 Empowering the Rural Poor under Volatile Policy Environments in the Near East and North Africa Region, shall make a grant not exceeding nine hundred and thirty-one thousand United States dollars (USD 931 000) to the International Food Policy Research Institute (IFPRI) 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 THE DEVELOPMENT AND APPLICATION OF SUSTAINABLE INTEGRATED-PEST-MANAGEMENT TECHNOLOGIES FOR CASSAVA PESTS AND DISEASES IN SUB-SAHARAN AFRICA

I. BACKGROUND AND RATIONALE

1. Cassava is the dietary staple for over half a billion people in some of the world's poorest countries. In Africa alone, hundreds of millions depend on the crop for food. Its versatility as a food and adaptability to adverse environmental conditions make it an ideal 'safety net' crop. However, a number of serious pests threaten the crop. During the early 1970s, an exotic pest, the Cassava Green Mite (CGM) or *Mononychellus tanajoa* was accidentally introduced from Latin America. The mite quickly spread throughout the cassava-belt, decimating cassava yields and becoming one of the most serious threats to the continent's food supply. In late 1993, a joint IITA/International Centre for Tropical Agriculture (CIAT) programme financed by IFAD, the United Nations Development Programme, Brazil, Denmark and Germany, achieved biological control of CGM using the predator mite *Typhlodromalus aripo* (*T. aripo*) in parts of western, eastern and central Africa. Subsequently, an IITA programme financed by IFAD and Denmark continued the implementation of CGM biological control in parts of Africa not covered by the previous programme. Since then, CGM densities have generally declined by up to 60% and cassava yields increased by up to 35%.

2. To date *T. aripo* has become established in 20 Sub-Saharan African countries, covering nearly 1.5 million square miles. However, there are areas where the *T. aripo* mite is not yet established necessitating the continuation of the campaign to ensure successful biological control (biocontrol) of CGM in all cassava-growing regions. IITA and its partners have initiated efforts to begin releases of *Neozygites* in eastern and southern Africa to complement biocontrol by *T. aripo*, particularly in the drier lowland and mid-altitude savannahs in Sub-Saharan Africa. Another emerging major constraint on cassava production is the African Root and Tuber Scale (ARTS) or *Stictococcus vayssierei*, a subterranean insect indigenous to the humid forest zone of central Africa, where it has been a major cassava pest since the mid-1970s. The presence of the pest has been reported in Cameroon, the Central African Republic, the Democratic Republic of The Congo and Gabon. Trials in the Democratic Republic of The Congo show that high densities of ARTS could lead to losses of over 60% of cassava root yield and reports indicate that some villages can no longer grow cassava because of severe ARTS infestations. Increased pressure on forest resources (caused by increasing rural populations) has led to shortening of fallow periods and general degradation of forest soils, resulting in an environment in which the scale thrives. The ant *Anoplolepis tenella* is thought to play a vital role in ARTS ecology. This ant carries the mobile stage of the scale to new plants and infestation sites, probably protects the scale from predators and parasites and may be involved in the reproduction of the scale.

3. Cassava brown streak virus disease (CBSD) was first reported from coastal Tanzania in the 1930s, but has subsequently been recorded from most of the countries in or near to coastal eastern and southern Africa, including Kenya, Malawi, Mozambique, Tanzania, Uganda and Zambia. For many years, the causal agent of the disease was poorly understood, and it was only in 2001 that the virus causing the disease was fully characterized. Surveys to estimate the prevalence of the disease were carried out in Tanzania and more recently by the Natural Resources Institute (NRI) in Kenya and Mozambique. In severely affected zones, entire fields are commonly 'spoiled' leading to no yield at all. This is particularly shocking to producers given that prior to harvest, cassava crops can appear vigorous and healthy. Results obtained from Mozambique portray a devastating picture in the



northern cassava-growing areas of the country where prevalence of the disease is higher, with fields containing more than 50% diseased plants being commonplace.

4. Another major threat to cassava production is cassava mosaic virus disease (CMD). This disease has been recognized in Africa for more than a century and now has been shown to occur in virtually all cassava-growing zones of the continent, causing losses estimated at between 12 and 23 million tons. For much of the twentieth century the impact of the disease was greatest in western Africa, while the status of CMD in eastern and southern Africa was chronic but relatively less damaging. However, since the late 1980s, the benign situation in the east has changed dramatically. An epidemic of unusually severe CMD initially reported from north-central Uganda, has escalated since the early 1990s to strike several countries including eastern and western D.R.Congo, western Kenya, northern Rwanda, southern Sudan and north-western Tanzania with devastating effects on cassava production in the affected zones.

5. Cassava is not only an important food security crop for IFAD's target group, it also has the potential for generating cash income for the rural poor, particularly women, through the small-scale processing and marketing of cassava products. This represents an important element of IFAD's rural poverty eradication strategy and is consistent with the objectives of the Global Cassava Development Strategy developed by IFAD, the Food and Agriculture Organization of the United Nations, IITA, CIAT and several other stakeholders. This strategy consists of identifying, in a systematic manner, the opportunities and constraints related to cassava at each stage of the commodity development cycle.

II. THE PROPOSED PROGRAMME

6. The three-year programme represents a unique multidisciplinary and multi-institutional effort to develop, test and adapt sustainable cassava plant protection technologies. Strategic research thrusts will cover the development, release and evaluation of pest/disease-resistant cassava germplasm and natural enemies, CBSD epidemiology and identification and biological characterization of its vectors, and the search for natural antagonists of ARTS. In a phased approach, the programme will implement existing technologies, while developing additional technologies for the management of the major pests and diseases that continue to plague cassava in Sub-Saharan Africa. The programme will continue to implement classical biological control of CGM and enhance national capacity in biological control.

7. The specific objectives of the programme are the: (i) development, evaluation and distribution of pest/disease-resistant cassava germplasm; (ii) release and monitoring of proven exotic natural enemies (predators and pathogens) adapted to drier savannahs of central and southern Africa; (iii) monitoring and forecasting spread of diseases and their vectors; (iv) identification and characterization of CBSD vectors and ARTS antagonists and the development of strategies for the implementation of vector control and ARTS antagonists; (v) integration of farmer-participatory evaluation of promising pest/disease control technologies in strategically located Technology Transfer Centres (TTCs); (vi) human resource development to undertake the deployment of the full spectrum of cassava integrated-pest-management (IPM) technologies; and (vii) evaluation of the biological and socio-economic impact of introduced IPM technologies in reducing pest/disease damage, and increasing cassava productivity and farm income.

8. **Development, evaluation and distribution of pest/disease-resistant cassava germplasm.** Improved cassava cultivars from IITA's Eastern and Southern Africa Regional Centre and the East Africa Root Crops Research Network tissue culture site for the coastal lowlands based at Mtwapa, Kenya, will be introduced into the target countries. Where such introductions and evaluations have not been carried out, representative samples of major local cultivars of cassava will be evaluated in parallel with the improved cassava germplasm. All such cassava germplasm will be screened for host plant resistance to major cassava pests (ARTS and CGM) and diseases (CBSD and CMD) and preference by phytoseiid predators of CGM. Nuclear multiplication of superior traditional and



improved or newly introduced cultivars will be established for the production of foundation seed stocks to feed into the multiplication programme.

9. Programme emphasis will be on the provision of nuclear stocks of resistant improved germplasm rather than on mass multiplication. The programme will seek, however, to establish links with other agencies currently active or interested in cassava multiplication, as has been successfully done in previous IITA cassava projects in Kenya, Mozambique and Tanzania.

10. **Release and monitoring of proven exotic natural enemies (predators and pathogens).** Fungal pathogens of CGM and mid-altitude strains of *T. aripo* will be released in at least three targeted regions in each of the participating countries in eastern and southern Africa. Mid-altitude strains of *T. aripo* will also be released in the highlands of north-western Cameroon and the eastern provinces of the Democratic Republic of The Congo. *T. aripo* and the fungal pathogen will be released in these fields during the beginning of the wet season when CGM densities are highest. Farmers will make further redistribution and releases of infected mites and *T. aripo*-infested cassava tips in farmer-managed multiplication sites. The release fields and the surrounding areas will be monitored for the establishment and spread of the fungus and exotic predators at three-monthly intervals during the release period. Once the natural enemies are locally established, dispersal will be determined by monitoring the movement of exotic phytoseiids and fungal pathogens in at least three directions away from original sites. Distance covered during the dispersal surveys will depend on the extent of the spread of the predators and fungus.

11. **Monitoring and forecasting spread of diseases and their vectors.** Targeted surveys will be used in southern Cameroon, western D.R.Congo, south-western Kenya and north-western Tanzania, to assess patterns of change in the incidence and severity of CMD and the abundance of the whitefly vector, *B. tabaci*. Novel virus strains and vector genotypes are associated with the pandemic, and samples of these will be collected to monitor spread. These rapid surveys will be repeated at yearly intervals for the duration of the programme to measure change. Geo-referenced data points will facilitate the development of maps to be used as a tool in forecasting future patterns of pandemic expansion. This will have the direct benefit of improving the targeting of control initiatives based around the deployment of host plant resistance. Monitoring/forecasting work will complement similar existing activities in D.R.Congo, Kenya and Tanzania, but will be an entirely new activity in Cameroon.

12. **Identification and characterization of CBSD vectors and ARTS antagonists, development of strategies for vector control and deployment of ARTS antagonists.** Preliminary evidence from a programme funded by the Department for International Development and implemented by NRI, suggests that *B. tabaci* may transmit the *Ipomovirus* that causes CBSD. More comprehensive and definitive studies are required, however, before the identity of its vector can be confirmed. Parallel transmission experiments will be conducted at Kibaha Agricultural Research Institute, Dar es Salaam, Tanzania, and at NRI, United Kingdom to confirm, and then characterize vector transmission by *B. tabaci* and *B. afer*. Other potential vectors will be tested at a later stage. Once transmission has been confirmed, follow-up experiments will be carried out to quantify virus acquisition, latent, inoculation and vector retention periods. Vector management strategies will be explored, developed and tested.

13. Systematic and regular surveys will be undertaken to collect, identify and characterize predators, parasites and entomopathogens associated with ARTS. Appropriate experiments will be conducted to determine the role of associated ants in scale abundance and dispersal, and protection against predators and parasites. The surveys will be carried out in several sites in the forest margin benchmark area of Cameroon and other areas where ARTS occurs in Cameroon and the D.R.Congo. Once natural enemies have been identified and characterized, appropriate experiments will be conducted to quantify natural enemy impact on scale populations and strategies developed to enhance their control of the scale.



14. **Farmer participation.** Farmer training and participatory evaluations of cassava IPM technologies will focus on numerous and widely distributed TTCs designed for technology evaluation and training under various climatic and edaphic conditions. Farmers' groups, government extension agents, and non-governmental organization (NGO) staff will be trained to evaluate cassava germplasm for pest/disease resistance and to handle, spread, manage and monitor natural enemies of the targeted pests. Through action learning and research at TTCs, the programme will enable farmers to develop at least some appreciation of the dynamics/epidemiology of the targeted pests and diseases, and understand the role and nature of host plant resistance, biological control, and cultural control interventions. The programme will establish at least 20 TTCs per country. TTC participatory evaluations will encourage the involvement of women farmers and cover two cassava-cropping cycles. TTC experiments will focus largely on the use of resistant varieties, the efficiency of phytoseiid natural enemies, and the use of cultural tactics in managing pests and diseases. Cultural practices to be tested include: (i) clean-up of cassava and other wild host plants that serve as reservoir for ARTS; (ii) changes in planting dates to promote ARTS management; (iii) effects of soil fertility on population density of ARTS; (iv) de-topping versus leaf-stripping for predator conservation and effects on mites and disease incidence; and (v) the use of disease-free planting materials.

15. **Human resource development.** The existing programme has contributed significantly to CGM biocontrol through training and staffing of national programmes. Additional training is needed for entomopathogens, disease-vector relationship, dynamics and control, insect/plant interactions and host plant resistance to pests and diseases. The key to effective resistant germplasm development and a natural enemy production, release and distribution programme will be the provision of sufficient human resources. Training at the country, group, bench and post-graduate level will be provided to enhance national capacities to deal with the IPM technologies targeted by the programme.

16. **Impact evaluation.** The effects of natural enemies, resistant germplasm and other IPM technologies will be measured in different areas, and efforts will be made to distribute these technologies to new ecozones, countries and regions. The impact of natural enemies, resistant germplasm, cultural practices, and other appropriate technologies will be evaluated by monitoring (for natural enemies) their establishment and spread, and (for resistant germplasm and cultural practices) by comparing the population dynamics of the pest, and the production of cassava in targeted ecological zones. Macroeconomic data on trends in cassava production and farmer perception surveys will be used to determine the socio-economic impact of the proposed programme in the targeted countries.

III. EXPECTED OUTPUT/EXPECTED BENEFITS

17. The most tangible output will be reduced pests and diseases, increased cassava yields (by at least one third) bringing enhanced food security, improved incomes (by a minimum USD 100 per ha of production per crop cycle) and strengthened marginal ecosystems, beneficial to neighbouring countries. The increased capacity for IPM acquired by national programmes could be applied in tackling similar crop pest and disease problems in the future. While many outputs will emerge in the current three-year phase of the programme, it is also envisaged that some of the most promising results of the programme will become apparent in the subsequent phase.

IV. IMPLEMENTATION ARRANGEMENTS

18. IITA will be in charge of overall programme coordination in Africa, with strong liaison between the National Agricultural Research and Extension Systems (NARES), regional research bodies and other interested organizations. The implementation of the programme will be preceded by a stakeholder participatory workshop to discuss and finalize the workplans in consultation with key implementing partners. The programme will make use of existing networks established by the ongoing TAG programme on CGM biocontrol and other IITA programmes in the sub-regions. Linkage will be

ANNEX I

established with Gatsby and Rockefeller programmes on CBSD management, emergency programmes for mitigation of CMD pandemic in eastern and central Africa, IITA's cassava networks, NGOs such as ActionAid, Cooperative for Assistance and Relief Everywhere, World Vision International, and IFAD-financed investment projects in the targeted countries. IITA will be responsible for the financial management of the programme, including reporting. Grant expenditure will be audited as an integral part of IITA's annual audit by its independent auditor.

V. INDICATIVE PROGRAMME COSTS AND FINANCING

19. The cost of this phase of the programme is projected at USD 1.6 million of which the IFAD grant will cover USD 1.0 million. This will be cofinanced by National Agricultural Research Systems and IITA. Additional contributions will be provided by the governments of participating countries in the form of salaries and services. Costs will be defined in detail during a participatory workshop when a refined workplan for each participating country will be prepared and agreed upon by collaborating parties.

SUMMARY OF PROJECT COSTS
(USD '000)

Item	Regional	In-Country	Total
Personnel	300	60	360
Supplies and expenses	60	60	120
Travel	55		55
Research materials, natural enemy production, germplasm production and distribution	50	50	100
Training	60	60	120
Research, monitoring and evaluation	40	0	40
Vehicles	0	50	50
Equipment	0	20	20
Central services and administrative overheads	120	15	135
Total	685	315	1 000

Budget notes:

Regional personnel cost covers salary for the IITA project coordinator and one visiting scientist with associated technical staff. In-country personnel cost covers the salary of one national staff member based in Nampula or Quelimane, Mozambique for CBSD and CGM work.



INTERNATIONAL RICE RESEARCH INSTITUTE (IRRI) AND THE INTERNATIONAL CENTRE FOR MAIZE AND WHEAT IMPROVEMENT (CIMMYT): MULTISTAKEHOLDER PROGRAMME TO ACCELERATE TECHNOLOGY ADOPTION TO IMPROVE RURAL LIVELIHOODS ON THE RAINFED GANGETIC PLAINS

I. BACKGROUND AND RATIONALE

1. Hundreds of millions of rural poor in Bangladesh, India, Nepal and Pakistan derive their food security and livelihoods from the 25 million hectares of the Gangetic Plains devoted to farming systems based mainly on rainfed rice. Previous research into these farming systems has identified and developed improved cultivars and agronomic practices useful to poor farmers in the study areas in eastern India and in similar agro-ecologies in the region. IFAD supported these studies through TAGs 148 and 263, and they were conducted by a variety of consortia and research networks, combining International Agricultural Research Centres (IARCs), National Agricultural Research and Extension Systems (NARES), non-governmental organizations (NGOs), private enterprise and farmer groups.

2. Several international research institutions operate in the Indo-Gangetic Plains. The Rainfed Lowland Rice Research Consortium and the Upland Rice Research Consortium have merged to form the IRRI-led Consortium for Unfavorable Rice Environments (CURE). The International Centre for Maize and Wheat Improvement (CIMMYT) convenes the Rice-Wheat Consortium (RWC) for the Indo-Gangetic Plains. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) coordinates the Cereal and Legumes Asia Network (CLAN). All bodies involve a large number of key partners from the National Agricultural Research Systems (NARS), including NGOs, agricultural universities, the private sector and community-based organizations. These research networks have developed a range of promising Resource Conservation Technologies (RCTs) that offer improved incomes for rainfed farm households and ensure agro-ecosystem sustainability. The key to their success has been conversion from a commodity-based approach to a systems-based one in which farmer-participatory research generates location-specific recommendations.

3. More downstream community participatory research investment is needed to accelerate adoption of these RCTs over a wider area. Such widespread use of RCTs would address rural livelihood systems as a whole (the needs and goals of rural poor households, including the landless, an important element of IFAD's regional lending strategy), environmental issues (the sustainable use of soil and water resources) and economic issues (rising production costs and the advantages of crop diversification). The use of information tools to support partnerships and dialogue to assess and exchange information on the technologies are also key to the success of the RCTs. There is increasing recognition that a positive outcome from agricultural research for development depends on strong policy support, realistic marketing prospects for farmers, and diligent adherence to the principles of benefit and equity (with particular attention to rural poor women and the disadvantaged).

II. THE PROPOSED PROGRAMME

4. The proposed programme occupies a time frame of three years, although it is noted that a greater time frame will be required for the fruition of many of the new approaches, technology development and diffusion options, and work methods. The first year focuses on organizing community-level research, including the selection of two or three prototype technologies for site-specific community-based verification. The Rice-Wheat Consortium's Information and Communications Technology System (PRISM) will be revitalized. Validation of the technologies will proceed in the second year, followed by multi-location demonstration of promising technologies in the third year on 17 sites in Bangladesh, India, Nepal and Pakistan that represent the main subsystems



or ecologies of the Gangetic Plains. The Consortium was supported in the past by, among others, the Asian Development Bank, the World Bank and IFAD.

5. The overall goal of the programme is to reduce rural poverty by improving farmer livelihoods through sustainable gains in the productivity and diversity of rainfed environments in the Indo-Gangetic plains.

The specific objectives are *inter alia* to:

- identify policy and institutional changes that enable community-level participatory research and enhanced uptake of sustainable agricultural technologies for improving farmers' livelihoods;
- demonstrate and validate at the community level, promising sustainable agricultural technologies and promote their accelerated adoption; and
- formulate and recommend new policies and strategies for accelerating the adoption of sustainable agricultural technologies in similar rainfed environments of the Gangetic Plains.

These specific objectives will be translated into the following components and associated outputs.

III. SPECIFIC APPROACH AND OUTPUTS

Output 1. Stakeholders and key actors recognize organizational changes needed to enhance poor farmers' uptake of sustainable Resource Conservation Technologies (RWC)

6. Since existing institutional arrangements are not conducive to decentralized research, the RWC envisages programme sites as pilots for evaluating the benefits of community-level research. As part of the process of rapport building and analysis of social structures, livelihoods and local resources of each site, the programme will consult with key stakeholders, including community leaders, to determine the constraints and opportunities affecting implementation of farmer participatory research. The required organizational changes, such as decentralized decision-making, greater researcher mobility, and invitations to private entrepreneurs to develop appropriate production tools, will be identified on a case-by-case basis. The lessons drawn from the early stages of this process will allow examination of the broader policy and institutional constraints on delivery of market-linked technology options to poor farmers, and their subsequent adoption. The experiences of various stakeholders will be documented to illustrate how such research can be scaled up and replicated elsewhere. The specific activities will be to:

- determine the constraints and opportunities affecting the implementation of community-level research through consultations with the stakeholders and by providing methodologies to identify stakeholder-perceived constraints on implementing decentralized research in local communities;
- identify in local communities technology innovators and promoters, strengthen their skills, and assess other training needs in the communities, thereby establishing an enabling environment for community-level research; and
- promote farmer-participatory research and farmer experimentation on issues selected by the local community through the assistance of locally identified technology innovators and promoters, thereby testing alternative models for technology dissemination in remote areas without enabling policy and institutional environments.

Output 2. Stakeholders at the community level devise and implement new agricultural management strategies and sustainable RCTs

7. With the mechanisms enabling community-level research in place, the programme will identify, evaluate and facilitate the adoption of appropriate agricultural management policies. Using participatory methods, the programme will also determine technological needs, entry points for promoters, innovators and self-help groups, and assemble prototype technologies. The programme



will facilitate links with rural financial markets, stimulating equipment manufacture and ensuring input supply. It will also fund grants issued on a competitive basis according to criteria developed during the first stage of the project, to key research partners. Activities under this heading include:

- **Assessing demand for technologies and further generating ecology-specific technologies.** Information on biophysical, socio-economic and policy variables and an understanding of the constraints on technology adoption and benefit realization will enhance research and development and policy dialogue. The programme will generate new technologies in shallow lowland and semi-deepwater areas, for example appropriate high-yielding rice varieties and the use of pigeon pea as a perimeter inter-crop.
- **Evaluating and promoting prototype technologies.** This component aims to identify and validate through multi-site testing several prototype technologies and other RCTs appropriate for large-scale promotion. Examples of promising technologies from earlier work include early-maturing cultivars suitable for drought-prone areas with short growing seasons, improved cropping intensity through mixed cropping (rice with pigeon pea or chickpea) and relay cropping (mungbean or sesame preceding rice and/or black gram following rice). Agroforestry options include the introduction of remunerative trees on-farm, nursery and seedling management and early crop establishment, percolation ditches for contour terracing and low-tillage techniques.
- **Addressing key agronomic and economic concerns.** This component examines issues such as the economic potential of relay cropping, how rice irrigation systems can be adapted to crops with different water and soil requirements, farm-level constraints limiting productivity growth and the policy interventions needed to facilitate technology adoption.

Output 3. Stakeholders understand the benefits of newly adopted technologies in terms of sustainability and livelihoods

8. Stakeholders will monitor biophysical, socio-economic and other indicators as they adopt innovations and, as a result alter their livelihood strategies. Similarly, collaborators will assess their research approach and the technical options they promote in terms of requirements for successful implementation and adoption. The consortium will facilitate assessment by partners of constraints (also policy-related) currently preventing technology delivery to the poor. Specific activities will include the following:

- monitoring the impact of sustainable technologies and refining sustainability indicators for major rice-based cropping systems;
- studying gender aspects of alternative technologies, particularly among the very poor and landless; and
- assessing how effectively community action accelerates the adoption of sustainable technologies, thereby assisting policymakers in determining the future roles of extension agencies.

Output 4. Accessible information and available human capacity to support technology adoption by small farmers in the Indo-Gangetic Plains

9. The information management component will reinforce existing systems and organizational networks of RWC partners. The Web-based PRISM system of the RWC is used to share information on organizations, programmes and experts and will be adapted to share research results and technologies. The programme will strengthen the Regional Working Group on Information Management (REWIM), the regional network of NARS and assist CGIAR information management experts in the participating NARS. Complementary media, such as CD-ROM, printed data and rural radio, will be used to disseminate information. Pilots to access and use development information will be carried out with the assistance of ICRISAT and the M.S. Swaminathan Research Foundation



(MSSRF) in local-level information centres. Consortium partners will be supported in making information accessible in a systematic manner. Linkages will be made with IFAD projects and other key information initiatives in the region. The programme will interact with and support Electronic Networking for Rural Asia/Pacific Projects (ENRAP), the IFAD-supported network for Asia. Further linkages will be forged with relevant activities in the region that promote good practice sharing. Activities will include:

- organizing stakeholder meetings and capacity-building activities with information providers and managers (from NARS, CGIAR, NGOs (MSSRF), IFAD projects and ENRAP) to plan and organize data-sharing in the Indo-Gangetic plains;
- adapting the RWC Web-based platform to share existing information and document technologies;
- supporting information input, management and dissemination by stakeholders via printed data, Web-based technologies, CD-ROMs and rural radio; and
- ensuring linkages with key partners and conducting pilots to support local farmer interaction.

IV. IMPLEMENTATION ARRANGEMENTS

10. In addition to IRRI and CIMMYT, several important CGIAR centres with relevant pro-poor technologies to offer, such as ICRISAT, the International Centre for Research in Agroforestry, IWMI and the International Potato Centre will participate with their partners. NARS programme partners include the Bangladesh Agricultural Research Council, Bangladesh Rice Research Institute, Nepal Agricultural Research Council, Pakistan Agricultural Research Council and Indian Council for Agricultural Research, as well as agricultural universities and the departments of agriculture of Indian states. An emerging group of NGOs (including MSSRF, Institute for Health Research, the Consortium for Internet-based Sharing of Information on Community and Users' Perspectives with Agricultural Research and Development) will play a role in promotion, capitalizing on their ability to mobilize farming communities. The programme will define specific roles for NGO partners during the finalization of pilot research sites.

11. IRRI, CIMMYT and ICRISAT, along with other consortium partners, will jointly manage the proposed programme, according to their comparative advantage and the RWC facilitation unit already in place will be strengthened for this purpose. A meeting will be held soon after grant approval where stakeholders will collectively finalize detailed implementation and management arrangements, such as lead institutional responsibilities (including disbursements and reporting). These details will be laid out in a memorandum of understanding between concerned partners. The consortia and research networks are already in place on the eastern Indo-Gangetic Plains, implementing various national and international rice research programmes. Their coordination will be strengthened under the proposed programme, to ensure proper integration of the relevant stakeholders.

V. INDICATIVE PROGRAMME COSTS AND FINANCING

12. The three-year IFAD-specific programme has an estimated total cost of USD 3 565 000, with USD 1 500 000 of that amount proposed for IFAD grant financing and the balance to be met by NARES and IARCs. For the RWC as a whole, the World Bank's National Agricultural and Technical Support Programme will complement this investment through capacity-building support for a number of NARS institutions. IFAD's investment projects in Nepal (Eastern Terai), Bangladesh (Sonumgunj) and India (Jharkhand and Uttaranchal) are expected to build on the crop diversification process to be initiated under the grant, and provide social mobilization and related institutional support to improve options for sustainable livelihood promotion.

**Programme Budget and Financing Plan
(3 years – amounts in USD)**

Budget Line Item	IFAD				IRRI, CIMMYT and other CGIAR	NARES and OTHERS	GRAND TOTAL
	Year 1	Year 2	Year 3	TOTAL			
Personnel cost	99 200	100 000	102 000	301 200	125 000	360 000	786 200
Contractual services	15 000	15 000	15 000	45 000		75 000	120 000
Research expenses	95 000	100 000	100 000	295 000	250 000	700 000	1 245 000
Equipment/vehicles/facilities	155 000	-	-	155 000		300 000	455 000
Training/workshop/meetings	50 000	55 000	60 000	165 000	45 000	50 000	260 000
Information Management	75 000	80 000	85 000	240 000	50 000	50 000	340 000
Logistic/management/ Technical backstopping	20 000	25 000	25 000	70 000	60 000		130 000
Sub-total	509 200	375 000	387 000	1 271 200	530 000	1 535 000	3 336 200
Incremental admin. cost (duly apportioned among main partners)	91 700	67 500	69 700	228 800	-		228 800
TOTAL	600 900	442 500	456 700	1 500 000	530 000	1 535 000	3 565 000



**INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE (IFPRI):
EMPOWERING THE RURAL POOR UNDER VOLATILE POLICY
ENVIRONMENTS IN THE NEAR EAST AND NORTH AFRICA REGION**

I. BACKGROUND

1. International financial and development institutions are under increasing pressure to demonstrate their effectiveness in eradicating poverty. There is a growing awareness of the key significance of policy and institutional factors to the success of development projects designed to reduce poverty. Furthermore, in a climate where democratic governance has become part of the United Nations consensus, empowerment of the poor is now seen as central to any valid poverty reduction initiative.

2. IFAD has long recognized that the most effective way to eradicate poverty is to strengthen the individual and collective capabilities of the poor so that they can gain access to economic opportunities, social services and infrastructure. However, efforts to help poor communities and producers may be eroded by a policy environment undergoing considerable change due to trade and market liberalization reforms. Policy changes have a profound impact on poor people and local institutions, at times undermining otherwise well-designed investment projects for the poor. Governments must be more responsive to the needs of the rural poor, and policy design and project implementation should be directly linked to address such needs. In IFAD's Strategic Framework 2002-2006, IFAD recognizes the importance of such linkages and of "developing and promoting processes that increase the accountability and transparency of rural service delivery within decentralized decision-making frameworks". Furthermore, the strategic framework stresses that in order for the Fund to have a catalytic impact, "effective implementation mechanisms need to be put in place so that projects are viewed less as ways of generating pre-conceived outputs, and more as frameworks for achieving impact and fostering innovation".

3. In IFAD, the Near East and North Africa (NENA) Division recently defined its strategy for technical assistance grants. The strategy identified research on enabling policy and institutional environments as a high priority area, particularly when focused on approaches that promote the effective participation and empowerment of the rural poor. This focus also responds to the needs expressed by the NENA Division to enhance its policy dialogue with borrowing countries, in line with the provisions of IFAD's Strategic Framework 2002-2006 and its Regional Strategy for Poverty Reduction.

II. RATIONALE/RELEVANCE TO IFAD

4. Over the past two decades, governments in the NENA region have embarked on a range of policy and economic reforms including sector and structural adjustment programmes aimed at economic liberalization, privatization of public assets and decentralization. However, smooth implementation of such reforms has been hindered by limited institutional capacity, entrenched interests and inconsistent government commitment in relation to the pace and direction of the reforms. Furthermore, liberalization has increased the exposure of these economies to fluctuations in world market prices. The unstable and volatile policy environment that has arisen as a result calls for significant efforts to be made in investing in the interests of the poor.

5. The changing policy environment has important implications for the design and implementation of poverty reduction projects. Well-designed projects may fail because the conditions for which they



were created have changed adversely. In contrast, project performance may be enhanced by policy changes that improve economic incentives and the delivery of agricultural inputs and services. However, often the debate relates not to the kind of policies being implemented, but rather to how they can be implemented without negatively affecting the poor. In the context of project design, interventions now need to be developed with the flexibility to remain robust within a changing policy environment.

6. This research programme addresses the problems arising at the interface between policy reforms and the design and implementation of investment projects designed to help rural poor communities. Taking as its primary example the critical issue of devolution of responsibility for Natural Resource Management (NRM) to territorial communities, key questions will be addressed such as: How can poverty eradication strategies be adapted for a volatile environment? What changes are required in the design and implementation of interventions to ensure positive project outcomes? What determines the selection by governments of specific policy and institutional options? How are these choices linked to a government's policy reform agenda? What factors enhance the success of interventions that devolve managerial responsibilities for natural resources to local communities?

7. IFAD can build on its own experience and blend it with IFPRI's extensive policy research in the areas of agricultural development strategy, agricultural market reforms and institutional development (including property rights and collective action systems for natural resource management). Since 1995, IFPRI has partnered ICARDA and the NARS in Algeria, Iraq, Jordan, Lebanon, Libya, Morocco, Tunisia and Syria in the Maghreb and Mashreq on-going TAG programme, a research and development project partly funded by IFAD. This project focuses on reforms in technologies, policies and property rights for the sustainable development of low rainfall areas in NENA countries. IFPRI also has experience in researching the impact of macroeconomic and trade policy reforms on the agricultural sector in several NENA countries, and on options for rangeland management institutions for the Steppe areas.

III. GOAL AND OBJECTIVES

8. The goal of the proposed TAG is to assist the NENA region in bringing about changes in institutions, policies and regulations that will promote good local governance and empowerment of the rural poor. The TAG aims to better integrate policy work and project development and implementation in IFAD and the NENA region by: (i) identifying and characterizing effective approaches, policy design and implementation processes; (ii) evaluating the effects of these processes and trade-offs between different policy and institutional options in enhancing local governance and empowering the poor; and (iii) developing a framework to foster dynamic synergies among project and policy design and implementation processes.

IV. THE PROPOSED PROGRAMME

9. The research will be conducted in Morocco, The Sudan and Tunisia. These countries were selected as representative of the diversity of situations found in the NENA region in terms of natural environment, government system, size, institutional strength and living standards. All three countries have been major recipients of IFAD assistance but Morocco (intermediate lending) and The Sudan (highly concessional lending) are more advanced in their decentralization process than other NENA countries. In Tunisia (ordinary lending), the only emerging economy in the region, central government still retains extensive authority in shaping local development institutions and policies. Research will be conducted in five phases, including a dissemination phase. Two national workshops will be held in the selected countries, the first for case study planning and implementation and the second for presentation and discussion of the findings. A major stakeholder knowledge-sharing workshop will be held towards the end of the project.



10. **Step one.** This will identify and characterize the policy and institutional options that have been implemented in the three study countries in recent decades to generate greater participation and empowerment of poor farmers, herders and communities. These options will be considered in the context of the objectives of IFAD's Strategic Framework, namely access to human, social, productive, technological, financial and market assets.

11. **Step two.** Using participatory approaches, research will be conducted at the government and community levels to assess the impact of some of the policy interventions identified in step one. At the government level, group meetings will analyse government intentions underlying the chosen policy interventions and their implementation methods. Information will also be sought on how the policies were modified over time in response to shocks (droughts and market or political instability) and how such changes affected the livelihoods and natural resource management practices of poor communities. At the community level, consultations will focus on how rural communities and producers perceive changes in government policies and interventions, and how they have responded to these reforms. This step will reveal the strategies used by vulnerable groups to respond to change and volatility and will provide an inventory of policy responses that improve governance at the local level. Communities will be selected to link with a range of ongoing IFAD projects - in The Sudan, the South Kordofan Rural Development Programme, in Morocco the Livestock and Pasture Development Project in the Eastern Region and in Tunisia, the Integrated Agricultural Development Project in the Governorate of Zaghuan.

12. **Step three.** Sample households will be surveyed in these project sites to complement the community-level data collected in step 2. These surveys will also provide detailed insight into household livelihood and coping strategies and how they are affected by policy, institutional and project changes. This research will build on the household and community survey work conducted as part of the Maghreb and Mashreq Project.

13. **Step four.** IFPRI and IFAD will jointly identify the operational implications of this research and develop action-oriented proposals at the policy formulation and project implementation level. The need to manage a process of change and to create a mediation function between state and population is central to these proposals. The research aims to develop concrete tools based on promising initiatives emerging in the development community (including initiatives pioneered by IFAD) and to contribute to the impact orientation of the project cycle and to innovations in project design and implementation.

14. **Step five.** Dissemination activities (such as conferences and workshops) will be conducted to keep national policy makers, IFAD and other donors informed on programme results and to contribute to research findings. Workshops will be organized in each country at the beginning of the study (to obtain local input on the design of each case study) and also at the end to discuss the results with national policy makers. Towards completion of the project, a further workshop will be held in IFAD (with the participation of FAO, the World Bank, other interested donors and the Popular Coalition) to discuss the findings and their implications for future project and policy interventions. An important outcome of this step will be a proposed policy and institutional change agenda for consideration in the update of existing Country Strategic Opportunities Papers.

V. EXPECTED OUTPUTS/EXPECTED BENEFITS

15. The main expected outputs of the TAG are:

- Preparation of three country case studies on enabling policy environments for empowering the rural poor (Morocco, The Sudan and Tunisia).

ANNEX III

- An innovative and comprehensive policy framework for empowering the rural poor that could guide the NENA region in its policy dialogue, partnership undertaking and operational work in the region.
- Concrete recommendations drawn from the research findings, outlining project implementation strategies for how IFAD could improve the effectiveness of its operations in the region.
- A set of dissemination activities (such as publications and workshops) aimed at developing the capability of the NENA region to participate effectively in shaping regional policy reform agendas.

VI. IMPLEMENTATION ARRANGEMENTS

16. The programme will be implemented by IFPRI. Part-time involvement by IFPRI senior research staff in the programme will be supplemented by hiring a senior consultant on a two-year full-time contract. Secondment of an IFAD staff member in lieu of this consultant is being considered to promote IFAD ownership of the programme and enhance synergies between IFPRI and IFAD. In this event, IFAD and IFPRI would assume joint responsibility for programme management, and the resources budgeted for the consultant would be used by IFAD to finance the temporary replacement of the seconded staff.

17. A **project advisory committee** will provide general guidance on the research from IFAD's perspective. The advisory committee will be composed of the director and regional economist of NENA Division, representatives from the Technical Advisory Division, the Office of Evaluation and Studies and the Popular Coalition, in addition to the lead economist. The advisory committee will be formed at step one of the project and will meet to review progress on the conceptual work before commencement of empirical work on decentralization. The committee will meet again to review the results before final publications are prepared.

VII. INDICATIVE PROGRAMME COSTS AND FINANCING

(amounts in USD)

Cost Category	IFAD	IFPRI	Participating Countries	Total Including Contingencies
Senior consultant	270 000			270 000
IFPRI staff	105 122	40 000		145 122
National consultants	110 000			110 000
Salaries for national collaborating institutions			75 000	75 000
Field/survey costs	100 000			100 000
International travel and per diems	150 000			150 000
Workshops (six national and one International)	95 000			95 000
Advisory committee and publications	25 000			25 000
Sub-total	855 122	40 000	75 000	970 122
Overhead costs	75 418	25 000		100 418
Total Cost	930 540	65 000	75 000	1 070 540

