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REPORT AND RECOMMENDATION OF THE PRESIDENT

TO THE EXECUTIVE BOARD ON A PROPOSED

TECHNICAL ASSISTANCE GRANT

FOR

AGRICULTURAL RESEARCH AND TRAINING

BY A

CGIAR-SUPPORTED INTERNATIONAL CENTRE



TABLE OF CONTENTS

PART I	INTRODUCTION	1
PART II	RECOMMENDATION	2
ANNEX		3
	International Center for Agricultural Research in the Dry Areas (ICARDA): Enhancing Food Security in the Nile Valley and Red Sea Region: Technology Generation and Dissemination for Sustainable Production of Cereals and Cool- Season Food Legumes	



**REPORT AND RECOMMENDATION OF THE PRESIDENT OF IFAD
TO THE EXECUTIVE BOARD ON A PROPOSED TECHNICAL ASSISTANCE GRANT
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CGIAR-SUPPORTED INTERNATIONAL CENTRE**

I submit the following Report and Recommendation on a proposed technical assistance grant (TAG) for agricultural research and training to an international centre supported by the Consultative Group on International Agricultural Research (CGIAR) in the amount of about USD 1.2 million.

PART I - INTRODUCTION

1. This report recommends providing IFAD support to the research and training programme of the CGIAR-supported International Center for Agricultural Research in the Dry Areas (ICARDA).
2. The technical assistance grant document for approval by the Executive Board is contained in the annex to this report.
3. The content of the applied research programme is in line with IFAD's evolving strategic objectives and the policy of its TAG programme for agricultural research and training.
4. IFAD's support for technology development relates to:
 - (a) the household food-security strategies of IFAD's target groups in remote and marginalized agro-ecological areas;
 - (b) technologies to enhance resource-poor farming systems by improving productivity and addressing production bottlenecks; these technologies must be gender-sensitive and based on traditional knowledge systems;
 - (c) access to land and water, financial services, labour, technology (including indigenous technology) and sustainable management of such resources;
 - (d) a policy framework that motivates the rural poor to increase productivity and reduce dependence on transfers; and
 - (e) an institutional framework for services provided to the economically vulnerable by formal, informal, public, private, local and national institutions.

Within objective (e), IFAD intends to develop commodity-based approaches to rural poverty alleviation, targeting items produced and consumed by the rural poor. Establishment of a network for gathering and disseminating knowledge will enhance the Fund's capacity to establish strategic links with partners and increase the impact of its agricultural research and training programme.

5. The proposed TAG responds to these objectives. The research programme is based on (a). It will address (b) and (c) through increasing the productive potential of smallholders, many of them in IFAD project areas, by making it easier to adopt improved varieties and by addressing production constraints. The programme relates to (d) and (e) through development of partnerships among National Agricultural Research Systems (NARS) institutions, building on participatory research models deployed under an ICARDA/IFAD-supported programme in the Nile valley (Grants Nos. 001-ICARDA and 079-ICARDA).



PART II - RECOMMENDATION

6. I recommend that the Executive Board approve the proposed technical assistance grant in terms of the following resolution:

RESOLVED: that the Fund, in order to finance, in part, the Enhancing Food Security in the Nile Valley and Red Sea Region: Technology Generation and Dissemination for Sustainable Production of Cereals and Cool-Season Food Legumes, shall make a grant not exceeding one million one hundred and sixty nine thousand United States dollars (USD 1 169 000) to the International Center for Agricultural Research in the Dry Areas (ICARDA) 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 AGRICULTURAL RESEARCH IN THE DRY AREAS (ICARDA):

ENHANCING FOOD SECURITY IN THE NILE VALLEY AND RED SEA REGION: TECHNOLOGY GENERATION AND DISSEMINATION FOR SUSTAINABLE PRODUCTION OF CEREALS AND COOL-SEASON FOOD LEGUMES

I. BACKGROUND

1. Winter wheat and barley and cool-season food legumes – faba beans, chickpeas and lentils – are important food crops in Egypt, Ethiopia and The Sudan in the Nile valley and in Yemen. They are a major part of the daily diet, particularly the protein from faba beans.
2. Production of these crops is inadequate for a population of almost 180 million that is growing at 2.2% per year. Wheat production provides just over half the average annual consumption. Any improvement in domestic production of wheat would help to reduce the substantial costs of imports and dependence on external sources of food.
3. Pulses are most important to the poorest consumers, even though they provide a small proportion of calories and protein. Pulse crops have a higher value than cereals: even a small area can provide income for smallholders. Any increase in production of faba beans, chickpeas and lentils will improve the diet of the poorest people and increase farm incomes, thus contributing to food security.
4. Crop yields are usually low and fluctuate considerably from season to season. This is largely because of variable rainfall and susceptibility to disease and stresses such as heat and drought.
5. In September 1995, ICARDA and NARS in Egypt, Ethiopia, The Sudan and Yemen established a regional programme to address these constraints. Initial funding was provided by The Netherlands. Significant progress has been made in identifying germplasm resistant to the major stresses affecting cool-season cereals and food. Regional cooperation has been established and a group of qualified, trained technical staff has been mobilized.
6. This programme built on the experience of an ICARDA/IFAD-funded faba bean improvement programme in Egypt and The Sudan begun with a single crop in 1979. In 1988 it was expanded to include Ethiopia and Yemen in a regional programme on cool-season food legumes and cereals.
7. Since the closure of initial funding from The Netherlands, the national programmes have continued the research, but limitations in NARS resources have reduced its scope. Lack of funding has severely curtailed the regional collaboration that was so valuable to the project. The four NARS have, however, continued research as far as possible without external financing, which reflects their commitment and guarantees institutional sustainability beyond the programme.
8. Given the complexity of the problems, NARS and ICARDA believe that the original activities need to be strengthened. There is a need to generate sustainable solutions, verify the performance of new technologies on farms and distribute the new germplasm and associated technologies to other farmers. Substantial impact is anticipated, reflected in improved crop yields and stability, expansion of the crop area to meet national demand and increased farm incomes.



Achievements and Lessons Learned from the Earlier Phase

9. Physiological races of some disease pathogens were identified and characterized during the earlier phase of the programme. Large quantities of germplasm, cereals and food legumes, including locally adapted cultivars and genetic stocks from ICARDA, have been screened for resistance to economically significant diseases. Work on other diseases has only just started. The resistance genes already identified and other desirable traits need to be incorporated into the locally adapted cultivars.
10. Surveys of aphids, other insect pests and major viruses have been conducted; the most serious viruses have been characterized. Some sources of resistance have been identified, which need to be incorporated into the locally adapted cultivars and tested. As with many pathosystems, their biological nature constantly changes in response to the environment. Assessment of the changes should continue so that outbreaks caused by new pathotypes can be countered.
11. Traits associated with heat and drought tolerance have been identified, which could be used as criteria for selecting germplasm. Results showed that good agronomic management and improved soil fertility can reduce the adverse effects of high temperatures and drought. There is a need for further study of the combined effects of heat and moisture stress.
12. Water is the primary factor limiting agricultural production in Egypt, The Sudan, parts of Ethiopia and lowlands in Yemen. The previous faba bean programme did not include sufficient study of this aspect, so there is a need for further study in the proposed programme in order to achieve more efficient use of water.
13. Socio-economic work has focused on consolidating research strategies and procedures, including diagnosis of crop production constraints, studies of adoption and assessment of the impact of technology. Studies of the performance of technology components have revealed constraints related to input costs or availability that are limiting adoption.

II. RELEVANCE TO IFAD

14. The main beneficiaries of the programme will be resource-poor farming communities. Farm incomes will be improved by higher and more stable crop production. Rural and urban consumers will also benefit. To ensure that the technologies are developed rapidly at farm level, there is a strong technology-transfer component enhanced by knowledge accumulated during previous projects. All activities will be practical in character, supported by research whenever necessary. Technology transfer and rapid impact will be the main objectives. Cost and availability of inputs are the main constraints to adoption by farmers. Where cost is the constraint, the research programme will seek ways to improve agronomic efficiency and encourage integrated pest management (IPM) to reduce spending on chemical pesticides. This issue should be included in the research.
15. Programme outputs – improved germplasm, better crop management and IPM – will provide inputs to IFAD's development projects in the participating countries. Sites for participatory on-farm testing and demonstration of outputs will be in areas covered by current and completed projects financed by IFAD loans:
 - Egypt: Agricultural Production Intensification Project;
 - Ethiopia: Agricultural Research and Training Project and Informal Seed Component of the Seed Systems Development Project;
 - Sudan: North Kordofan Rural Development Project and White Nile Agricultural Services Project; and
 - Yemen: Al-Mahara Rural Development Project, Southern Governorates Rural Development Project and Raymah Area Development Project.

III. THE PROPOSED PROGRAMME

Objectives

16. The programme will improve food security and farm-household incomes in Egypt, Ethiopia, The Sudan and Yemen through development and transfer of improved technologies to enhance the productivity and yield stability of cereals and food legumes.

Outputs

17. These will consist of:

- (a) improved cereal and food-legume cultivars that are high-yielding, resistant to rust diseases, root rot, foliar diseases and major aphids and viruses;
- (b) improved cereal and food-legume cultivars that are high-yielding and heat-and-drought tolerant;
- (c) crop-management practices that conserve soil moisture and increase the efficiency of water use;
- (d) IPM practices to control the main insect and disease stresses;
- (e) assessments of the impact of new technologies, identification of constraints to farmers' adoption of them and recommendations for overcoming these; and
- (f) enhanced NARS capacity through training staff to sustain the work after completion of the programme.

Key activities

18. These will involve:

- (a) community-based testing, validation, verification and distribution to farmers of new cultivars and associated technologies, in cooperation with the extension systems;
- (b) continued identification of sources of resistance to biotic and abiotic stresses and incorporation into cultivars with desirable traits;
- (c) participatory evaluation, selection and testing of new material and recommended production and pest-management practices in fields under farm management, so that farmers' preferences for particular traits are incorporated; and
- (d) monitoring farmers' perceptions and responses to improved germplasm and associated technologies: assessing adoption by farmers, identifying potential constraints to adoption and making recommendations for overcoming them, and assessing the impact of the programme. The orientation will shift from focus on individual commodities to emphasis on integrated production systems.

**IV. IMPLEMENTATION ARRANGEMENTS**

19. From its regional office in Cairo, ICARDA will be responsible for managing and coordinating the programme in its Nile Valley and Red Sea Regional Programme (NVRSRP). The programme will rely on individual national scientists implementing activities according to a work plan and budget. Research plans will be developed in multi-disciplinary sessions under the leadership of a lead scientist, who will be the country 'contact scientist' for the programme. One national scientist will be selected to coordinate regional activities for each research programme. Regional work plans will be developed in annual regional coordination meetings.

20. A Steering Committee for NVRSRP already exists, composed of the directors-general of NARS in the participating countries, ICARDA's assistant director-general for International Cooperation, the NVRSRP regional coordinator and representatives of donor organizations supporting projects within NVRSRP. The annual regional work plans will be reviewed in the annual NVRSRP steering committee meeting, which will evaluate progress and achievements, assess budget utilization, set strategy and decide on action for financing. The committee will include the IFAD task manager from the regional division in order to ensure links with IFAD's loan portfolio.

V. INDICATIVE PROGRAMME COSTS AND FINANCING

21. The cost of this three-year programme is estimated at USD 2.9 million. IFAD's proposed contribution is estimated at about USD 1.2 million. ICARDA's in-kind contribution is estimated at USD 540 000. The in-kind contribution of the four participating NARS is estimated at USD 1.2 million. Detailed estimates and financing arrangements are provided in the table below.

TOTAL PROGRAMME COST
(USD)

Description	1st Year	2nd Year	3rd Year	Total
IFAD contribution				
Personnel	66 100	68 800	71 600	206 500
International travel	35 000	35 000	35 000	105 000
Operational costs	109 000	119 000	129 000	357 000
Meetings and workshops	65 000	65 000	65 000	195 000
Training	40 000	40 000	40 000	120 000
Capital items	40 000	20 000	-	60 000
Total direct costs	355 100	347 800	340 600	1 043 500
Grant administration (12%)	42 600	41 700	49 000	125 200
Total IFAD contribution	397 700	389 500	381 500	1 168 700
ICARDA contribution	175 000	180 000	185 000	540 000
NARS contribution	400 000	400 000	400 000	1 200 000
Total programme cost	972 700	969 500	966 500	2 908 700