

CONFORMED COPY

TF No. 020847

AGREEMENT

between

INTERNATIONAL BANK FOR RECONSTRUCTION
AND DEVELOPMENT

and

INTERNATIONAL DEVELOPMENT ASSOCIATION

and

INTERNATIONAL CENTER FOR
AGRICULTURAL RESEARCH IN THE DRY AREAS
(ICARDA)

in support of
the Initiative for Collaboration to Control
Natural Resource Degradation (Desertification)
of Arid Lands in the Middle East

financed by

MULTIPLE DONORS

Dated April 30, 1996

TF No. 020847

AGREEMENT, dated April 30, 1996 between the INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT ("IBRD") and the INTERNATIONAL DEVELOPMENT ASSOCIATION ("IDA") (collectively the "Bank") and the INTERNATIONAL CENTER FOR AGRICULTURAL RESEARCH IN THE DRY AREAS (ICARDA).

WHEREAS (A) The Multilateral Working Group on the Environment of the Middle East Peace Process has requested the Bank to approach potential donors that would assist in financing certain activities to be undertaken pursuant to the "Proposal for Collaboration to Control Natural Resource Degradation of Arid Lands (Desertification) in the Middle East" (the "Technical Assistance") described in Schedule 1 hereto adopted by the said Multilateral Working Group at its 6th Meeting held in Bahrain in October 1994;

WHEREAS (B) the Bank has lent its good offices and intends to continue to lend its good offices to encourage potential donors (the "Donors") to contribute grant funds (the "Grant Funds") in an amount equivalent to approximately twelve million United States Dollars (US\$12,000,000) to assist in financing the Technical Assistance;

WHEREAS (C) certain Donors intend to request the Bank to administer their portion of the Grant Funds to be made available for financing the Technical Assistance under Letters of Agreement (the "Letters of Agreement") to be entered into between the Bank and each of the Donors;

WHEREAS (D) the said Letters of Agreement shall provide that the activities to be undertaken under the Technical Assistance shall include the Regional Support Program (RSP) and the National Support Activities (NSA) described in the Schedule

hereto and that ICARDA shall be responsible for carrying out the Technical Assistance; and

WHEREAS (E) the Letters of Agreement shall further provide that the Grant Funds provided thereunder may be used to finance the goods, training, fees and reimbursable costs of consultants required for the Technical Assistance and the cost of ICARDA in supervising the consultants and overseeing the implementation of the Technical Assistance, and that, to that end, the Bank shall enter into such agreements with ICARDA as the Bank determines to be necessary to ensure that the Grant Funds are made available to ICARDA and are used only for the purposes set forth in the Letters of Agreement;

NOW THEREFORE the parties hereto hereby agree as follows:

ARTICLE I

The Grant Funds

Section 1.01. The Bank agrees to make available to ICARDA the Grant Funds to be made available by the Donors on the terms and conditions herein set forth.

Section 1.02. (a) The amount of the Grant Funds shall be made available to ICARDA by the Bank in two (2) annual tranches for expenditures made or to be made in respect of the reasonable cost of the goods and consultants' services required for the Technical Assistance and to be financed out of the Grant Funds, the travel and related expenses incurred by ICARDA in supervising such consultants and managing and overseeing the implementation of the Technical Assistance, and all the administrative costs related to the operation of the Facilitation Unit referred to in Section 2.01 (b) hereof, including, inter alia, the salaries and benefits of the Facilitator, research assistants and support staff; office rent; and equipment and supplies; provided, however, that the proceeds of the Grant Funds shall not be used to finance payments made for expenditures incurred prior to November 1, 1995.

(b) The amount of the annual tranches referred to in paragraph (a) above and the date on which the Bank shall make them available to ICARDA shall be determined by the Bank on the basis of the availability of Grant Funds and the actual progress achieved by ICARDA in carrying out the Technical Assistance.

(c) Payment to ICARDA by the Bank hereunder shall be made in United States dollars; provided, however, that if the expenditures to be financed out of the Grant Funds have been paid or are payable in another currency, the Bank will, at the request of ICARDA, purchase such currency with the proceeds withdrawn to make such payment. Whenever it shall be necessary for the purposes hereof to determine the value of one currency in terms of another, such value shall be as reasonably determined by the Bank.

(d) Notwithstanding any other provision hereof, the Bank shall be obligated to make payments of the Grant Funds to ICARDA only to the extent that the Bank has received funds pursuant to the Letters of Agreement referred to in the Preamble hereto.

ARTICLE II

Execution of the Technical Assistance

Section 2.01. (a) ICARDA shall carry out the Technical Assistance with due diligence and efficiency and in conformity with appropriate agriculture, administrative, environment and technical practices, and shall provide, or cause to be provided, promptly as needed, the funds, facilities, services and other resources required for the Technical Assistance.

(b) In order to ensure that the Technical Assistance is carried out with due diligence and efficiency, ICARDA shall promptly establish, and thereafter maintain at all times, a Facilitation Unit within its office located in Cairo, Arab Republic of Egypt. The said Unit shall be composed of one (1) senior Facilitator, the necessary support staff, and ad hoc consulting staff as required to ensure the effective management and administration of the Technical Assistance, including the preparation of work programs and budgets for the Technical Assistance and the coordination and facilitation of links among its components in the different beneficiaries countries.

Section 2.02. The procurement of the goods and consultants' services required

for the Technical Assistance and to be financed out of the proceeds of the Grant Funds shall be governed by ICARDA's applicable procedures and standard practices, consisting of the "Personnel Policies Manual" (Part D, Temporary Staff Consultants) dated January 1989, and the "Purchasing and Supplies Manual" dated 1989. ICARDA shall have sole responsibility for the supervision of all consultants, and the administration and enforcement of all provisions of any agreement entered into between ICARDA and such consultants shall be the responsibility solely of ICARDA.

Section 2.03. (a) ICARDA shall, for the purposes of the Technical Assistance, open and maintain on its books, in accordance with its normal financial practices and on conditions satisfactory to the Bank, a separate Technical Assistance Account to which it shall deposit each payment of the Grant Funds received pursuant to Sections 1.02 (a) and (b) hereof and any interest received thereon. All amounts so deposited to said separate account shall be utilized by ICARDA exclusively to finance activities under the Technical Assistance as shall have been determined in agreement with the Bank.

(b) If the Bank shall have determined at any time that (i) any payment out of the Technical Assistance Account was made for an expenditure or in amount not eligible under this Agreement; or (ii) any amount outstanding in the Technical Assistance Account will not be required to cover further payments for activities to be financed under the Technical Assistance, ICARDA shall, promptly upon notice from the Bank: (A) deposit into the Technical Assistance Account an amount equal to the amount of such payment; or (B) refund to the Bank such outstanding amount, as the case may be.

Section 2.04. (a) ICARDA shall maintain records and accounts adequate to reflect in accordance with sound accounting practices the operations, resources and expenditures of ICARDA in respect of the Technical Assistance, including those related to the cost of ICARDA in supervising the consultants and overseeing the implementation of the Technical Assistance pursuant to Section 2.01 (a) and (b) hereof.

(b) ICARDA shall:

(i) have the records and accounts referred to in paragraph (a) of this Section, including those for the Technical Assistance Account, for each fiscal year audited, in accordance with appropriate auditing principles consistently applied, by independent auditors acceptable to the Bank;

(ii) furnish to the Bank as soon as available, but in any case not later than three (3) months after the end of each such year, the report of such audit by said auditors, of such scope and such detail as the Bank shall have reasonably requested; and

(iii) furnish to the Bank such other information concerning said records and accounts and the audit thereof as the Bank shall from time to time reasonably request.

(c) ICARDA may deduct the cost of the audits to be carried out pursuant to this Section from the amount of the Grant Funds.

Section 2.05. ICARDA shall cooperate fully with the Bank to assure that the purposes of the Grant Funds will be accomplished. To that end, ICARDA shall:

(i) from time to time, at the request of the Bank, exchange views with regard to the progress of the Technical Assistance, the purposes of the Grant Funds, and the performance of its obligations hereunder, and furnish to the Bank all such information related thereto as it shall reasonably request; and

(ii) promptly inform the Bank of any condition which interferes with, or threatens to interfere with, the matters referred to in paragraph (i) above.

Section 2.06. ICARDA shall maintain records and procedures adequate to record and monitor the progress of the Technical Assistance, including its cost and the benefits to be delivered from it. ICARDA shall promptly furnish to the Bank all reports submitted to ICARDA by the consultants engaged by ICARDA with respect to the Technical Assistance.

Section 2.07. The Bank shall furnish to the Donors any of the reports and information provided by ICARDA to the Bank pursuant to Sections 2.04 and 2.06 hereof.

ARTICLE III

Effectiveness; Termination

Section 3.01. This Agreement shall become effective upon its execution by the parties hereto.

Section 3.02. This Agreement shall continue in effect until December 31, 1999, or on such date as the Grant Funds have been fully utilized, whichever occurs first.

Section 3.03. If the Technical Assistance is suspended or terminated, ICARDA and the Bank shall consult with each other concerning any further action that may be necessary or desirable.

ARTICLE IV

Miscellaneous; Transfer of Rights and Obligations

Section 4.01. All written communications required or permitted under this Agreement will be directed to the following addresses:

FOR ICARDA

ICARDA
Nile Valley Regional Program
15 G Radwan Ibn El-Tabib Street
P. O. Box 2416
Giza
Arab Republic of Egypt

Telex:

91 21741 ICARDA UN

For the Bank:

International Bank for
Reconstruction and Development
Europe, Middle East and North Africa
Environment Division (EMTEN)
1818 H Street, N.W.
Washington, D. C. 20433
United States of America

Cable Address:

Telex:

INTBAFRAD
Washington, D.C.

248423 (MCI)
64145 (MCI)

Section 4.02. This Agreement may be executed in several counterparts, each of which shall be an original, but all of which shall constitute one instrument.

IN WITNESS WHEREOF, the parties hereto, acting through their duly authorized representatives, have caused this Agreement to be signed in their respective names in the District of Columbia, United States of America, and Cairo, Arab Republic of Egypt, as of the day and year first above written.

INTERNATIONAL BANK FOR RECONSTRUCTION
AND DEVELOPMENT

INTERNATIONAL DEVELOPMENT ASSOCIATION

By /s/ Kemal Dervis

Authorized Representative

ICARDA

By /s/ Adel El-Beltagy

Authorized Representative

SCHEDULE 1

Description of Technical Assistance

The objective of the Technical Assistance is to contribute to the control of natural resource degradation, and, where applicable, to restore productivity of arid lands in the Middle East, through the establishment and implementation of mechanisms for regional cooperation in technology sharing, application of research findings, provision of training, and the preparation or identification of investment priorities under four themes: rangeland and livestock management, economic forestry and orchards, marginal water and saline soils, and germplasm for arid lands. In response to special needs, one of the priorities of the Technical Assistance will be to support capacity building for addressing natural resource degradation of arid lands in the West Bank and Gaza (WBG).

To attain this objective, Thematic Focal Points have been established for each theme. Each thematic focal point will develop a Regional Support Program, which will implement regional priorities identified through collaborative networking. This would include analysis of data and exchange of information, training, study tours activities, and preparation of feasibility studies. National Support Activities, consisting of pilot activities, leading to investments where warranted, will be developed to support the overall strategy of the RSP. The initial phase of program implementation will permit flexibility and allow for the participation of all communities, NGOs and agencies involved in developing the detailed design of RSPs and their NSAs.

The RSPs and their NSAs will: (a) provide for improved communication and interaction on arid lands natural resource management issues at three levels: within countries, the region, and (where this will strengthen the regional initiative) internationally, by: (i) support application of research and analysis of key elements (policy, social, and technical), which have bearing on the sustainable management of arid lands; (ii) creation of networking channels for technical exchange, and training on specific topics relating to resource degradation in arid lands. This would include issues of policy, education and technology; and (iii) bolstering of human resources and the institutional capacity required to manage environmental issues and natural resource use in arid lands; and (b) facilitate investment in priority areas by undertaking pilot and feasibility work that would lead to optimal investment in the application of proven technologies to curtail degradation of the natural resource base.

Components

The four themes (range and livestock, marginal water and saline soils, forests and orchards, and germplasm) embrace the principal resources whose management could be used to bring about control of degradation of the arid lands. The four themes are complementary and interrelated. Where the availability of freshwater for agriculture is limited, the development and application of technologies to enable the use of marginal water resources for irrigation, and agricultural production on saline soils, could restrain natural resource degradation in many marginal areas. Arid lands adapted germplasm is the primary biological resource that could be more effectively managed to control soil and water loss, to provide cash crops or feed for livestock. Arid lands adapted trees and shrubs, in particular, can be planted to restrain the loss of water and soil from degraded areas while also providing economic returns from the production of forage, wood, nuts or fruits. Finally, rangeland is the largest natural resource in the arid lands and the judicious management of livestock utilization of rangeland is the key to optimizing sustainable returns from its use.

1. Rangeland and Livestock Management

Objective

The overall objective of this theme is to re-establish sustainable systems for

managing rangelands and livestock production in the rangelands, in an economic and socially equitable manner. This will entail the definition, development and application of participatory approaches to rangeland management in order to enhance recovery of vegetative cover to increase rangeland productivity, and improve options for social and economic development for those communities using these fragile areas.

More specifically, within this component, it is proposed to assess and monitor the present utilization of rangeland resources, and to identify technologies, and development activities that demonstrate the potential for improving rangeland resource management to ensure conservation of the resource base and maximum returns from its management (primarily in terms of livestock products) throughout the region.

The objective will be achieved through implementation of the following Regional Support Program and National Support Activities, which will seek to identify policy interventions that could facilitate the most appropriate participatory approaches to range management in the different countries involved.

Regional Support Program

A Regional Rangeland and Livestock Network will be established with the focal point in Jordan in the Ministry of Agriculture in collaboration with the National Center for Agricultural Research and Technology Transfer (NCARTT) and the Higher Council for Science and Technology (HCST). The following participating country national institutions would be responsible for implementing the National Support Activities and would constitute the principal members of the regional rangeland and livestock network: The Desert Research Center in Egypt; The Desert Research Institute and Ben Gurion University in Israel; Office de l'Élevage et du Pâturage in Tunisia, and the Palestinian Institute for Arid Lands Studies (PIALS) in the WBG. The network will also be linked to relevant international institutes, such as ICARDA and appropriate national and international NGOs.

The objectives of the network are to share information and technical expertise, and to collaborate on developing and implementing instruments and site application for strengthening the capacity to manage rangeland and livestock in arid zones of the region. The network will define and implement a RSP supported by NSAs. The RSP will engage in the following activities:

- (a) consolidating existing knowledge, both from within and outside the Region, on rangeland production systems, including the management of different livestock species, the application of various grazing regimes; and the influence of intra- and inter-seasonal rainfall variations on (i) range resources and productivity and (ii) pastoralists' management strategies;
- (b) exploring the physical, social and economic factors and issues that influence range management practices. Under this theme, efforts to counter the degradation of arid areas will necessitate local participation, assisted by policy adjustments (e.g. subsidies, land tenure, customary laws on water rights, etc.);
- (c) stimulating the introduction and application of innovative approaches to the management of range resources through support for pilot activities and the transfer of information on range and livestock management initiatives throughout the region (e.g., synchronization of lambing, mass selection);
- (d) contributing to capacity building and strengthening of government technical and extension agencies throughout the region in the crucial area of rangeland and livestock management; and
- (e) researching the strategic issues and problems underpinning the overall objective, with a view to identifying opportunities for investment in more productive and sustainable rangeland and livestock management systems.

National Support Activities

The rangeland and livestock RSP will also support implementation of five rangeland and livestock NSAs. Definition of methods, staff training needs and assessment of the limitations of participatory aspects of rangeland management activities would be undertaken during the initial phase of project implementation. The five NSAs are as follows:

Egypt. The best rangelands of Northern Egypt have been significantly degraded as the result of ploughing for unsustainable rainfed production. The objective of the NSA is to reduce this degradation and to improve range productivity through

identification of optimum rangeland use strategies and development of participatory systems for management of rangeland resources. The Desert Research Center of the Ministry of Agriculture and Land Reclamation would implement this activity in collaboration with the Egyptian Environmental Affairs Agency (EEAA).

Israel. The NSA would develop, evaluate and demonstrate the application of water harvesting and ecosystem management techniques to increase the sustainable productivity levels of rangeland areas. The initiative would be implemented by the Desert Research Institute in cooperation with the Agricultural Research Organization.

Jordan. The NSA would identify technical, and socially acceptable, means of rehabilitating rangeland and forest biodiversity in order to maximize the sustainable productivity of these areas, and would demonstrate these methodologies through programs that will include local participation in both design and implementation. The NSA will be carried out by the Ministry of Agriculture in collaboration with concerned national agencies and NGOs.

WBG. The objective of the activity is to rehabilitate rangeland biodiversity and productivity through establishment of a seed bank and reintroduction of indigenous rangeland plant species. The implementing agency would be PIALS under the umbrella of PECDAR and in coordination with Palestinian Environmental Protection Authority (PEPA).

Tunisia. The NSA would identify and demonstrate the means of optimizing rangeland productivity through, introduction and support of participatory systems for management of communal rangelands. The Office de l'Élevage et du Pâturage would coordinate the program under the supervision of the Ministry of the Environment.

2. Marginal Water and Saline Soils

Objective

The overall objective of this theme is to promote cost effective approaches to the use of scarce water resources, to minimize further soil degradation caused by salinization, and to test methodologies for the reclamation and use of already degraded soils. The objective will be achieved through implementation of the following Regional Support Program and National Support Activities.

Regional Support Program

A Regional Marginal Water and Saline Soils Network will be established with the focal point in Tunisia within the Centre de Recherche du Genie Rural of the Ministry of Agriculture (MOA) under the supervision of the Ministry of Environment. The following participating countries national institutions would be responsible for implementing the National Support Activities and would constitute the principal members of the regional network: the Desert Research Center in Egypt; the Technion in Israel; the Ministry of Agriculture in collaboration with the Higher Council for Science and Technology in Jordan; the Palestinian Institute for Arid Lands Studies. The network will build on past work of the Centre de Recherche pour l'Utilisation des Eaux Salees en Irrigation (funded by UNESCO), and the Centre d'Application des Techniques d'Irrigation et de Drainage (funded by UNDP), and ongoing CGIAR programs. The network will also be linked to relevant international institutes (e.g., The International Irrigation Management Institute - IIMI).

The objectives of the network are to share information and technical expertise, and to collaborate on developing and implementing instruments and site application for recovering saline soils and improving the use of marginal water in arid lands. The network will define and implement a RSP supported by NSAs. The RSP will consist of the following activities:

(a) consolidating existing knowledge, both from within and outside the Region, on the management and sustainable use of marginal water resources and saline soils for agricultural production;

(b) establishing links among researchers and practitioners to foster a synergism in the development and application of innovative technologies used to manage water resources and saline soils for agricultural production (e.g. frequency and volume of irrigation in relation to water quality, soil types, water delivery and drainage systems);

(c) contributing to capacity building and strengthening the ability of government research and service agencies throughout the region in the crucial area of water resources and soil management in arid land agriculture;

(d) establishing a monitoring system to assess the long-term effects on soils of marginal water use; and

(e) where warranted, promote research at appropriate institutions on the strategic issues and problems underpinning the overall objective.

National Support Activities

The marginal water and saline soils RSP will support implementation of the following NSAs:

Egypt. The objective of the NSA is to establish a project in Fayoum Governorate to test and demonstrate innovative technologies for the use of marginal waters (brackish groundwater, and drainage water) in the control of sand and sand dune drift. The project will be conducted by the Desert Research Center, Ministry of Agriculture, in collaboration with the Fayoum Governorate Administration and the EEAA. The NSA will build on the Environmental Profile of the governorate, funded by The Netherlands.

Israel. Based on current knowledge, the proposed activity will test, demonstrate and evaluate the environmental and economic implications, including public concerns, of the use of wastewater for irrigation of fruit trees (e.g. olives and almonds). The activity will be carried out by the Agricultural Engineering Department of the Israeli Institute of Technology, in cooperation with the National Sewage and Water Authority, the Ministry of Agriculture and local authorities. The participation of local farmers is envisaged.

Tunisia. The NSA will establish field trials in an appropriate experimental site in an arid area to identify salt tolerant, arid zone adapted plant species and strains of fodder plants. The activity will be conducted by the Institut des Régions Arides in collaboration with the Centre de Recherche du Genie Rural under the supervision of the Ministry of Environment. The participation of local farmers is envisaged.

Jordan and WBG. As marginal water and saline soils activities are already financed by other donors, there are no NSAs for Jordan and the WBG under this theme.

3. Economic Forestry and Orchards

Objective

The overall objective of this theme is to curtail the process of wide scale deforestation and watershed degradation through the development and promotion of economically viable and environmentally sound technologies for expanding tree cover and their incorporation into farming systems. The objective will be achieved through implementation of the following RSPs and NSAs.

Regional Support Program

A Regional Forestry and Orchards Network will be established with the focal point in Israel in the Desert Research Center of Ben Gurion University under the supervision of the Ministry of the Environment. The following participating countries national institutions would be responsible for implementing NSAs and would constitute the principal members of the Regional Forestry and Orchards Network: the Desert Research Center in Egypt; the Israeli Institute of Technology and the Desert Research Institute in Israel; the Forest Seed Center of the Ministry of Agriculture in Jordan; the Institut des Régions Arides in Tunisia; the PIALS in WBG. The network will also be linked to relevant international institutes (e.g. the International Center for Research in Agroforestry - ICRAF - Kenya and the IPGRI project "Conservation and Use of Genetic Resources of Under-Utilized Mediterranean Species"). The project intends to develop the economic potentialities of some species of fruit trees that may have applications in semi-arid areas.

The objectives of the network are to disseminate information and technical expertise, and to collaborate on developing and implementing instruments and site application for afforestation in arid lands. The network will define and implement a RSP supported by NSAs. The RSP will engage in the following activities:

(a) establishment of a network among researchers and practitioners to review the experience of agricultural production, watershed management and soil conservation initiatives that have been based on the establishment of orchards, trees and shrubs.

(b) stimulation of the introduction (e.g. N-fixing leguminous species) and application of appropriate and more productive technologies (e.g. disease control, integrated pest management) on agro-forestry systems;

(c) contribution to capacity building and strengthening the ability of government research, extension and support agencies, which are actively engaged in the establishment of nurseries, the reestablishment of forests and the introduction of agro-forestry practices throughout the region (e.g., pruning, mulching);

(d) undertake a socio-economic evaluation of the savannization program, with a view to identification of potential options for investment in further application of this methodology to similar areas in participating countries; and

(e) if warranted, the RSP will promote research on the strategic issues and problems underpinning the overall objective.

National Support Activities

The forestry and orchards RSP will support implementation of the following NSAs:

Egypt. The objective of the NSA is to establish an experimental field site to develop and apply water harvesting technologies for agro-forestry systems as a nontraditional, participatory approach to utilizing marginal desert resources. The Desert Research Center of the Ministry of Agriculture and Land Reclamation would be responsible for project implementation in collaboration with EEAA.

Israel. The NSA will define, evaluate and systematically identify options for improving agricultural productivity through introduction of water harvesting technologies for the establishment of trees and shrubs in the Negev desert, and will encourage their more widespread adoption by the private sector. Implementation of activities undertaken in semi-arid conditions will be the responsibility of the Agricultural Research Organization of MOA in cooperation with the Technion and Hebrew university.

Jordan. Due to the close relationship between forest and range management in Jordan, the NSA under this theme will be developed in association with the rangeland NSA, which will establish participatory programs for rehabilitating rangeland and forest biodiversity in order to maximize sustainable productivity. The Department of Forestry and Afforestation of the Ministry of Agriculture in collaboration with other relevant agencies and NGOs will implement the NSA, which will build on the experience of prior and ongoing activities in this sub-sector, including the project "Strengthening Forest and Range Management," which is implemented with the assistance of FAO.

WBG. The NSA will establish a nursery and seed center for the production of seedlings of indigenous and locally adapted trees, shrubs and fruit trees for reintroduction, sale and distribution throughout the West Bank and Gaza Strip. Implementation would be undertaken by the Palestinian Institute for Arid Land Studies, under the umbrella of PECARD and in coordination with PEPA.

Tunisia. The NSA will identify and demonstrate improved agricultural systems, based on harvesting water runoff from hilly areas to increase agricultural productivity while checking soil loss and erosion damage. This activity will be carried out by the Institut des Regions Arides in collaboration with the extension services of the Ministry of Agriculture under the supervision of the Ministry of Environment.

4. Germplasm for Arid Lands

Objectives

The overall objective of germplasm conservation would be to evaluate indigenous and exotic species of plants in relation to their adaptation to arid lands conditions and their economic and environmental values, and to develop a strategy and action plan for germplasm conservation, development and application (in the field) throughout the region. A longer term goal would be to establish within the region, possibly in an international research institution, an arid lands plant gene bank of heat, drought, and salinity tolerant species, which could be used to reestablish a more biologically diversified resource base in the region. Objectives will be achieved through implementation of the following Regional Support Program and National Support Activities.

Regional Support Program

A Regional Germplasm Network will be established with the focal point in Egypt in the Agricultural Research Center (ARC) of the Ministry of Agriculture in collaboration with the EEAA. The following institutions would be responsible for implementation of the National Support Activities and would also constitute the principal members to the regional germplasm network: the Agricultural Research Organization/MOA in Israel; the Forest Seed Center of MOA's Forestry Department in Jordan; the Institut des Régions Arides in Tunisia; and the PIALS in the WBG. The network will also be linked to relevant international institutes, such as ICARDA and the West Asia and North Africa Network-WANANET of IPGRI, the IPGRI project "Conservation and Use of Genetic Resources of Under-Utilized Mediterranean Species," and the International Conference and Program on Plant Genetic Resources (ICPPGR). The project intends to improve the conservation, use and genetic enhancement of germplasm of Mediterranean species, some of which may have applications in arid lands.

The objectives of the network are to share information, technical expertise, and plant materials, and to collaborate on developing and implementing instruments and site application for diversifying the conservation and use of arid land adapted plant genetic resources in the region. The network will define and implement a RSP supported by NSAs. The RSP would consist of the following activities:

- (a) consolidation of existing knowledge, both from within and outside the region, on the diversity of plant species adapted to arid lands conditions;
- (b) development of a systematic and coordinated regional methodology for plant collection, evaluation, introduction, and monitoring;
- (c) establishment or strengthening of: (i) in-situ and ex-situ collections of germplasm of regional economic and ecological significance, and (ii) a collaborative network for the evaluation and exchange of materials. This would include evaluation missions to the participating countries and relevant germplasm collection centers outside the region (e.g., the Conservatoire de Porquerolles, IPGRI); and
- (d) promotion of pilot on-site testing and the introduction of promising species and cultivars, particularly range (including salt tolerant spp.), aromatic and medicinal species.

National Support Activities

The germplasm RSP will support the following NSAs:

Egypt. The objective of the NSA is to collect germplasm of medicinal plants, legumes, oil and forage crops, to establish and manage in-situ and ex-situ conservation of germplasm resistant to abiotic stresses in arid lands. ARC would implement this activity, in collaboration with EEAA.

Israel. The NSA would, in collaboration with the private sector, develop technologies, applicable to the region, for commercial cultivation of indigenous arid land adapted species of herbal and medicinal plants. The NSA would be implemented by the Agricultural Research Organization of MOA.

Jordan. The NSA is to establish a demonstration unit to develop appropriate technologies for the commercial propagation of herbal and medicinal plant species in arid areas, reintroducing species into areas where they have been removed due to over harvesting and overgrazing, and encouraging private sector investment and local participation in the sustainable management and harvesting of these species. The NSA will be carried out by the Forest Seed Center of MOA's Forestry Department in collaboration with local NGOs.

WBG. The objective of the activity is to rehabilitate rangeland biodiversity and productivity through the establishment of a seed bank and a living collection of indigenous arid lands plants to produce and disseminate seeds and seedlings for reintroduction of these species throughout the WBG. The implementing agency would be PIALS, under the umbrella of PECDAR and in coordination with PEPA.

Tunisia. The NSA will consolidate and expand the IRA pastoretum, which already maintains a collection of 30 arid land adapted species, and strengthen the institutional training and educational capabilities. The activity will be implemented by the Institut des Régions Arides in collaboration with the Institut National de la Recherche Agronomique, the Institut National de la Recherche Forestiere, under the supervision of the Ministry of Environment.

5. WBG Capacity Building

Objective

The objective is develop the institutional capacity for addressing the causes of arid land degradation in the WBG, and to develop specific proposals and cost estimates for institutional strengthening and support for extension (training being provided through other programs is complementary to this Technical Assistance) in natural resource management issues for arid lands. This proposed activity complements agriculture sector components proposed in the Emergency Assistance Program for the West Bank and Gaza, such as erosion control through forestry development and the establishment of agricultural public sector functions.

Institutional Support

The objective would be achieved through establishment of the PIALS, under the umbrella of PECDAR and in coordination with the PEPA. Establishment of PIALS would entail:

- (a) refinement of the objectives, organizational structure, work program, personnel and equipment needs of PIALS. Establishment of a facilitation unit and definition of mechanisms for provision of recurrent funding;
- (b) establishment of land and building facilities and procurement of equipment;
- (c) assessment of the status of rainfed farming systems throughout the WBG, including identification of priority issues;
- (d) identification of applied research and technology transfer projects, in order to address the priority issues, which will include improving the use of limited natural resources, including soil, water and genetic diversity;
- (e) creation of an experimental and demonstration farm and preparation of educational materials to encourage adoption of appropriate technologies; and
- (f) exploration of options for improving the income of farmers in arid lands.

The national support activities proposed under this initiative, "Economic Forestry and Orchards" (\$277,000) and "Germplasm and Rangelands" (\$500,000) would be implemented by PIALS.

Monitoring of Program Activities

The objective of monitoring is to contribute to improving management of program activities as well as creating the basis for its evaluation. Monitoring of program activities will be systematically undertaken by the RSPs and their NSAs on the basis of identified performance indicators. It will provide regular feedback of the program's activities and allow for resulting modification to improve operations.

Environmental Impacts

While reducing the environmental impact of unsustainable natural resource use is an integral component of the overall objective of the program, some of the initiatives, such as the use of effluents or saline water for irrigation may have significant environmental implications. Potential negative environmental impacts (on vegetation, soils, wildlife, water quality, etc.) will be assessed. During detailed design of the program, RSPs and their NSAs will be carefully defined so as to ensure environmental sustainability.

