

PD-4413-3101

<b>AGENCY FOR INTERNATIONAL DEVELOPMENT</b> <b>PROJECT IDENTIFICATION DOCUMENT FACESHEET</b> TO BE COMPLETED BY ORIGINATING OFFICE	<b>1. TRANSACTION CODE</b> <div style="border: 1px solid black; display: inline-block; padding: 2px;">A</div> A = ADD C = CHANGE D = DELETE	<b>PID</b> <b>2. DOCUMENT CODE</b> 1
--	--	--

<b>3. COUNTRY/ENTITY</b> Near East Regional: NE/TECH/AD	<b>4. DOCUMENT REVISION NUMBER</b> <div style="border: 1px solid black; width: 40px; height: 20px; margin-left: auto;"></div>
--	--

<b>5. PROJECT NUMBER (7 DIGITS)</b> <div style="border: 1px solid black; padding: 2px;">298-0330</div>	<b>6. BUREAU/OFFICE</b> A. SYMBOL: NE/TECH/AD B. CODE: 03	<b>7. PROJECT TITLE (MAXIMUM 40 CHARACTERS)</b> <div style="border: 1px solid black; padding: 2px;">NE Regional Dryland Agricultural Research Network</div>
---	---	--

<b>8. PROPOSED NEXT DOCUMENT</b> A. <div style="border: 1px solid black; padding: 2px;">3</div> 2 = PRP 3 = PP B. DATE: <div style="border: 1px solid black; padding: 2px;">06/84</div>	<b>10. ESTIMATED COSTS</b> (\$000 OR EQUIVALENT, \$1 = ) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th style="width:80%;">FUNDING SOURCE</th> <th style="width:20%;">AMOUNT</th> </tr> <tr> <td>A. AID APPROPRIATED</td> <td style="text-align: right;">2,050</td> </tr> <tr> <td>B. OTHER U.S.</td> <td></td> </tr> <tr> <td>C. HOST COUNTRY</td> <td></td> </tr> <tr> <td>D. OTHER DONOR(S)</td> <td></td> </tr> <tr> <td style="text-align: right;"><b>TOTAL</b></td> <td style="text-align: right;"><b>2,050</b></td> </tr> </table>	FUNDING SOURCE	AMOUNT	A. AID APPROPRIATED	2,050	B. OTHER U.S.		C. HOST COUNTRY		D. OTHER DONOR(S)		<b>TOTAL</b>	<b>2,050</b>
FUNDING SOURCE	AMOUNT												
A. AID APPROPRIATED	2,050												
B. OTHER U.S.													
C. HOST COUNTRY													
D. OTHER DONOR(S)													
<b>TOTAL</b>	<b>2,050</b>												

<b>9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION</b> a. INITIAL FY: <div style="border: 1px solid black; padding: 2px;">85</div> b. FINAL FY: <div style="border: 1px solid black; padding: 2px;">89</div>	
--	--

11. PROPOSED BUDGET AID APPROPRIATED FUNDS (\$000)							
A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE		E. FIRST FY 85		LIFE OF PROJECT	
		C. GRANT	D. LOAN	F. GRANT	G. LOAN	H. GRANT	I. LOAN
(1)	211B	080		110		2,050	
(2)							
(3)							
(4)							
<b>TOTAL</b>				110		2,050	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)							
210	950	960	970				

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)	14. SECONDARY PURPOSE CODE

<b>15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)</b> <div style="border: 1px solid black; padding: 5px; min-height: 40px;">           To accelerate the use of improved farm technology through the flow and exchange of information within the cooperating Dryland Agriculture Network.         </div>
--

<b>16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)</b> <div style="border: 1px solid black; padding: 5px; min-height: 60px;">           To create a mechanism which will increase the quantity and quality of agricultural information flows between research agencies and those private and public institutions which extend services to farmers.         </div>
---

<b>17. PLANNING, RESOURCE REQUIREMENTS (staff/funds)</b> Design Team: Agricultural Research Specialist Agr. Program Administrator	2 PM Salary \$11,250 2 PM Salary \$11,250 Travel (Int'l, loc) 7,500 Per Diem/Adm Sup 7,000 <b>\$37,000</b>
---	--

<b>18. ORIGINATING OFFICE CLEARANCE</b> Signature: <i>Kenneth H. Sherper</i> Title: Kenneth H. Sherper Director, NE/TECH Date Signed: <div style="border: 1px solid black; padding: 2px;">07/06/84</div>	<b>19. DATE DOCUMENT RECEIVED</b> (AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION) <div style="border: 1px solid black; padding: 2px; display: flex; justify-content: space-between;"> <span>MM</span><span>DD</span><span>YY</span> </div>
--	---

**Project Identification Document**  
**for**  
**Rainfed Agriculture Information Network**  
**(RAIN)**

**298-0330**

**Agency for International Development**  
**Near East Bureau, Washington, D.C.**

**Revised Draft**  
**July 2, 1984**

Tentative Schedule for Near East Bureau  
Dryland Agricultural Network Development

June 26, 1984	ABS - Wrapup Reviews
July 12, 1984	PRC - PID Review
July 24, 1984	NEAC - PID Review
September 17, 1984	Project Paper Design Workshop
October 18, 1984	Project Paper Completed
November 18, 1984	Project Paper Authorized
December 1, 1984	Network Operation Begins

## EXECUTIVE SUMMARY

The proposed project is designed to create an improved capacity for (1) the exchange of scientific information among the agricultural research community in the Near East region and (2) improve the information flows from the research community to the private and public information services which deal with farmers. The problem being addressed is that regional agricultural scientists are not always aware of what research has been or is currently being done in the region, or in similar environments, and of priority research areas needing more attention. Furthermore, many of the countries cannot afford comprehensive research programs and there is a need to economize efforts by drawing upon regional centers or other nations' work. The assistance proposed is to help establish a capacity for better exchange of agricultural research information which is of two types. The first is project resources to improve general exchange of technical research information and to strengthen communications among the regional research and extension community. The second set of resources are those in existing or planned projects and operating budgets of international and regional research and extension agencies which can be used for further collaboration among groups that have similar objectives. In addition to direct support to improve communications, project resources will be used to help identify more specifically how the second set of existing resources can be more efficiently used to improve the quality of research and ultimately improve and accelerate technology adoption among the regions' farmers.

Central project coordination will be from facilities located at the International Center for Agricultural Research in the Dry Areas (ICARDA).

### I PROGRAM FACTORS

#### A. Conformity to AID's Bilateral Assistance Programs

As a regional project to increase the flow of knowledge on rainfed agricultural crops and livestock management practices, the proposed project is directly complementary to bilateral projects in Portugal, Morocco, Tunisia and Jordan and will increasingly serve Yemen as cereal crop production programs are initiated there. While Egypt has irrigated agriculture rather than rainfed, it is also expected to participate in the network because several pulse varieties and semi-confined livestock management practices are relevant to

4

its needs. (Egypt currently has an edible bean cooperative project with ICARDA.) Agricultural development projects make up a substantial proportion of AID bilateral assistance in the region and these programs have been largely justified on the basis of economic growth, equity, food needs and general importance to the countries' welfare. Hence, making the bilateral projects more efficient complements the objectives of both the recipient countries and the USAID development strategies. As a project centered at an International Research Center, the information and systems improvements are likely to benefit nearly all countries in the region.

B. Relationship to the Regional Strategy of the Near East Bureau

Agriculture is one of the priority areas within the NE Bureau's Regional Strategy. The agricultural growth potentials remaining in the region are largely in the rainfed areas. The countries are all deficit in food and agricultural trade balances. Hence, there is an urgent need to exploit whatever agricultural production potential exists. This objective can be directly supported by establishment of an effective, self-sustaining regional agricultural research network.

The region is characterized by several mini-states and quasi-states, which cannot support a fully comprehensive agricultural research and extension apparatus, i.e., Jordan, Lebanon, West Bank, Gaza and to some extent Yemen. There is, therefore, a need to generate some economies of scale in research and information flows by strengthening the effectiveness of small national systems through greater use of existing regional and other nations' research experience and knowledge. The same principle applies to those nations which have a relatively large agricultural base, but currently lack staff and facilities - i.e., Morocco and Algeria.

In summary, the project purpose of increasing the quality and quantity of agricultural information flows is clearly complementary to the existing bilateral USAID agricultural portfolios and is consistent with potential AID efforts.

5

## II PROJECT DESCRIPTION

### A. Perceived Problem

#### Background

Most of the countries in the Near East have emerged from colonial status since World War II. They lacked agricultural research infrastructure and have been slow to develop an adequate research base. Some political units are too small to support much research. In most cases, their research base is still weak and fragmented. The greatest amount of funds have been invested to develop the irrigated agricultural potential including research and extension efforts.

Efforts to strengthen the research base for dryland agriculture and coordinate research and training among countries in the Near East Region were carried out for more than a decade through an FAO/UNDP regional research project directed principally at cereal crops with primary focus on breeding and soil fertility. Some aspects of this program which was completed in 1980 have been continued by the International Center for Research on Wheat and Maize (CIMMYT) and ICARDA.

Concern for a more organized means of continuing this network and expanding intercountry research and training was recently expressed by Ministers of Agriculture and directors of research departments in the countries of the region. The Food and Agriculture Organization of the United Nations (FAO), ICARDA and the International Service for National Agricultural Research (ISNAR) held a joint meeting with research directors to explore means of improving coordination between countries and international organizations in Nicosia, Cyprus on October 17-19, 1983. It was attended by the research directors of most Ministries of Agriculture in the region, international organizations and donors. The meeting led to agreement for creation of an Association of National Agricultural Research Administrators in the Near East to act as the vehicle to promote research and training networks. This proposal is in support of this need by providing the basis for development of a comprehensive network for rainfed agriculture. ICARDA is the logical coordinator for this network, but does not yet have significant outreach and training capability as part of its program.

6

## Problem Statement

There are a large number of ongoing agricultural research activities in the Near East/Mediterranean region, some of which may be redundant. Other important technical agricultural problem areas are not adequately researched and various scientists, "projects", centers and institutions are poorly informed about the work which is going on or what needs to be done. Further, the private and public information services are not current on the latest technological information and services. The important consequence of the above is that farmers' use of improved technology is much less than it could be.

### B. Project Goal and Purpose

The goal of the project is to accelerate the use of improved farm technology.

The purpose of the project is to create a mechanism which will increase the quantity and quality of agricultural information flows among national and international research agencies and those private and public institutions which extend services to farmers. At the completion of the project, it is expected that a regional system will exist wherein information is routinely exchanged and the system has a sustained budget source.

### C. Planned Achievements and Accomplishments

The overall project is expected to operate at two levels of inputs by AID and cooperating country. The first set of inputs are those proposed to be funded, and therefore internal to the project, and directly managed by the project. These will consist of development of a research information network center (to be located at ICARDA) which will become the focal point for the exchange of technical agricultural research information in the Near East region. The role of the project resources would be essentially as a catalyst with limited operational funds other than that needed to perform the catalytic role. Major resources to conduct workshops, training and other network activities will come from projects already in place or planned for the future. These projects are in national research programs, donor programs, and regional and international centers as well as the U.S. research network. Many development projects, which are listed in Annex IV, include funds for training, scientific workshops and exchange of research information and materials such as seeds, rootstock, breeding stock, rizobia, prototype farm equipment, agrichemicals and so forth.

#### D. Project Description

As mentioned above, the project - broadly defined - has two major components. First, there are project resources which will finance specific activities which will act as a catalyst for strengthening the information network. The second component is external to the project per se, but constitutes major resources. These are the national programs, development projects and agencies which will be associated with the project activities. Together the two sets of resources will combine to create the improved rainfed agriculture information network.

While the detailed nature of how the project will work will be determined in the final design of the project, the proposed implementation modus is as follows:

1. The project will post a senior agricultural scientist and support staff at ICARDA to serve as a "network building specialist" responsible for improving the flow of research information. To accomplish this purpose, Research Information Network Unit (RINU) will be established to first identify what scientific information exchange and communication patterns already exist and how they might be improved. The RINU will need to become familiar with existing institutions throughout the region, their general objectives, leaders in the region and the specific research and other activities they carry out. The RINU will need to identify the possible collaborating "projects" or institutions outside the project resources which can best further the concept of improving the general information flows and the specific upgrading of scientific collaboration.
2. Having identified, at least in part, the universe in which it works, the RINU and the research and extension directors throughout the region will meet to develop a program of work for actual networking and communication improvement. It is expected the meeting would result in identification of certain countries or research/extension institutions that would accept the responsibility to be "lead" communicators for assembling information on specific topics. For example, Morocco for durum wheat, Turkey for bread wheats, Tunisia for weed control, ICARDA for farming systems, etc.
3. Information collected would be provided to the network center located at ICARDA for reproduction, dissemination and information storage. Operationally, information could be exchanged or

disseminated through general or topic specific technical workshops and publications and dissemination of scientific results to relevant scientists and institutions on a routine basis. Five functional areas have already been identified as needing improvement in research and information exchange. A detailed description of these functional areas are listed in Annex III.

4. Over time, through its regional activities, the project will directly assist in the identification of the "weak links" in the chain of research information flows which would allow such deficiencies to be addressed. Equally important, the network will provide the basis for scientists to determine national and regional research priorities.

Similarly, over time the project will indirectly affect the quality of research through its work with the specific scientific networks which are subsets of the overall research network. The workshops, seminars, and information generated therein will be available to the Communications Department of ICARDA, and the RINU, and from the information it would be possible to identify regional training requirements, shortfalls in subject matter areas receiving attention and in highlighting research findings of use to its constituency.

While the project will not be able to finance substantive improvements in research systems, the identification of strengths and weaknesses of the systems and sources of assistance to the systems should make the project, per se, effective in achieving the stated purpose.

4. After having identified the utility of the network, the RINU would seek a permanent source of financing. This might be contributions from the national systems within the region, designated funds from international private investors, donor projects or additive core funds provided through the IARCS or regional groups such as FAO's Regional Office, the International Fund for Agricultural Development or the Arab League.

### III. FACTORS AFFECTING PROJECT SELECTION AND DEVELOPMENT DEVELOPMENT

#### A. Social Considerations

The immediate beneficiaries of the project will be researchers and research institutions who will have access to increased amounts of available research data, and group planning of research requirements with other scientists with similar interests in dryland agriculture (cropping, livestock). The ultimate beneficiaries from this project will be farmers in the major dryland areas, particularly in the Near East region. They will benefit from the improved technology developed by their national research institutions because of access to more information on relevant research problems. Private sector research and extension agencies will also benefit since they are expected to interact freely with the network as well as provide some technical and logistical support for network activities.

#### B. Economic Considerations

Population growth rates in dryland farming areas of the world continue to outpace gains made in agricultural output. Although the magnitude of economic benefit will be difficult to estimate, it is quite certain that total economic benefits will certainly outweigh the inputs from this project. The potential for crop output is large, given the opportunity for developing and applying technology that could increase yields as much as 50% depending upon the crop. Research programs designed to strengthen host country institutions have traditionally yielded high returns on investments.

Information and other technology gained by researchers through this project is expected to provide cost saving investments for certain host country institutions with low budget outlays for research and extension. In sum, researchers and farmers will benefit from developed technology with a relatively small investment. The potential pay-off for this technology is very high.

#### C. Relevant Experience with Similar Projects

Although there is no known project similar to the one being proposed, there is a considerable body of knowledge of the functioning of the concept. The agricultural sciences have more substantial examples of the networking concept. One example is the well developed network for exchange of breeder seeds and results of wheat trials. This has been developed

over a number of years with Canadian and Russian wheats often forming a genetic base for the U.S. wheat industry and vice versa. Similarly, Russian sunflower stock is now a major parent of the U.S. hybrid sunflower seed industry. Washington State's semi-dwarf wheats formed the base for the "wheat" green revolution, although much of the breeding work and releases were from CIMMYT in Mexico. The S&T Spring by Winter Wheat Breeding project, a relatively small project, has developed an intensive network in the Near East, with a more extensive international network spreading to all parts of the world. The World Winter Wheat Nursery at Lincoln, Nebraska, is also a portion of the "wheat network". Rice, and to a lesser extent, corn, sorghum and bean are each also developing their networks because the functioning of the concept is relatively inexpensive and when payoffs occur, they are large. Even the failures, such as non adaptive materials, techniques or research methodologies can be economically beneficial in preventing useless research and in general, stimulating intellectual endeavor.

The networking experience in the Near East with its somewhat spotted history also suggests there is a need to formalize the endeavor and continue it for a fairly long time. The lapse in funding for the FAO regional efforts and resultant loss of networking is not an indictment of the concept, but is evidence that it will take time to develop effective and lasting networks. It also seems clear that the work in developing networks in soil or water management, weed control, livestock management and so forth will be more difficult than the work in wheat variety development because there are more management variables involved. The economic payoff may not be as direct or rapid and the transfer between ecological zones may be more difficult than genetic material for crops. Transferring management of farming components will probably require more local adaptation efforts.

#### D. Proposed Borrower/Grantee and/or Implementing Agency

The proposed grantee of this program will be the ICARDA. Specific details of the Grantee's responsibility will be worked out in detail during project paper exercise. However, initial observations, analysis, and discussions support ICARDA's central position within the project from the following points of view:

1. Physical location of ICARDA in the major target area for improving dryland farming.
2. ICARDA's current mandate to improve research in dryland agriculture.

3. ICARDA's existing relationship with other International Agricultural Research Centers (IARC's) and regional research institutions which will facilitate research flows.
4. ICARDA's potential with outreach programs. ICARDA's current program could be further developed and extended to a larger audience of researchers and national institutions to improve agronomic and mixed farming research.

As discussed above, further refinement of this network will take place during development of the project paper. In addition to those activities facilitated through ICARDA, the project will draw from a host of research institutions, projects, private sector organizations and individual scientists.

#### E. AID Support Requirement(s) and Capability

Initial backstopping for the design and operation of this network will come from the Near East Bureau. The Near East Bureau is expected to provide budgetary support to engage the services of qualified staff to handle day-to-day network activities. AID/W will handle the normal administrative control functions. Field Missions will monitor network activities in those countries with AID bilateral projects that are complementary to the network activities. Specialized technical backstopping and inputs will be drawn from the S&T/AGR staff or through a qualified group of contractors provided through the S&T Bureau. It is expected that the network will evolve into an independent body without AID's direct support.

#### F. Estimated Costs and Methods of Financing

Core funding of \$2,050,000 is the estimated requirement for the proposed five year LOP which will support 96 pm of resident technical assistance, 42 pm of TDY consultancies, support staff, operations and travel expenditures. See Annex III for a more detailed budget

Costs to support other network activities, i.e., workshops, seminars, field inspections, specialized training, will come from participating institutions through ongoing program activities. Cost estimates for these programs along

with proposed core funding will be further refined during the preparation of the project paper. Contributions from the following sources are anticipated:

1. IARC's
2. Host Country Research Institutions
3. S&T/AGR Projects
4. Private Sector Agencies
5. AID Bilateral funded projects

#### G. Design Strategy

A significant amount of discussions and informal agreements have contributed to the development of this PID. A recommendation from the Near East Agricultural Officer's Conference supported the concept for the establishment of viable networks and that emphasis would be placed upon establishing a network pertaining to dryland farming. In addition to Mission Agricultural Officers adoption of the concept, there has been expressed interest in the network from two IARC's (ICARDA, CIMMYT), the FAO, S&T centrally-funded regional projects and a host of national institutions. Therefore, the project design strategy will encompass to the extent possible initial input from the above institutions in the preliminary design of the network's operations and proposed activities. When approved, copies of this PID will be forwarded to all interested network partners for their review prior to project paper development. A workshop is planned during the project paper preparation to provide network participants the opportunity to make further inputs in the activity.

The proposed workshop would be held in Washington during the fall of 1984. NE/TECH/AD would assume the lead role in designing and conducting the workshop and finalizing the project paper. Considerable support is expected from the S&T Bureau. It is expected that limited field travel will be required in developing the project paper, however, cost sharing of travel expenditures to the Washington workshop is anticipated.

#### H. Recommended Environmental Threshold Decision

The Initial Environmental Examination (IEE) for the project recommends that a negative determination be made. This determination is supported by the fact that activities under this project will be limited to information sharing through a series of workshops, seminars, and limited training. None of the planned activities will have a direct effect on the physical and/or natural environment. All research activities will be conducted by host country or international agricultural research institutions. Research related to the project is conducted by research institutions supported by AID bilateral funds. These will have independent IEE's performed.

I. AID Policy Relationships

The project is directly supportive of AID's general policy objectives of institution building and technology transfer. The project will facilitate the flow of research information to researchers and research institutions which will improve the kinds and level of improved technology made available to farmers in dryland agricultural areas. The end result will be greater productivity and lessening of the food gap that exists in the dryland agricultural areas.

J. Potential Issues

While most support for day-to-day management of the network will come from core project funding, a considerable amount will have to be contributed by participating agencies and projects. Such support must be in line with the magnitude of information and workshops planned within the established functional areas. A related issue is how large the network should be and to what extent will activities be planned and carried out. These issues will have to be worked out in detail during the project design phase. It is also anticipated that a significant level of network development will occur during the implementation phase as institutions become more familiar with the network and are able to commit more resources in support of network activities.

PROJECT DESIGN SUMMARY  
LOGICAL FRAMEWORK

Life of Project  
From FY 1985 to FY 1989  
Total US Funding 2.05 million  
Date Prepared July 5, 1984

Project Title & Number Rainfed Agriculture Information Network 298-0330

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p><b>Program or Sector Goal</b> The broader objective to which this project contributes Increased use of improved farm technology</p>	<p><b>Measures of Goal Achievement</b> -Crop varieties being grown and livestock management practices under way which were recently developed from regional or national research centers. Similarly, plant protection tillage and fertilizing regimes. Average yields increased on major cereals where new technology is practiced.</p>	<p>-Field Surveys -National Production Statistics -Input sales</p>	<p><b>Assumptions for achieving goal targets</b> -Price/cost relationships favor adoption of new technology -Regional political situation permits continued flow of purchased inputs and products</p>
<p><b>Project Purpose</b> To create a mechanism which will increase the quantity and quality of agricultural information flows between research agencies and those institutions which extend services and information to farmers.</p>	<p><b>Conditions that will indicate purpose has been achieved</b> End of project status -Amount of material exchanged will have increased -Currency of information will be improved -A system will be in place to assure maintenance of continued improvement of information flows</p>	<p>-Numbers of public agencies and people and private firms on mailing lists -Evaluations of research program to assure redundancy is reduced -Survey and evaluation of staff and competency with respect to quality of information being extended to farmers -Permanent sources of finance for</p>	<p><b>Assumptions for achieving purpose</b> Investments in research and sharing of information continues to be seen as an important agricultural development investment</p>
<p><b>Outputs</b> -An operating system whereby national, regional and private researchers routinely exchange information. -An operating system whereby private and public information services receive feedback information on farm technology and inputs, markets and development problems.</p>	<p><b>Magnitude of Outputs</b> One system which crosses political and geographic boundaries, and incorporates both public and private groups.</p>	<p>Establishes a baseline and measure: (a) quantity of information (b) quality of information (c) sustain budget sources (d) level of private as well as public agency participation</p>	<p><b>Assumptions for achieving outputs:</b> National systems, donor project, Private Sector and Extension Systems continue to perceive sharing of information as being in their best interest.</p>
<p><b>Inputs:</b></p>	<p><b>Implementation Target (Type and Quantity)</b></p>		<p><b>Assumptions for providing inputs:</b></p>

BEST AVAILABLE DOCUMENT

Annex 1

Annex II: Five Potential Network Elements, Sub Elements, and Input Requirements.

A major aim of the network should be to increase the level of interdisciplinary research in addition to collaborative discipline oriented research and technology transfer across geographic boundaries. Each program element should have input and collaboration on socioeconomic research needs in addition to technical aspects. This will require needs in addition to technical aspects. This will require collaborative planning and interdisciplinary team research efforts among scientists in the various program areas. This would be particularly important, for example, where the small grains are a focal point as the primary crops. The soil and water management research is directed primarily for utilization in their production. The crop protection element is directed at protecting them from pests and diseases and they are the most important feed resource in the small ruminant production system. Therefore, planning should be based on maximum interdisciplinary interaction. Implementation will be a disciplinary responsibility, but reviews of progress, reporting of the findings and their use in future planning should be an interdisciplinary team approach wherever possible.

One of the general needs of researchers is improved capability in research planning and administration. The scientists in technical areas have tended to lack both training and awareness on socioeconomic needs. These aspects should be included in each program element. To illustrate this point, they are included as part of program element 1: Soil and Water Conservation. This is implicit for the other elements.

The presentation for the proposed potential elements that follows is not intended to represent the priorities that will be the focal point in the network. These will be developed by technical working groups of key future participants. The presentation in this annex merely represents indicative sub elements where the S&T Bureau of AID is in a position to contribute. This listing is only illustrative and not all inclusive. The level of effort indicated is not necessarily cumulative either within an element or in total for all elements. The ultimate technical contribution of AID will be determined by specific contributions from other participants, and the global priorities that influence AID resource allocation.

1. Network Element: Soil and Water Management

a. Management: S&T/AGR:TSMM (PASA)

b. Input required: 8 pm annually (S&T/TSMM project monitor,  
TSMM/ARS: project coordinator)

Sub elements:

a. State-of-the-Art:

(1) Purpose: To do an analysis of the current status of soil and water management research activity and of the research database available within each country and within the region as a basis for developing country research strategies for dryland soil and water management.

(2) Time-frame: Do a country analysis every eight months after an initial workshop.

(3) Input required: 12 pm; 4 person team - 4 weeks/country.  
Soil physicist, dryland agronomist, agroclimatologist,  
social/economic geographer

b. Reserach Activities:

(1) Purpose: To form an effective partnership among scientists in developing countries, IARCs, regional research organizations, and the U.S. in the resolution of problems of dryland soil and water mangement. To form an arrangement for developing and implementing common research methodologies, research plans, and data collection and interpretation that will permit comparison of research results across country and organizational boundaries and will accelerate solution of common problems.

(2) Time frame: Initiate first collaborative regional research activity at an initial work group meeting. Initiate an additional activity at approximately 6 month intervals for 3 years, then one annually, thereafter.

(3) Input required: 96 pm; 12 pm/activity (4pm to initiate, 2 pm/yr)

c. Training Activities:

(1) Purpose: To enhance the level of competency of developing country scientists to plan, conduct, and analyze the results of research in dryland soil and water managemnt. To improve the capability of country institutions to plan and administer research programs.

(d) Time Frame:

(1) Short-term (forums of one or two weeks duration, in-country or at ICARDA in the years indicated)

(a) Technical subjects (principles, data collection, analyses)

- 1) Soil analyses, years 2 and 3
- 2) Soil moisture measurement, years 1 and 3
- 3) Conservation tillage, annually
- 4) Soil-based technology transfer, years 1 and 3
- 5) Water retention structures, years 1, 2, and 3
- 6) Fertilizer use, years 1, 2, and 3
- 7) Agroclimatology, years 2, 3 and 4
- 8) System modelling, years 2, 3, 4, and 5

(b) Research management (methodologies, institutional requirements, evaluation)

- 1) Program planning, program administration, years 2 and 4
- 2) Record keeping, data management, computer use, years 2 and 4

(c) Socioeconomic

- 1) Marketing, pricing, credit, years 2,3,4 and 5
- 2) Processing, storage, cooperatives, years 2 and 4

(2) Long-term

(a) Academic (Funded by AID projects and other sources)

- 1) MS, six each year starting in year 2
- 2) PhD, three each year, starting in year 2

(b) Field internship

- 1) IARCs (3 months) three each year
- 2) U.S. research centers (6-9 months) three each year

(3) Input required: 80 pm; 2 pm/week-workshop (coordination and instructors)

All participant travel and subsistence will be the responsibility of mission projects or other sources.

(e) Information Exchange:

- (1) Purpose: To organize a means of collecting and distributing information on research innovations, projects planned and underway, research accomplishments, publications, meetings, conferences, and training sessions.

- (2) Time frame: Initiate communication among participants at initial workshop. Develop format and content of first newsletter four months after workshop.
- (3) Input required: Major activity will be contracted. Newsletter 3 pm/yr, publication 6 pm/yr, public awareness 3 pm/yr.

Summary of Inputs over five years

Management	40 pm
State-of-the-Art	72
Research Activities	96
Training	80
Information Exchange	60
	<hr/>
	348 pm

2. Element: Small Grains - Wheat and Barley

- a. Management: S&T/AGR/AP: Small Grains for Adverse Environmental Conditions
- b. Input: 10 pm annually required (S&T Project Manager and principal investigators for the Small Grains Project).

Sub-Elements:

a. State-of-the-Art:

- (1) Purpose: To collect information and data on the current status of small grain research and on the research data base available within each country and within the region as a basis for developing a country research strategy in small grain production.
- (2) Time frame: All interested countries should have the data collected and analyzed within the first year of the networking effort. Three to four weeks per country for the initial reconnaissance would be required.
- (3) Input Required: A three-person team per country consisting of the S&T project principal investigators for wheat and barley and from S&T/AGR/AP/ARCs or other sources.

b. Research:

- (1) Purpose: To develop a collaborative research program among the scientists from the countries involved, IARCs, the U.S. universities and other research cooperators. To form an arrangement for developing and implementing common research methodologies, research plants and data collection, an interpretation that will permit comparing research results across country and organizational boundaries and will accelerate solutions of common problems. These will include crop improvement, crop husbandry and management, socioeconomics, crop protection and utilization in the small ruminant production system.
- (2) Time Frame: Initiate first collaborative regional research activity after an initial working group meeting. Initiate an additional activity at approximately yearly intervals.
- (3) Input required: 10 pm/yr.

c. (1) Purpose: To develop the required expertise within a country to effectively develop, implement, analyze and extend research programs and research results concerning small grains.

(2) Time Frame:

- a) Short Term: One day to six months to be conducted at appropriate site: in-country, U.S., IARC, third country. Subjects as required, but could include technical subjects, administration and management.
- b) Long Term: One year or more to be conducted at appropriate location, most likely at collaborating institutions - U.S. and host country. This would be academic training leading to a BS, MS or PhD.

(3) Input Required: 12 pm/yr.

d. Information Exchange:

- (1) Purpose: To provide a means of communication among participating and interested scientists working on small grains. This would include dissemination information on research innovations, projects planned and underway, research accomplishments, publications, workshops, and training sessions.
- (2) Time Frame: Meetings would require two-three weeks/year.
- (3) Input Required: 3 pm/yr.

(c) Provide Germplasm

- (1) Purpose: To provide wheat and barley germplasm to collaborating institutions in the host countries.
- (2) Time Frame: This supply of germplasm will be a continuing effort.
- (3) Input Required: 2 pm/yr.

Summary of Inputs over five years

Management	50 pm
State-of-the-Art	15 pm
Research	50 pm
Training	60 pm
Information Exchange	15 pm
Provide Germplasm	<u>10 pm</u>

Element Total 200 pm

3. Element: Small Ruminants in the Mixed Farming System

- a. Management: S&T/AGR/AP: SR-CRSP/UC-Davis
- b. Input: 10 pm annually (S&T/SR-CRSP project manager and SR-CRSP/ME: Program Director)

Sub-Elements:

a. State-of-the-Art:

- (1) Purpose: To reconnoiter the small ruminant activities (including husbandry, research, marketing, and nutritional resources) within each country. The results of the reconnaissance would provide the basis for developing a small ruminant research strategy in each country.
- (2) Time Frame: All interested countries could have the survey completed within the first year of the networking effort. Two to three weeks per country for the initial reconnaissance would be required.
- (3) Input Required: S&T/AGR and SR-CRSP staff (SR-CRSP ME representative, nutritionist, breeding, health, sociology and economics) for a total of 4 pm/country.

b. Research:

- (1) Purpose: To develop appropriate research programs for small ruminants in mixed farming systems in each participating country. Researchers involved in these activities will be linked into the SR-CRSP network which includes not only U.S. institutions, but also, host country collaborators, IARC researchers and other small ruminant experts around the world. The involvement and expertise of SR-CRSP collaborators will provide a system where the development, implementation and analysis of research activities can be monitored and reviewed by peer expertise and solutions to problems more readily accessed.
- (2) Time Frame: An initial interchange can take place at an initial working group meeting between the respective proposed participants. As research programs develop, the network will be strengthened as collaboration and interaction among the scientists occur and the anticipated reciprocal collegial admiration develops. From the beginning, this will set in motion an activity that will be continuous. Time requirements will depend on research results and problems. Estimated annual input will be a minimum of 10 pm.
- (3) Input Required: 10 pm/yr.

c. Training:

- (1) Purpose: To develop the required expertise within a country to effectively develop, implement, analyse and extend research programs and research results concerning small ruminants.
- (2) Time Frame:
  - a) Short-term - 1 day to 6 months to be conducted at appropriate site; i.e., in-country, USA, IARC, third country.  
  
Subjects as required, to include technical subjects, administration and management.
  - b) Long term - 1 year or more to be conducted at appropriate location. Most likely at collaborating institutions - U.S.A. and host country  
  
Academic, as required, i.e., BS, MS, DVM and PhD
- (3) Input Required: 10 pm/yr.

d. Information Exchange:

(1) Purpose: To provide a means of communication among participating and interested small ruminant scientists. The SR-CRSP already has a newsletter, produces technical reports, annual program reports, and holds annual meetings of principal investigators in each host country and in USA for all PIs, which provides a medium of information exchange.

(2) Time Frame: Meeting would require 2-3 weeks/years.

(3) Additional Input Required: 2pm/yr.

e. Exchange of biological and other materials:

(1) Purpose: To exchange small ruminant genetic material between countries to enhance the production of meat, milk and fiber.

(2) Time Frame: Total depends on the needs, requirements, supply-demand, of individual country programs. Could be a one time effort or a continuous exchange of breeding stock, semen or embryos.

(3) Input Required: 2 pm/yr.

f. Data Management:

(1) Purpose: To provide an effective means of presenting and disseminating research results to network participants.

(2) Time Frame: A continuous activity.

(3) Input Required: 3 pm/yr.

g. Other: The above activities are totally dependent on bilateral programs to support host country institutions and staff in their small ruminant research and training efforts. Mission projects can be developed addressing small ruminants in mixed farming systems utilizing SR-CRSP experienced staff. Implementation of these projects can be accomplished with the aid of SR-CRSP personnel. Mechanisms for missions to tap SR-CRSP resources are being identified and guidelines should be available by the initial workshop. S&T/AGR will continue to provide SR-CRSP core program support and a project manager. S&T/AGR will share the cost with the missions for the initial reconnaissance activities, but other project development and implementation will have to be funded by the missions.

### Summary of Inputs over Five Years

Management	50 pm
State-of-the-Art	20
Research	50
Training	50
Information Exchange	10
Exchange of Genetic Materials	<u>15</u>

Element Total 195 pm

#### 4. Element: Pest and Pesticide Management

##### a. Conduct Seminar/Workshop in Pest and Pesticide Management

A seminar/workshop will be convened and several representatives from each individual country will describe, as they perceive it, the current status of pest and pesticide management in their own country. The speakers will be furnished detailed guidelines to assist them in organizing their presentations and to assure that all major crop protection topics are covered.

A proceedings will be assembled, edited, published, and distributed within the region. Topics to be included in the seminar/workshop include:

##### b. Survey and Documentation

A crop protection survey will be made to identify and prioritize all major dryland pest problems considered to be of existing or potential economic importance. A multidisciplinary survey team of pest management experts will be sent to selected countries of the region (including Jordan, Morocco and Tunisia) and will identify all major in-country agricultural research efforts, both private and public, including all multilateral and bilateral donor groups. Copies of all available and relevant research reports will be collected, cataloged, indexed, and placed on microfiche. Where hard copy data are not available, the ongoing (or completed) research will be summarized and abstracted to the extent possible. The location, training, experience, and research interests of all in-country crop protection specialists will be identified to the extent possible.

##### c. Information Exchange and Data Management

The project will initiate and develop a system for collecting, analyzing, indexing, storing, reproducing, and distributing crop protection information to researchers and cooperators within the

region. An initial element upon which the information system will be built on the output from the Seminar/Workshop, where, through a series of country paper presentations the individual countries will summarize the existing state-of-the-art. The output of this seminar/workshop will be published as a Proceedings and widely distributed throughout the region.

The state-of-the-art will be further documented in the crop protection survey described in section b above.

All significant research outputs for which data are available will be abstracted and summarized as an appendix to the team report. Hard copies of all available data will be microfiched and indexed for easy retrieval.

Technical information available to the research network will be abstracted and published in a quarterly Newsletter with the first volume to be published 6 months after initiation of the project. Hardcopy (or microfiche) of original documents described in the newsletter will be made available to information exchange collaborators on a cost-reimbursable basis.

Exchange of data on minicomputer diskettes and by electronic mail will be introduced into the information network as the demand and need arises.

#### d. Training in Pest and Pesticide Management

The project will supply long, medium, and short-term training in support of the established and maintenance of a research program in crop protection. Long-range training at the B.S., M.S., and Ph.D. levels is best done in the developed nations and will be conducted in the U.S. and in other appropriate countries. Short and intermediate training can either be done in-country or in the U.S. If the potential number of students for a specialized curriculum is small, it is better done in the U.S. On the other hand, if a number of people within the region need training, it is better to provide a consolidated course at a regional training center to minimize travel costs.

Long-term training will include the following disciplines: entomology, weed science, plant pathology, nematology,. Short-term training will include the following specialty areas, as required: crop loss assessment, IPM short courses, pest identification, safe and effective use of pesticides, pesticide analysis, experimental design, survey techniques, and systems analysis.

Training will be provided by specialists within the Consortium for International Crop Protection and will be supplemented by outside expertise as required.

e. Research Planning and Networking Conference

Following the seminar/workshop, a multidisciplinary group of crop protection experts with specialized experience in dryland agriculture will then be convened to develop a multi-module activity plan covering the entire spectrum of pest and pesticide management activities. The plan will discourage, to the extent possible, duplicatory research from being undertaken in separate areas where the pest problem and agroecological zones are similar in nature. Research problems will be defined and unitized so that completion of a publishable activity by any individual researcher (or group) will not be dependent on data input from another country. The plan will be constructed so that individual bilateral or multilateral donors can fund one or more modules. Naturally, some threshold number of "core" activities will require concurrent funding and it is anticipated that the NE Bureau, in coordination with Jordan, Morocco, and Tunisia USAID Missions will provide for this funding. The plan will emphasize a series of activities the sum of which could be "packaged" into a field-testable pest management "system" (see Section C. Field Demonstration of New Crop Protection Systems).

This masterplan will be widely distributed to other interested donor agencies and their active participation in the research networking activity will be encouraged. Meetings to review progress, exchange research results, and to integrate planning efforts will be held on an annual basis.

f. Individual Research Supplements on Integrated Pest Management (IPM)

(1) Efficacy and Residue Testing of Pesticides\*

Cost effective pest management requires that pesticide only be used when and where needed. The type, amount, and frequency of application of a pesticide can only be determined by field trials wherein various candidate pesticides are tested on a comparative basis. For pesticides where residue decline data are needed (for establishing safe residue levels) these field trials will provide an opportunity for establishing a residue decline curve upon which a safe interval between last chemical treatment and harvest can be established. As new pesticide chemicals come on the market there is often a considerable lag time between their use in the developed countries viz a viz the LDCs. This is not due to a lack of interest by the chemical manufacturer in the LDC market but merely a matter of economic priorities.

---

\* includes herbicides, insecticides, fungicides, and nematicides

In most developing countries pesticide application rates follow recommendations based on the results of evaluations conducted in other parts of the world against different crops, pests, and under different environmental conditions. This results in improper and often ineffective hazardous use of pesticides. Institutions with an interest and capability in pesticide research should be identified and cooperative evaluation projects developed with them. The testing program will be directed by U.S. specialists who will assist in selecting candidates, chemicals, crops and pests, designing the experiments, establishing procedures for data collection and evaluation, etc. The actual testing will be done by the LDC collaboratives. Crop residue testing will be an integral part of the testing program.

The strategy of this research component will be to establish, through the networking activity described in Section , a dialogue with the major pesticide chemical manufacturers and arrange for the timely efficacy testing of new pesticide chemicals in several widely separated geographic locations within the region. Due to random climactic fluctuations within the region during any one year, a single year's testing, conducted in several locations, can be expected to cover the anticipated normal range of expected results.

### (2) Basic Research on Pest Biology

Research on the biology of key crop pests should be conducted to obtain information that may be of value in developing management strategies.

These studies will yield information on the alternate hosts, number of generations per year, population dynamics, method of distribution (dissemination), overwintering sites, natural enemies, etc. Information of this type, when analyzed carefully, can lead to more efficacious management methods, e.g. the use of trap crops, destruction of alternate hosts for certain plant diseases, establishment of safe planting dates for certain crops, and destruction of crop residues. Where information voids exist in the biology of the pest, scientists in the region should be encouraged to conduct basic research. This initiative should be coordinated in order to reduce duplication of effort and to facilitate information exchange and timely application of results.

### (3) Research on Biological Control

Research in this area would be aimed at identifying and introducing exotic beneficial organisms into new areas with the aim of their becoming permanent. Numerous examples of the potential utility of this technique can be found in

#### (4) Pest Monitoring and Forecasting

The purpose of this research component is to establish direct and indirect techniques for establishing pest infestation levels at specific periods of crop growth.

Many techniques for assaying and monitoring pest populations have been developed, i.e., direct crop inspection, aerial photography, the use of light traps, the use of pheromane-baited traps, agrometeorological measurements, etc. The research monitoring forecasting programs for the key and secondary crop pests of the region.

The techniques which are developed will assist extension specialists in recommending timely crop protection interventions such as the application of pesticides.

##### g. Field Demonstrations With Integrated Crop Protection Systems

These demonstrations will involve field validation of selected combined research results obtained under Item f, above.

##### h. Establishment of a Crop Protection Research Network

The centrally funded weed project with Oregon State University has already established, through its International Plant Protection Center (IPPC) a loosely knit network of weed scientists. The strongest network contact has been with the Faculty of Agriculture, Weed Control Unit at the American University, Beirut, Lebanon. Other organizations with which IPPC has contacts include: Inst. National Agron., El Harrach, Alger, Algeria; Dir. de la Rech., Agron. Phyt., B.P. 415 Rabat, Morocco; Inst. Nat. de la Rech., Agron. Ave de l'Independence, Avona, Tunisia.

IPPC also has close ties with FAO and other bilateral donor groups operating in the Near East.

The centrally funded International Meloidogyne Project (Nematode Project) operating out of North Carolina State University has established a network of project cooperators throughout the entire Near East Region. A listing of these collaborators is given below. Current project plans for the nematode project call for expanding the scope of collaborative activities to include nematodes other than Meloidogyne.

In the areas of entomology and plant pathology, no well-defined research network appear to exist other than for olives and cereal grains. In the case of olives, a Mediterranean network could easily be established based on the FAO Regional Project in Olive Pest Management headquartered in Greece. Crop protection networking for cereal grains is covered elsewhere (see input from R. Jackson, S&T/AGR).

S&T will provide substantive technical input into the network to be established and coordinated by the Near East Bureau. An S&T staff person (IPA or RSSA) will devote 1/4 - 1/3 person year effort in increasing the number and quality of research interactions within the region. This staff person will closely coordinate his activities with the following centrally-funded projects:

Nematode project  
Bean & Cowpea CRSP  
Pest Management & Related  
Environmental Protection Project  
Kansas State Stored Grain Project  
Denver Wildlife Vertebrate Pest Control Project

)Research  
)

As required, specialists from the above-mentioned projects will directly interact with the crop protection research network.

Sub Element: Pest Management - Weed Control

a. Survey and Documentation

Initial Survey - An immediate survey will be made in each of the countries concerned to determine species, location and degree of infestation for the common weeds. A full description of these common weeds will be published and their impact on regional agriculture stated. This component will take approximately 6 to 8 weeks time of a two person team. Team would consist of senior weed scientists provided by the contractor and a host country counterpart. Task would serve as an in-service training for host country scientist. Other host nationals would be trained at a later date in the identification and classification of weed pests. S&T would provide technical backstopping if necessary.

b. Crop Loss Assessment

After identification of prevailing weed species and potential problem species, an economic and impact assessment will be made. A senior weed scientist with economic training (contractor) and as many as 10 host country scientists would be needed for this component. It is estimated that 4 to 6 months would be necessary to make, analyze, interpret, and publish results of assessment. Purpose of assessment would be to determine type, magnitude and cause of weed problem and to assign a value to crop, animal and human losses caused by these weeds. This assessment would also provide a basis for the research necessary to develop appropriate weed control technology and would demonstrate possible benefits for agriculture, commerce, and man's well being. Except for the senior weed scientist provided, little TA would be required at this stage.

c. Weed Control and Vegetation Management

This sub element will form the backbone of the weed science contribution and will consist of the following activities:

(1) Training: The training in weed control systems topics will be conducted at Corvallis and Gainesville in several contexts:

(a) Formal graduate training in weed science and "special topics." The latter will include courses in farm machinery, economics, budget and personnel management, proposal writing, etc. Will lead to a graduate degree and could take up to five (5) years. Two to four students per year. One pm/yr of faculty time needed for general advising of these students.

(b) OSU will present an informal four-week short course in weed control systems as part of the USDA/OICD short course series. Fifteen to 20 people will be admitted to this course. Principles of weed science and research methods stressed in a mixture of classroom and field activities. A total of 2 pm/yr required for this activity.

(c) At Gainesville, training programs of 4 to 6 weeks will be conducted in aquatic plant management including ecology, water quality, botany, plant physiology, and current methods of chemical, mechanical, and biological control. A total of 2 pm/yr will be required for this activity.

(2) Consulting: Up to 2 pm/yr will be provided by contractor to requesting Missions and other developmental or governmental organizations. The objectives of this short term assistance are to respond to requests from involved AID missions for onsite assistance and advice related to terrestrial and aquatic weed control.

(3) Research Training: A major feature of graduate student programs will involve training in weed science research. This training will focus on developing appropriate dryland weed control systems, plus evaluating the socio-economic impacts of technology adoption. Up to 36 pm/yr of training will be provided for graduate students. Examples of agronomic/weed science research training are:

(a) Minimum or zero tillage crop production and related weed control benefits and problems.

(b) Interactions between time, rate, and nature of fertilizer application and weed species composition.

(c) Characteristics and effectiveness of herbicides important to dryland areas.

(d) Attempt to develop or modify existing herbicide application equipment to provide more efficient and safer use of herbicides.

(4) Information/Communication: IPPC is presently recognized as a center of excellence in weed science and, as such, it communicates on a regular basis with the weed science community in the developing world. Two pm/yr will be needed for this activity, and it will provide the following to the project:

(a) Maintain an international clearinghouse for information concerning terrestrial and aquatic weeds.

(b) Provide a program for publishing and disseminating information on weeds and weed control.

(c) Provide weed scientists in LDCs and others, with periodic current information to support and facilitate their programs.

(5) Outreach: This activity will include both in-country technical assistance and training.

(a) Technical Assistance: Project will provide short-term assistance upon request from USAID missions, other development organizations, or government organizations in developing countries. Up to 3 pm/yr will be committed. Assistance may include:

1. Preparation of documents on biological and economical aspects of weed control in support of project planning and design.
2. Providing general surveys and assessments of terrestrial and aquatic weed problems including socio-economic concerns for a country or region.
3. Providing assistance to agricultural administrators to help identify national and local opportunities for advances in rural welfare through improved weed control.
4. Providing literature, detailed control recommendations and research plans for specific weed problems.
5. Support research and training organizations by providing publications, seminars, training aids, and helping to establish research priorities and methods relating to weed problems and control.
6. Providing guidance in the safe and legal use of herbicides.

b. In-Country Training. IPPC will organize and conduct various types of in-country training as it relates to weeds and weed control.

(6) Institutional Linkage: IPPC will maintain close, active links with a broad cross-section of institutions and centers through several channels. In addition, it will link bilateral project with this network. A list of organizations with which IPPC networks is attached.

Summary of Inputs over five years (not yet determined)

## 5. Network Element: Exchange of Biological and Other Materials

### 1. Plant Materials

In plant improvement, the availability of both breeding lines and information on the various genetic characteristics of breeding material is important for speeding the development or introduction of improved varieties. The exchange of seed and other propagating materials has been steadily improving; but for crops where a formalized system does not already exist, it is important that one be developed. This area will soon be made more complicated by the development, often under patent protection, of new genetic material created through high technology processes. In addition, the increasing use of computer technology as a means of tracking the genetic properties of plant materials offers the potential for exchange of data bases on genetic material in addition to the material itself.

### 2. Animal Materials

Rapid changes are taking place in animal improvement. In the past, use of semen has been the main source of genetic material exchanges. The development of ovum transplant techniques has recently broadened the base to provide manipulation of both the male and the female genetic materials. This will soon be further enhanced by the potential of gene transfers by use of high technology techniques. A systematic means will need to be developed for the rapid use of the new genetic transfers and the data concerning the characteristics involved.

### 3. Nitrogen Fixing and Other Plant Nutrition Agents

Initial work on rhizobium bacteria from legumes as a means of enhancing nitrogen fixation is now being supplemented by work on a variety of symbiotic and nonsymbiotic organisms that fix nitrogen or increase the availability of phosphorons and other nutrients to plant roots. This area is undergoing rapid development. Means for exchange of genetic materials will become increasingly important.

4. Parasites, Predators, and Other Biological Pest Control Agents

The efforts to reduce the level of pesticide use has increased the amount of research on biological control agents. These include a variety of parasites, predators, and various disease organisms. Sharing of these materials presents special problems in biological material exchange because of certain inherent dangers.

5. Animal and Plant Health Serums and Other Health Care Agents

Increased numbers of preventative and prophylactic materials are being developed for control of both plant and animal diseases. The early availability of these agents to researchers is important to enhance the disease control potential.

6. Pesticides, Herbicides, Growth Regulators, and Other Agrichemical Agents

The world agrichemical industry is making large research expenditures. These are resulting in a variety of materials that control weeds, insects, diseases, and other pests. Some of these chemicals are for the purpose of changing the growth characteristics of plants.

Because research deals with long-range needs in addition to short-term problems, the researchers in the national institutions need to have rapid access to information on these new agrichemicals and be able to obtain those with important potential for them. These are usually made available to researchers in countries where the discovering company operates or has a distribution means. As a result, scientists in countries where a particular company currently doesn't operate are disadvantaged. Once the new material has become important, the situation could change rapidly without any local research background.

Annex III

Projected Budget

1985

Personnel Costs	
TA 6 pm	\$ 60,000
Support Staff	10,000
Commodities (to establish office)	30,000
Travel and Operations	<u>20,000</u>
TOTAL	\$110,000

1986

Personnel Costs	
TA resident 18 pm	\$190,000
TA TDY 6 pm	60,000
Support Staff	40,000
Travel and Operations	<u>60,000</u>
TOTAL	\$350,000

1987-1989

Personnel Costs	
TA Residents 72 pm	\$780,000
TA TDY 36 pm	360,000
Support Staff	150,000
Travel and Operations	<u>300,000</u>
TOTAL	\$1,590,000
L.O.P. TOTAL	\$2,050,000

Initial Environmental Examination

Project Location: Near East Countries and Worldwide  
Project-Title: Near East Dryland Agriculture  
Research Network  
Project Number: 298-0335  
Life of Project: Five Years (FY 1985-1989)  
IEE Prepared By: Wilbur G. Thomas  
Date: June 23, 1984  
Action Recommended: Negative Determination

Concurrence: \_\_\_\_\_

Date: \_\_\_\_\_

\_\_\_\_\_  
Environmental Officer

## I PROJECT DESCRIPTION

Population growth rates in dryland farming areas of the world continue to outpace gains made in agricultural output. In order to stem the current trends, agricultural productivity will have to be increased primarily through new technology developed in research institutions. In the past, dryland research in most areas have been conducted in near isolation and whose results are not available to other researchers with similar interests. While the fragmentation of available data presents the major problem of improving research, the level of resources accorded to improving research and technology in some countries is not sufficient enough to keep pace with production demands.

This project will create a mechanism which will increase the quantity and quality of agricultural information flows between research agencies and those institutions which extend services and information to farmers. It will bring together scientists dealing with common problems for the purpose of providing rapid exchange of research results, exchange of biological and other materials, allow joint planning of research activities where appropriate, and provide improved training. The network will also provide a means to more effectively link the scientist in the region to those in the U.S. and other countries dealing with similar problems.

The problem being addressed is that regional scientists are not always aware of what research is already being done in the region, or in similar environments, and of areas needing much more attention. Several countries cannot afford full-fledged research or extension establishments and there is a need to economize efforts by drawing upon regional centers or other nation's work. The assistance proposed to build the permanent capacity for better exchange of information is of two types. The first is project resources to improve general technological exchange and communication among the research and extension community on what is going on and what new farm technological exchange and communications among the research and extension community technologies may presently exist. The second set of resources are those already in existing projects and operating budgets of international and regional research and extension agencies which can be used for further collaboration among groups which have similar objectives. The project will be implemented through a research network with participation from the International Agricultural Research Centers (IARCs), host country research institutions, individual scientists, AID/W and Missions.

The proposed AID direct contributions to the project will be 2.05 million over a five year period. It is anticipated that additional or indirect funds will come from AID Field Missions and the Bureau for Science and Technology through existing projects. AID financial support will be used primarily for personnel, travel, per diem, equipment, supplies and workshop support costs. The project does not envision the procurement of fertilizers, pesticides or other materials in direct support of research in the international or host country research institutions.

II. DISCUSSION OF IMPACTS

Since this project principally involves information exchange through a series of workshops, seminars, and limited training, all of which have very limited or no visible effect on they physical and natural environment, a categorical exclusion is justified in accordance with environmental procedures 22,CFR Section 216.2(c)(2)(1), (ii), (iii), (v) and (xiv).

III. RECOMMENDATION

From the above discussion it has been determined that the Near east Dryland Agricultural Research Network wll not pose significant effects on the environment. Therefore, a negative determination is recommended.

IV. IMPACT IDENTIFICATION AND EVALUATION FORM

<u>Impact Areas and Sub-Areas</u>	<u>Impact Identification Evaluation<sup>1/</sup></u>
A. LAND USE	
1. Changing the character of the land through:	
a. increasing the population	N
b. extracting natural resources	N
c. land clearing	N
d. changing soil character	N
2. Altering Natural Defenses	N
3. Foreclosing important uses	N
4. Jeopardizing man or his works	M+
5. Other Factors:	
Reducing pesticide pollution and contamination	N

<sup>1/</sup> The following symbols were used:

N = <u>No</u> Environmental impact	U = <u>Unknown</u> environmental impact
L = <u>Little</u> environmental impact	+ = <u>Beneficial</u> impact
M = <u>Moderate</u> environmental impact	- = <u>Negative</u> impact
H = <u>High</u> environmental impact	

B. WATER QUALITY	
1. Physical State of water	N
2. Chemical and biological states	N
3. Ecological balance	N
4. Other factors	N
C. ATMOSPHERIC	
1. Air additives	N
2. Air pollution	N
3. Noise pollution	N
4. Other factors	N
D. NATURAL RESOURCES	
1. Diversion, altered use of water	N
2. Irreversible, inefficient commitments	N
3. Other factors	N
E. CULTURAL	
1. Altering physical symbols	N
2. Dilution of cultural traditions	N
3. Other Factors	N
F. SOCIOECONOMIC	
1. Changes in economic/employment patterns	M+
2. Changes in population	N
3. Changes in cultural patterns	M+
4. Other Factors	M
G. HEALTH	
1. Changing a natural environment	N
2. Eliminating an ecosystem element	N
H. GENERAL	
1. International Impacts (cooperating in research networking)	M+
2. Controversial Impacts	N
3. Larger program impacts	N
4. Other Factors	N
I. OTHER POSSIBLE IMPACTS (Not listed above)	
1. Introduction of new plant species	N
2. Other Factors	N

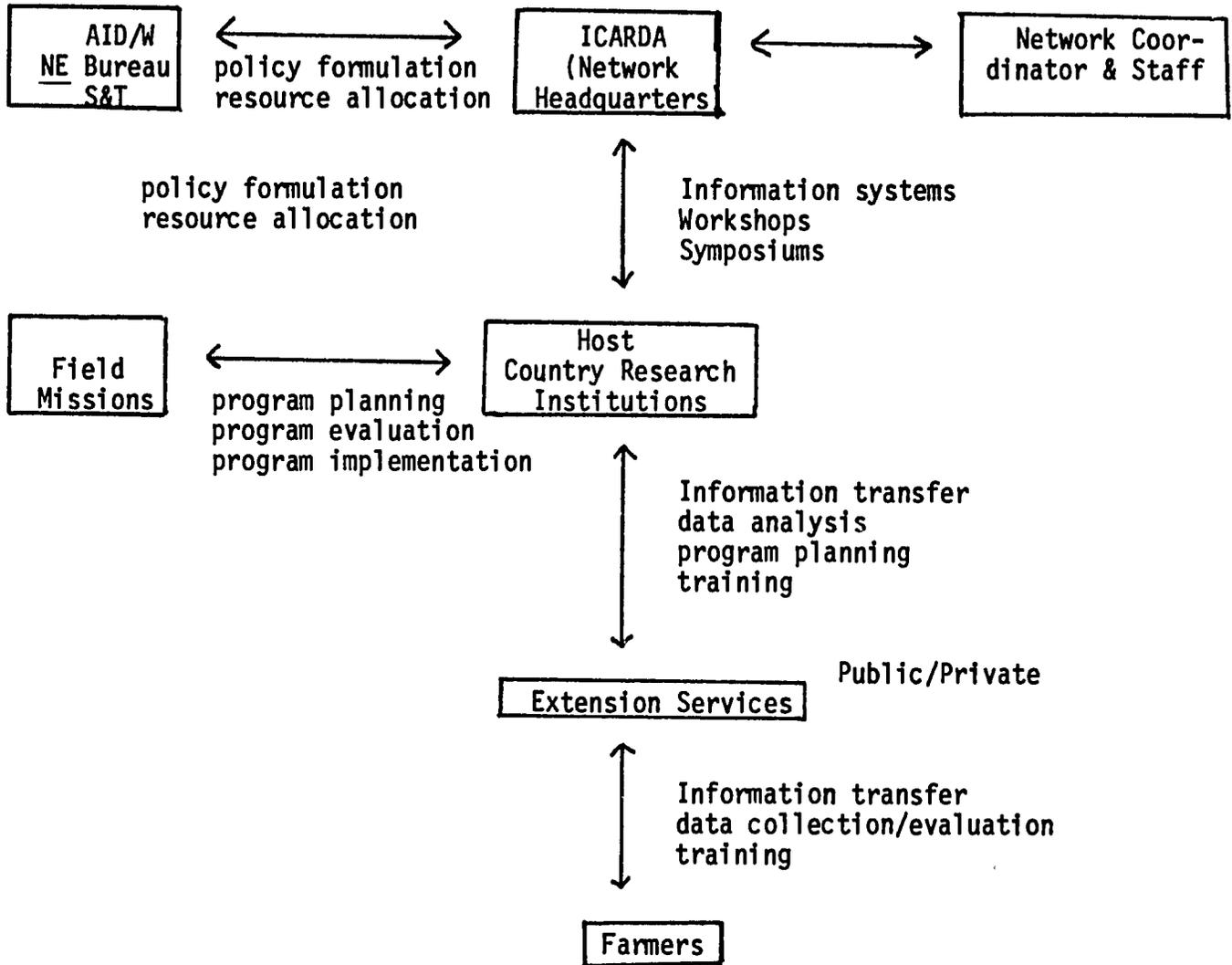
Annex V. Participants and Organizational Development

Near East Dryland Network

<b>AID</b>	<b>IARC's</b>	<b>Host Countries</b>
1. Near East Bureau	1. ICARDA	1. Egypt
2. Science and Technology	2. CIMMYT	2. Jordan*
3. Field Missions	3. ISNAR	3. Morocco*
	4. FAO	4. Tunisia*
		5. Yemen
		6. Portugal*

---

\* Countries with ongoing/planned dryland programs



Overall Management Entity - NE Bureau	
1. Policy Formulation 2. Resource Allocation 3. Program Evaluation 4. Network Support	← Recruitment of Coordinator ← Logistical support* ← Administrative support for Workshops and Symposiums

\* Some of the in-country support could be provided by ICARDA, i.e., office space, telex, telephone. AID could provide resources for printing, travel, office equipment, transportation, household furnishings for the coordinator.

Support	
Technical Management Entity - S&T/AGR	
1. Technical Services	← in-house recruitment assistance
(a) provide technical expertise	(link between U.S. research institutions)
(b) provide technical information	
(c) provide necessary support for workshops and symposiums, i.e., props, graphic data and charts	

Office of the Network Coordinator	
*1. Coordinator 2. Deputy 3. Secretarial/clerical 4. Element Monitors (5) 5. Sub-element Monitors **6. Information Systems Analyst	

\* Counterpart relationship with DG of ICARDA  
\*\* Optional

Joint Administrative Task Force

1. ICARDA DG
2. CIMMYT DG
3. NE Bureau Representative
4. S&T/AGR representative
5. ISNAR Representative (?)

Purpose: To establish general policies and programs for the network. Approve annual work plans for the coordinator.

drafted by:NE/TECH/AD:WThomas:sdb:0758I