ASSOCIATION OF AGRICULTURAL
RESEARCH INSTITUTIONS
IN THE NEAR EAST AND NORTH AFRICA
(AARINENA)

اتحاد مؤسسات البحوث الزراعية
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(أريدينا)

AARINENA in 2000 and Beyond:

A Framework for Action
(2000-2005)

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LIST OF ACRONYMS

AARINENA: Association of Agricultural Research Institutions in the New East and North Africa

ACSAD: Arab Centre for the Study of Arid Zones and Dry Lands

APO: Associate Professional Officer

CGIAR: Consultative Group for International Agricultural Research

CIHEAM: Centre International de Hautes Etudes Agronomiques Méditerranéennes

EC: European Commission

EFARD:European Forum for Agricultural Research for Development

EIARD: European Initiative for Agricultural Research for Development

FAO: Food and Agriculture Organization

GFAR: Global Forum on Agricultural Research

GIS: Geographical Information System

GRM: Genetic Resources Management

ICARDA: International Centre for Agricultural Research in the Dry Areas

ICT: Information and Communication Technology

IFAD: International Fund for Agricultural Development

ISNAR: International Service for National Agricultural Research

KISR: Kuwait Institute for Scientific Research

NARS: National Agricultural Research Systems

NENA-SCF: Near East and North Africa Seed Consultative Forum

NGO: Non Governmental Organizations

NRM: Natural Resources Management

TAC: Technical Advisory Committee

VERCON: Virtual Extension and Research Communication Network

WANA: West Asia and North Africa

Introduction

The Association of Agricultural Research Institutions in the Near East and North Africa (AARINENA) was established in 1985 in response to the recommendations of two regional ministerial meetings.[1] In taking this initiative, the founding fathers were cognizant of the important contributions which national and international research could make to the sustainable development of agriculture in the Region. AARINENA was seen, therefore, as an instrument for strengthening national and regional agricultural research capacities, as well as a forum for bringing the collective views and aspirations of the countries of the Region to the note and action of donors and international research and development organizations.

The early years of the Association's existence were difficult and progress was slow. It was run from the FAO Regional Office in Cairo on which it depended totally for secretarial and administrative matters. Furthermore, it relied almost entirely on the three Cosponsors, FAO, ICARDA, and ISNAR for developing and implementing its programmes and conducting its meetings. Nevertheless, it managed to undertake a number of useful activities and eventually, it became the recognized forum for the agricultural research institutions of the Region. The last few years witnessed the coming of age of AARINENA as exemplified by the transfer of its Secretariat from FAO Office in Cairo to Cyprus to operate as an autonomous body from within the Region. Meanwhile, the Association membership grew steadily to twenty members and five Regional and International Organizations.

The Sixth General Conference held in Teheran in May 1998 was a turning point in the history of the Association. During that Conference, members considered and approved a forward-looking strategy[2] and put in motion a policy of decentralization by which five sub-regions were established, namely: Arabian Peninsula, Maghreb, Mashreq, Nile Valley and Red Sea, and West and Central Asia. The establishment of these sub-regions was on apolitical, socio-cultural and agro-ecological basis.

From Strategy to Action

In charting its strategic course for the years to come, the Association took stock of past achievements, constrains and lessons learned. It also reviewed important relevant developments, particularly the establishment of the Global Forum on Agricultural Research (GFAR) and its NARS Secretariat and the European Initiative for Agricultural Research for Development (EIARD). Members agreed that AARINENA must strive to benefit fully from the opportunities offered by such positive developments. To do so, the Association endeavours to transform itself into an effective and efficient Association capable of enhancing

1 The 14th and 16th FAO Near East and North Africa Regional Conferences that normally attended by Ministers and high ranking officials of agriculture.

2 AARINENA towards 2000 and Beyond: A Strategy for the Future, 1998.

regional and inter-regional collaboration. To that end, the Sixth General Conference approved a new strategy and set in motion the preparation of a plan of action.

The newly formulated mission statement and goals capture the spirit and orientation of the Association's strategy. The mission now calls on AARINENA to contribute to the enhancement of agricultural and rural development in the Region through fostering agricultural research and technology development, and by strengthening collaboration within and outside the Region. All in order to achieve greater degree of self-reliance in food and agriculture, and to improve the nutritional well-being and overall welfare of the people of the Region, while at the same time sustaining and further improving the productive capacity of the natural resources base.

A Framework for Action

The development of this Framework for Action is a result and culmination of a wide-ranging consultative process among AARINENA stakeholders and partners. It is built on the views and recommendations emerging from the General Conferences, the deliberation of the Executive Committee as well as from several other meetings at the regional and sub-regional level. It has, also, greatly benefited from inputs from the Cosponsors, the NARS Secretariat of GFAR, EIARD, the European Forum and other research and development organizations. The contributions of a number of regional and international research and development organizations in formulating detailed research project proposals have been particularly valuable.

The actions and activities envisaged in the Framework revolve around two central themes: bringing greater measure of efficiency and continuity to the institutional set-up of the Association and, at the same time, developing a portfolio of concrete activities and mobilizing support for their implementation. The framework comprises five main sections as follows:

- Thrust and Focus.
- Mode of Operation.
- Strengthening central capacity.
- Strengthening Regional capacity.
- Programme of work.
    - Building Organizational Capacity
    - Strengthening Information and communication
    - Promoting policy and institutional capacities
    - Formulation of regional and sub-regional project proposals

The various components of the Framework for Action are described below.

1. Thrust and focus

The main thrust of the Framework for Action is to translate the Strategy of the Association into concrete and sustainable plan of action. This is to be realized through the revitalization of its capacities and by bringing greater efficiency and continuity in its operations. The focus of the Framework is two-pronged:

One, to build the organizational and technical capacities of the Association on a more sustainable basis bringing to an end much of the ad hoc/part time arrangements that have

prevailed so far. This is not an end in itself, but rather an enabling means for the fulfillment of its role as catalyst, facilitator, forum and keeper and provider of basic information and data.

Two, to identify and mobilize support and resources for national and regional priority research issues and projects, leaving the actual execution of research projects and networks to the national agricultural research institutions and the collaborating regional and international research and development organizations.

2. Mode of Operation

In translating its strategy into concrete action, AARINENA is guided by the objectives as stated in its Constitution and as amended at its Sixth General Conference. Two new objectives were added to the original ones in order to strengthen the Association's links with the policy-makers and to emphasize its role in the mobilization of financial support to agricultural research and technology development efforts in the region. The objectives of the Association are briefly to:

- *foster* agricultural research development;
- *promote* the exchange of information;
- *strengthen* national agricultural research capacities for providing timely and necessary data and information to policy-makers;
- *encourage* the establishment of appropriate co-operative research and training programmes in accordance with identified regional, bilateral or national needs and priorities;
- *advise* members on issues pertinent to research organization and management;
- *strengthen* cross-linkages between national, regional and international research centres and organizations, including universities, through involvement in jointly planned research and training programmes;
- *Assist* in the mobilization of financial and other forms of support to all efforts aiming at strengthening agricultural research and technology development in the region**.**

In accordance with the above, the Association sees itself as a collaborator and partner with other relevant institutions and organizations It does so by assisting in the creation of an environment conducive to collaboration and co-operation among agricultural research and related systems within and outside the Region. It acts as a facilitator in bringing the views, aspirations and research priorities of the region to the attention of the relevant organizations with the aim of securing sustainable funding for the regional and sub-regional research projects and related activities. The Association would need to also provide scientific advice as well as maintaining a coordinating role

AARINENA is placing increased emphasis on sub-regional groups as they offer more cohesion amongst member nations due to their greater socio-economic and cultural affinity. They, therefore, act as the main hub for operational and specific collaborative research projects. The sub-regions differ in their agriculture potential, the state of their agricultural

research, and their policy environment in general, which calls for flexibility in the design of their structures to allow for natural evolution over time. Reliance will continue on the elected focal points for co-ordination at the sub-regional level and in addition relevant national institutions are to be identified as focal points for specific regional and sub-regional projects and networks.

The financial resources of AARINENA come principally from annual membership subscriptions for full and associate members as established by the General Conference at each biennial session. Currently they stand at US$2000 for Full Members and US$1000 for Associate Members. In addition, it accepts grants and donations from individuals, government, and organizations. Some income is also generated through proceeds from sale of publications and fees, if any, collected from participation of none-members of scientific meetings organized by the Association. As a demonstration of their commitment to the Association, member countries provide, in addition to their monetary contributions, a wide-range of in-kind contributions. The Government of Cyprus, for example, provides office facilities, part-time Executive Secretary, and administrative and operational support. Other countries provide logistical support to project formulation and other activities such as hosting the General conferences, meetings etc..

3. Strengthening AARINENA's Organizational Capacity

AARINENA is determined to keep its administrative structure and cost to the bare minimum. However, experience has shown that reliance on part time Secretariat, good as it may be, was not a satisfactory long term arrangement. It is imperative that the Association is structurally strengthened and reasonably enabled to undertake the tasks ahead in an efficient and sustainable fashion. For it to fulfil its goals and put the new plan of action in motion, it intends to appoint a full-time Executive Secretary and, as resources allow, a full-time Information and Documentation Officer. This minimum capacity may need to be augmented, as feasible and appropriate, by part-time secondment of staff as well as by APO arrangements. Resources to cover this "central set-up" would come from the Association's own income, from accrued income and from contributions for this purpose.

The President and the Executive Secretary are spearheading efforts to gain greater recognition for the Association and to mobilize resources for research projects based on regional and sub-regional priorities. For example, the Association for the first time held its Seventh General Conference in parallel with the FAO Ministerial Regional Conference for the Near East and North Africa to gain greater visibility and to have closer contacts with Ministers and high officials of agriculture. AARINENA is in addition holding a series of meetings with the other regions such as the meeting with the European Institutions (EIARD, EFARD, and EC) held recently in Portugal.

The Association is aware of the need for sub-regional arrangements to be put in place in all the sub-regions in order to regularly exchange information and results, to discuss respective comparative advantages, and to decide on sub-regional research priorities and collaborative research programmes. Reliance will continue to be on the sub-regional focal point who are at the same time elected members of the Executive committee and are greatly instrumental in co-ordinating and/or promoting sub-regional collaboration**..**

4. Strengthening Regional Technical Capacity

In its endeavour to strengthen national and regional research and technical capacities, AARINENA actively pursues two inter-related tasks. One, it facilitates the setting of priorities at regional and sub-regional level. Two, it mobilizes resources for translating these priorities into research projects and networks.

4.1 Priority Setting: The Association has approached priority setting in a systematic and consultative manner at both the regional and sub-regional levels. For example, a meeting was convened in 1995 with the view of developing elements for action plan for NARS-CGIAR partnerships, including priority setting, capacity building, and mechanisms for sustainable partnerships. It was part of the deliberative process adopted within the NARS-CGIAR Partnership exercise *Toward a Shared Vision on Agricultural Research*, which was hosted by the CGIAR, TAC and ICARDA and co-sponsored by FAO, IFAD, and ISNAR. While AARINENA does not specifically deal with national priorities, it may assist, on request, countries in formulating their national agricultural research priorities as they are critical for developing regional and sub-regional priorities.

AARINENA believes that priority setting is a dynamic process that would benefit from continuous review and refinement. In setting regional and sub-regional priorities, the Association is cognizant of the main physical, biological and socio-economic characteristics of the AARINENA mandate Region[3]. The Region is physically a vast area with aridity as the prevailing feature making it the poorest region in the world in terms of water resources. It is rich in indigenous plant genetic resources, but most of its diversity is threatened by erosion. The Region also has a great wealth of livestock, representing, for example, 74%, 26% and 21% of the world total for camels, sheep and goats, respectively. The contributions of animal production to the national agricultural gross product differ greatly from one country to another and ranges from 16% to 81%.

In spite of the greatly improved incentives introduced through domestic policies and higher international prices, the region has only achieved limited success in the production of strategic crops, the diversification of the agricultural base and the enhancing of productivity of land and labour in the agricultural sector. This is mainly due to scarcity of irrigation water and irregular and scant rainfall. Agriculture in the Region is affected also by several abiotic stresses such as drought, heat and salinity. The range land and the natural resources base of agriculture are for a variety of reasons suffering from deterioration and neglect. Much of the onus falls on the agricultural research systems and technology transfer agents to halt, if not reverse, this situation.

4.2 Technical Regional and Sub-regional Priorities: The technical and research priorities listed below represent the consensus of AARINENA's stakeholders. They include both factor and commodity related research priority, which in general lend themselves rather well to model regional and/or sub-regional projects and networks. The priorities approved by the 1999 Sixth General Conference are:

3 More detailed information can be found in "AARINENA towards 2000 and Beyond: A Strategy for the Future", 1998.

- Water management and increasing water use efficiency.
- Land degradation and measures for its control.
- Rangeland rehabilitation and management.
- Crop improvement for wide adaptability and/or tolerance to stresses.
- Animal breeding and management.
- Livestock production and nutrition.
- Management and sustainable use of salt-affected soils.
- Use of saline and poor quality water for crop production.
- Sustainable use and management of dry-land areas.
- Minimizing the inputs of chemical fertilizers and pesticides.
- Farming system research.
- Agroforestry research.
- Aquaculture research.
- Natural resources management
- Biotechnology.

During the 2000 Seventh General Conference, it was agreed that work on commodity chain related research on citrus, date palm, olive and cotton be accorded high priority along with the aforementioned priorities.

5. Programme of Work

AARINENA will embark on important tasks and activities in four inter-related areas as follows:

5.1 Building organizational capacity, at both the central and sub-regional levels:

- At the central level, it will strengthen the Executive Secretariat by appointing two full-time staff members, an Executive Secretary and an Information and Documentation Officer. In addition, the Association will initiate, as deemed feasible and appropriate, action to further seek support in the form of staff secondment and APO appointment. Pending full staffing of the Secretariat, AARINENA will continue to benefit from the current arrangement by which FAO Regional Office in Cairo is kindly looking after the Association's finances.
- At the sub-regional level, reliance will be on the sub-regional focal Points who are, at the same time, elected members of the Executive Committee entrusted with fostering and co-ordinating collaboration in their sub-regions. Use will also be made of facilities of national institutions and organizations implementing and/or supporting projects and networks. In particular, full advantage will be taken of the kind standing offer by ICARDA for AARINENA to use the facilities of its Regional Offices. This is the more appropriate as AARINENA's sub-groupings coincide, more or less, with those of ICARDA outreach programmes. AARINENA intends, in addition, to make full use of national and sub-regional NARS/ICARDA co-ordination meetings normally organized on annual basis.

5.2. Strengthening information exchange and communication among AARINENA's members and between them and the outside world. The Framework envisages the need for improving information exchange and communication through maximum use of internet-based services. With support from the NARS Secretariat of GFAR, a fully interactive web page for

AARINENA is near completion and a WANA regional Agricultural Information Strategy is being elaborated. A number of activities has or is about to be initiated including:

- Web site, to present the Association's activities to the public and to donor agencies. The Web site will also serve a gateway function to facilitate access to information relative to stakeholders active in agriculture research in the WANA Region, and between them and global sources of information.
- Forum Function, to provide the foundation for a wide set of other services. All relevant users would be provided with an account, and mailing lists could be set-up for information exchange or discussion on specific topics.
- Information Management System, to establish/manage regional databases (e.g. institutional inventory, regional network inventory, information resources inventory) and to aggregate information to be made available by the countries (e.g. human resource inventory and project inventory). Full access control would ensure only authorized users were given access.
- Internet publishing would allow reports, newsletters and other publications to be very effectively disseminated through the Internet as they can reach a potentially larger community. Document availability is maximized and timeliness of information is increased.

5.3. Promoting policy and institutional capacities:

AARINENA will continue to collaborate with FAO and ISNAR and other organizations in bringing matters related to promoting policy and institutional capacities to the attention of its member countries through joint seminars, workshops or during scheduled meetings of the Association. Whenever possible, the Association will also use venues of ongoing relevant non-AARINENA meetings. Priority activities in this regard include:

- Formulating agricultural research strategies at national and sub-regional levels.
- Improving components of research management.
- Enhancing information systems at all levels.
- Strengthening collaboration among research institutions.
- Establishing formal mechanisms for linking research institutions with extension agencies and end users.

5.4 Formulation of regional and sub-regional project proposals:

AARINENA promotes the formulation and mobilisation of funding primarily for two types of projects and networks namely, regional and sub-regional. The regional projects and networks are normally dealing with research and development subjects of wider applicability to the region as whole and with high multiplier effect. On the other hand, the sub-regional projects and networks are, by definition, dealing with research problems more specific to the sub-regions' agricultural and socio-economic conditions. However, the sub-regional projects do benefit other sub-regions and the research results are shared by member countries of the Association. This is part of the strength of project formulation and follow up through the mechanism of AARINENA as it offers considerable cost effectiveness, wider dissemination of research results, and greater synergy and collaboration among its members.

The Association has developed over the recent years a dynamic portfolio of activities reflecting collectively identified priorities as they listed below. In collaboration with ACSAD, CIHEAM, FAO, ICARDA, ISNAR, and others, AARINENA has developed several of these ideas and activities into projects and networks that are ready for consideration and discussions among interested donors, countries and implementing agencies. They are listed in the Annex under five key thematic areas:

- Genetic resource management (GRM)
- Natural Resource management and Ecology (NRM):
- Commodity chain:
- Policy Management and institutional development:
- Information Management for Agricultural research Development:

Annex
Profiles of Project and Network Proposals

Genetic resource management (GRM)

1. Genetic Engineering for Stress Tolerance in Agronomic Plants in the Arabian Peninsula Sub-Region.
2. Development of Wheat Cultivars for Durable Resistance to Leaf and Stem Rusts in the Nile Valley and Red Sea Region.
3. Dairy Sheep Breeding for Small Flocks Based on Simple Recording.
4. Central and West Asia Yellow Rusts Network.

Natural Resource management and Ecology (NRM):

5. Use of GIS and Modeling Techniques for Hydrologic Research and management of Water Resources.
6. Water Management and Increasing Water Use Efficiency for Sustainable Agricultural System.
7. Integrated Feed/Livestock Production Systems using Non-Conventional Feed Resources in the Al-Mashreq Region.

Commodity chain:

8. Regional Network for Date Palm in the Near East and North Africa.

Policy Management and institutional development:

9. Regionalizing Agricultural Research within Countries in the Maghreb Region.
10. Strengthening National Seed Policy and Production Systems.

Information Management for Agricultural research Development:

11. Development of an Agricultural Information System for West Asia and North Africa.
12. VERCON-Using the Internet to Improve Research-Extension Linkages.

In the following section are brief profiles of the above referred to regional and sub-regional proposals describing their background, rationale, main activities, expected outcome, partners involved, contact persons, and project development status:

1 - Genetic Engineering for Stress Tolerance in Agronomic Plants in the Arabian Peninsula Sub-Region.

Rationale: The Gulf States lie in the hot arid region of the Arabian Peninsula that is characterized by long hot summers, scarce fresh water and sandy salty soils. Food and feed production is highly restricted leading to total reliance on importation. Under such harsh conditions, traditional crop management practices and breeding methods are inadequate to sufficiently enhance local food and feed production. Much could be achieved by introducing modern techniques of genetic engineering and tissue culture and if they would be applied to agronomic crops capable of growing under arid climatic conditions.

Main activities: A prerequisite for this approach is to identify gene source for novel traits such as drought and heat tolerance, which involves detailed studies of the biochemistry and molecular biology of such tolerance in a model system. Once the basic mechanism of drought and heat tolerance are elucidated and the essential genes identified, the techniques of recombinant DNA can be applied to transfer elite genes to the target crops. In this research activity, a drought and heat plant- ziziphus is selected to study and identify the underlying biochemical and molecular processes operative under the drought and heat conditions that are prevailing in the subject region. In a subsequent phase, these genes will be introduced into selected agronomic crops to enable them to productively grow under drought and heat stresses.

Expected output: Main outputs of this research programme include the identification, isolation, and characterization of drought and heat tolerant genes as well as development of relevant technologies and methodologies. An important outcome of the study is on-job training of scientists and professionals from the sub-region on different aspects of tissue culture and genetic engineering.

Partners Involved:

Contact persons:

Project development status:

2 - Development of Wheat Cultivars for Durable Resistance to Leaf and Stem Rusts in the Nile Valley and Red Sea Region

Rationale: Leaf and stem rust diseases represent the major biotic stresses affecting wheat in the Nile valley and Red Sea Region. They are considered the main factor limiting wheat production and longevity of high-yielding varieties. Yield losses due to leaf and stem rusts in Egypt are 11% and 23%, respectively. In Yemen, yield losses due to leaf rust are 15-20%, and to stem rust 20-30%. Therefore, it is essential to control these diseases in order to increase wheat productivity and stabilize production in the countries of the region.

Main activities: Breeding for disease resistant in general and for wheat rusts in particular is almost the only practical way to control rust diseases since chemical control is not economical, particularly for resource-poor wheat farmers, besides its detrimental effect on the ecosystem and the environment. Therefore, developing new cultivars resistant to leaf and stem rusts to be grown by farmers is the main objective of many wheat programmes.

The regional approach of research to wheat rusts is extremely important to curtail the impact of rusts on wheat productivity since rust spores are airborne and are carried by wind for long distances, thus contributing to their rapid spread across countries and from region to another. In addition, complementary research at the regional level makes better use of the limited human and physical resources available in the region.

Expected output: The main goal of the proposed research work on wheat rusts is to increase wheat productivity in the countries of the region by developing cultivars with durable resistant to the rapidly evolving leaf and stem rusts. To attain this main goal, a number of specific objectives need to be achieved. These include monitoring of the present status of leaf and stem rusts pathotypes and their frequencies. It is important to identify effective genes conditioning resistance against prevalent rust pathotypes, and generating systematic information on leaf and stem rust in the region to facilitate effective breeding programmes.

Partners involved:

Contact persons:

Project development status:

3 - Dairy Sheep Breeding for Small Flocks Based on Simple Recording

Rationale: The main objective of this activity is to design cost effective breeding schemes for improvement in dairy sheep and goat production in marginal areas. Participatory farm recording will be used to identify management constraints, which would be corrected through peer group comparisons and provision of extension advice. Single visit milk records and dairy advised selection criteria (conformation, temperament, udder shape, fat, protein, etc.) to identify superior stock whose breeding value will be estimated through established computer programme.

Main activities: Field experience will be obtained by the application of three techniques, namely: artificial insemination, embryo transfer and marker assisted selection to determine the efficacy of such techniques and their costs and usefulness in the simulated breeding schemes.

Spreadsheet modeling of simulating breeding programmes will lead to the assessment of probable progress and likely cost benefit of different schemes using socio-economic data generated by this activity.

Expected output: Main expected benefits are as follows:

- Design of practical and acceptable recording or self-recording schemes that can be taken up by farmer groups, breeds societies, dairies and governmental organizations.

- Pilot information on the usefulness of the advanced techniques MAS and ET will be obtained.

- The link with the dairies will provide an example of producers responding to consumer demands for changes in the composition of their products.

- The success of the project will help maintain rural activities in mountainous and desert areas and the balance between man-animal-plant, which results in the much-appreciated "Mediterranean" environment.

Partners involved:

Contact persons:

Project development status:

4 - Central and West Asia Yellow Rusts Regional Network

Rationale: The Network's goal is the stabilization of wheat production and through the development of wheat varieties with durable resistance to yellow rusts, thereby reducing the impact of the devastating and widespread yellow rust epidemics. Past studies of the yellow rusts in the Region have been sporadic and there is an urgent need to gain a more comprehensive understanding of their pathotypes variations.

Main activities: Past studies need to be complemented with epidemiological investigations of pathogen movements in order to determine centres of origin of new pathotypes and thus provide an early warning system for farmers growing potentially susceptible cultivars. These studies will also underpin and actively contribute to breeding efforts aimed at developing durable resistance to yellow rust in wheat cultivars. It is proposed to establish a centre of excellence for yellow rust studies in the Region to provide scientific and technical support to member states. The capabilities of the participating national programmes need to be strengthened to enable them to be active contributors and beneficiaries of the Network.

Expected output: The project has set five specific goals to be achieved by the end of its duration. These are:

- Identification of the prevalent virulence of the yellow rust pathogen, its pathway, its movement, its life cycle and sources of resistance;

- Monitoring the effective host resistance genes, thereby establishing early warning for disease epidemics;

- Development of improved yellow rust-resistant varieties for the participating countries;

- Improvement of technical capabilities and capacities of participating scientists, and

- Strengthening collaboration and co-ordination within and between the Network participating countries and with other regional networks and centres of excellence

The co-operating partners would include national research systems, universities from within and outside the Region, and regional and international agricultural research centres. Research institutes, academies of sciences, and universities to participate in the Network are from the following countries: Iran, Pakistan, Turkey, Syria, Uzbekistan, Azerbaijan, Kazakhstan, Kyrgyzistan, Tadjikstan, and Australia.

Partners involved:

Contact persons:

Project development status:

5 - Use of GIS and Modeling Techniques for Hydrologic Research and Management of Water Resources

Rationale: The project endeavors to assist countries to upgrade and update their water resources assessment and management through institutional and manpower development that will be integrated in a broader scope with a technology transfer system by means of workshops, group and on-the-job training. Water resources, like any valuable resource can be most effectively developed and managed after its availability, quantity, quality, and movements are thoroughly understood and assessed. In most countries of the region, water resources are very scarce with characteristically very low rainfall and many of its parts have large unpredictable rainfall variations from year to year. Demand far exceeds supply of water, which calls for management and rational exploitation and use of surface and ground water resources. It also calls for protection of water resources from depletion and contamination as well as the protection of the environment from pollution and contamination.

Main activities: The application of mathematical techniques can be considered as an efficient tool for water resources management. The GIS system can be linked to the mathematical model using its geographical and spatial analysis capabilities in the modeling process.

Expected output: The long-term objective of the activity is the strengthening of national capacity building through qualitative and quantitative improvements in the methodology of processing the available hydrological data for the assessment, planning, development and management of water resources in the countries of the region. Expected project output include:

- An increased number of qualified specialists and technicians in the field of water resources management and related areas such as data acquisition, processing, modeling and water planning computations.
- Increased information exchange between countries and sharing of appropriate knowledge and technology in the field of water resources management studies.
- Improved exchange of information and experience between water resource institutions in the Region.

Partners involved:

Contact persons:

Project development status:

6 - Water Management and Increasing Water Use Efficiency for Sustainable Agricultural System.

Rationale: Water is a scarce resource of great strategic importance for most countries of West Asia and North Africa (WANA). At present agriculture accounts for some 80% of total water consumption, but with increased industrialization and urbanization and growth in population, water is increasingly allocated away from agriculture. The scarcity of water has in some countries reached the point where supplies of fresh water are mainly for domestic and industrial use with agriculture pushed more and more towards using brackish and saline water. This situation prevails already in the Gulf States and it will not be too long before other countries find themselves in similar predicament.

Main activities: Averting the threat of water shortage to the region's agriculture will depend on greater efficiency in the use of available irrigation water as well as finding new less conventional sources and supplies of water. What in fact is needed is a long-term research programme to deal with the various aspects of irrigation water shortages to generate new and innovative technologies. The present project aims at profitable agricultural production in the dry areas of the Region through efficient and sustainable utilization of conventional and non-conventional water supplies- rainfall, groundwater and surface sources. The project has five research themes, namely: on-farm water use efficiency; water harvesting; utilization of urban treated wastewater; groundwater husbandry, and use of saline water. Most of the activities will be of strategic and applied research nature including generating and testing of production techniques with enhanced output per water unit and development of environmentally friendly agricultural systems. The project will be building on indigenous knowledge along with using modern techniques to identify, quantify and demonstrate a range of water harvesting and utilization approaches.

Expected output: The project will assist in building a much-needed information and databases relative to irrigation water availability and use. It will generate methodologies, techniques, measures that constitute important elements for developing future strategies and plans of action for better water management and increased water-use efficiency for sustainable agricultural production systems in the Region.

Partners involved:

Contact persons:

Project development status:

7 - Integrated Feed/Livestock Production Systems using Non-Conventional Feed Resources in the Al-Mashreq Region

Rationale: Livestock production, and especially the production of small ruminants, represents an important economic activity throughout the sub-region, contributing to rural incomes and national economies. Three main production systems can be distinguished within the livestock

sector: traditional extensive production system in the low rainfall areas; semi-intensive production of dairy cattle, dairy goats and sheep, and lamb fattening, and intensive production enterprises involve higher inputs and outputs. Despite the fact that the production of barley has increased the region has been unable to satisfy feed demands; the "feed gap" is increasingly being met by imported feeds.

Main activities: In short, feed, both its availability and quality, is a major constraint to increased productivity and production. There is ample evidence of the availability of alternative, non-conventional, feed resources in the region, including crop residues and agro-industrial by-products. The incorporation of treated crop residues and agro-industrial by-products into small ruminant feed resources would contribute to alleviating the shortage in roughages, enhancing the nutrition of small ruminants, reducing the imports of concentrates, and relieving the pressure on natural pastures and rangelands. Technologies and processes for some alternative feeds and conventional by-products, such as the treatment of straw, multi-nutrient feed-blocks and cactus production, are available but would need to be adapted to local conditions.

Expected outcome: The development of local feed supplies will lead to an increase in feed availability and lower feed costs. Improving the productivity of small ruminants will lead to an increase in national output, reduce the unit cost of production, and make a positive contribution to food security. Development of the local feed industry will also contribute to national output and employment.

Partners involved:

Contact persons:

Project development status:

8 - Regional Network for Date-Palm in the Near East and North Africa

Rationale: The establishment of a Regional Network for Date Palm in the Near East and North Africa comes as a direct response to the growing felt need for increasing communication and exchange of experiences among date producing countries. The participants in an expert consultation to examine this matter held in Teheran in October 1999 further confirmed the need for such network. Indeed, most of the dates producing countries are looking forward to this initiative. As shown by previous experience - the FAO implemented NENADATES Date Palm (1978 - 1988)- such mechanisms are highly successful in providing information and development initiatives that strengthen the date industry in these countries.

Main activities: of the proposed Network are briefly:

- Collection and dissemination of information on production, marketing and processing technologies;
- Collection, conservation, evaluation and utilization of germplasm;

- Study the socio-economic aspects in the date-palm regions and its impact on ecological conservation;
- Assisting NARS in date palm production and marketing policies and the formulation of national networks to increase collaboration among national institutions.

Expected output: The proposed network is expected to contribute to the development of sustainable production systems that increase the efficiency and economic viability of small and medium-size low-income date growers, especially women farmers. In addition, the date palm is a useful plant for the prevention of soil degradation of the land so it will help to prevent desertification. The creation of a regional network would be a mechanism that would facilitate the conservation of the genetic resources and the diffusion of technological packages that would contribute to the development of date producing countries. The Network will serve to link the various initiatives in different regions of the world dealing with date palm and encourage participation of any country / institution / organization that are interested to collaborate in this area.

It is envisaged that technical working groups will be formed to undertake specific tasks, e.g. production and protection, post harvest and processing technologies, and socio-economic and commercialization. For each working group, a specialized institution in different countries will be identified to participate. Participation in the working groups is open to any interested scientists, organizations, and associations as well as to researchers from the private sector. A consultant to formulate the network has been appointed and it is expected that a final product will be ready early 2000.

Partners involved:

Contact persons:

Project development status:

9 - Regionalizing Agricultural Research within Countries in the Maghreb Region

Rationale: There are several factors, which favour the regionalization of agricultural research. Many countries are trying to increase the democratic content of their governments by decentralizing public structures to the regional level. In addition, agricultural research is reacting to concerns over natural resource management (NRM), by putting more emphasis on these issues, which are best-undertaken in regional perspective. The ability of countries to import and test new agricultural technologies has increased rapidly and many believe that strong adaptive research programmes are the only way to guarantee that research results are effectively translated into useful technologies.

Main activities: In spite of common constraints and common objectives the process of regionalization in Algeria, Morocco and Tunisia is leading toward different organizational, structural and institutional models as well as to different operational mechanisms. Mauritania has just been through the development of a research Master plan in which also regionalization is a consideration. Libya has built its research programmes around regional approach. Malta has a very small research system but is also struggling with questions of user involvement, sustainability and the need for adaptive research. For the Maghreb countries, it will therefore be highly beneficial to pool their recent experiences, to analyze them in greater depth and to

develop more effective, efficient and sustainable models for regionalization of agricultural research.

Expected output: The project is to improve the effectiveness and efficiency of the agricultural research systems of the countries, in pursuit of enhanced contributions to income generation and distribution, food security and sustainable natural resource management. The current project will allow the countries of the Maghreb region to explore and pursue the process of decentralization towards the regions of their agricultural research systems in a collaborative fashion. Countries will learn from their neighbours and will benefit in the implementation of regionalization processes from the knowledge that will be obtained through a set of well-chosen sub-projects.

Partners involved:

Contact persons:

Project development status:

10 - Strengthening National Seed Policy and Production Systems

Rationale: Few countries in the Region could claim well-developed formal seed supply systems complete with seed laws and operating certification and evaluation systems. At the other end of the spectrum are countries with virtually no formal seed supply system and where only a very small amount of seed of the most important crops is produced without hardly any seed quality control. The remaining countries are at varying in-between stages of development. Like in most developing countries, formal seed enterprises in the AARINENA Region will supply only small portion of the total required seed of major cereal crops with the remaining requirement coming from farmer seed retention or exchange among neighbouring farmers.

The reasons for such poor performance in the Region are many and complex - weaknesses in the agricultural research and extension systems, outmoded production and processing facilities, limited technical and managerial capacities and lack of trained personnel. While these constraints are real and very serious, it is increasingly clear that much of the weaknesses in the seed sector are due in major part to policy and management related factors.

Policy makers and professionals are groping with a number of complex policy and socio-economic issues including: privatization, legislation and seed regulatory measures, and conditions for balanced development of the formal and informal seed supply systems. Privatization is perhaps the most debated topic in the Region and for the majority of the countries it is no longer a question of whether or not to privatize the sector, rather it is a question of when and to what extent.

Main activities: In collaboration with national and international organizations, ICARDA has developed the WANA Seed Network that is currently the main hub of a number of national and regional activities. It is mostly concerned with collecting and dissemination of information within the region with the Seed Unit of ICARDA acting as a Secretariat. Regional and sub-regional co-operation is seen as important, thus the recent agreement to launch a Near East and North Africa Seed Consultative Forum (NENA-SCF). The main

activity is to strengthen these initiatives and assist countries in formulating policies and strategies for seed production and distribution.

Expected output: Improved collaboration among countries of the Region with the view of improving national and regional technical and managerial capacities and creating a cadre of trained personnel. Introduce improvements in policy and management related aspects of national seed industries.

Partners involved:

Contact persons:

Project development status:

11 - Development of an Agricultural Information System for West Asia and North Africa

Rationale: Agricultural production is becoming increasingly knowledge-based and science intensive. New strategic research areas have emerged and developed, with significant effects on the potential to produce food in a sustainable way. Among key areas of knowledge that may play an important role in increasing the capacity to cope with problems of poverty, resource degradation and food security is Information and Communications Technology (ICT). Given the complexity of the knowledge involved and the investment requirements in reproducing processes that may lead to new products the role of ICT in active knowledge exchanges is widely acknowledged.

AARINENA, like other regional fora, recognized that "Access to information requires appropriate information and communication infrastructure, equipment, instruments and networks. Adequate capacities will be needed at national and regional levels to effectively link up with the global knowledge system. But considerably more effort is needed in this vital area".

Main activities: As a result of discussions between AARINENA, FAO and the NARS Secretariat of the Global Forum on Agricultural Research (GFAR), AARINENA decided to develop a WANA Agricultural Information Strategy and a project proposal to establish A consultant from the region is currently preparing these two documents which will be discussed by an expert consultation to be called on 20 – 21 March 2000 in Beirut, Lebanon before submission to the AARINENA General Assembly.

Expected output:

Partners involved:

Contact persons:

Project development status:

12 - VERCON- Using the Internet to Improve Research-Extension Linkages

Rationale: Knowledge and information through agricultural research are essential for improving food security. Nevertheless, to be useful, agricultural knowledge and information must be effectively communicated to farmers. A time-tested means of effectively reaching farmers is extension. However, weak linkages between research and extension often result in systematic knowledge and information "bottlenecks" that limit the effectiveness of research to contribute to agricultural development.

Main activities: With the Internet, there is now a new and potentially powerful tool for improving communication between research, extension and even farmers. The Virtual Extension and Research Communication Network (VERCON) employs this potential to establish and strengthen among and within the human and institutional elements of agricultural research and extension systems. The VERCON's innovative nature is its capability to achieve effective linkages by connecting geographically dispersed people and enhance two-way communication, managing a large volumes of data, and rapidly collecting, processing and dispersing information in a variety of ways.

Expected output: The VERCON concept, developed by FAO, aims at improving linkages between agricultural research and extension institutions through two fully integrated and co-dependent components: the human component and the technological component. The human component is a network (e.g., staff of research and extension institutions, faculties of agriculture education, NGO workers and in some cases agricultural producers themselves). The network is committed to strengthening collaboration; communicating, sharing information and supporting improved agricultural production. The boundaries of the network are flexible and can expand to include more stockholders or can contract to focus more closely on specific actors and their information requirements and functions. The actual technical component is developed in collaboration with the users. The functions are selected based on their ability to improve current pathways for communication and information sharing, as well as creating new pathways.

Partners involved: Contact persons:

Project development status: