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y la
Alimentación

**FAO Regional Workshop
on
Institutional Needs Assessment for Agricultural
Research, Technology Development and Extension
in the Near East Region**

29 – 31 May 2002, Amman, Jordan

Workshop Report

May 2002

TABLE OF CONTENTS

INAUGURAL SESSION:	3
INTRODUCTION AND FRAMEWORK OF THE WORKSHOP	4
AGRICULTURAL RESEARCH IN THE NEAR EAST.....	4
AGRICULTURAL EXTENSION IN THE NEAR EAST	7
AGRICULTURAL EXTENSION REFORM.....	8
TECHNOLOGY ASSESSMENT AND INVENTORY IN THE NEAR EAST	10
FAO VERCON INITIATIVE.....	13
A FRAMEWORK FOR ACTION.....	14
<i>Agricultural research</i>	15
<i>Agricultural Technology</i> :.....	15
<i>Agricultural Extension</i> :.....	16
<i>Functional Linkages</i> :	17
CONCLUSIONS AND RECOMMENDATIONS:	18
Glossary of Acronyms:.....	21
Annex I:	List of Participants
Annex II:	Workshop Agenda
Annex III:	Framework for Action

**Regional Workshop on
Institutional Needs Assessment for Agricultural Research, Technology
Development and Extension in the Near East
29 – 31 May 2002, Amman/Jordan**

Inaugural Session:

1. The President of AARINENA, Dr. Abdel Nabi Fardous, in his opening statement, emphasised the importance of the workshop as it followed the 8th General Conference of AARINENA. He stressed the need for improving research and extension linkages to achieve integrated agricultural development. Dr. Fardous pointed to the important role that research and extension could play for efficient utilisation of natural resources. He wished the Workshop success and pledged, to the extent possible, the assistance of AARINENA in implementing the recommendations of the Workshop.
2. Mr. Ahmed El-Miniawy, FAO Representative in Jordan, on behalf of FAO, welcomed H.E. Dr. Mahmoud Duwayri, Minister of Agriculture and participants from member countries and organisations. He thanked the Government of the Hashemite Kingdom of Jordan and the National Centre for Agricultural Research and Technology Transfer for hosting the workshop in the beautiful city of Amman.
3. Mr. El-Miniawy stressed the importance FAO attaches to agricultural research and extension for achieving food security and sustainable agricultural and rural development. He invited the participants as leaders of agricultural research and extension institutions in their countries to share their experiences and help define and identify possible ways of strengthening research and extension systems in the Region.
4. His Excellency Dr. Mahmoud Duwayri, Minister of Agriculture of the Hashemite Kingdom of Jordan, in his address, highlighted the importance of the workshop in identifying the regional constraints and exploring opportunities for developing practical solutions for sustainable agricultural development in the region.
5. Dr. Duwayri emphasized the positive role of research, technology development and extension in food security. He indicated that in spite of the limited resources, Jordan has made outstanding success in food production, particularly production of fruits, vegetables and poultry. With the support of FAO and other Organisations, the Government of Jordan aims to achieve similar success in cereal and meat production.
6. Dr. Duwayri stressed the importance of the Rome Declaration in the World Food Summit in 1996 and the forthcoming WFS-fyl regarding poverty alleviation.

He pledged that utmost priority would be given to natural resource degradation, environment and poverty in rural areas where 70% of the population live and depend entirely on agriculture for their livelihoods. Dr. Duwayri hoped that the workshop would produce sound and practical recommendations that reflect the priorities of the Region, and proposed the establishment of a follow-up committee with well defined terms of references.

7. The participants (Annex I) elected Dr. Abdel Nabi Fardous chairperson of the Workshop and adopted the agenda, as amended (Annex II), as well as the working procedures.

Introduction and framework of the Workshop

8. Ms May Hani, FAO Regional Extension, Education and Communication Officer introduced the outline and objectives of the Workshop. She explained that the FAO Regional Office for the Near East (RNE), in collaboration with the Research and Technology Development Service (SDRR) and the Extension, Education and Communication Service (SDRE), has undertaken a review of needs, constraints and opportunities in the areas of agricultural research, extension and technology development in the Near East Region. Studies on these three interrelated components as well as a Framework for Action were to be presented at this Regional Workshop for discussion. The exercise is intended to assist countries in the Region and relevant units in FAO in developing programmes and activities that will strengthen and improve agricultural technology generation, adaptation, and dissemination in the Region.
9. Ms Hani proposed that three working groups be formed on the second day of the workshop, to review, discuss and react on the draft Framework for Action.

Agricultural Research in the Near East

10. Mr. Mohamed Zehni (FAO consultant), presented the paper on agricultural research in the Near East Region. The following is an account of the salient points of the presentation.
11. Most of the national agricultural research systems (NARSs) of the region are relatively young and in general have experienced rapid growth notwithstanding political and institutional changes. There is a marked diversity in the profiles of the NARS of the region in terms of structure, resources, research activities, and productivity, a reflection of the diversity of the countries themselves. The agricultural research institutes continue to play a far more predominant role in research than the faculties of agriculture and veterinary sciences; they mobilise 62% of the total potential full-time researchers and 78% of the total financial resources.
12. NARS staff qualifications are highly variable among institutions and countries. Furthermore, agricultural research institutes suffer of imbalance in the numbers of support staff who are generally under-qualified due to very low salaries, limited opportunities for upgrading, and budget constraints. At the faculties of

agricultural sciences, these imbalances are generally even more acute. Most research institutes allocate a large part of their financial resources to personnel expenses, and a small part to operational and capital costs. Average national ratio of total expenditure on agricultural research to AGDP is estimated at 0.41%, ranging from less than 0.1% to 6.4%, with intermediate values for other Countries.

13. Few countries in the Region have developed formal agricultural research national long or medium-term plans with clear priorities and allocation of resources by research domains or programmes. In most of the other countries, agricultural research national plans have been included as brief components of national economic development plans. Few faculties of agricultural sciences have started to establish research plans and priorities. Research programmes on crops and natural resources are generally the most established and better covered. Research on forestry, animal production, food technology, and socio-economics are less developed.
14. A number of new trends and global developments are affecting agriculture in the region in general and agricultural research in particular including funding, globalisation, private sector involvement, concern for the environment and new developments in biotechnology and information and communication technologies. Public funding for agricultural research has suffered as governments have faced growing physical constraints, often as part of adjustment programmes. Expenditure on public R & D in the Near East Region is estimated to be \$1.1 billion representing 14% of the developing world's expenditure.
15. The inclusion of agriculture in the mandate of the World Trade Organization (WTO) has far-reaching effects on developing countries. For example, WTO provisions on biosafety-related issues, and the introduction of Intellectual Property Rights (IPR), among others, are presenting developing countries' agriculture with serious challenges. Furthermore, according to the World Bank, basic infrastructure and services vital for private sector growth in the Near East region remain inadequate, and integration with the global economy lags behind that of other developing economies.
16. The concern for the environment and the judicious utilization of the natural resource base and how that could be reconciled with the need to increase agricultural productivity are among the most difficult challenges facing agricultural research. Designing technologies and practices for sustainable agricultural production will require changes in the way research is planned, organized, coordinated, and managed. It will affect methods of research planning and links with other institutions and sectors that have a stake in sustainable uses of land and resources. For some research projects, time frame will need to be extended considerably.
17. Developments in biotechnology and communications and information technology are offering new opportunities for agricultural research and extension in developing countries. Many believe the challenge of increasing farm productivity in developing countries can be met only by mobilisation of frontier

sciences. These are discussed in more detail in the presentations on these two important subjects.

18. In the light of the changes in the global perception of the role and mode of operation of publicly funded agricultural research discussed above, the public NARSs can no longer take for granted their being the sole actor. Nor they can be assured of sustained funding without proving their relevance, showing efficiency and accountability in using available funds and forging meaningful alliances and partnerships with other stakeholders. The great challenge to agricultural research in the Region is to prove its ability to contribute to food security at the national and regional level.
19. A number of recommendations were discussed in the presentation with the view of strengthening agricultural research in the region. Several recommendations were addressed to national agricultural research and extension policy makers and managers, governments, donors and development organizations. The major part of the recommendations is referred to the FAO with the view of it assisting in mobilising support and extra-budgetary resources for their implementation. The recommendations are incorporated in a framework for action, which is discussed under a different agenda item.

In the ensuing discussion, the following points were made:

20. The imbalance in the distribution of research activities between the rural and urban and favouring some commodities more than others was the subject of discussion. It was mentioned that in Sudan, for example, research concentrated until recently on irrigated cash crops along the Nile and neglected food crops. It was emphasized that there was a need for building research capacities in marginal areas.
21. Several participants stressed the importance of promoting intra-regional joint research activities involving several countries. It would be practical to solve problems through regional approach and particularly through sub-regional projects, as it seems to be more attractive to donors to work with a group of countries with similar geographical, environmental and economic conditions. An example is the work of ACSAD related to pastures and desertification projects. Such projects should be economically rewarding to the participating countries. Some participants maintained that while regional cooperation should be encouraged, existing national research institutions should be strengthened because a strong building can only be built with a strong foundation.
22. Because research and extension are generally weak, research results do not reach the farmers. NGOs should be given a bigger role in extension and private sector should also be encouraged to play a more active role. If linkage between research and extension is difficult in individual countries, it will be difficult to link these countries in regional projects. There is a lot of redundancy overlap and waste in resources.

23. Participants shared their experience of developing joint projects involving research, extension and training (commodity projects) with interdisciplinary teams and participatory research approach and with the involvement of universities and the private sector. It was also proposed to strengthen the information system at the national level.
24. The need for greater collaboration and co-ordination of efforts at the national level in agricultural research and extension was emphasized. The idea of establishing a national forum for agricultural research for development (NFARD) was discussed and some participants thought that it should be tried in some counties to evaluate its validity and that FAO may follow-up on this matter.
25. The issue of run-down research facilities and the need to help countries in need to rehabilitate such facilities was discussed. It was pointed out that donors were unlikely to be involved in equipping research institutions and upgrading their physical facilities unless that was in a context of concrete project or research programme.

Agricultural Extension in the Near East

Mr. Ali Bannaga presented the agenda item and the following is a brief account of his presentation.

26. This “Agricultural Extension” review and analysis is introduced with a focus on the four supporting pillars upon which agriculture and rural development stand, namely: land, water, technology and the human element (researcher, extensionist, farmers and consumers). It is obvious that the success and failure of the agricultural and rural development efforts depend on the adequacy and quality of these supporting pillars and the efficiency of their application in practice.
27. The paper described the evolution of the concept of extension from its conventional and very simple prototype status of an “Agricultural Advisory” context, to the more sophisticated and professional specialisation directed to meet the demands of diversity, technology and new ways of working and living. The various extension systems tried many forms and approaches of applications, with varying degrees of success. The efficiency of an approach and suitability of its results vary considerably from country to country.
28. Review of the organisational and operational arrangements applied in the region was carried out. The system was found to be not very well established, functionally and operationally, in many countries. Its organisational structure, approaches and implementation procedures, are unstable because of frequent changes and vary from one country to another and even within the same country. The experienced instability and fast revisions leading to drastic changes, on trial and error pattern, affect the efficiency and impact of the extension effort and reduce its sustainability.
29. The causative factors were found to be many and relate to how the system was introduced, organised and administered in the country. The weakness and

deficiencies referred to above, relate specifically to the weakness in organisation at the grass-root local levels, the weak participation of women farmers and extensionists, the inadequate field staff training, the controversial role of NGOs in agricultural extension, the weak research/extension/farmers linkages and the inadequate and untimely flow of fund. Furthermore, a very important area of deficiency and weakness was found to be the lack of co-operation with other governmental development agencies and organizations, operating in the same area, extending similar services, among the same beneficiaries.

30. Based on the review and analysis, a number of recommendations were drawn for the concerned parties (FAO, governments and interested donors) to consider and, as feasible, to co-operate in implementing them to improve and strengthen the agricultural extension systems (services) in the Near East region. These recommendations will be discussed under agenda item dealing with the proposed framework for action.

Agricultural Extension Reform

Ms. May Hani introduced the topic¹. The following are the main salient points of her presentation.

31. The study examines the extension reform strategies being adopted worldwide. These strategies, including those adopted within some Near East countries, are considered for their value as options for the region as a whole. Effective, efficient institutional arrangements in the agricultural development process are critical for economic growth and social advancement.
32. Organized into three parts, the paper begins by reviewing global developments that are shaping agricultural extension institutions. Part Two examines a number of agricultural extension reform strategies for funding and delivering information services. Part Three recommends lines of action aimed at the institutional reform of agricultural extension to support agricultural development, maintain food security and alleviate poverty in the rural sector.
33. While agricultural extension reform strategies have been implemented in a broad range of countries, their very variety suggests that there is no blueprint for extension reform. Nonetheless, an examination of what is happening in other countries and the results of reform strategies is thought to be of value to countries that wish to review and improve their extension arrangements. The paper, therefore serves as a background piece to general reforms in extension rather than a review of the Near East *per se*.
34. The contemporary reform of agricultural extension can be considered from the perspective of “who pays, who delivers”.
35. The traditional arrangement for funding and delivery of agricultural information services is *public-financing/public delivery* (i.e., the traditional

¹ Based on a paper prepared for the workshop by Dr. William Rivera (FAO consultant).

extension public sector systems). A system popular in high-income countries is *private financing/ public-delivery*. In this case, individual farmers or their associations pay for the public sector extension services.

36. A third option, popular among developing countries (both middle-income and low-income countries) involves *public-financing/private-delivery*. This system is a form of institutional pluralism, or third-party systems involving the public and private sectors. A radical approach is that of *private-financing/private delivery* which covers various forms of privatisation, such as commercialisation and public tender of the extension service to a private company. Overlapping often occurs among the four main strategies just described. The reality is that countries frequently employ, for examples, a "mix" of extension providers, a "mix" of approaches within a single country, and "a mix" of funding arrangements for different extension services.
37. In addition to the decentralization, privatisation and pluralistic approaches to reforming agricultural extension, there are a number of related strategies involving extension reform. These strategies include participatory extension, the participatory team approach to extension, farmer-led extension, and the advancement of farmers' collective and economic power through support for the development of producer organizations. Although not always in place nor necessarily sustained, these innovations are indicative of some of the gradual changes toward extension development in the Region. They could in the future become aspects of other, larger reform strategies in line with the options already discussed regarding new ways to fund and deliver extension.
38. Four factors influence the paper's recommended 'lines of action'. They are the challenges of economic growth and poverty alleviation, the changes in the global environment, the state of agricultural extension services in the Region, and the need for agricultural extension reform in the Region. The 'lines of action' spelled out a number of recommendations for extension reform in the Near East, to Member countries, FAO and interested donors. These recommendations will be discussed under agenda dealing with the proposed framework for action.

In the ensuing discussions of the two extension papers, the following points were made:

39. One participant described extension as missionary work and that extensionists are often engaged as low paid civil servants with little career incentives. That is one of the reasons why it does not make the desired impact. We should seriously consider giving a better career structure and incentives to extension workers to have the job done. Another participant emphasized the role of women in agriculture and their need for training so that they contribute effectively to agricultural production.
40. The point was made that the personal qualifications of extensionists and the mandate given to them will reflect on their performance. In advanced countries, they use senior and qualified SMSs to advise and convince the farmers. Extension agents should be given authority to empower them to convey their message. The

need for closer linkages between research, extension and the farmers was emphasized.

41. Sharing his country experience, one participant indicated that there were 4 IHD projects, which have an extension component with large number of extensionists working in them. Research-extension–farmers linkages had been advocated for at least the last ten years but little has been done about them. As each country has its own specificity, there was no successful local extension approach in a country that could easily be transferred to other countries in the region.
42. Another participant questioned the above. There are many things in common in the region: farmers' composition, environmental conditions, and problem of extensionists who are selected with weak qualifications. Every country was, of course, free to adopt and apply the extension system, which suits its situation but it was our duty to delineate common grounds to recommend suitable approaches to be applied.
43. We cannot look at countries of the region separately; there should be some common points that could be identified and used. Differences in countries are found globally but this does not negate the presence of characteristic similarities and relevant experiences. Therefore there is a need to study the region's countries and identify similarities, to strengthen regional co-operation, and exchange of experiences.
44. Extension as a concept has different definitions in each country and this negates the prospects for regional co-operation. We should come out with a uniform definition for extension and extensionist.
45. One participant wondered what could be done to narrow the gap between research and extension in strengthening the mutual respect for each other. For research and extension linkages to be effective, efficient and sustainable, policy environment and criteria for promotion and career development should be comparable for both research and extension personnel. He cited his country's experience in using Research Matter Specialists (RMSs) to work with extension and referred to differences in qualifications of researchers and extensionists. Feeling of ownership and commitment to the service should be encouraged and the researchers and extensionists should be fully involved as a team. Another participant stressed the need to create new arrangements to enable the extensionist to be a member in a research team and to involve farmers as well.
46. It was generally felt that there was a need to learn from successful extension experiences in the region and publicize those experiences. AARINENEA could be the intermediary for such an endeavour.

Technology Assessment and Inventory in the Near East

Mr. Amir Muhammed introduced the topic. The following is a summary of the salient points:

47. Agriculture continues to be the main vocation of many people in the region but the region is now food deficient and has to import its essential food requirements. Development of improved, cost-effective agricultural technology and its dissemination to farmers has not kept pace with the population increase in the region resulting in less productivity from the available natural resources, and eventually food shortages. Neglect of research in post-harvest processing, storage and marketing results in breakdown of the price structure with major losses to the producers, and damage to the surplus crop because of poor storage facilities
48. Adoption of technological innovations in the region has been very slow. Major development projects to improve and expand agricultural education, research and extension made some impact on agricultural production but still left a huge gap between production and requirement. There are serious deficiencies in the prevailing AKIS that need careful analysis and modification to make it relevant to the national needs.
49. Overall investment on technology generation in the region is very low. According to UNDP classification no country in the region is classified as a “leader” in *technology achievement*; Cyprus is the only “potential leader” while Pakistan and Sudan are listed as “marginalized”. Within the agriculture sector, major investment has gone to crops sub-sector while livestock, forestry and fisheries have been relatively neglected. Neglect of research in social sciences and on policy formulation aspects has had serious implications for the overall development of the agriculture sector, especially on equity aspects, farmers’ income and rural poverty.
50. Agricultural development especially aimed at increasing food production to achieve maximum level of food sufficiency and improved national food security, has received major emphasis in *donor support* to developing countries. International agricultural research centres (IARCs) established by *CGIAR* collaborate with national scientists to develop improved technologies for agricultural production in the region. Recent developments in *biotechnology* have shown great promise for improving and stabilizing agricultural production. Several countries in the region have established institutions devoted to biotechnology research with strong emphasis on agricultural biotechnology.
51. *Private sector* participation in AKIS is almost non-existent although marketing of agricultural inputs has been mostly transferred to private sector. Some progress has also been made in development of private sector seed companies that undertake applied research and marketing of improved seed.
52. To achieve sustainable agricultural and rural development, actual resource use and preferences for technology has to be determined by every country in light of national *goals for the agriculture sector*. Agriculture is often the sole source of family income for a great majority of the small farmers in the region. It is therefore important to optimise the use of available natural resources to produce

most remunerative commodities in keeping with the national requirements of food, cash and export crops, through *precision agriculture*. This requires a better and more precise stocktaking of the natural resource base including, soil, water and climate, and marketing opportunities for the produce. This information should be incorporated into a dynamic computer-based system to delineate the agro-ecological zones. Land use within various agro-ecological zones should then be determined in view of the *marketing possibilities* for different commodities with the objective of optimising the net returns to producers. The next step is development of appropriate technologies to increase productivity of the selected commodities and crop rotations in various agro-ecological zones to optimise net income of farmers. *Selection of appropriate technologies should follow the systematic identification of the resource use.*

53. The method to be used for *technology transfer* depends to a large extent on the nature of technology to be transferred and the profile of the target groups (literacy, financial status, and awareness of modern technologies). With the availability of computers and relatively simple software, it is now possible to beam relevant information about agriculture-new technologies, availability of technology products in different areas, timely farm operations especially in relation to the expected weather conditions, and information about markets especially for fresh produce and grains, and prices for products of different quality to farmers in different locations. Technologies that involve the use of expensive, toxic chemicals like pesticides, machinery for farm operations or special skills in the use of technology, require special techniques and skilled experts for transfer to farmers
54. *Adoption of technology* requires availability of adequate financial resources which small farmers are often not able to manage. Elaborate farm credit programs have been launched in the region to enable farmers to buy improved inputs (seed, fertilizer, pesticides) for the next crop. The procedures for disbursement of credit are still quite cumbersome and need to be simplified. *Availability of inputs* of the right quality often proves to be the weakest link in the production chain. The *price* of improved technology products in relation to the overall price structure for the inputs and outputs becomes a crucial factor in farmers' decision to adopt the new technologies. Governments have to ensure that prices of external inputs are affordable to the farmers in relation to the prices of the commodities produced.

In the ensuing discussion, the following points were made:

55. In response to the call for more modelling in agriculture, one participant emphasized that modelling did not always work well. Models developed for developed country situation do not work for developing country situation without adaptation to the local conditions.
56. Two areas were felt by participants to not have been stressed sufficiently in the presentation on technology. One relates to farmers' indigenous knowledge and emphasis in the presentation was on "green revolution" technologies. The other area was post-harvest and agro-industries as important components of the agriculture sector, which need to be addressed in any study on technology assessment. Emphasis needs be placed on biotechnology to produce plant

varieties with certain characteristics that reduce post harvest losses. Also, the importance of incorporating agricultural economics in NARS was emphasized with a suggestion that there was a need for the establishment of agricultural economics institutes/units. Another participant indicated that involvement of socio-economists is ensured in the Farming Systems Research and Extension (FSR/E) approach.

57. Because many countries cannot have a full research programme, it was asked whether it could be possible to transfer technology generated in a country to others with similar environmental conditions. It was proposed that databanks on different agricultural parameters be established in the region. One participant asked about the experience in packaging technology and described how it is done in his country through three clearing committees including a variety approval committee and a pest and diseases committee.

FAO's Initiative of Virtual Extension and Research Communication Network (VERCON)

Mr. Ahmed Rafea and Mr M. Shafie Sallam reported on FAO VERCON pilot project in Egypt of which the salient points are summarised below:

58. Internet is a potentially powerful tool for improving communication between research, extension and farmers. The Virtual Extension, Research and Communication Network (VERCON) employs this potential to establish and strengthen linkages among the human and institutional elements of agricultural research and extension. The VERCON enhances two-way communication, establishes links between geographically dispersed people and, collects processes and rapidly disperses large volumes of information in a variety of forms. The VERCON concept was developed as a joint effort between FAO's Research, Extension and Training Division (SDR) and the FAO World Agricultural Information Centre (WAICENT).

59. The VERCON FAO/TCP project in Egypt is the first field application of this innovative approach. The objective of the project is to establish a Virtual Extension and Research Communication Network in Egypt in order to strengthen and enable linkages among the research and extension components of the national agricultural system. The overall goal of the project is to improve, through strengthened research-extension linkages, the agricultural advisory services provided to farmers, especially resource-poor farmers, in order to increase food and agricultural production and farmer's incomes. This project will provide valuable lessons for Egypt as well as for other countries in the Region. It is very important here to emphasize that VERCON strengthens the research-extension linkage by providing an electronic medium for communication, storage, and retrieving information that has mutual benefit for researchers and extension workers such as research results, and growers problems. This information will help researchers develop their research programmes and extension workers to benefit of research results.

60. The main achieved outputs of the project are:

- A prototype version of the VERCON information system established under the technical leadership of CLAES (<http://www.vercon.sci.eg/>). This prototype contains 6 components: Extension Documents Search Facility, Solving Growers' Problems, Statistical Information, Expert Systems, Forum, and News.
- 7 pilot centres, representing research, extension and administration in North Delta region fully equipped and operational. More than 50 sites are identified for the expansion phase and are being equipped with telephone lines and computers.
- 40 research and extension staff trained on using Internet and the various VERCON applications and plans are underway to train another 60 research and extension staff on the same.

61. The pilot project is currently in the phase of deploying all VERCON components in the field to monitor and measure the impact of using VERCON in Kafr El-Sheikh Governorate. Preliminary evaluation showed that the extension workers are interested in using the extension brochure component, as this is the first one to be deployed. Extensive training is being conducted for other components of VERCON that are ready now.

Strengthening Agricultural Research and Extension for Development in the Near East: A Framework for Action

62. Mr. Mohamed Zehni introduced the topic, which was discussed briefly before the participants were divided into three working groups. The outcome of the discussions of the working groups is reported under the section of the report on Conclusions. The Framework salient points are briefly described below:

63. The Framework for Action is intended as an interactive and collaborative undertaking for national, sub-regional and regional action. The major part of the recommendations is referred to the FAO with the view of it assisting in mobilising support and extra-budgetary resources for their implementation.

64. The Framework is influenced by several factors, which together reinforce the need for renewed and concerted efforts in reviving support for agricultural research and agricultural extension in the Region at the national and regional levels. These factors include: The Region's inability to feed itself; some 29% of the region's population lives on less than two dollars a day; weak research and extension institutions; slow adoption of new technologies, and pressure of global forces on research and extension institutions world-wide, among them: privatisation, science and technology development and the concern for the environment.

65. The role of governments, FAO and other relevant international and regional organizations in promoting agricultural research and extension in the region could best be seen in the context of the following main thrusts:

- *Greater Advocacy for Agricultural Research and Extension,*
- *Focus on major issues and gap-filling initiatives*
- *Provision of Information at Regional Level,*
- *Support for regional and sub-regional fora*
- *Human resources development*
- *Strategic planning.*

66. The Framework for Action deals with four interrelated areas namely, research, extension, technology and functional linkages among them and with policy makers and farmers. The Framework offers a wide range of analysis and elements for action in each of these four areas.

Agricultural research

67. Under the title promoting agricultural research: the need for a new impetus, the framework noted that national agricultural institutions can no longer take continued support for granted and they need to improve their approaches and operations. Equally, governments and donors should double their efforts to promote agricultural research as a long-term measure for food security and sustainable use of natural resources. Furthermore, FAO and other international development organizations have a special responsibility to assist in this process. It further identifies the following areas of action:

- It is imperative that national agricultural research systems in the region seriously endeavour to adapt to change and to introduce far-reaching reforms,
- It is equally urgent that governments in the region revive their confidence in and commitment to agricultural research and to adequately fund and enable the institutions engaged in agricultural research and their partners,
- Furthermore, donor agencies and donors from the region, in particular, are urged to renew their interest in direct and sustained support to agricultural research, both public and private
- FAO and other relevant development agencies have for years supported agricultural research in developing countries and is called on to continue their support.

Agricultural Technology:

68. Under the title agricultural technology: the need for a national policy, the framework noted that to fully enter the technology domain of the 21st century, a national research policy has to be adopted that refers specifically to new technological developments. Private sector participation is almost non-existent although marketing of agricultural inputs has been mostly transferred to private sector. Recently private sector consulting firms have been encouraged to provide services in agricultural development, often in partnership with foreign firms.

69. The process for identification of national technology requirements needs to be streamlined including the determination of overall national priorities in the agricultural sector, resource utilisation in selected zones to optimise farmers' net

income, and identify technology requirements for each agro-ecological zone for selected commodities and crop rotations, and different categories of farmers.

70. Regional organizations dealing with agricultural development can play an important role in the technology identification and adoption process especially through sharing of experiences under similar conditions. Research oriented organizations can be especially effective by helping generate improved technology specific to the conditions prevailing in several countries of the region.
71. FAO has the mandate and in-house capability to provide assistance to member countries to review and strengthen the process in their countries. Other relevant agencies already involved in the process are UNDP and the World Bank who identify and/or implement projects in various countries to stimulate technology identification and adoption for agricultural development. In addition, donor agencies from several developed countries have regular programs to assist the developing countries in promoting technology identification and adoption through various channels.
72. The Framework identified a number of areas for action including:
- Training for countries in the region in systematic planning optimum resource use and cropping patterns,
 - Streamlining procedures for identification of technology requirement, development of databases pertaining to various agricultural aspects for the countries of the Near East region,
 - Ensuring by governments that the recommended farm inputs of the right quality are easily and timely available at affordable prices,
 - Compiling by regional organizations dealing with agriculture the relevant technologies for the region and communicating these widely,
 - Developing sustainable capacity, both in research and extension, in various aspects of agro-climatology and in crop modeling,
 - Development of regional capacity for technology assessment and transfer.

Agricultural Extension:

73. Under the title strengthening agricultural extension: the need for reforms, the frame work noted that a first step in making agricultural extension successful is that governments develop a clear-cut mission for extension, stating what the scope is to be, whom it is to serve, what the expected outcomes are to be, and how it will be evaluated.
74. The reform options are several, but in the “who pays, who delivers” category, it appears that pluralistic partnerships with the private sector to provide delivery of extension services with financial support from the public sector is a potentially positive path to explore.
75. Viable extension is crucial to the development of agriculture, rural poverty alleviation and enhanced food security. Therefore serious efforts should be made by countries in the region to strengthen their extension systems. Although the

main responsibility to enable extension systems falls on governments in the Region, the role of donors and their contribution to extension reform and development should not be overlooked.

76. There is no international agricultural extension organization comparable to the research network provided by CGIAR and its IARCs that serve National Agricultural Research Systems (NARS) in the developing countries. Some form of international extension clearinghouse and global networking entity is needed.
77. A number of strategies for agricultural extension reform have been implemented in a broad range of countries, in high-income, middle-income and low-income countries. The very variety of reform measures suggests that there is no blueprint for reform of extension.
78. There is at present no regional study of agricultural extension services in the Near East and North Africa region as a whole. A regional perspective is long overdue. There is not even a compendium, much less a compilation, of case studies indicating the problems and trends of extension in the 29 countries in the Near East region.
79. The framework identified a number of areas for action including:
 - Convening a series of sub-regional workshops within the next two-three years to review and consider institutional reforms,
 - Introducing participatory approaches and methods to create an interactive learning environment,
 - Instituting new training curricula and programmes once a reform strategy has been envisaged,
 - Implementing by governments strategies that promote the private sector with a view to fostering their role and contribution in the development of agricultural extension,
 - Involving women equitably and actively in research/extension activities with ministries of agriculture implementing a female recruitment policy and intake programmes targeting women farmers.
 - Using gender approach at the earliest stage, when formulating extension/research programmes to take into consideration the situation, constraints, needs and priorities of men and women farmers,
 - Renewing by donor agencies, particularly donors from the Region their commitment to providing direct and sustained support to agricultural research and extension reform.

Functional Linkages:

80. Under the title agricultural research and extension linkages, the framework noted that the functional linkages between agricultural research institutes and extension on one hand and policy makers and farmers on the other, are vital for the development and dissemination of technologies. There is no single formula for effective links between agricultural research and technology transfer institutions.

To establish effective and sustainable linkages between the two, there is a need for careful analysis of the constraints and opportunities present in their particular situation.

81. There have been numerous attempts to strengthen links between research and extension including actual merger of the two in one institution or programme. The purpose of such merger is to introduce greater efficiency and facilitate better communication and collaboration between them. Successful linking of research and extension is highly dependent on research and technology transfer sharing a common, sharply focused area of concern, be it a specific commodity, region or problem.
82. In many Near East countries research results are either inadequate or do not reach the end-users at all or in a timely fashion, and more often than not, they involve inputs that are unavailable or unaffordable to the end-user. Technical backstopping of other specialised divisions of ministries of agriculture and other institutions (including national universities) relevant to agricultural extension work at the field level is weak and often lacking altogether.
83. However, due to the complexity of linking research and extension, managers are more likely to use a combination of mechanisms to suit specific situations rather than relying on one single formula. Whatever the formal arrangement, positive informal relationships between research and extension personnel are what make linkages effective. Additionally, linkages with universities need to be strengthened.
84. The framework has identified a number of areas for action including:
 - Greater visibility be given to FAO's initiative on VRCON among countries of the Region and promoting its implementation,
 - Governments must ensure that linkages with extension are established with research institutions and with the specialised commodity divisions of ministries of agriculture,
 - Incentives should be provided to ensure that linkages are in place and systematically maintained,
 - Serious consideration be given to strengthening staff capacity at the Regional Office for the Near East for promoting agricultural research and extension.

Conclusions and Recommendations:

85. In considering the presentations on research, extension and technology, it was clear that action was needed to strengthen functional linkages among research and extension and between them and policy makers and farmers and it was recommended that FAO considers and promotes the idea of establishing national forums for agricultural research for development (NFARD) as a framework for engaging the stakeholders of agricultural research, extension and technology development continuum. It was agreed that NFARD should ensure the broadest possible participation including research institutes, universities, extension, the

private sector, farmers' organizations and donors. It was emphasized that the structure, representation and *modus operandus* in the forum will, however, vary from one country to another depending on the mandate and strengths of the various stakeholders.

86. In discussing FAO's initiative Virtual Extension and Research Communication Network (VERCON), the participants considered it as an innovative tool with great potential for strengthening research and extension linkages through facilitating interaction and sharing information and experiences among and between research and extension institutions and staff. The Workshop recommended that FAO give greater visibility to it among countries of the Region and promotes support for its implementation as a pilot project in a number of representative countries. It was further recommended that FAO and interested parties organize a study tour-cum-seminar in Egypt to review the pilot project and consider follow-up action.
87. Several participants stressed that VERCON- type initiative should be seen as an enabling tool complementing traditional services and not as a substitute. They further indicated that while some countries in the region may not be fully ready to entertain such advanced initiatives, they agreed that the potential of such schemes should be explored particularly if they were tailored to the country's technical and logistic capacity.
88. The workshop considered the special needs in research and extension of countries emerging from civil strife and/or war and those under occupation. The participants unanimously endorsed the request from the representative of Palestine for support in rehabilitating research and extension facilities.
89. In considering the Framework for Action, the Workshop participants expressed their appreciation for the process leading to the development of the Framework. They considered it as an excellent means of reviving interest in and rallying support for agricultural research and extension and technology dissemination in the Near East Region.
90. The Framework begins with an appeal titled the "Amman Appeal", addressed to governments, development organisations and donors to renew their interest in and support for agricultural research and extension in the Region. The "appeal" was endorsed by the workshop. The host government particularly welcomed it and an Arabic version of it was widely distributed to the local media.
91. The Framework was critically examined in three working groups, and while it was generally found adequate, a number of amendments were introduced as well as introducing new ideas and recommendations. A number of suggestions were, also, made to improve the format of the Framework of which the Secretariat was requested to take consideration in producing a final version of it.
92. The participants agreed that the Framework, as amended, should be considered final, but it was left to the Secretariat to consider whether it was feasible to further

solicit in a timely fashion the views of selected leaders of agricultural research and extension services who were not able to attend the Workshop.

93. In considering the necessary follow-up of the Framework, it was agreed that FAO take all feasible and necessary steps to widely circulate the Framework, in its full text or in abridged form, to stakeholders relevant to research and extension. Participants emphasised the importance of circulating the Framework among relevant regional development and research organizations as well as regional and other financing agencies, farmers' organizations and NGOs and private sector entities. Translation of the full text or the abridged form into other languages of the Region should be seriously considered.
94. Concerning modalities of follow-up to the Framework, the Secretariat is entrusted to consider the feasibility of the various options for a follow-up mechanism including the proposal made by His Excellency the Minister of Agriculture at the inaugural session of establishing a committee for follow-up. It was considered of vital importance for the Framework to be presented to the proper FAO governing bodies, especially the FAO Near East Regional Conference.
95. The participants requested FAO to take, at the appropriate time and with due preparations, the lead in calling a meeting with regional donors and relevant regional organizations and research and extension centres to discuss the Framework and solicit their assistance in its implementation.
96. Finally, the participants commended FAO for undertaking this important initiative and they appeal to all concerned parties to lend their support to the endeavour of strengthening agricultural research and extension and technology development.
97. The Framework, as amended, was unanimously endorsed by the workshop participants. The final version of the Framework for Action is attached as annex (III).

Glossary of Acronyms

AARINENA
ACSAD
AFESD
AKIS
AOAD
AR&D
ARI
CAAR
CGIAR
CIEHAM
EIARD
ES
FAO
FARA
FSRE
GFAR
IARC
ICARDA
ICT
IFAD
ISNAR
MENA
NARI
NARS
NCARTT
NRM
NENA
NFARD
NGO
OFCOR
POs
PVCs
RAF
RNE
SASKI
SDR
SDRE
SDRR
UNDP
VERCON
WB
WTO

Association of
Agricultural
Research
Institutions in
the Near East
and North
Africa
Arab Centre
for the Studies
of Arid Zones
and Dry Lands
Arab Fund for
Economic and
Social
Development
Agriculture
Knowledge
and
Information
System
Arab
Organization
for
Agricultural
Development
Agricultural
Research and
Development
Advanced
Research
Institute
Committee on
Arab
Agricultural
Research
Consultative
Group on
International
Agricultural
Research
Centre
International
de Hautes
Etudes
Agronomiques
Mediterraneen
nes
European
Initiative for
Agricultural
Research for
Development
FAO
Department of

Economic and
Social Affairs
Food and
Agriculture
Organization
of the United
Nations
Forum on
Agricultural
Research for
Africa
Farming
Systems
Research and
Extension
Global Forum
on Agriculture
Research
International
Agricultural
Research
Centre
International
Centre for
Agricultural
Research in
Dry Areas
Information
and
Communicatio
n Technology
International
Fund for
Agricultural
Development
International
Service for
National
Agricultural
Research
Middle East
and North
Africa
National
Agricultural
Research
Institute
National
Agricultural
Research
System
National
Centre for
Agricultural

Research and
Technology
Transfer
(Jordan)
Natural
Resources
Management
Near East and
North Africa
Region
National
Forum for
Agricultural
Research and
Development
Non
Governmental
Organization
On-Farm,
Client-
Oriented
Research
Producer
Organizations
Private
Venture
Companies
FAO Regional
office for
Africa
FAO Regional
office for the
Near East
Sustainable
Agriculture
Systems and
Knowledge
Institutions
(World Bank)
FAO
Research,
Extension and
Training
Division
FAO
Extension,
Education and
Communication Service
FAO Research
and
Technology
Development
Service

Annex I

LIST OF PARTICIPANTS
WORKSHOP ON
**"INSTITUTIONAL NEEDS ASSESSMENT FOR AGRICULTURAL RESEARCH
TECHNOLOGY DEVELOPMENT & EXTENSION IN THE NEAR EAST"**

AMMAN - JORDAN 29 - 31 MAY, 2002

ALGERIA

Mr. Abdel Kader Nedjai

Directeur Général de l'Institut Technique des Elevages
Ministry of Agriculture
P.O. Box 03 Bistouta-Alper
Tel:213-21-309285/Fax: 213-21-309460

Mr. Faycal Smati Abbabsa

Directeur General de L'Institut National de la Recherche
Agronomic,
Ministry of Agriculture
Tel:213-21-528636/Fax: 213-21-521283

CYPRUS

Dr. Christos Papachristoforou

Agricultural Research Officer A,
Agricultural Natural Resources & Environment, Cyprus
P.O. Box 22016 Lefkosa, Cyprus,
Tel: 00-3572-40312
E-mail: christos@arinet.ari.gov.cy

EGYPT

Mr. Ibrahim Rezk Aidy

Deputy Director of Field Crops Research Institute
Agriculture Research Center, Ministry of Agriculture & Land
Reclamation, Cairo, Egypt
Tel:02-5726953/Fax:02-5736570

IRAN

Mr. Mohammad Hossein Emadi

Vice Minister – Ministry of Agriculture
Deputy for Extension and Farming Systems
Ministry of Jihad-e-Agriculture
P.O. Box 14155-6371
Tel:0098-21-8902452/Fax:0098-21 8892538
C/O FAO-Iran
E-mail: tarvij@Neda.net

IRAQ

Mr. Abdul Majid Turki Hummadi

Director General of The State Board for Agricultural
Research, Ministry of Agriculture.
C/O FAO- Iraq
Tel:0096417766435 - 0096417184500

JORDAN

Mr. Qassem Mammdouh Irsheadat

Director of Extension & Rural Development and
Environmental Administration,
Ministry of Agriculture - Jordan
UNDP Jordan

Mr. Abdel Nabi Fardous

Director General
National Center for Agricultural Research
& Technology Transfer
Baqa, Amman-Jordan
P.O. Box 639
Tel: 962-6-4726680
Fax: 962-6-4726099
E-mail: fardous@ncartt.gov.jo

Mr. Samir Salti

Deputy D.G of National Centre for Agricultural Research
& Technology Transfer
Baqa, Amman-Jordan
P.O. Box 639
Tel: 962-4726674

Mr. Faisal Awawda

Baqa, Amman – Jordan
P.O. Box 639
Tel: 962-4726674

Mr. Hussein Saleh

Baqa, Amman – Jordan
P.O. Box 639
Tel: 962-4726674

Mr. Ra'ad Bedwan

Baqa, Amman – Jordan
P.O. Box 639
Tel: 962-4726674

KUWAIT

Mr. Yousif Al-Shayji

Manager, Biotechnology Department,
Kuwait Institute for Scientific Research (KISR),
P.O. Box 24885-13109. Safat, Kuwait
Tel: 4836632/Fax: 4846891
E-mail: yshayji@kisir.edu.kw

LEBANON

Mr. Moustafa Yaghi

President of AARINENA,
P.O. Box:55264 Beirut, Lebanon
Tel: 961-1-685207-961-3856265
Fax: 961-1-683088/9
E-mail: lraltal@cnrs.edu.lb

Mr. Christo Hilan

Director IRA/FANAR Laboratory,
Agriculture Research Institute of Lebanon
Tel:882125/6/7 - Fax: 961-1-682472
E-mail: lralfnr@cnrs.edu.lb

Mr. Jaafar Hussein Assaf

Vice-President, Institute of Agricultural Research,
Lebanon,
Tel:00961-8-90/ 00961-3720453
C/O FAO – Lebanon
Tel:00961-468173/468715

LIBYA

Mr. Taher Azzabi

Secretariat of Agriculture,
Agricultural Research Center,
P.O. Box 2480, Tripoli, Libya
Tel: 218-21-3616866/ Fax: 218-21-3614993
E.mail: taherazzabi@lycos.com
taherazzabi@mailcity.com

MOROCCO

Mr. Hamid Narjisse

Director of National Agronomic Research Institute (INRA)
Ministry of Agriculture, Rural Development & Forestry
P.O. Box 415 – Rabat, Morocco
Tel.:212-3-7770955/Fax: 212-3-7775530

Mr. Akka Oulahboub

Head of Extension Division, Direction of Education,
Research & Development (DERD-MINAGRI)
Ministry of Agriculture, Rural Development & Forestry

P.O. Box 415 – Rabat, Morocco
Tel: 212-3-77747-86
AV. Mr. Larbi Alaoui-Ralat Morocco

Mr. Ahmed Hakam

Chef de Service de Programmation Et d'Animation
a la Direction de L'Enseignement De La Recherche et du
Developpment
Ministry of Agriculture - Morocco - c/o FAO-Morocco
P.O. Box 415 - Rabat, Fax: 212-7775530

OMAN

Mr. Ahmed Nasser Al-Bakri

Director, Agriculture Production Research Center
Ministry of Agriculture & Fisheries
P.O. Box 467, P C. 113 Muscat - Sultanate of Oman
Tel: 968-694183/Fax: 968-695909
E-mail: agricop@omantel.net.om
Albakry98@hotmail.com

PAKISTAN

Mr. Mohammad Nasir

Principal, SSO (SSD), PARC
Ministry of Agriculture & Livestocks
P.O. Box 1031, Islamabad, Pakistan
Tel:0092-51-9207500/9203976/Fax:333-5117044

Mr. M. Riaz Maliik

Deputy Director, (SSD), PARC
Ministry of Agriculture & Livestocks
P.O. Box 1031, Islamabad, Pakistan
Tel:0092-51-9207500/9203976/Fax:333-5117044

PALESTINE

Mr. Ali Fatafta
Director General of Palestinian National Agricultural Research Center, (NARC)
Ministry of Agriculture
Tel: 972-2-2321922-4-5/ Fax: 972-2-2321926
E-mail: narc@palnet.com

Mr. Kamal El Habash

Director General - Human Resources Development Department
Tel:00-97-082551508
Mobile:00-97-059749818
E-mail: narc@palnet.com
wadygaza@hotmail.com

Ms. Fyrial Taha

Human Resources Development
Ministry of Agriculture
Fax: 972-2-2321926
E-mail: narc@palnet.com
t_firyal@hotmail.com

SAUDI ARABIA

Mr. Abdel Rahman Mohamed El Saab

Director, Extension & Agricultural Services Division,
Directorate of Agriculture & Water, Riyadh, Saudi Arabia, 11565
P.O. Box 61117 Saudi Arabia
Tel: 00966-1-4030030

SUDAN

Mr. Mamoun Dewelbeit

Director General,
Technology transfer and Extension
Administration
Ministry of Agriculture and Forests
Khartoum, Sudan
Fax:249-13-332500
E.mail: mdawelbeit@yahoo.com

Mr. Babo Fadalla Mohammed

Director of Information & Documentation,
Agricultural Research Corporation (ARC), Ministry of Science & Technology
P.O. Box 30, Khartoum, North Sudan
Tel:00-249-13-313396/00-249-13-313912
Fax:00-249-13-310813
E.mail: babo_f@yahoo.com

SYRIA

Mr. Mohamed Adnan Sharaf

Director of Agricultural Extension
Ministry of Agriculture & Agrarian Reform, Damascus, Syria
Tel:00963-11-2235898 - Fax: 00963-11-2224310
E-mail: agre-min@mail.sy

U.A.E

Mr. Ali Hamoudi

Head of Date Palm Section,
Ministry of Agriculture & Fisheries
Tel: 971-42958161/Fax:971-42957766
P.O. Box 1509, Dubai
E-mail: a-a17amaodi@hotmail.com

YEMEN

Mr. Ismail Muharram

Chairman, of AREA
Agricultural Research & Extension Authority,
Ministry of Agriculture & Irrigation
P.O. Box 87148 Dhamar, Yemen
Tel: 00967-6-509413/Fax: 00967-6-509414
E-mail: Area@y.xlet.ye

AOAD

Ms. Dina Bibi

Acting Head of Arab Organization for Agricultural
Development (AOAD) Office in Amman,

P.O. Box 19082 code no. 11192 Amman – Jordan
Tel: 55214069/Fax: 5521409

ACSAD

Mr. Ihssan El Fargy

Assistant, Directorate Manager for Plants Studies,
The Arab Center for the Studies of Arid Zones & Dry Lands
Tel: 00-963-5758413/Fax: 00-963-11-5743063
E-mail: acsad@net.sy

FAO

Mr. Ali Bannaga

FAO Consultant
Head of Department of Agricultural Extension & Rural
Development, Faculty of Agriculture,
University of Khartoum – P.O. Box 1297
Tel: 249-13318430/31- 249-15-570792 (Home)

Mr. Ibrahim Hamdan

FAO Consultant
Regional Office for the Near East
P.O. Box 2223, Dokki, Cairo, Egypt
Tel: 202-3316000-3351026/Fax: 202-3495981
E-mail: Ibrahim.Hamdan@fao.org
Ihamdan@link.net

Mr. Amir Mohammed

FAO Consultant
Rector, National University of Computer & Emerging Services
FAST, house Rohtas Road G-9/4, Islamabad, Pakistan
Tel:92-51-2855072-4/Fax:92-51-2855075
E-mail: amir@nu.edu.pk

Mr. Ahmed Rafea

FAO Consultant – VERCON Project
Computer Science Department
American University in Cairo, Cairo, Egypt
Mobile:012-3415997
E.mail: rafea@esic.claes.sci.eg

Mr. Shafie Sallam

FAO Consultant – VERCON Project
National Coordinator for Agricultural Extension and Expert System Program
Agricultural Research Center (ARC),
8 El Gamaa Str., Giza, Cairo, Egypt,
Tel/Fax:202-5716617
E.mail: rusallam@brainy1.ie-eg.com

Mr. Mohamed Zehni,

FAO Consultant-Study and Workshop Co-ordinator
Advisor, International Agriculture Studies,
Institute of Agriculture, University of Malta,
Tel: 356-21-375479/Fax:356-21-342289
E-mail: mzehni@orbit.net.mt

Mr. Mohamed El-Tamzini

Senior Agro-Industries & Technology Officer

FAO Regional Office for the Near East
Cairo, Egypt
Tel: 202-3316000 Ext. 2820
E-mail: Eltamzini.Mohamed@fao.org

Ms. May Hani

Education, Education & Communication Officer,
FAO Regional Office for the Near East
Cairo, Egypt
Tel: 202-3316000 / 3351026
E-mail: Hani.May@fao.org

Mr. Abubaker Maddur

Agricultural Research Officer
SDRR, FAO
Rome, Italy,
Tel:00-39-06570-53804
E-mail: Abubaker.maddur@fao.org

Annex II

Regional Workshop on Institutional Needs Assessment for Agricultural Research, Technology Development and Extension in the Near East

Amman/Jordan 29-31 May 2002

Agenda

Wednesday 29 May, 2002

- 08:30 – 09:00 Registration
- 09:00 – 10:00 Inaugural Session/
Statement of President of AARINENA
FAO welcoming Statement (Mr. Ahmed El-Miniawy, FAOR/Jordan)
Address of H.E. Minister of Agriculture, Jordan, Prof. Mahmoud Duwayri
- 10:00 – 10:30 Coffee Break & Group Photo
- 10:30 – 11:00 Introduction of Participants
Introduction and procedure in the Near East (Ms. May Hani)
- 11:00 – 11:30 Agricultural Research in the Near East (Mr. Mohamed Zehni)
- 11:30 – 12:00 Discussion
- 12:00 – 12:30 Agricultural Extension for Rural Development in the Near East
(Mr. Ali Bannaga)
- 12:30 – 13:00 Agricultural Extension Reform Strategies (Ms. May Hani)
- 13:00 – 13:30 Discussion
- 13:30 – 15:00 Lunch
- 15:00 – 15:30 Technology Assessment and Inventory in the Near East (Mr. Amir Mohammed)
- 15:30 – 16:00 Discussion
- 16:00 – 16:30 Coffee break
- 16:30 – 17:00 Extension Research Linkages (Mr. Shafie Sallam)
- 17:00 – 17:30 VERCON/Egypt (Mr. Ahmed Rafea)
- 17:30 – 18:00 Discussion

Thursday 30 May 2002

- 08:30 – 09:45 Strengthening Agricultural Research and Extension for
Development in
the Near East (Mr. Mohamed Zehni)
- 09:45 – 10:00 Formation & directives of Working Groups (Mr. Abubaker Maddur)
- 10:00 – 10:30 Coffee break
- 10:30 – 13:00 Meetings of working groups in separate rooms

13:00 – 14:30 Lunch

14:30 – 16:30 Meeting of working groups in separate rooms

16:30 – 17:30 Reporting of Moderators of working groups

17:30 – evening Meeting of Moderators of the working groups and Secretariat to discuss
and prepare report and recommendation of the working groups.

Friday 31 May, 2002

09:30 – 11:00 Adoption of report and closing session

Annex III



**FAO Regional Workshop
on
Institutional Needs Assessment for Agricultural
Research, Technology Development and Extension
in the Near East Region**

29 – 31 May 2002, Amman, Jordan

FRAMEWORK FOR ACTION

May 2002

Amman Appeal

For Support for Agricultural Research and Extension in the Near East Region

We, the participants of the FAO Regional Workshop on “Institutional Needs Assessment for Agricultural Research, Technology Development and Extension in the Near East Region”, hosted by the National Centre for Agricultural Research and Technology Transfer (NCARTT), held from 29 to 31 May 2002 in Amman, Jordan:

concerned that agriculture in the Region has not been able to meet increasing demand for food and agricultural products with the result that the Region continues to be the largest net food importers among developing regions;

alarmed that more than 60 percent of the population of the Region lives in rural areas and depends on agriculture for livelihood and that 29 percent of the Region’s population lives on less than two dollars a day;

aware that opportunities for expanding cultivated area in the Region are minimal and that much of the hope for achieving higher levels of food security is pinned on new technologies, better farm practices, favourable government policies, and more rational water and land use;

confident of the valuable contribution to agricultural production and food security in the Region that could be achieved through strengthened national agricultural research and extension systems;

present this Framework for Action for the consideration and action of governments, donors, regional and international development organizations and other stakeholders; and

strongly appeal for their renewed interest in and support for agricultural research and extension in the Region.

TABLE OF CONTENTS

AMMAN APPEAL	34
GLOSSARY OF ACRONYMS	36
A FRAMEWORK FOR ACTION	37
INTRODUCTION	37
GENERAL CONSIDERATIONS	38
THE CHALLENGE.....	38
MEETING THE CHALLENGE.....	40
ELEMENTS FOR ACTION BY GOVERNMENTS, FAO, OTHER	
DEVELOPMENT AGENCIES AND DONORS	41
ADVOCACY FOR GREATER SUPPORT	41
FOCUS ON MAJOR ISSUES AND GAP-FILLING INITIATIVES	42
POLICY REFORM AND STRATEGIC PLANNING.....	43
PROVISION OF INFORMATION AT REGIONAL LEVEL	44
CAPACITY BUILDING AND HUMAN RESOURCE DEVELOPMENT	45
SUPPORT FOR REGIONAL AND SUBREGIONAL COLLABORATION	46

Glossary of Acronyms

AARINENA	Association of Agricultural Research Institutions in the Near East and North Africa
ACSAD	Arab Centre for the Studies of Arid Zones and Dry Lands
AFESD	Arab Fund for Economic and Social Development
AKIS	Agriculture Knowledge and Information System
AOAD	Arab Organization for Agricultural Development
AR&D	Agricultural Research and Development
ARI	Advanced Research Institute
CAAR	Committee on Arab Agricultural Research
CGIAR	Consultative Group on International Agricultural Research
CIHEAM	Centre international de hautes études agronomiques Méditerranéennes
EIARD	European Initiative for Agricultural Research for Development
ES	Economic and Social Department
FAO	Food and Agriculture Organization of the United Nations
FARA	Forum for Agricultural Research in Africa
FSRE	Farming Systems Research and Extension
GFAR	Global Forum of Agriculture Research
IARC	International Agricultural Research Centres
ICARDA	International Centre for Agricultural Research in Dry Areas
ICT	Information and Communication Technology
IFAD	International Fund for Agricultural Development
ISNAR	International Service for National Agricultural Research
MENA	Middle East and North Africa
NARI	National Agricultural Research Institute
NARS	National Agricultural Research Systems
NCARTT	National Centre for Agricultural Research and Technology Transfer
NRM	(Jordan)
NENA	Natural Resources Management
NFARD	Near East and North Africa Region
NGO	National Forum for Agricultural Research and Development
OFCOR	Non-governmental Organization
POs	On-Farm, Client-Oriented Research
PVOs	Producer Organizations
RAF	Private Venture Companies
RNE	Regional Office for Africa
SASKI	Regional Office for the Near East
SDR	Sustainable Agriculture Systems and Knowledge Institutions (World Bank)
SDRE	Bank)
SDRR	Research, Extension and Training Division
SSA	Extension, Education and Communication Service
UNDP	Research and Technology Development Service
VERCON	Sub-Saharan Africa
WB	United Nations Development Programme
WTO	Virtual Extension and Research Communication Network

Promoting Agricultural Research and Extension for Development in the Near East Region²:

A Framework for Action³

Introduction

1. FAO has a long history of assisting its member countries in establishing and maintaining viable national agricultural research and extension systems. FAO, in general, and its Regional Office for the Near East, in particular, were instrumental in spreading the new agricultural technologies, which led to the green revolution in the Region and elsewhere.
2. FAO has a potentially great comparative advantage in addressing the issues of sustainable agricultural development. This includes a wide network of country offices, strong involvement in operational agricultural development activities, vast databases and information systems, and sponsorship of the Consultative Group on International Agricultural Research (CGIAR). To all this must be added the Organization's technical and professional strength in crop and livestock production, forestry, fisheries and socioeconomic development.
3. This Framework for Action is intended as an interactive and collaborative undertaking for national, subregional and regional action. It is hoped that it will offer a concrete basis for action to be undertaken by the countries of the Region, by FAO and other international organizations, and by interested donors and other stakeholders.
4. It is of vital importance that the Framework for Action is seen as an effort to reform and develop research and extension and technology development as part of the larger picture of sustainable agricultural development and socioeconomic development as a whole.
5. The elements for actions proposed in this framework are addressed to national agricultural research and extension policy-makers and governments in the Near East Region as well as to donors and development organizations. The major part of the recommendations is referred to FAO with the view to it assisting in mobilizing support and extrabudgetary resources for their implementation.

² Refers to the FAO Near East Region (RNE), which currently comprises 29 countries: Afghanistan, Algeria, Bahrain, Cyprus, Djibouti, Egypt, Iran, Iraq, Jordan, Kuwait, Kyrgyz Republic, Lebanon, Libya, Malta, Mauritania, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Somalia, Sudan, Syria, Tajikistan, Tunisia, Turkey, Turkmenistan, United Arab Emirates and Yemen. Palestine enjoys an observer status, but as far as technical services are concerned, it is treated as a full member.

³ The Framework for Action is based on four studies commissioned by the FAO Regional Office for the Near East (RNE) and the FAO Research, Extension and Training Division (SDR). It was discussed and endorsed, as amended, by leaders of agricultural research and extension participating in the FAO Regional Workshop held from 29 to 31 May 2002 in Amman, Jordan.

General considerations

6. For the purpose of this framework for action, the term agricultural embraces all activities in crops and livestock production, shrubs and trees, aquaculture and fisheries and natural resource management (NRM) as well as related socioeconomic activities. Furthermore, it embraces the totality of agricultural efforts in a country in both the private and public sectors.
7. The proposed Framework for Action is influenced by several factors, which together reinforce the need for renewed and concerted efforts in reviving support for agricultural research and agricultural extension in the Region at national and regional levels. These factors include:
 - *the Region is food deficit and for many years now it has been the largest net food importer among developing countries. Recent estimates by the World Bank show that while measured poverty rates are lower than in any other developing region, 29 percent of the Region's population lives on less than two dollars a day. Poverty not only promotes social degradation but also constitutes a drag on economic development while inhibiting social progress;*
 - *notwithstanding some progress achieved in the performance of the Region's national agricultural research and extension institutions, the majority of them continue to be plagued by constraints and limitations in the work force, facilities, finances, managerial skills and organizational structures. Many development efforts suffer from lack of continuity as projects, largely supported by donor funds, have been short-lived and have introduced research and extension structures, methodologies and approaches that have been unsustainable once the external support ended;*
 - *impressive developments in agricultural technology during the last 50 years in developed countries have resulted in phenomenal increases in agricultural production. However, overall, investment in technology generation and dissemination by most countries of the Region is very low and adoption of technological innovations has been very slow;*
 - *global forces are shaping political and institutional arrangements for research and extension worldwide. These forces include international trade and global competition, population dynamics, privatization, science and technology development, land use and the natural environment, structural changes in institutional development and poverty. The challenge to respond to these forces is rendered difficult because of limited public sector financial resources.*

The challenge

8. Viable agricultural research and extension is crucial to the development of agriculture, alleviation of poverty and improving food security and the livelihood of the rural community. However, national agricultural development institutions

can no longer take continued support for granted and they need to improve their approaches and operations.

9. Only a few countries in the Region appear to be taking serious stock of what is occurring worldwide with respect to agriculture and the reform of agricultural services. In the present global situation, a first step in making agricultural development successful is the better understanding of the impact of globalization trends, agricultural trade issues and WTO provisions and their implications to competitiveness in agricultural commodity trade as they affect both quality and efficiency in production where research and extension could be instrumental.
10. It is imperative that national governments in the Region seriously endeavour to adapt to change and to introduce far-reaching reforms by developing a clear-cut mission for the public sector agricultural development institutions. This requires greater appreciation of the contribution that results from preserving a core of publicly funded research and extension to ensure relevance and continuity while encouraging and enabling other stakeholders (e.g. private sector, NGOs and farmer organizations) through legislative reforms, incentives and other means.
11. The institutional reform options are several and a number of strategies for agricultural research and extension reform have been implemented in a broad range of countries. However, the very variety of reform measures suggests that there is no blueprint for reform of development institutions. Nonetheless, an examination of what is happening in other countries and the results of reform strategies may be of considerable value to countries of the Region that wish to review and improve their research and extension systems.
12. Functional linkages between agricultural research institutes and extension on one hand and policy-makers and farmers on the other, are vital for the development and dissemination of technologies. These linkages are generally either weak or unsustainable in most countries of the Near East Region. Most research results prove to be either inadequate or inappropriate to the end user, partly because farmers' technological needs and priorities are not always represented in the national research and extension agenda.
13. Additionally, universities can contribute to extension and research by the involvement of faculty in participatory adaptive on-farm research and outreach. Also, university students can be placed in extension field programmes to contribute both to their own education and to extension's development. However, university resources and expertise are often untapped or under-utilized for agricultural research and extension.
14. The structure and management of the linkages between agricultural research and agricultural extension systems may have a significant effect on the relative success or failure of those systems in achieving their objectives. In order to establish effective and sustainable linkages between these various institutions and farmers, there is a need for careful analysis of the constraints and opportunities present in their particular situation and provision of policy mandate and

institutional incentives to promote formal and informal linkages between research, extension and farmers especially at the field level.

15. The notion of NARS (National Agricultural Research Systems), most used in agricultural research and development (AR&D), has helped to focus attention on the broader scope of the public-funded agricultural research activities and tended to down play the role of the private sector research institutions and leave out agricultural extension for rural development. A new approach is, therefore, needed.
16. One approach is to adopt a concept of a “national forum” for agricultural research and development (NFARD) as a framework for engaging the stakeholders of agricultural research and technology continuum. NFARD should ensure the broadest possible participation including NARIs, universities, extension and other technology transfer agents, the private sector, farmers’ organizations and donors. The representation in the forum will, however, vary from one country to another depending on the presence and strength of the various components.

Meeting the challenge

17. It is imperative for governments to develop a clear-cut mission for agricultural research and extension institutions and formulate long-term strategies with well-defined goals and priorities. Research and extension institutions must have greater transparency and accountability and closer functional links with other stakeholders of technology continuum. Research and extension agenda must redress imbalance in favour of resource-poor farmers and less endowed areas and pay greater attention to socioeconomic research and to environment and natural resources management.
18. Although the main responsibility to enable extension systems falls on governments in the Region, the role of donors and their contribution to extension reform and development should not be overlooked. There is at present no regional study of agricultural extension services in the Near East Region as a whole. There is not even a compendium, much less a compilation, of case studies indicating the problems and trends of extension in the countries of the Region. A regional perspective is long overdue.
19. The technological needs of resource-poor farmers need to be pursued and should include consideration of indigenous knowledge and technology that is often overlooked by researchers and extensionists alike.
20. There is no international agricultural extension organization comparable to the research network provided by CGIAR and its IARCs that serve National Agricultural Research Systems (NARS) in the developing countries. Also, there are no regional networks similar to AARINENA to provide a mechanism for interaction among the extension services in the Near East Region. Some form of international extension clearinghouse and global and regional networking entities are needed. A systematic networking with the developing countries, about new

trends and approaches to extension reform and advancement in the developing world is sorely needed.

21. Building on recent developments in information and communication technology (ICT), FAO has developed an ICT tool aimed at harnessing the potential of the Internet in improving linkages between research, extension and education institutions. This FAO initiative takes the form of the Virtual Extension and Research Communication Network (VERCON). The innovative nature of VERCON is in its capability to achieve effective linkages by connecting geographically dispersed people and enhance two-way communication, managing large volumes of data, and rapidly collecting, processing and dispersing information in a variety of forms.
22. The above-mentioned efforts and others by the stakeholders, all attempt to contribute to stronger and more relevant research and extension services, as well as strengthening the links between them and farmers and policy-makers. However, the task is considerable and would require concerted and collective efforts of all stakeholders and in many areas as can be seen from the following detailed elements for action. The elements for action cover research-extension-technology continuum and the linkages among them.

Elements for Action by Governments, FAO, Other Development Agencies and Donors

23. The role of governments, FAO and other relevant international and regional organizations in promoting agricultural research, extension and technology development in the Region can best be seen in the context of the following main thrusts:
 - **advocacy for greater support;**
 - **focus on major issues and gap-filling initiatives;**
 - **policy reform and strategic planning;**
 - **provision of information at regional level;**
 - **capacity building and human resource development; and**
 - **support for regional and subregional collaboration.**

Advocacy for greater support

24. The strength of FAO is in its ability to bring together stakeholders and interested parties and in acting as an honest broker. For these reasons, greater emphasis should be placed on advocating agricultural research and extension among ministries of agriculture and planning, regional financial institutions and interested donors and organizations. In this regard, the following elements for action are proposed:
 - *bring together regional, subregional and national organizations to consider issues of great relevance to agriculture and agricultural research in the Region. These would include biotechnology, plant breeders' rights, natural resource*

management, the role of the private sector, and impacts of the provisions of the WTO and other trade agreements. The idea of establishing joint panels for these topics should be explored;

- *seek a revival of the excellent idea, which was initiated, but not pursued for long, by the Arab Fund for Economic and Social Development (AFESD) in the form of the Committee on Arab Agricultural Research (CAAR), which could serve as a model for the RNE Region as a whole and perhaps with chapters at subregional level;*
- *examine the feasibility of concrete measures to support agricultural research and technology dissemination in the Region including the idea of having a joint programme with ACSAD, AFESD, AOAD, ICARDA, IFAD, ISNAR and/or possibly others, with support from the Region's financing institutions and development banks;*
- *initiate a FAO/donor-supported programme for rehabilitation of agricultural research/extension systems in countries emerging from civil strife and/or war and those under occupation. A first step could take the form of an in-depth study articulating the problem, assessing countries needs and soliciting donors' views and support. A meeting of interested parties to examine the findings of the study and to agree on joint or individual action could follow this;*
- *undertake a more proactive role in advocating wider use of biotechnology and assist countries of the Region in mobilizing interest and resources for this purpose. There is a need for a debate among interested governments, development organizations and donors in the Region. FAO should work in close collaboration with ACSAD, AFESD, AOAD, ICARDA, IFAD and others in establishing a forum for agricultural biotechnologies where leading national research institutes and universities of the Region would debate issues of importance and agree on joint action;*
- *promote interregional collaboration, particularly as the Region is geographically well placed between three FAO regions, Africa, Asia and the Pacific and Europe. Furthermore, several Members of the Region are also Members in the other three regions. Cyprus, Malta and Turkey, being Members in the European Region, could play a role in exploring opportunities for collaboration and joint research project and networks, particularly in the light of the EIARD initiative. Equally, Iran and Pakistan can explore such opportunities in the Asia and the Pacific Region while Egypt, Libya and Sudan and other North African countries would do the same in the Africa Region.*

Focus on major issues and gap-filling initiatives

25. Greater attention should be accorded to issues which seem to be partially neglected. These include the potential roles of the private sector and the universities in contributing to the development and dissemination of agricultural technology and information. Other areas that require attention are the impact of research and extension on national agricultural production, food security and poverty alleviation

and the overall welfare of both producers and consumers in the Region. In this regard, the following elements for action are proposed:

- *undertake a review of the role of the private sector and NGOs in agricultural research and extension in the Near East Region in collaboration with other organizations and some relevant international and local NGOs. This could be a prelude to further efforts for wider discussion of the matter in national and regional fora;*
- *initiate, in collaboration with ICARDA and like institutions, national agricultural research and extension institutes and faculties of agricultural sciences and interested donors, impact studies of national agricultural research activities on agricultural and rural development. In this regard, SDR/RNE may consider holding workshops and/or producing training material on the subject;*
- *closely examine the specific requirements of small countries (e.g. Bahrain, Cyprus, Djibouti, Kuwait, Malta, Palestine, Qatar and Somalia) and develop better understanding of the constraints and potentials for development in these countries in the research- extension- technology continuum. This should be carried out in collaboration with extension as it has been shown that small countries need to have stronger extension and 'scouting' ability to achieve research results instead of a full-fledged research system;*
- *streamline procedures for identification of technology need assessment to promote sustainable and economically efficient and effective use of the available natural resources through appropriate research on the selected commodities and cropping patterns as well as procedures for technology assessment and transfer to ensure that the recommended technologies are of the right quality and accessible to farmers especially resource poor farmers;*
- *undertake studies on the regional agricultural research organizations and networks; their structural, financial and managerial arrangements and the results of their efforts.*

Policy reform and strategic planning

26. Agricultural research and extension reform policies and strategies comparable to those being designed and implemented in other regions of the world are not being formulated in the Near East Region. Countries in the Region need to examine the nature and impact of the new trends and initiate studies of how agricultural research and extension systems can best be reformed in line with their country's socioeconomic and cultural needs. In this regard, the following elements for action are proposed:

- *introduce participatory approaches and methods, create an interactive learning environment and those institutions that fund and deliver research and extension provide ready and continuing support for the reform programme;*

- *the performance of research and extension systems be evaluated to verify the needs for reform and to study the various options for reform. Consequently it will result in more relevant research agenda, extension curricula and greater capacities;*
- *governments in the Near East Region begin to implement strategies that promote the private sector (i.e. PVOs, NGOs and POs) with a view to fostering their role and contribution in the development of agricultural research and extension for the purposes of economic advancement, food security and poverty alleviation;*
- *equitable and active involvement of women should be sought and promoted. At the same time, the Ministry of Agriculture should adopt (implement) a more committed and very rigorous female recruitment policy and intake programmes targeting women farmers. Such arrangements should also be integrated in all FAO prepared/executed projects;*
- *use a gender approach at the earliest stage, when formulating an extension/research programme to take into consideration the situation, constraints, needs and priorities of men and women farmers. This approach should lead to the formulation of gender oriented research and extension programmes, so that men and women benefit according to their respective roles in the agricultural development process;*
- *donor agencies, and particularly donors from the Region, should renew their commitment to providing direct and sustained support to agricultural research and extension reform, along with the promotion of structural reform;*
- *in a climate of reform, it will be important for countries in the Region to ensure that linkages with extension and research are established with the research operations in formal research institutions and in the specialized commodity divisions of their ministry of agriculture.*

Provision of information at regional level

27. There is a dearth of information and aggregate data on agriculture in general and on research, extension and other related activities including market and economic information in particular. This calls for concerted efforts to fill these gaps. In this regard, the following elements for action are proposed:

- *convene in the near future a series of subregional workshops in the Near East Region to review and consider the institutional reforms that are taking place worldwide. These workshops should serve as a springboard for policy development and institutional reform of agricultural research and extension arrangements in the Region;*
- *examine the feasibility of completing data and information on the Region's agriculture in general and agricultural research in particular, in collaboration with the Department of Social and Economic Affairs (ES) for general economic*

data and with ICARDA and ISNAR and others for data on agricultural research. In this regard, RNE/SDR/GIL should explore the potential of the regional information for West Asia and North Africa initiatives that have been jointly undertaken by AARINENA, CLAES, FAO, GFAR and ICARDA;

- *commission in due course, the preparation and update of monographs comparable to those commissioned in the recent major review undertaken by AARINENA, CIHEAM, FAO and ICARDA, for countries left out in the mentioned review. This will enable SDRR/RNE to maintain a valuable database, which could be eventually shared with or turned over to AARINENA;*
- *promote sustainable efforts in assembling and analysing data on investment and expenditure on agricultural research and extension in the Region in collaboration with ACSAD, AOAD, ICARDA, IFAD, ISNAR and regional development banks and funds. These efforts should be a part of policy analysis of funding agricultural research and extension in the Region. Such a study is particularly useful in determining current patterns, trends and alternative strategies for funding AR&D activities at national and regional levels;*
- *establish a clearinghouse on agricultural and rural extension and provide developing countries with a systematic and regular information system alerting and generally informing national and other extension officials and specialists about new trends and approaches, problems and successes, in agricultural extension and especially in the reform strategies that seek to foster the advancement of agricultural information to farmers;*
- *give greater visibility to FAO's initiative related to the Virtual Extension and Research Communication Network (VERCON) among the countries of the Region and promote support for its implementation as a pilot project in a number of countries in the Region.*

Capacity building and human resource development

28. Investments in human capital influence future monetary and psychic income by increasing the resources in people. Developing human capital is akin to investing in the future. It is a necessary investment for countries in the Region seeking to compete in the modern world. There is a need for critical review of agricultural education systems to develop and adopt relevant curricula oriented towards building analytical and communication as well as technical skills, and capable of addressing the agricultural development needs and priorities of the Region. In this regard, the following elements for action are proposed:

- *FAO/RNE organize training courses for research and extension managers of the Region in systematic policy analysis and planning optimum resource use through multi-disciplinary resource use planning groups, mobilization and management of human and financial resources and advocacy skills on the importance of achievements/contributions and needs of the agricultural sector;*

- *develop sustainable capacity, both in research and extension, in various aspects of agro-climatology and in crops so that national planners obtain advanced information on the size of the crops based on different parameters including areas sown, inputs used and weather conditions;*
- *donors should sponsor training programmes for strengthening research-extension linkages mechanisms to ensure close administrative and field efforts between these two knowledge support services;*
- *serious consideration is given to strengthening staff capacity research in the Regional Office for the Near East for promoting agricultural research. This in combination with the present capacity in agricultural extension should give much needed impetus to technology development and dissemination in the Region as well as to improving linkages among research, extension and farmers.*

Support for regional and subregional collaboration

29. There is a need for effective mechanisms for sharing of experiences and building partnerships in technology generation, assessment and transfer throughout the countries of the Region. FAO has played an instrumental role in the foundation and evolution of AARINENA and GFAR. FAO, with strong support from national governments and other stakeholders, is called upon to promote and facilitate the establishment of similar arrangements for agricultural extension institutions in the area of technology transfer and dissemination. In this regard, the following elements for action are proposed:

- *promote the establishment of a National Forum for Agricultural Research and Development (NFARD) to give support and directives to ensure participation of all stakeholders including agribusiness and the NARS governing mechanisms and act as a real forum where all the NARS stakeholders gather and work together. These could serve as focal points for RNE/SDRR in the country. It is suggested that the idea be tested in a few countries with reasonable agricultural research and extension size;*
- *compile the relevant technologies for the Region and encourage research scientists, extensionists and policy-makers in member countries of the Region (or groups of adjacent countries with similar agro-ecological conditions) to organize multi-disciplinary groups at the subregional level and recommend the most remunerative use of land and water resources;*
- *form a support group for AARINENA composed, among others, of ACSAD, AOAD, CIHEAM, IFAD, RNE, SDR, regional financial institutions and interested donors, and assist it in enabling its subregional structures to act as a mechanism for operational and specific collaborative research projects. As the subregions differ in their agriculture potential, the state of their agricultural research and policy environment, there should be some flexibility in the design of their structures to allow for their natural evolution over time.*

30. FAO and other relevant development agencies and donors have for years supported agricultural research and extension in developing countries and they continue to have a special responsibility to assist in all these issues. The strength of FAO continues to be in its ability to draw together various stakeholders and its capacity to advocate causes and to stimulate actions. The Regional Office for the Near East (RNE) and the Research, Extension and Training Division (SDR) has spearheaded FAO's efforts in this regard. Much needs to be done in the area of sharing knowledge and information, promoting partnership and advocating the cause of sustainable agricultural development in the Region.