Proceedings

Regional Workshop on Options of Reform for Agricultural Extension in the Near East

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Food and Agriculture Organization of the United Nations
Regional Office for the Near East
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FAO REGIONAL WORKSHOP ON OPTIONS OF REFORM FOR AGRICULTURAL EXTENSION IN THE NEAR EAST
AMMAN, JORDAN
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LIST OF ACRONYMS

AARDO	Afro-Asian Rural Development Organization
ACSAD	Arab Centre for the Study of Arid Zones and Dry Lands
ADC	Agricultural Development Centre (Oman)
AED	Central Extension Department (Oman)
AEI	Agricultural Educational Institution (Yemen)
AERDRI	Agricultural Extension and Rural Development Research Institute (Egypt)
AKIS	Agricultural Knowledge and Information System
ARA	Agricultural Research Authority (Yemen)
AREA	Agricultural Research and Extension Authority (Yemen)
ATC	Agricultural Training Centre (Yemen)
AUB	American University in Beirut
CARDNE	Centre for Agrarian Reform and Rural Development in the Near East
CARE	Cooperative for Assistance and Relief Everywhere
CBO	Community-based Organizations
CTDS	Communication, Training and Documentation Section (Yemen)
DRE	Directorate of Research and Extension (Yemen)
DSA	Daily Subsistence Allowance
ESC	Extension Service Centre
ESCWA	Economic and Social Commission for Western Africa
ETC	Extension Training Component (Yemen)
ETD	Extension and Training Division (Yemen)
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School(s)
FSA	Farming Systems Approach
GEF	Global Environment Facility
GDAET	General Directorate of Agricultural Extension and Training (Yemen)
GDP	Gross Domestic Product
GMO	Genetically Modified Organism
GRIP	Generalized Rapid Impact Programme (Yemen)
GTZ	German Agency for Technical Cooperation
ICARDA	International Centre for Agricultural Research in Dry Areas
ICT	Information and Communications Technology
ICU	Istituto per la Cooperazione Universitaria
IFAD	International Fund for Agricultural Development
JICA	Japanese International Cooperation Agency
NGO	Non-governmental Organization
NWFP	Northwest Frontier Province (Pakistan)

ODA	Overseas Development Agency (United Kingdom)
OPEC	Organization of Petroleum Exporting Countries
PAPP	Programme of Assistance to the Palestinian People
PRA	Participatory Rural Appraisal
RIP	Rapid Impact Programme (Yemen)
RNE	Regional Office for the Near East (FAO)
RRA	Rapid Rural Appraisal
SDRE	Extension, Education and Communication Service (FAO)
SWOT	Strengths, Weaknesses, Opportunities and Threats (analysis)
T&V	Train and visit
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
VERCON	Virtual Extension and Research Communications Network (Egypt)
WFP	World Food Programme
WTO	World Trade Organization

Conversions

feddan	1 feddan = 0.42 ha
donum	1 donum = 0.1 ha
donum (Iraq)	1 donum = 0.25 ha
kintar (quintal)	1 kintar = 100 kg

SECTION ONE

REPORT ON THE REGIONAL WORKSHOP ON OPTIONS OF REFORM FOR AGRICULTURAL EXTENSION IN THE NEAR EAST

Regional Workshop on Options of Reform for Agricultural Extension in the Near East

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I. THE WORKSHOP

The Regional Workshop on Options of Reform for Agricultural Extension in the Near East was held in Amman, Jordan, from 2 to 4 October 2004. It was organized by the Food and Agriculture Organization of the United Nations (FAO) Regional Office for the Near East (RNE) and the Extension, Education and Communication Service at FAO headquarters (SDRE), in collaboration with the Centre for Agrarian Reform and Rural Development in the Near East (CARDNE).

The workshop was attended by 25 participants representing 14 member countries and four regional organizations. Participants included leaders of agricultural extension from Bahrain, Egypt, Iraq, the Islamic Republic of Iran, Jordan, Lebanon, Oman, Pakistan, the Sudan, the Syrian Arab Republic, Turkey, Tunisia, Yemen and the Palestinian Territories, representatives from the Afro-Asian Rural Development Organization (AARDO), the Arab Centre for the Study of Arid Zones and Dry Lands (ACSAD), CARDNE and the Economic and Social Commission for Western Africa (ESCWA), and resource persons and experts from Jordanian universities.

II. OPENING SESSION

The workshop was held under the auspices of the Prime Minister of Jordan, and was inaugurated by Mr Hazem Al Nasser, Minister of Agriculture and Irrigation. Opening statements were given by Mr Al Nasser, Mr Ahmed El-Miniawy FAO Representative in Jordan, and Mr Khaldoun Sbaihi, Director-General of CARDNE.

In his opening statement, Mr Al Nasser highlighted the challenges facing Near Eastern countries in achieving food security and rural development. As a channel for disseminating innovations and best practices, agricultural extension should correspond both with modern agricultural policies and with the socio-cultural context of target communities.

In Jordan, the Ministry of Agriculture and Irrigation aims to advance agricultural extension and follows approaches that address the actual needs of farmers. In this regard, the ministry's restructuring plan outlined agricultural extension objectives and approaches to address planning, execution and quality training for extensionists and farmers. In the new structure, agricultural projects are linked to extension.

The workshop was part of FAO's and CARDNE's continuous efforts to enhance cooperation and coordination among countries in the Near East in order to achieve sustainable agricultural development and tangible reform in agricultural extension.

Mr Sbaihi regarded the workshop as one of the most important events in the field of agricultural extension at the regional level for at least the last two decades. He highlighted that agricultural extension was called on to assist producers in adapting to the ever-changing national and international environment. Agricultural extension's role in increasing production, improving quality and reducing production costs would contribute to transforming the concerns about free markets for agricultural products into gains.

Mr El-Miniawy stressed the essential role extension institutions play in achieving sustainable agricultural and rural development and food security. FAO priorities are to reform and strengthen national agricultural extension systems, including through the development of national extension policies and strategies that address the needs of resource-poor farmers within the socio-economic context of the country, and through capacity building of extension specialists to encourage institutional reform.

III. OBJECTIVES

Mr Jamal Al Rusheidat, workshop coordinator, presented the workshop objectives and programme. The workshop objectives were to:

1. Highlight the challenges facing agricultural extension institutions and the need to adopt new approaches and partnerships;
2. Update participants on global developments in agricultural extension and viable initiatives in extension reform;
3. Provide a forum for discussion and experience sharing among senior extension officials from participating countries;
4. Examine existing national extension systems and identify entry points for reforms;
5. Formulate a set of recommended actions for extension institutions and partner agencies involved in the review, assessment and reform of agricultural extension systems to enhance their capacity in addressing the needs of farmers and to ensure active contributions to sustainable rural and agricultural development.

The workshop consisted of three parts: core presentations on extension status and options of reform, country reports, and work group sessions. The workshop agenda is attached as Annex 1.

IV. DISCUSSION

Extension is a very broad concept that should not be viewed only as the business of extension departments. Extension should be considered as a function for educating people (clients) in any profession; there are many forms of extension related to different areas, not only agriculture. For example, health extension has educated people on health issues, and university extension programmes have educated non-students on many subjects. Likewise, anybody involved in educating rural people to improve their lives is carrying out extension work. Clearly, when talking of farmers, most such education is related to the agricultural profession, so the term agricultural extension is used.

Many aspects of agricultural extension are changing. For example, urban agriculture is receiving more recognition in many countries. Urban agriculture refers to people growing crops in cities, and urban farmers need technical advice and education, they thus become new extension clients. The technical mandate of extension is also broadening. The term agricultural and rural extension is now more widely used, with the aim of widening the scope of extension agents within a broader extension mandate. The goal is to get extension agents involved in many educational activities for people living in rural areas; in this way, extension agents are involved in rural development.

Extension should not be considered in isolation from general or rural development in any country. Extension cannot work alone; no matter how effective an extension system is, it works best in collaboration with other development institutions, within the context of the country's development plans. Extension reform should therefore be tackled within the broader context of national policy – not only as extension policy, but also as part of the broader policy of government.

The review and reform of extension systems is a very wide-ranging process, and there is no single formula or blueprint for extension reform. There are several options for reform, and all of these should be examined by reformers, as different countries have different situations. The options selected must be linked to the overall development picture. Formulation of a national extension policy and methodologies depends on the country's specific situation, categories of farmers and farming systems. A national extension policy should address all concerns regarding national needs and international demands, for example those related to genetically modified organisms (GMOs) and market regulations.

Government development policy should include a vision for extension that recognizes the country's development goals and identifies how extension can support policy implementation during the next five, ten and 15 years. Within this vision, farmers' knowledge needs should be assessed to avoid

imposing solutions from the top. When farmers' knowledge needs are known, the necessary expertise can be identified and the proper institutional structure defined – whether that be top-down, bottom-up, horizontal or a combination.

The decentralization of extension services should be considered within the context of each country's situation and government policies. If governments opt to decentralize, optimum implementation modalities should be sought. The same applies to privatization. Government policies, as well as farmers' needs, educational levels and resources differ considerably. Some farmers might not need extension agents because they are well educated and have access to commercial expertise. Such farmers could be provided with extension advice commercially.

At the workshop, examples of different contexts in different countries were given from the United States and Denmark. The United States still has the largest public extension service in the world, even though many farmers are so highly educated that they do not need to use it. Instead, these farmers call commercial companies directly for extension advice. In Denmark on the other hand, extension is totally privatized. Farmers are well educated and the Danish Agricultural Advisory Service is completely owned and run by farmers' organizations. Local agricultural advisory centres help farmers to develop profitable business plans for their livestock and farming operations.

When innovations are not properly tuned to the needs of the country concerned, they can fail completely. Extension methodologies should not be imposed just because they have worked well in other countries. Even within the same country, there may be differences such as among mountains, hills and plains, different microclimates, different agriculture or different farmers – one methodology cannot work everywhere, no matter how good it is. Rather than copying/importing models, such as train and visit (T&V) and Farmer Field Schools (FFS), extension methodologies should be developed depending on the cultural, agricultural, economic and physical situation of the country.

When developing extension methodologies, the principles of good extension should be followed, not the models. Good principles lead to extension that is participatory in involving clients, gender-sensitive in involving women, simple and cost-effective. For example, a major problem with FFS is scaling up. When applied in one or two villages, the FFS methodology gives very good results, but when taken to the national level it starts crumbling because costs become too high.

A starting point for extension reform is developing and improving extension curricula in universities and vocational institutes. Some universities in the Near East region do not have extension departments, and this creates a gap in preparing skilled cadres to work in the extension service. Career prospects and professional development in extension are also core issues that should be addressed in order to create competitive conditions that attract and retain motivated individuals with high potential.

Among the most serious constraints facing extension are financing and access to adequate resources and facilities. In spite of extension departments' diverse roles and wide clientele, the budget for extension is no more than 2 percent of the overall ministry of agriculture budget in many countries. The setting of research agendas also has to be improved, with the full involvement of farmers, extensionists and other stakeholders. Political will and support are prerequisites for the development, reform and strengthening of extension systems.

V. RECOMMENDATIONS

Based on the country papers and technical discussions, workshop participants held group sessions to identify specific aspects of the extension systems in their countries for which reform was essential and interventions could be made. The groups discussed priority areas and identified strategies and necessary actions for the reform of agricultural extension, using a table specially designed for this purpose. The priority areas they identified are described in the following subsections.

Policy

Political support is a prerequisite for reform initiatives and for strengthening the extension system in any country. It is necessary to sensitize senior-level policy- and decision-makers on the essential role and contributions of extension services to sustainable agricultural and rural development, the fight against hunger and the achievement of food security, especially in reaching the poor and marginalized populations in rural areas, with due attention to rural women and youth.

The lack of agricultural extension policy and strategy in many countries of the region makes the system vulnerable to unpredicted political changes and uncertain funding levels. It is necessary to:

1. Draw a vision for agricultural extension that recognizes the country's development goals and how extension can support these in the short, medium and long terms;
2. Undertake a comprehensive review of the extension system in the country to assess its strengths and weaknesses, identify actors and stakeholders, extract lessons learned and build on past experiences in any reform initiative;
3. Formulate national policy on extension to ensure political and financial commitment within the context of the overall national development policy;
4. Examine issues of decentralization, privatization and pluralism of extension services within the cultural, social, economic and physical situation of the country;
5. Revisit the institutional setting in view of the national extension policy in order to foster a structure and level of authority that is suited to the context of the country and able to respond to the needs of farmers;
6. Revise the job descriptions and conditions of service for extension personnel in light of the national extension policy and vision, addressing career prospects and professional development to ensure that high-potential candidates are attracted and retained.

Extension linkages and stakeholders

Extension cannot work alone; no matter how effective an extension system is, it works best in collaboration with other development institutions, within the context of the country's development policy. It is necessary to:

1. Promote pluralism in extension by involving public and private institutions, as appropriate to the context of the country and needs of farmers;
2. Analyse the agricultural knowledge and information system (AKIS) in the country to address gaps and missing or weak linkages that impede advisory services and rural development in general, taking due consideration of gender aspects;
3. Establish/strengthen appropriate linkages and coordination mechanisms with relevant players in the AKIS, especially agricultural research and education institutions and farmers' organizations;
4. Establish a systematic mechanism that involves extension officials and farmers in setting research priorities and applying/adapting research findings at the field level;
5. Harness the potential of new developments in information and communication technology (ICT) for enhancing linkages and coordination among different stakeholders, for the benefit of farmers.

Capacity building

No reform initiative can be successful or sustainable without qualified and motivated staff. Capacity building is therefore a starting point in extension reform. It is necessary to:

1. Assess farmers' knowledge needs and identify the required skills and expertise accordingly in light of the extension vision;
2. Design a comprehensive gender-sensitive training plan conducive to extension reform, covering pre- and in-service training for extension personnel and addressing knowledge and skill gaps in essential areas within the new extension paradigm;

3. Inform and update extension staff about regional and global developments that could affect rural livelihoods, such as European export standards, the implications of the World Trade Agreement, market liberalization and introduction of genetically modified organisms (GMOs);
4. Reform pre-service education at higher and vocational agricultural institutions in line with ongoing reforms in extension, including reviewing and updating curricula and teaching/training methodology;
5. Promote gender equity in the recruitment and training of extension staff in order to address the needs and concerns of rural women.

Extension methodologies and programmes

Innovations that are not properly tuned to the needs of the country tend to fail. Extension methodologies should not be copied or imposed, but should rather be developed according to the cultural, agricultural, economic and physical situation in the country. There is a need to:

1. Widen the technical mandate of extension to include the broader development of rural human resources and involvement in rural development;
2. Form and empower farmers' groups to create an effective lobby for extension, and ensure a demand-driven and farmer-accountable extension service;
3. Foster gender-sensitive participatory approaches in the planning and implementation of extension programmes to ensure relevance, effectiveness, ownership and sustainability;
4. Develop extension methodologies that are appropriate for the cultural, agricultural, economic and physical situation of the country and that follow the principles of good extension.

In conclusion, the meeting requested FAO to continue providing technical assistance for the reform and strengthening of extension institutions in the region. FAO is well positioned to bring together senior officials and experts in extension at regional meetings and workshops, thereby facilitating reflection and experience sharing in a neutral forum. The involvement of research institutions and farmers' organizations in such meetings would increase the benefits and enhance future linkages.

VI. TECHNICAL PRESENTATIONS

i. AGRICULTURAL EXTENSION IN THE NEAR EAST: CHALLENGES AND OPPORTUNITIES

This paper was presented by Ms May Hani, Regional Extension, Education and Communication Officer at the FAO Regional Office for the Near East. The following are the main points of her presentation.

Public extension institutions in most Near Eastern countries are facing several challenges and increased pressure from financial, institutional and technical aspects. It is widely recognized that in order to meet these challenges, structural, fiscal and managerial reform of agricultural extension institutions is needed. There are several options for institutional reform, and a number of different strategies for agricultural extension reform have been implemented in countries in the region and worldwide.

Agricultural extension institutions in the region share a number of challenges and constraints that are common to most extension institutions in developing countries. These include inadequate financial and human resources, reduced government funding, deteriorated infrastructure, lacking or weak coordination mechanisms and functional linkages with vital institutions in both the public and private sectors, absence of quality control and impact assessment mechanisms, and outdated, unclear extension mandates and staff job descriptions.

In addition, there are also region-specific challenges facing the agriculture sector in the Near East; these have consequences on farmers' livelihoods and call for a broader vision and wider scope for extension services. Region-specific challenges include high population growth rates, of up to 3.7 percent in some countries, coupled with scarce and often depleted natural resources. These result in large pockets of chronic food insecurity in the region, and various degrees of malnutrition in many countries. Other challenging factors include the implementation of programmes for economic liberalization, new division of labour between the public and private sectors and a redefinition of the role of the State, and emergencies resulting from adverse climatic conditions, natural disasters, droughts and human-induced disorders. In many countries, extension institutions are severely affected by these challenges, and in addition are expected to help farmers cope with them.

While all of this is taking place, many public extension institutions continue to provide their services in a rather "business as usual" manner. As a result, many of them are losing ground while other public and private actors emerge as active service providers. Examples of these new multiple actors in extension include dynamic and adaptive non-governmental organizations (NGOs), private firms and technical departments of public institutions.

The units created in technical departments and public institutions to provide advisory services to farmers are referred to by various terms, including technology transfer, advisory services, information services, communication units and community services. The emergence of these actors is clearly an attempt to fill the gaps created by the slow adaptation of national extension services to the diverse needs of farmers and rural communities.

At the same time, a growing and dynamic private sector – including NGOs, private firms, producers' associations and farmers' organizations – is gradually assuming an increasing role in providing extension services to farmers. This is a healthy sign, as previous experiences show that farmers' diverse and constantly growing/changing needs for knowledge, information and skills that contribute to improving their livelihoods cannot be handled by one single institution, no matter how well equipped and well staffed it is.

It is important to highlight that this is not an either/or situation. Extension (like education) continues to be a prime public responsibility towards resource-poor farmers and marginalized groups, such as rural women and youth, particularly when national goals in fighting extreme hunger and poverty are to be achieved. Evidence from the field shows that effective and equitable coverage in addressing the needs of resource-poor farmers in developing countries cannot be achieved unless there is a strong and efficient public extension institution – even when multiple actors are active in the field.

The presence of multiple actors and extension service providers – whether public or private – creates a need for coordination, participatory planning, networking, information and experience sharing,

evaluation and dissemination of lessons learned, monitoring, and quality control. All are clearly public roles, which should be assumed by a high-capacity public extension institution with a reviewed mandate and well trained staff to undertake the new tasks. Failure to do this results in lack of coordination, sometimes causing extensive overlap and confusion in rural communities and always creating technical, geographical and social gaps, which usually leave the poor and illiterate behind.

An important question is: Do public extension institutions have the capacity to assume this new role? Specifically, do they have the right mandate, relevant job description and – most important – technical skills to perform these tasks?

The answer in many cases is No. And this is precisely why there is a need for change. It is worth noting that such change is not easy or straightforward, as there is no fixed plan of action or a "one size fits all" model for extension reform. The change process is a long and costly journey that needs to be well planned far ahead, and that includes deep analysis of the country-specific situation through involving different stakeholders to draw a realistic vision that applies to the country's actual needs and context. A number of milestones can be identified in this process. The following is a shortlist of basic steps that need to be considered before any major institutional changes are adopted:

1. To start with, public extension institutions need to assess the current situation, including the various actors in the field and their past and present performances in view of emerging farmers' needs and national agricultural policies and strategies.
2. The extension mandate, human and financial resources, staff and institutional capacity, public and private service providers, institutional settings, existing linkages and coordination mechanisms, and potential partnerships all need to be reviewed.
3. Based on this review, a clear vision for national extension should be developed, with a realistic extension policy, an appropriate institutional structure and an implementation programme that describes all the actors, roles and responsibilities and the required human and financial resources.
4. The building of staff capacity to undertake a vital role in the change process should be underlined. A comprehensive training plan has to be formulated to address training needs for building staff capacity in key areas needed for planning, managing and implementing farmer-responsive, gender-sensitive, pluralistic extension programmes, such as participatory extension planning, gender-sensitive needs assessment, coordination, communication, networking, monitoring, evaluation and impact assessment.
5. The new policy, mandate and job description of staff may reflect needs for new skills and qualifications. This would imply a review of higher agricultural education curricula to provide fresh agricultural graduates and extension specialists with appropriate skills and knowledge that are more relevant to the country's actual needs.

Once these steps have been implemented appropriately, it is possible to draw a national vision for extension reform, verify the viable options, and adopt appropriate solutions.

ii. NEEDS AND OPTIONS FOR REFORMING AGRICULTURAL EXTENSION

Mr Kalim Qamar, FAO Senior Extension and Training Officer in the Extension, Education and Communication Service presented this topic. The following are the salient points of his presentation.

There is a need to discuss the reforming of extension services because of:

1. General dissatisfaction with the performance of public agricultural extension services;
2. Global developments that are bound to challenge extension's traditional structure, role, strategies and operations;
3. Various reform measures that are under way in the world for improving the performance of extension.

The following are the basics of traditional public extension systems:

1. Located within ministries of agriculture;
2. Funded by governments;
3. Accountable to superior officers;
4. Main sources of technology are national research institutes/stations;
5. Institutional structure: hierarchy from the national to the provincial to the district to the village levels;
6. Target audience: usually male farmers, with preference for big farmers;
7. General approach is top-down with negligible grassroots involvement;
8. Thrust is supply- and technology-driven;
9. Mandate is agricultural technology transfer;
10. Methods: demonstrations, farm visits, individual contacts, group contacts, mass media;
11. Extension policy rarely exists because it is included in the national agricultural development policy;
12. Staff are mostly hard working and dedicated although they feel constrained by logistic difficulties and limited career development options. They are the product of poor academic programmes; most learn on the job;
13. Staff status, benefits and career development opportunities are very low compared with those of other disciplines;
14. Operational funds are insufficient;
15. Field mobility facilities are extremely limited;
16. Number of farmers and geographical area to be covered by each field agent are generally very large;
17. Linkages with research and other institutions are notoriously weak;
18. In-service training is unsatisfactory and insufficient;
19. Basis for staff rewards and accountability is mostly subjective;
20. No assertive say in ensuring essential supply of farm inputs for farmers' adoption of extension recommendations;
21. Impact assessment of programmes is rarely carried out;
22. Verification of technologies for environment-friendliness is never carried out.

The following are some general impressions of the public extension system:

1. It has a large staff and consumes substantial government budget, but is neither very efficient nor very effective;
2. It is a top-down organization with top-down operations;
3. Farmers complain because extension agents do not visit them often enough;
4. Low adoption of improved technologies is a result of poor extension services.

The following are typical extension projects from 1970 to the early 1990s:

1. Provision of increased training to extension staff;
2. Temporary increase in the number of staff during the life of a project;
3. Introduction of specific extension methodologies (e.g., T&V system);
4. Provision of extra-budgetary operational funds, vehicles and equipment;
5. Mandatory periodic meetings between research and extension, based on the agricultural calendar;
6. Provision of the services of expatriate technical advisers.

The main outcomes of these projects were:

1. International recognition of the importance of extension, witnessed by the long-term, large-scale support of major donors;
2. Positive effects on yields, but no sustainability of project interventions;
3. Developing countries under burden of huge loans;
4. Disappointment with the T&V system and almost immediate acceptance of FFS as alternative methodology because of its participatory features;
5. Increased government and donor frustration with public extension services.

During the 1990s, national measures that affected public extension were:

1. Reduced budget allocations to the agriculture sector;
2. Complete detachment of extension organizations from farm inputs supply;
3. Reduction in or removal of farm subsidies;
4. Substantial downsizing of extension staff under structural adjustment.

The following worldwide developments prompt reforms in extension:

1. Globalization and market liberalization;
2. Privatization;
3. Pluralism;
4. Decentralization;
5. Outsourcing;
6. Clientele participation and focus;
7. Natural disasters and wars;
8. The information technology revolution;
9. Rural poverty, food insecurity and the HIV/AIDS epidemic;
10. Integrated, multidisciplinary, holistic and sustainable development.

Options for reforming extension include:

1. Formulating national policy on extension to ensure political and financial commitment;
2. Giving the extension profession long overdue greater respect;
3. Reforming pre-service education in extension in line with ongoing extension reforms;
4. Decentralizing extension without politicizing it and with capacity building for decentralized units;
5. Promoting pluralism in extension by involving public and private institutions;
6. Forming and empowering farmers' groups to create an effective lobby for extension;
7. Privatizing extension only where it is socially and economically feasible;
8. Preparing extension services to play a constructive role in post-war, post-disaster and epidemic situations;
9. Broadening the technical mandate of extension to include the broader development of rural human resources;
10. Developing and applying information technology tools to facilitate but not replace extension;
11. Developing original, location-specific, participatory, gender-sensitive and inexpensive extension methodologies and materials, instead of imitating imported models;
12. Informing extension staff about major global developments that could affect rural livelihoods;
13. Making extension services demand-driven for farmers' benefits and in order to promote extension workers' accountability and professional satisfaction;
14. Separating the functions of extension financing and service delivery in the interest of efficiency and cost-effectiveness;
15. Preparing extension services to promote sustainable development in order to safeguard resources for future generations.

FAO stands ready to provide the necessary technical assistance for reforming national extension systems at the request of Member Governments.

iii. OVERVIEW OF EXTENSION SYSTEMS IN THE NEAR EAST: A Regional Study

Following-up on recommendations made by the FAO Regional Workshop on Institutional Needs Assessment for Agricultural Research, Technology Development and Extension in the Near East, held in Amman, Jordan in 2002, the FAO Regional Office for the Near East started an initiative to collect, analyse and compile data and information on extension systems in the Near East, in collaboration with the Agricultural Extension and Rural Development Research Institute (AERDRI) of Egypt.

The study aimed to examine the status of the national extension systems in Near Eastern countries and their interactions with other agricultural and rural stakeholders, and to identify national systems' achievements, strengths and weaknesses. It examined current trends and how extension systems can best be reformed in line with the socio-economic and cultural needs of the countries.

A detailed questionnaire was prepared and sent to ministries of agriculture in the Near East. Responses were received from 12 member countries and the Palestinian Territories. The data collected, along with secondary data from recent reports, reviews and case studies from the region, were compiled and analysed by AERDRI to produce an overview on extension systems in the Near East.

Mr M. Hamed Shaker, Director of AERDRI, presented the main findings of the study, and Mr Mohamed Kassem, also of AERDRI, presented a prototype-electronic database of agricultural extension in selected countries of the Near East.

Agricultural extension systems in countries of the Near East have diversified, sometimes complicated, structures. Among countries, systems vary in structure and functions according to the specific political, geographic, demographic, economic and social factors. The comparative study aimed to take a closer look at the different aspects and functions of public agricultural extension institutions in the region, in order to identify the strengths, weaknesses and potential of their systems. The study covered 12 countries – Algeria, Bahrain, Iraq, Jordan, Morocco, Oman, Pakistan, the Sudan, the Syrian Arab Republic, Tunisia, Turkey and Yemen – and the Palestinian Territories. The following is a summary of its main findings.

Public agricultural extension institutions vary considerably in name, organizational level and structure. In some cases, the name of the extension institution reflects affiliations with other disciplines; for example, adaptive research in Pakistan–Punjab, agricultural research and education in Morocco, training in Tunisia and Yemen, and agricultural cooperation in Iraq. Wide variation is also noted in the dates of establishment of extension institutions, ranging from 1902 in Pakistan–Peshawar, to 1990 in Tunisia and Yemen. This indicates considerable variation in the experience available within these systems.

Extension objectives

Most public extension institutions share the objectives of increasing the efficiency of agricultural production and achieving sustainable agricultural development and rational use of natural resources. Other objectives include achieving self-sufficiency in major crops, supporting the establishment of farmers' organizations, and supporting farmers' participation in developing and implementing integrated rural development plans.

The following additional objectives were indicated by specific countries:

1. Helping producers to make proper decisions (Jordan);
2. Improving quality of life (Jordan);
3. Achieving food security (Morocco);
4. Achieving objectives of the agricultural development strategy (Pakistan);
5. Facilitating agricultural marketing processes, and supporting an agricultural database by collecting census data (Pakistan–Punjab);
6. Exporting surplus agricultural products (Pakistan–Peshawar);
7. Integrating population education into extension work (Yemen).

Extension programmes

Improving the efficiency of agricultural production is considered the dominant area of extension work in all the study countries. The development of rural women is also considered a main area of work in most countries. The following additional key areas of extension work were identified by a number of respondent countries: improving marketing efficiency; natural resources management; farm and home management; developing rural leadership; developing rural communities; developing youth; and conserving rural environments.

Extension approaches adopted by respondent countries include: T&V, FFS, farmer-to-farmer, integrated rural development, the interdisciplinary system, the commodity approach, the participatory approach, the university system and the conventional approach. The most widely used approaches are T&V and the interdisciplinary system. About 50 percent of respondent countries – Algeria, Oman, Pakistan–Peshawar, the Sudan, the Syrian Arab Republic and Yemen – reported using FFS, farmer-to-farmer, integrated rural development, the commodity and participatory approaches. Pakistan–Peshawar also reported using the university extension system and a modified model of T&V.

The time that public extension systems allocate to different target groups differs from country to country, with small farmers receiving the largest shares in all countries, ranging from 90 to 100 percent, in Bahrain, Morocco, Tunisia and Turkey, to 50 percent in the Syrian Arab Republic. Rural women reportedly receive relatively low shares, ranging from 30 percent in the Syrian Arab Republic to 5 percent in Pakistan–Peshawar, the Sudan and Tunisia. Morocco, Pakistan, Oman and the Syrian Arab Republic reported allocating 10 to 20 percent of extension time to rural youth. In general, large farmers receive less than 5 percent of total extension time.

Extension personnel

The qualifications of extension personnel in respondent countries vary considerably, with a majority at secondary-level education or lower in most countries. The percentages of extension personnel with secondary-level education (or less) are 85 percent in Morocco, 79 percent in Tunisia, 62 percent in Bahrain, 58 percent in Oman, 45 percent in Algeria and Iraq, and 42 percent in the Syrian Arab Republic. Data also showed that the percentages of extension personnel with university degrees are relatively low, except for in the Syrian Arab Republic (58 percent), Iraq and Oman (45 percent in each). Others reported 35 percent in Algeria, 30 percent in Bahrain, 22 percent in Tunisia, and 15 percent in Morocco. The percentage of extension personnel with postgraduate degrees is very low, with only Algeria and Pakistan–Punjab reporting 15 percent at M.Sc. or higher. Bahrain reported 5 percent, Oman 4 percent, Iraq 2 percent, and Pakistan–Peshawar 1 percent.

The study indicated that the majority of personnel are general extension workers. Other categories include subject matter, extension, home economics, rural development, extension training and livestock extension specialists. Livestock extension workers account for 45 percent in Algeria, extension specialists 30 percent in Pakistan–Peshawar, subject matter specialists 50 percent in the Syrian Arab Republic, and training specialists 5 to 10 percent in Iraq, Morocco, Pakistan–Punjab, the Sudan and Yemen.

In general, the numbers of female extension staff in the public extension institutions studied are low. Countries with the highest reported percentages of female staff are the Syrian Arab Republic with 31 percent, Yemen with 18 percent, Algeria with 10 percent, Jordan with 6 percent and Morocco with 5 percent. These figures help to explain the low coverage of rural women by extension programmes.

In-service training

In-service training for extension personnel focuses mainly on technical agricultural topics in Bahrain, Iraq, Morocco, Oman, the Sudan, the Syrian Arab Republic and Yemen. Apart from in Pakistan and Algeria, training on extension topics such as communication skills, extension programme planning, extension methodologies and tools is very limited.

Planning extension programmes

Extension programme planning generally takes place at the central level, except for in Morocco where it can take place at the village level. However, needs assessment is carried out at the field level, using various mechanisms including field surveys in Algeria, Iraq, Oman, the Sudan and Yemen; focus groups in Oman, Pakistan–Punjab, Tunisia and Yemen; field visits in Algeria, Bahrain and the Sudan; and field monitoring in Algeria, Bahrain, Oman and Pakistan–Punjab. In addition, widely reported problems are considered indicators of farmers' needs in Morocco, Oman and the Syrian Arab Republic; while meetings with local leaders and rapid rural appraisal (RRA) are used for needs assessment in Iraq and Yemen, respectively.

Linkages with agricultural research

The majority of respondent countries indicated that research contributes to extension work through the following: preparation of TV and radio agricultural broadcasts; preparation of extension publications; technical meetings; training programmes; technical reports; and participation in demonstration plots, field days and harvest days. Extension's contribution to developing research plans was reported as moderate to low in most countries, except for Jordan and Pakistan–Peshawar, which reported no contribution.

Information and communication

The structures of public extension institutions in most respondent countries include an information and communication unit. The main tasks performed by these units are documenting and retrieving extension information, facilitating communication with international and local research centres, facilitating communication with agricultural organizations, and providing information about national development plans. Extension institutions in Iraq, Oman, Pakistan–Peshawar, Tunisia and Turkey have no specialized unit for information and communication.

Conclusions

Although the T&V system was abandoned by the World Bank some time ago, it is still widely used in many countries in either its original or a modified model. Agricultural production is still the main area of extension work in most countries. All the study countries except Pakistan are still in the dual stage of decentralization. Extension systems in most of countries are facing conflicts between technical and administrative authorities. Pakistan has different problems concerning financing of the system and weak coordination among the governorates in accomplishing the country's agricultural plan.

Communication methods have made good progress over recent decades, with some innovative methods proving successful in many countries. Countries can be classified into four categories: those that need trained staff and infrastructure; those that need staff support to maximize the use of available resources; those that need human resources capacity building to deal with the media and organizations that support agricultural communication; and those that have qualified staff and adequate infrastructure.

Agricultural extension strategy and policy are lacking in most countries. Although there are some clear trends in extension work, the system remains vulnerable to unpredictable changes in policies.

SECTION TWO

COUNTRY REPORTS

I. AGRICULTURAL EXTENSION IN BAHRAIN

Khalil Ibrahim ALDARAZI[1]

i. THE AGRICULTURE SECTOR IN BAHRAIN

Bahrain covers a total area of about 718 km^2, of which about 6 300 ha is agricultural land, part of which is irrigated. Land in the middle and south of the island is unused; irrigated areas are located in the northern and western parts. The unexploited areas are mainly palm tree stands in a state of neglect because of urbanization, lack of water resources and salinization of groundwater. Animal husbandry includes the breeding of cattle, camels, sheep and goats.

As well as water scarcity and deteriorating quality, the agriculture sector in Bahrain is facing additional challenges, including increased demand for land for urban activities, lack of effective marketing facilities such as storage, and lack of legislation to regulate landowner–tenant relations.

The agricultural workforce is estimated at about 5 500 people, involved in about 1 100 farms of an average 4 ha each. About 45 percent of farmers are tenants and 55 percent are owners. An estimated 65 percent of the agricultural workforces are unqualified, unskilled expatriate workers who have communication (language) difficulties. A negligible number of women are involved in farming.

There are adequate infrastructure and communication facilities, such as electricity, roads, means of transport, telephone and television, throughout the country.

ii. AGRICULTURAL EXTENSION IN BAHRAIN

Agricultural extension was established in Bahrain in 1975 with an extension unit, which became the Extension and Incentive Programme in 1982. In 1985, this became the Extension Services Division, including both field crops and livestock extension. In 1998 the division was split into three units: the field crops extension unit, working under the plant wealth directorate; the livestock extension unit, working under the animal wealth directorate; and the information unit, working under the information and agricultural relations department. In 2004 the three units were united as the Extension and Agricultural Relations Directorate.

Institutional structure and staffing

The structure of extension services is shown in Figure 1. Staffing is inadequate in terms of both number and qualifications. Each extension worker covers an average of more than 250 farmers; for example, one extension worker in the north region of Bahrain is supposed to cover 300 farmers in an area of 144 km^2.

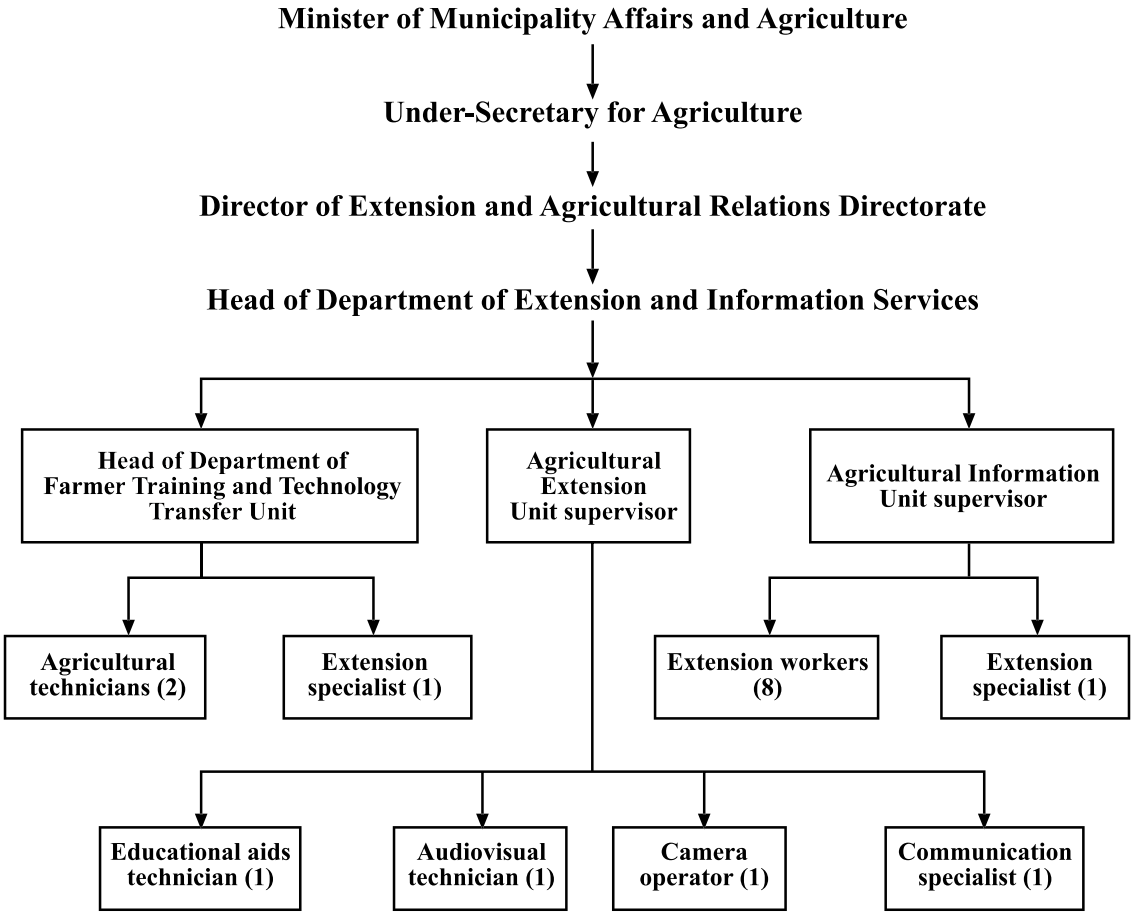
There are no women staff members and no links between extension staff and other relevant institutions. Extension staff have adequate basic facilities for performing their extension tasks. All extension services are completely centralized, mainly because the target area they cover is small compared with that in other countries.

Career development in extension

Extensionists obtain salary levels, conditions of service, benefits, opportunities for overseas and in-country training, and promotion criteria that are at least as good as those of professionals with similar educational qualifications in other disciplines. Extension staff are therefore well motivated, and receive more training and better working conditions than professionals in other disciplines.

[1] Khalil Ibrahim ALDARAZI, Director of Extension and Agricultural Relations Directorate, Ministry of Municipalities Affairs and Agriculture - Bahrain

FIGURE 1 : Organization of agricultural extension in Bahrain



Extension mandate

The main responsibilities of key extension officials are to:

1. arrange the institutional strategy of the extension system;
2. select qualified extension staff at the different levels;
3. develop general strategies for extension work & supervise its implementation in the field;
4. evaluate the extension work performed by extension staff;
5. report to the Ministry Under-Secretary about the work achieved.

The main responsibilities of field extension workers are to:

1. participate in developing extension programmes;
2. supervise and implement extension programmes in their own areas;
3. report to the extension supervisor any problems and obstacles in implementing extension programmes in the field;
4. participate in staff training workshops;
5. transfer research findings to the farmers in their areas, and report the problems facing farmers to the extension specialist;
6. prepare periodic and annual reports of their own work for submission to the extension work supervisor.

Financing for extension

The main source of funding for public extension services is the government; there are no extra-budgetary sources. The funding provided by the government is adequate.

Actors in extension services

The Extension and Agricultural Relations Directorate is the only extension service provider; no other public or non-public institutions are involved.

Preparation of extension professionals

No college or university in Bahrain offers degrees in extension or in any other branch of agricultural science.

Capacity building of extension staff

In-service staff capacity building includes both in-country and overseas training. Overseas training is inadequate, while in-country training is frequent and adequate. For example, extension workers participated in more than 15 training workshops during the current year; the duration of these workshops was one to two days each, and emphasis was put on practical training using audiovisual aids.

The main training methodologies are workshops, panel discussions and lectures. Follow-up assessments of the impact of training are carried out by the extension specialist.

iii. EXTENSION APPROACHES AND METHODOLOGIES

The general agricultural extension approach is the most commonly used in the field; it was selected because the area covered by extension services is relatively small and the extension workers are inadequate in both number and qualifications.

Farmers are involved in the implementation and evaluation of extension programmes. Following the implementation of each extension programme, an assessment is made to measure its impact in the field.

Extension and training materials

The main training aids used in the field are white boards, laptop computers and clip boards.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN BAHRAIN

Overall, extension services are unsatisfactory. A new extension approach – the FFS methodology, which trains farmers through practice and dialogue – is being implemented to improve the service.

II. AGRICULTURAL EXTENSION IN EGYPT

Abdallah Maher ABDELHAKAM[2]

i. THE AGRICULTURE SECTOR IN EGYPT

Egypt covers a total area of about 1 million km^2, an estimated 7 million feddans (3 million ha) of which is cultivated, including new reclaimed lands in Sinai, Ismailia, Noubaria, Toshka and East Al Oweinat.

Modern agricultural practices are being introduced to cultivate the new reclaimed lands; such practices include modern irrigation systems, organic farming and integrated pest management. Most production is organic and is directed to export markets. Irrigation in the new lands depends on groundwater and wells.

In order to maximize the yield from cultivated lands, two different crops are double-planted, land is used to produce more than one crop a year, and greenhouses are used for new crops on reclaimed lands. The main crops include cotton, wheat, rice, sugarcane, beet, fodders, clover, vegetables, peanut, sesame, sunflower, lentils, beans and onion, and fruits including citrus and dates.

Farmers increase their incomes through fishery culture in rice fields, and fisheries have been established in Nasr Lake and elsewhere to provide fish for consumption.

The Bank for Development and Agricultural Credit facilitates loans to farmers for:

1. The short term, to purchase fallow lands, chemicals and fertilizers for agriculture;
2. The medium term, to purchase machines and equipment;
3. The long term, to build facilities and necessary infrastructure, such as canals.

Farmers' produce is marketed under a free market policy that is led by current market prices. In addition, the government can purchase from farmers according to a fixed-price system that is set by the government for such products as cotton, wheat, pulses, rice and olives. Export companies also purchase such produce directly from the farmers according to negotiated prices. Cereals purchased by the government are stored in warehouses all over Egypt.

The Veterinary Services of the Ministry of Agriculture and Land Reclamation are responsible for enhancing animal production methods and providing veterinary services in villages.

ii. AGRICULTURAL EXTENSION IN EGYPT

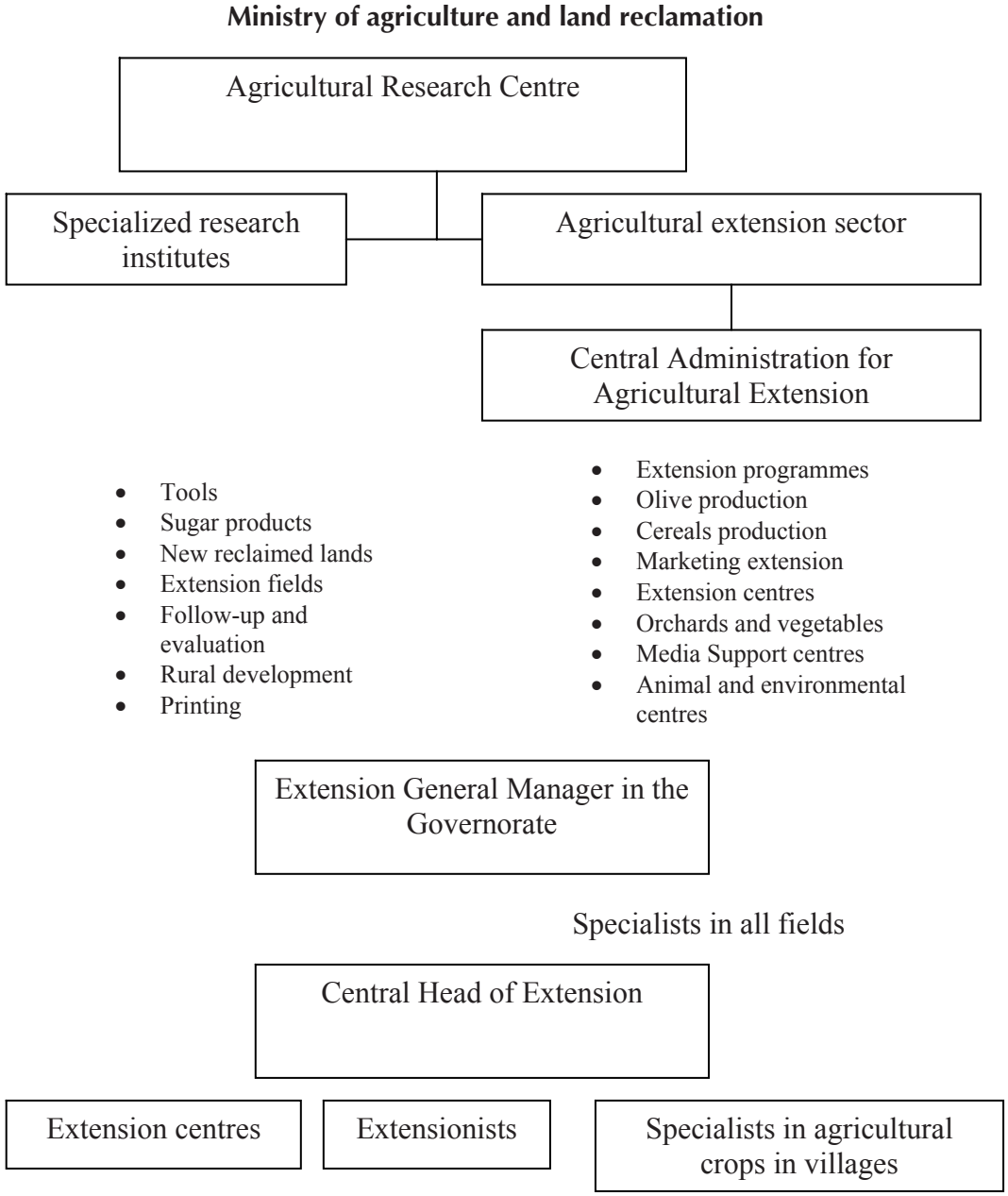
Specialized research institutes and agricultural extension centres cooperate in an integrated planning and programming system at the central level. Researchers and extension specialists work together to implement extension measures and organize field visits aimed at solving the problems that face farmers.

Of Egypt's 14 universities, six have agricultural faculties – Cairo, Ain Shams, Alexandria, Asiuet, El Menya and Al Azher. Agricultural extension is taught at these universities up to the M.Sc. and Ph.D. levels. The Agricultural Research Centre comprises 23 specialized research institutes and provides staff members with M.Sc. and Ph.D. degrees. Field visits are organized for students to study theoretically and practically how to communicate with farmers and identify their problems and proposed solutions.

Staff members working in agricultural extension are State staff, subject to all the relevant laws and regulations, including salary scales. At the end of each crop season, extensionists receive a small incentive. Figure 2 shows how extension services are organized in Egypt.

[2] Abdallah Maher ABDELHAKAM, Director General of Agriculture Extension, Central Administration for Agricultural Extension Services, Ministry of Agriculture and Land Reclamation - Egypt

FIGURE 2 : Organization of agricultural extension in Egypt



Roles and responsibilities of extensionists

Recently, much development has occurred in crop production in Egypt, with some crops, such as rice, coming high in worldwide rankings of areas cultivated.

This development is the direct result of efforts and planning that depend on specialized roles and tasks. Agricultural extensionists' role is to provide advice on agricultural and animal production and to promote rural and environmental development; the role of extensionists is thus the main axis from which the development process expands.

At present, there is a specialist for each area of agriculture at each of the local, governorate and national levels. The Central Administration for Agricultural Extension Services (CAAES) sets clear roles so that the main goals of the national plan can be met.

To allow extensionists to play their assigned roles as effectively as possible, the central department of agricultural extension holds training programmes for specialists at all levels. As well as enhancing extension skills, training also covers technical aspects in order to ensure that agricultural production in Egypt performs as highly as possible.

Extensionists fall into the following categories:

1. Central extension specialists at the central department of agricultural extension;
2. Governorate-level extension specialists;
3. Extension specialists at the agricultural unit level.

The roles of the central extension specialists are:

1. Preparing, planning and designing extension programmes;
2. Implementing extension programmes in governorates;
3. Field monitoring current extension programmes in governorates;
4. Evaluating the economic feasibility of implementing programmes;
5. Training and enhancing the performance of specialists at the governorate and agricultural unit levels;
6. Supervising training programmes;
7. Taking part in extension workshops;
8. Helping to select extension methods for different crops in governorates and agricultural units;
9. Implementing field and harvest extension days in governorates and agricultural units;
10. Identifying farmers' needs regarding extension and advice;
11. Following up on extension centre activities at the governorate level;
12. Coordinating with research institutes to provide governorates with recommendations and technical information on all aspects;
13. Implementing national programmes for major crops;
14. Preparing technical reports on the status of crops in governorates, liaising with specialized research institutes and joining forces with researchers when a problem or a disease arises in order to find necessary solutions/treatments, and supervising the implementation of recommendations by farmers;
15. Identifying rural leaders and training them.

The roles of extension specialists at the governorate level are:

1. Following up the implementation of extension programmes;
2. Identifying the training needs of extensionists and specialists in centres;
3. Evaluating the performances of specialists and extensionists;
4. Identifying technical problems and constraints in all fields;
5. Implementing national programmes for different crops;
6. Identifying rural leaders;
7. Choosing extension fields;

8. Identifying the extension service best suited to each farmer's needs;
9. Implementing field and harvest days and workshops;
10. Following up the implementation of activities by extension centres;
11. Acting as a link between the central department and research, agricultural units and extensionists.

The roles of extension specialists at the agricultural unit level are:

1. Implementing extension programmes ;
2. Choosing extension fields;
3. Implementing field and harvest days;
4. Implementing field workshops;
5. Training village-level agricultural extensionists;
6. Training rural leaders;
7. Identifying the problems that hinder agriculture processes;
8. Acting as a link between the directorate of agriculture, extensionists and farmers;
9. Evaluating the performance of agricultural extensionists at the village level;
10. Field monitoring;
11. Implementing national programmes to enhance major crops;
12. Preparing technical reports on the status of crops;
13. Preparing technical reports in all fields.

III. EXTENSION METHODS

A number of methods are used to transmit information to farmers. These include the following:

1. Agricultural TV broadcasts of 30 minutes each are aired on TV Channel 8 twice a week ("Secret of the Land" and "Our Green Land"). Field meetings with specialists and farmers are also held.
2. Publications and flyers are prepared by specialized research centres.
3. Agricultural Extension Magazine, which includes information on agricultural procedures, is issued bi-monthly.
4. The New Land Magazine specializes in agriculture on new reclaimed lands and in the cultivation of new crops, as well as recommending methods for agriculture and irrigation (sprinkler and drip irrigation).
5. A number of vehicles equipped with TV, video and microphones visit villages to educate farmers.
6. A video has been prepared for each crop; these videos address planting, land preparation, harvesting and other recommendations.
7. Recommendations on crop planting are published on CD.
8. The Virtual Extension and Research Communication Network (VERCON) also provides information.

In addition, each administrative centre has its own extension unit to provide training and recommendations on crops. Laboratory tests are carried out on the introduction of new crops. The 184 extension centres throughout Egypt have administrative offices, accommodation for extensionists and crop and rural development specialists, and meeting rooms equipped with TVs, videos, projectors, computers, Internet and telephones. Each centre covers three or four nearby villages. Most extensionists have means of transport, such as motorcycles, for visiting farmers.

The village

In Egypt, many villages are now considered urban communities, because the nature of villages has changed since the introduction of electricity and water and the increase in literacy. Building has also increased, and each building now contains apartments for four to six families. Most homes now have TVs, videos, ovens, refrigerators and, in some cases, satellite dishes. Hence, Egyptian village life has changed. The impacts of modernization on the lives and production of farmers include the following:

1. Now that buildings tend to have more than one storey, villagers are less likely to produce poultry and animals, so farmers have to depend on markets.
2. New buildings do not have enough room for traditional ovens, so bread has to be bought from the market.
3. There is no room for cereal storage, so people have to depend on buying from markets.
4. The spread of TV, videos and satellite dishes, and the increasing number of literate people in villages have led to changes in agriculture. Most work is now carried out by hired hands (agricultural workers) and machinery because farmers' children – who are more likely to be literate than their parents were – are not interested in working in agriculture.

All these changes result from development and should be taken into account when preparing extension and training programmes. It is essential to be aware of the extension clients' needs and level of knowledge. Following studies on the standard of living in Egyptian villages, a communication system has been developed to liaise with farmers in ways that make the most of recent developments. Extensionists now depend on TV, video, Internet, publications and year-round training.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN EGYPT

Extension in Egypt suffers from a dearth of extensionists in remote areas, lack of transport, and low incomes for agricultural extensionists, which leads to low motivation. Increased budgets are needed to provide extensionists in areas where they are lacking, especially remote areas.

III. AGRICULTURAL EXTENSION IN IRAN

Reinventing the Agricultural Extension System in Iran: visions and challenges

Mohamed H. EMADI[3]

i. THE AGRICULTURE SECTOR IN IRAN

The Islamic Republic of Iran covers a total area of 165 million ha, of which 51 million ha is cultivable. In 2000, agricultural land covered 18 million ha: 33 percent of it irrigated, 28 percent rainfed, 27 percent under fallow and 12 percent in fruit orchards.

The agriculture sector provides almost one-quarter of employment. In 2003, about 36 percent of the total population (6.7 million people) were living in rural areas, deriving their livelihoods from 4.3 million farm units.

Between 1991 and 2001, the agriculture sector in Iran accounted for 15 percent of gross domestic product (GDP). Although this contribution to GDP has been declining, agricultural production grew by 4.9 percent over the same period. The share of agricultural products in total non-oil export earnings is 26 percent.

ii. AGRICULTURAL EXTENSION IN IRAN

The Ministry of Agriculture was established in 1960. It carried out conventional agricultural extension activities based on the conventional technology transfer model to improve agricultural productivity through the introduction of modern technologies. The Ministry of Jihad-e-Sazandegi was established immediately after the Islamic Revolution in 1978 as a grassroots voluntary movement. It used a participatory extension model to assist farmers and rural people to rehabilitate rural life and develop rural infrastructure, in parallel with the provision of agricultural services.

In January 2000, the two ministries were merged and the Department of Extension and Farming Systems was formed.

Although the majority of farmers in Iran are small-scale, middle-income and relatively wealthy farmers are also included among the clientele of extension services. Literacy levels among farmers are low, and 47 percent of farmers were illiterate in 1998.

Although changes brought about by the land reform of 1962 led to increased inequity in landownership, reforms made since 1970 have yielded limited improvements in land distribution. At present, 43 percent of farmers are resource-poor, with irrigated landholdings of less than 2 ha/household; 25 percent are middle-income, with 2 to 5 ha/household; and 32 percent are resource-rich, with irrigated landholdings of 5 to 30 ha/household.

Agricultural extension institutions in Iran are predominantly governmental; they follow simplified, centralized, standardized/uniform and top-down approaches. This has shaped all aspects of the extension system to such an extent that the relationships among major stakeholders have been totally distorted.

Today, agricultural extension in Iran faces the following challenges:

1. There is a lack of coordination among the external and internal bodies carrying out main missions.
2. The outcomes of extension training activities fail to emerge in the short term.
3. There is insufficient confidence in extension activities, and farmers are generally dissatisfied with the performance of public agricultural extension services.
4. Effective farmers' participation in the planning, implementation and evaluation of activities is lacking.

[3] Mohamed H. EMADI, Vice Minister of Agriculture for Extension and Farming Systems - Islamic Republic of Iran

The national agricultural extension system in Iran is currently experiencing a radical change, and faces major challenges in improving its capacity to help farmers achieve higher productivity and profitability in a sustainable way.

This transitional period started with the radical reform, revision and restructuring that were initiated in 1996 and given an added boost when the Department of Extension and Farming Systems was formed in 2000. Among the major issues confronting agricultural development and extension in Iran today are low productivity of major agricultural products, inadequate access to extension services for small farmers, and lack of interaction among major stakeholders in the process of agricultural knowledge management.

The extension methodologies and approaches of the future should:

1. Be demand-oriented – starting at the grassroots level to address farmers' needs, issues and demands;
2. Be grounded – learning from past experiences and developing a methodology and model of extension that are appropriate to the situation in iran;
3. Think globally and act locally – making use of emerging paradigms, up-to-date theories and experiences to inform actions.

Lessons learned from past experiences

Agricultural change and development is very complex. Farmers, government, civil society, the private sector and all other actors should meet and negotiate to reach joint decisions for addressing such complex issues; the transfer of technology approach is not sufficient and appropriate in all the diverse contexts that arise.

To overcome the wide range of needs of small and remote resource-poor farmers, joint co-management among all possible partners is needed.

Extension institutions should not strive merely to deliver research results. They should also act as professional service organizations, adapting their priorities to suit the available resources and the ideas that emerge from ongoing dialogue among field staff and farmers. Extension can play a key role in the initiation, organization, implementation and follow-up of agricultural development.

The emerging paradigm: knowledge management

The following are the principles that will guide future agricultural extension planning and programming in Iran:

1. The ultimate goal of extension is to address the needs/issues of target groups.
2. Extension's mandate should be widened to include mobilizing and organizing farmers.
3. The extension process should include participatory needs identification, planning and adoption of appropriate technologies.
4. Extension is a social process of technology management, and not merely the adoption of products or skills.
5. No single extension system can fit all circumstances as a final solution; extension systems have different features in different settings and contexts.

TABLE 1: Main characteristics of the emerging agricultural extension system

Mainstream view (institutional)	Emerging system
Extension is a national government service	Extension is a set of functions to be performed by a variety of players at different levels
Major role of extension is to transfer technologies	A wider mandate for extension, including the mobilization, organization and education of farmers
The extension service institution is a distinct, separate organization	A coherent, comprehensive knowledge system for the generation, transfer and uptake of knowledge and technology, including planning, research, extension and education
Epistemological: Use of linear, top-down, centralized model of technology transfer	A more realistic, cyclical and dynamic model of information exchange and knowledge dissemination, whereby farmers, researchers, educators and extensionists are all engaged in generating, transferring and using new knowledge
Methodological: Projects designed from a teaching perspective; budgeting for teaching efforts	Allowing projects to develop a learning mode, engaging all major stakeholders
Methodological: Paying lip service to the concept of information technology for rural development	Taking risks by including experimental information technologies in projects to link research institutions, extension managers, farmers' organizations and others to each other and to the rest of the world

iii. OVERVIEW OF AGRICULTURAL EXTENSION IN IRAN

The main aims of Iran's reformed extension system are to:

1. Manage agricultural knowledge and information systems effectively;
2. Enhance people's participation, develop institutions and organizations and mobilize farmers;
3. Facilitate, support and introduce productive farming systems.

The strategy is to use individual and organizational empowerment and capacity building, and the overall goal is to enhance productivity, quality of life and sustainability.

National agricultural extension policies

These should be people-centred, demand-driven and client-oriented, through categorizing clients and enhancing accessibility. Pluralistic extension is a set of functions performed by a variety of players at different levels, including farmers' groups, the private sector, NGOs and community-based organizations (CBOs). It involves farmer mobilization and institutional development.

Specialization can be enhanced through the application of ICT and virtual extension, and through the improvement of extension staff's skills and qualifications.

Improved agricultural extension for small farmers

The extension system and services have been made more accessible to small farmers through:

1. Decentralizing the agricultural extension administration system;
2. Restructuring 1 430 extension service centres (ESCs) supporting rural areas to create a network that is supplied with the necessary equipment and ICT facilities;
3. Introducing new participatory extension methods and techniques.

Human resources have also been rearranged to serve small farmers by: relocating extension agents to ESCs; organizing 26 000 elected male and female farmers as group leaders to liaise between farmers and ESCs; deploying 4 700 agricultural graduates in extension as an alternative to military service; and organizing small farmers into various institutions, including the National Confederation of Farmers (2002) and the Small Progressive Farmers' Association (2003).

Improved agricultural extension for progressive and commercial farmers

In order to improve extension to progressive and commercial farmers, 57 small private extension companies have been established for supervisory and machinery distribution services. A travel agency has been set up with the National Confederation of Farmers; this conducted agritours abroad in 2002. About 5,027 farmers have taken part in such tours at their own expense.

Two Web sites and the Iranian Agricultural News Agency have been founded to cover the latest technical, commercial and managerial information. These can be contacted at the following Web sites:

1. www.iran-agri.ir
2. www.iran-travel.ir
3. www.agri-news.ir

IV. AGRICULTURAL EXTENSION IN IRAQ

Hazem Abd Alaziz ALSAMERAE[4]
Assem Ismail NASSIF[5]

i. AGRICULTURAL EXTENSION IN IRAQ

The national extension body in Iraq is the State Board of Agricultural Extension and Cooperation, which is under the Ministry of Agriculture. This board defines national policy on agricultural extension in accordance with the central directions of the ministry. The policy is implemented by staff at the board's headquarters and branches in the agricultural directorates of provinces, which are either extension departments or agricultural sections.

Because of women's significant role and contribution to agriculture, the current policy of the State Board of Agricultural Extension is to establish an extension section for rural woman. Such a section existed in the past, but it was closed in 1979 and its activities moved to the General Federation of Iraqi Women in 1980.

Infrastructure and communication facilities are very necessary for agricultural extension workers to carry out their duties and facilitate the delivery of agricultural services to farmers. These facilities were badly affected by the economic sanctions of 1990 to 2003, but they began to improve in 2004 and further improvement is expected in the coming years.

In 1995 national development programmes started to be established for various agricultural crops, with the aim of improving agricultural production. These programmes apply newly developed technologies and scientific research results related to increasing and improving production, by disseminating them to farmers and encouraging up-to-date methods. This promotes the development and transfer of technologies from the research level to the practical application level through the training of farmers and the application of research results at the farm level. The process is implemented through coordination between agricultural extension institutions and the development programmes.

Extension mandate

The main responsibility of public extension services is to develop farmers' knowledge and skills in a way that contributes to increasing production and improving quality. The use of scientific methods and extension and development programmes can help the development of farmers and workers in the agriculture sector.

The State Board of Agricultural Extension and Cooperation carries out the following tasks and duties:

1. Preparing agricultural audiovisual materials to educate farmers on scientific practices in agriculture, both animal and plant production;
2. Preparing extension publications on agricultural activities and distributing these to beneficiaries, in addition to what is published in magazines and newspapers;
3. Organizing agricultural exhibitions, festivals and specialist symposiums;
4. Contributing to the application of agricultural research results and transferring these to farmers and other beneficiaries through training in new methods and techniques, in collaboration with development programmes, agricultural centres and colleges of agriculture;
5. Implementing field demonstrations and field days on farmers' and beneficiaries' lands as a means of agricultural extension in the field;
6. Holding training courses for workers and farmers on various agricultural and administrative topics according to the training plan of the state board of agricultural extension and cooperation's training centres.

[4] Hazem Abd Alaziz ALSAMERAE, Director General, State Board of Agricultural Extension and Cooperation, Ministry of Agriculture - Iraq
[5] Assem Ismail NASSIF, Head of Agricultural Engineers, State Board of Agricultural Extension and Cooperation, Ministry of Agriculture - Iraq

All of these tasks and duties are implemented by the Director-General and assistants: directors of departments in the State board, directors of extension training centres, directors of provincial extension departments, and extension units in the agricultural branches of districts and cities. The following bodies are involved in agricultural extension (see Figure 3 for a more detailed breakdown of the institutional structure of extension services in Iraq):

1. Specialized Extension Department;
2. Supportive Extension Programmes Department;
3. Agricultural Workforce Development Department;
4. Agricultural Cooperation Department;
5. Planning and Studies Department;
6. Provincial extension training centres;
7. Agricultural extension departments of provincial agricultural directorates;
8. Extension units in town- and district-level agricultural branches.

Institutional structure and staffing

The technical staff of the State Board of Agricultural Extension and Cooperation consists of about 248 people with various specializations and certificates; this figure includes both men and women, although there are only 16 female staff members. In general, staffing levels are low, given the vast task of the extension institution. For example, according to plans, each extension worker should provide services to 15 000 large-scale farmers and 23 000 small-scale ones, but even the most active extension workers cannot reach 10 percent of this.

Agricultural extension is institutionally linked to agricultural bodies for plant and animal production, such as the State Board for Agricultural Research, as well as to specialized development programmes. This feeds the extension institution with technical information, research results and new technologies, which extension then delivers to farmers for application in the field. In addition, there is coordination with faculties of agriculture and research centres that are linked to other authorities.

The extension services follow central sector directions from the Ministry of Agriculture via the State Board of Agricultural Extension and Cooperation; the latter is the planning and executive authority that designs the basic features of plans.

Extension work depends on farmers' needs and desire to better their understanding; in response to this, extension in Iraq is being decentralized.

The following basic facilities are available to help staff to carry out their extension tasks: modern field vehicles, such as pick-up trucks; audiovisual aids, such as data displays, slide projectors, overhead projectors and computers; equipment for field demonstrations; training centres and study halls with accommodation; and agricultural films, CDs, publications and posters.

The buildings for agricultural extension institutions are adequate at present. There is a plan to establish an extension centre in each province, to provide these with the necessary equipment and furniture for extension staff to perform their tasks, and to establish extension farms at agricultural branches throughout the country. The budget for this has already been allocated.

Financing for extension

The main source of funding for public extension services is the budget that the Ministry of Agriculture (central financing) allocates to agricultural extension institutions and their activities. This funding is adequate at present, but more funds will be needed as extension activities develop and expand.

Actors in extension delivery

The following government institutions participate in the delivery of extension services:

1. Agricultural bodies under the ministry of agriculture for agricultural extension, agricultural research, horticulture and forestry, plant protection, and seed certification;
2. Companies under the ministry of agriculture: mabain al-nahrain for seeds, industrial crops, veterinary medicine and animal husbandry services;
3. Development programmes in the ministry of agriculture, such as those for rice, tomato, maize, date palm, cotton, irrigation technologies and the environment;
4. Provincial agriculture directorates, particularly their agricultural extension departments;
5. Faculties of agriculture and veterinary medicine;
6. Research centres in the ministry of science and technology.

NGOs include the Iraqi Company for Seed Production (mixed sector), agricultural cooperative societies, private companies and local agricultural companies.

The public budget is the main source of funding for the public institutions involved in the delivery of extension services. These actors deliver their services through the agricultural extension institutions, which also provide transport facilities. The non-governmental sector is funded by the stockholders and contributions from societies and others. These companies depend on their own capabilities to provide what is required; some private and foreign companies, particularly those working in pesticides, organize symposiums in coordination with Ministry of Agriculture bodies for extension, plant protection and research.

Preparation of extension professionals

There are six faculties of agriculture in Iraq, excluding the Autonomous Rule Region (in north Iraq). Only two of these faculties – the ones in Baghdad and Mosul – have departments for agricultural extension, from which 25 to 30 agricultural engineers graduate annually.

In addition, graduates from other agricultural colleges, institutes and academies are trained to work in agricultural extension at the State Board of Agricultural Extension's training centres in Abu Ghraib/ Baghdad, Wasit, Kirkuk, Nineva, Diwanyia and Basra.

About 10 percent of extension students are women, but this figure varies from year to year depending on the grades attained by students seeking admission. Some women graduates from agricultural faculties have M.Sc. degrees in extension, and others are preparing for M.Sc. and Ph.D. degrees in agricultural extension.

Teaching methodologies in the faculties of agriculture, particularly in extension departments, are characterized by the prevalence of theoretical methods over practical ones. However, students receive some practical training during the academic year and summer holiday before their final years, in coordination with extension institutions at the Ministry of Agriculture. Audiovisual aids are used in teaching.

Capacity building of extension staff

At present, the staff training services delivered through the six training centres are adequate and frequent. Most training courses last between three and six days. The centres are provided with halls, modern furniture, audiovisual training aids, air conditioning, heating, electric generators, vehicles and accommodation.

The basic training methodologies used are theoretical lectures with the use of data shows, slide displays and field applications. There is a form to assess the training and its impact on performance level.

Career development in extension

The salary levels of extensionists are similar to those of other government workers, including those in the Ministry of Agriculture and research centres with good averages. Salaries depend on qualifications and years of employment. However, the working conditions of field extensionists are more difficult than those of other employees.

Extension workers must have scientific and practical experience, familiarity with the local community, leadership skills, public relations experience and the ability to use means and methods – such as audiovisual aids – that ensure the success of their work. Extension workers' opportunities for in-country and overseas training are good, and equal to those of other professionals in the Ministry of Agriculture.

At present, there is increased interest in developing agricultural extension and its workers as an important contribution to agricultural development in Iraq.

iii. EXTENSION APPROACHES AND METHODOLOGIES

The main methods implemented to educate farmers are field demonstrations, extension symposiums, agricultural extension publications, field experiments, field observations and field days.

These methods have been selected because they are effective and each has a specific role in at least one of the stages of extension education. The methods have been tried and tested throughout the history of extension in Iraq, and have been found to have a positive influence.

At present, neither male nor female farmers participate in the planning of extension programmes, but they do participate in implementation and assessment. Extension work can succeed only when it responds to farmers' desires and needs.

Extension and training materials

Extension staff use a wide range of audiovisual and other extension and training materials such as data shows, slide and overhead projectors, digital cameras, computers, CD players, TV sets and film equipment.

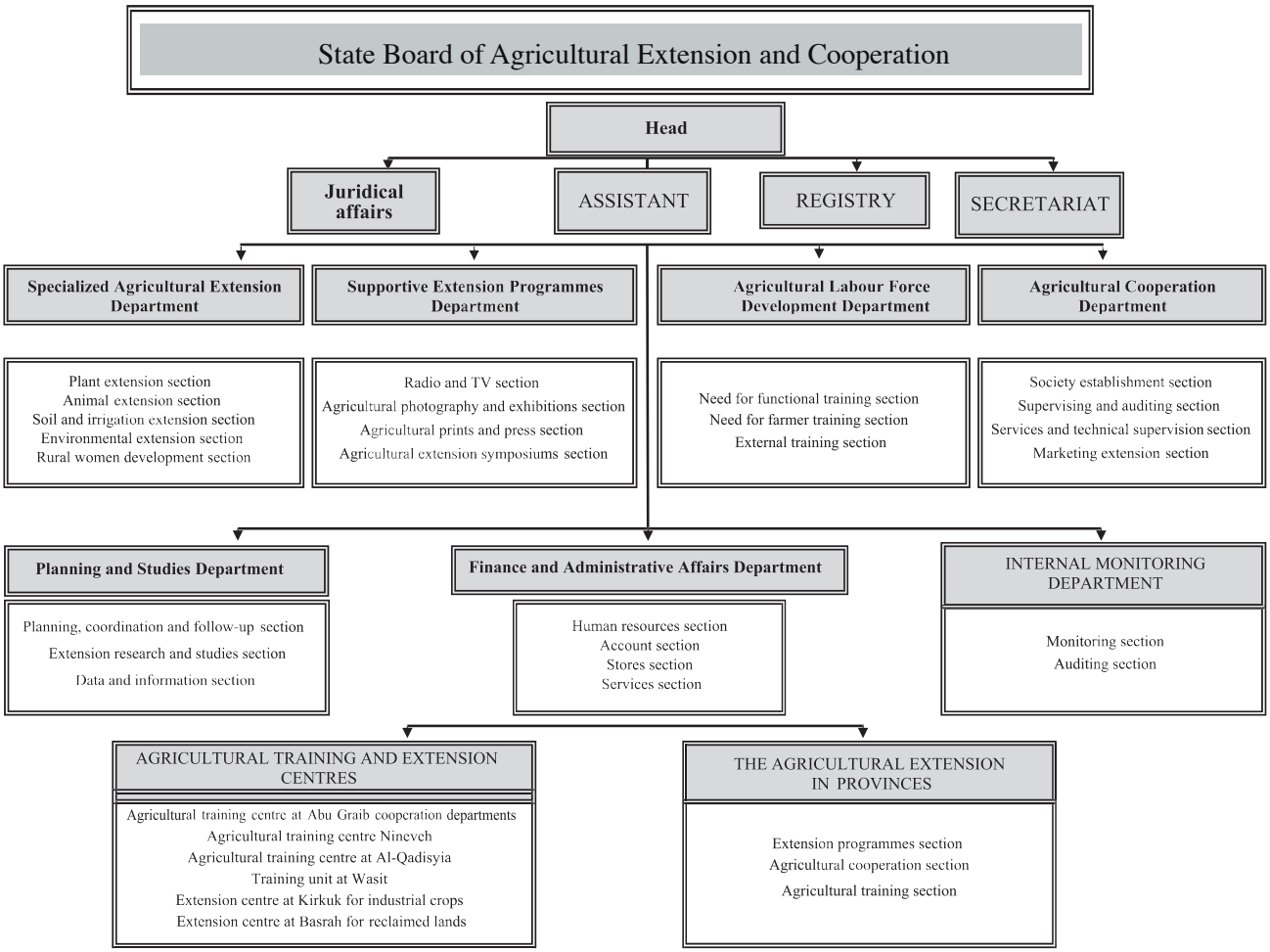
iv. OVERVIEW OF AGRICULTURAL EXTENSION IN IRAQ

Within Iraq's current conditions, extension services are satisfactory, and the aim is to increase extension services – both quantitatively and qualitatively – alongside the expected improvements to general conditions in the country. The extension services focus on the subjects that farmers need within the Ministry of Agriculture's drive to improve and develop agricultural production.

The following are suggested ways of improving extension services:

1. Provision of specialized cadres in agriculture, particular people with postgraduate degrees (M.Sc. and Ph.D.);
2. Provision of a special printing house for agricultural extension institutions in order to facilitate the production of printed materials;
3. Support to the TV studio of the agricultural extension institution by supplying it with cameras, montage sets and a broadcasting studio for agricultural extension broadcasts, eventually establishing extension TV and radio at the national level;
4. Formation of a high-level committee to coordinate between extension and research institutions, and establishment of a mechanism for this committee's work at the national level;
5. Support from FAO and the specialized Arab and international organizations for training of extension cadres on new extension methodologies, and application of modern information and communication technologies, particularly the Expert system and VERCON programs.

FIGURE 3 : Organization of agricultural extension In Iraq



V. AGRICULTURAL EXTENSION IN JORDAN: Current situation and development proposals

Ahmad Al SHADAYDA[6]

i. THE AGRICULTURE SECTOR IN JORDAN

Jordan covers a total area of nearly 89 300 km^2. Cultivated land is estimated to be 3.8 million dunums. Jordan suffers from severe scarcity of water resources. Annual water use does not exceed 1 million m^3: nearly 736 000 m^3 of which is used in irrigation (75.8 percent), 218 000 m^3 for drinking and home use (20.2 percent), and 43 000 m^3 for industry and other uses (4 percent).

Agricultural production is heavily concentrated in two main areas: 1) the Jordan Valley and Karak Ghors (lowlands), where agriculture depends on irrigation; and 2) the highlands, eastern plains and Badiah, where irrigation is rainfed.

Regarding animal production, sheep husbandry is concentrated in the eastern plains and Badiah, where the plant coverage is also suitable for goats and camels; cows and poultry husbandry are concentrated around the towns.

ii. AGRICULTURAL EXTENSION IN JORDAN

Institutional organization of agricultural extension

Agricultural extension is carried out at the central level by the Directorate of Agricultural Extension, and at the governorate level by projects and agricultural extension departments. District-level agricultural extension departments will be established soon. In the meantime, local-level agricultural extension is carried out as indicated in Figure 4.

At the central level, agricultural extensionists:

1. Prepare annual plans for extension services and follow-up;
2. Establish effective agricultural extension systems to make optimum use of the available resources and promote sustainable development;
3. Provide extension services in the field to farmers;
4. Identify the problems facing farmers and provide solutions, in cooperation with the National Centre for agricultural research, specialized ministry directorates and other concerned authorities;
5. Coordinate with the national research centre and other entities to transfer the findings of applied research to farmers;
6. Prepare field extension programmes;
7. Identify the training needs of agronomists and ministry staff;
8. Formulate and follow-up the implementation of training plans for agricultural extensionists and farmers with the cooperation of appropriate directorates.

Funding of agricultural extension

The budget for agricultural extension depends wholly on what is allocated by the government; there are no other sources of funding. The annual allocated budget is nearly 68 000 Jordanian dinar, excluding staff salaries.

[6] Ahmad Al SHADAYDA, Director General of Agricultural Extension, Ministry of Agriculture - Jordan

FIGURE 4 : Organization of agricultural extension in Jordan

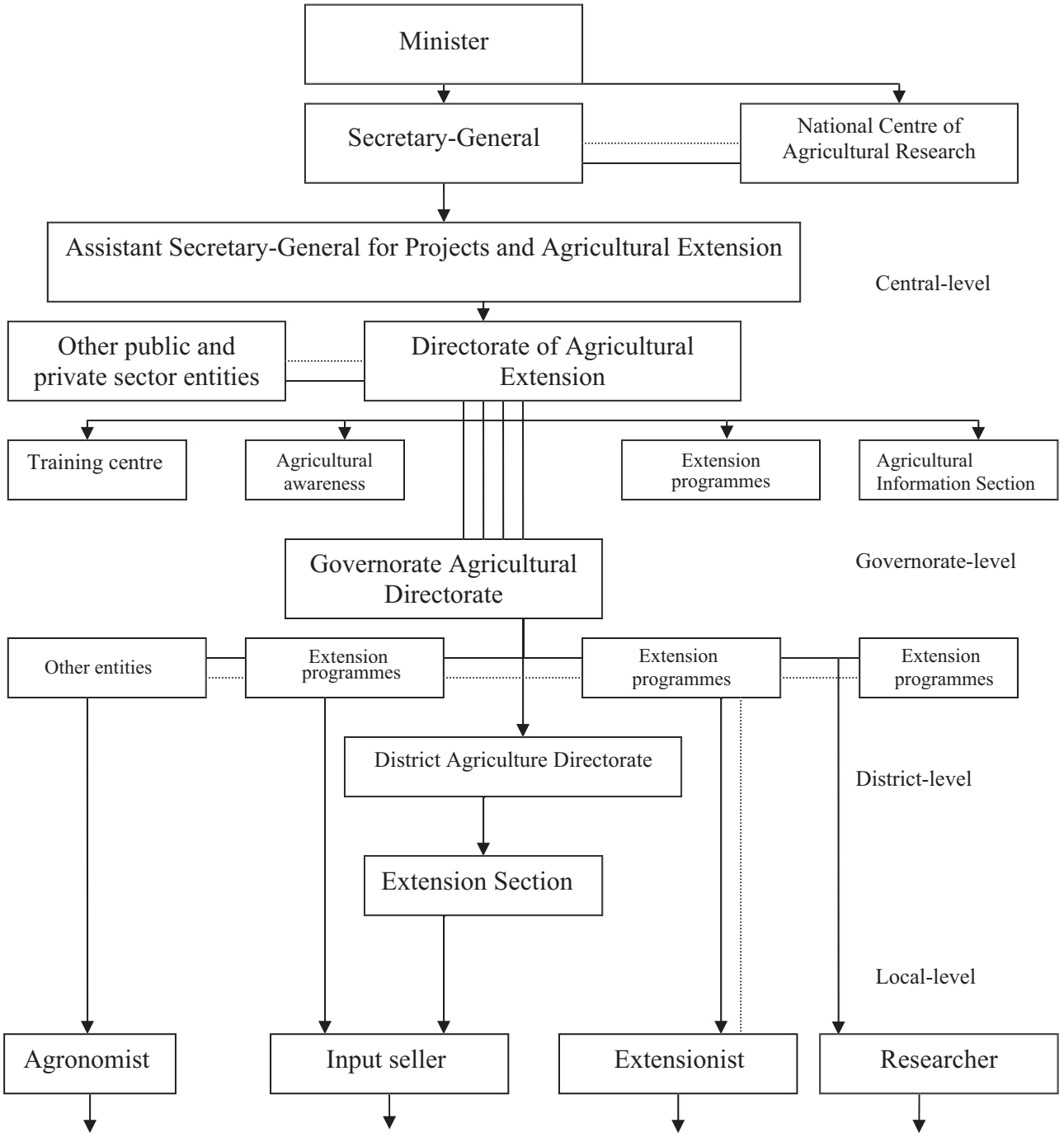


TABLE 2 : Agricultural directorate workforce, by qualification, gender and major (31 July 2004)

	Qualifications				Gender		Major						
	BA	MA	Higher diploma	Mid-diploma	M	F	Animal production	Plant production	Plant prevention	Economics and extension	Soil and irrigation	General	Field crops
Irbid	22	1	1	*	21	2	1	5	3	4	2	4	*
Ajlon	4	*	*	*	5	*	*	*	2	1	*	1	1
Almefraq	10	*	*	*	8	2	2	2	2	3	*	1	*
Zarqa	6	*	*	1	7	*	*	*	3	3	*	1	*
Blaka	10	*	*	1	5	6	1	2	3	4	*	*	*
Capital	18	1	1	*	16	3	3	5	1	8	*	2	*
Jarash	2	*	*	*	2	*	1	*	*	1	*	*	*
Madiba	4	*	*	*	4	*	1	1	*	1	*	1	*
Karak	6	2	2	*	5	3	*	6	1	*	*	1	*
Al Tafeila	4	*	*	*	3	1	*	*	2	2	*	*	*
Ma;an	4	*	*	*	3	1	1	1	1	*	*	*	*
Aquaba	3	*	*	*	1	2	*	1	*	1	1	*	*
Jordan Valley	18	*	*	*	17	1	*	1	3	6	3	*	1
Total	111	4	4	2	97	21	10	24	21	34	6	11	2

Human resources

Agricultural extension employs 133 agronomists: 11 in the central directorate, and 111 in the field at nearly 45 field offices (directorate, district and agricultural centres). At present, staffing levels are too low in terms of both quantity and quality, and farmers' extension needs are not being met. There is also a lack of personnel with higher degrees in subjects that suit the nature of agricultural activities in the area. Table 2 shows the academic qualifications of extensionists; a BA in agricultural sciences is the minimum required.

Each extensionist provides services to between ten and 20 farmers. There is no coordination between the central and other entities that provide extension services. The Central Directorate of Extension is responsible for providing the necessary equipment and facilities for extension work: newsletters, videos and materials such as fertilizers and treatments. The central directorate is also responsible for following up on the field work implemented by extension sections.

Status of agricultural extension staff

There is no difference between agricultural extension and other civil service staff regarding salaries, promotion and incentives, or training opportunities abroad. Internal training is available for extensionists at appropriate centres.

Preparation of extension professionals

There are no specialized agricultural extension departments in Jordan's agriculture faculties. However, agricultural extension is a mandatory subject in some (Mou'ta and Science and Technology universities), and optional in others (Jordan University). Some faculties do not teach it at all (Al Balkaa Applied University). National Jarash University has an Agricultural Economics and Extension Department, but this teaches fewer agricultural extension subjects than other agricultural economics subjects. The establishment of an agricultural extension and development department at Mou'ta University is currently being considered.

Capacity building of extensionists

Extensionists receive:

1. Training at the centre affiliated to the agricultural extension directorate, where courses are implemented according to farmers' needs;
2. Training from the ministry, for which extensionists have to compete with others.

There is no system for following up trainees after their return to work.

Entities involved in extension

At present, the following entities work in extension in Jordan:

1. Government entities: the Ministry of Agriculture's Directorate of Agricultural Extension and other technical directorates; the National Centre for Agricultural Research and Technology Transfer; agricultural lending institutions; and the government's radio and TV stations;
2. Semi-governmental organizations: such as farmers' associations and the media;
3. Private sector: agricultural companies and independent consultants;
4. Non-governmental organizations (NGOs), on a volunteer basis: the Jordanian Human Development Fund, Nour El Hussien Association and the Cooperative for Assistance and Relief Everywhere (CARE).

iii. EXTENSION METHODS AND TOOLS

In Jordan, most extension is carried out by the government. There are also some NGOs that implement extension according to the integrated rural development approach. Extension services can be programmed or unprogrammed.

Programmed extension services implement specialized extension programmes with specific goals in all production areas, which can be measured. The programmes are planned in a decentralized manner by extension sections and followed up centrally by the Central Directorate of Extension, which implements up to 45 extension programmes a year. Extensionists use individual and collective tools, as well as locally produced newsletters and videos.

Unprogrammed extension services use extension tools to meet the immediate needs of extension campaigns. Tools include field visits and TV and radio broadcasts.

The Directorate of Agricultural Extension:

1. Transfers information and the results of agricultural research to farmers, follows up implementation and evaluates results;
2. Qualifies extensionists in the planning, implementation, follow-up and evaluation of extension programmes;
3. Holds training courses for extensionists and farmers;
4. Carries out activities related to protecting the environment, preserving and optimum use of natural resources;
5. Encourages farmers to establish organizations to meet their own needs.

The government is gradually reducing the extension services that it provides to agricultural companies involved in producing cut flowers, poultry and animal production, tobacco growing, plant and animal inputs and post-harvest technologies.

Non-governmental organizations:

1. Provide extension services for the low-income beneficiaries of agricultural projects;
2. Implement extension programmes to develop rural women's skills in establishing and managing small, specialized agricultural enterprises;
3. Provide extension to introduce farmers to the available opportunities for enhancing production and increasing income;
4. Provide education on home economics and family planning.

Farmers' associations educate farmers about the advantages of working together. They act as a link between farmers, information sources and extension services (public and private). They also identify farmers' training needs regarding extension, and make the necessary arrangements, in cooperation with other organizations.

Farmers can be divided into four groups:

1. Animal and plant production companies and large-scale farmers;
2. Medium and small landowners in irrigated farming and animal husbandry;
3. Medium and small landowners on rainfed lands, including conventional farms;
4. Amateur farmers (weekend) who own farms that are run as businesses.

It is proposed to provide groups 2 and 3 with free government extension services, and the possibility of providing paid extension services to the first and fourth groups is being considered.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN JORDAN

At present, extension in Jordan faces the following challenges:

1. lack of a clear policy for agricultural extension and no precise vision of its role in agricultural development;
2. lack of incentives for extensionists;
3. lack of technological equipment and means of transport for extension work;
4. shortage of suitably qualified staff for follow-up, evaluation and the production of extension tools;
5. unstable organization of State agricultural extension;
6. limited agricultural research, with outputs that do not meet farmers' needs;
7. poor implementation of development policies and strategies;
8. poor identification of extension work at the field level, and lack of uniform standards;
9. high turnover of extensionists, and dual supervision;
10. agricultural scientific research receives more support than agricultural extension (in terms of financial and moral support in major job grades);
11. poor planning and formulation of extension programmes;
12. poor technical qualifications of extensionists, and lack of specific extension qualifications;
13. extension services for the private sector that are limited to commercial development and neglect environmental and social dimensions;
14. farmers' negative view of the competency of agricultural extensionists;
15. farmers' frequent absences when extensionists visit farms;
16. low or absent initial training opportunities for extension workers;
17. lack of financial incentives for trainees in training programmes;
18. rapid development in agricultural production systems, which increases the technical needs and technologies used, with negative results on the environment and resources;
19. international trade agreements and export standards and their implications for agricultural extension to meet current and future needs of the agriculture sector.

Proposals for developing agricultural extension

The objectives of agricultural extension are to: increase productivity in the agriculture sector, both quantitatively and qualitatively; transfer technology; encourage the establishment of farmers' associations, especially those based on commodities; improve living standards in villages; reduce the costs of production; protect the environment; and work towards sustainable development goals.

There is a need to focus on specific aspects of agricultural extension work: enhancing the productive capacity of agriculture; the marketing, distribution and consumption of crops; farm and household management; the development, maintenance and better use of natural resources; developing rural women and youth; developing rural leadership; and contributing to general affairs.

In addition to the existing bodies involved in agricultural extension, an advisory higher council for agricultural extension should be established; as should an agricultural extension directorate with two sections – one for rural development and the other for follow-up and evaluation studies.

At the central and field levels, there is need to revise the allocation of staff and their job descriptions so that they fit in with the new institutional set-up described in the previous paragraph, and according to the type and volume of extension work.

Agricultural extensionists should receive preliminary and on-the-job training, including training abroad. They should be trained to focus on the training of farmers and rural women, and the use of tools such as field visits, extension fields and field days.

The roles of the Directorate of Agricultural Extension should be revised and clearly defined in light of the national agricultural extension strategy. Areas of focus for field extension are the maintenance of natural resources, the use of irrigation water, postharvest, natural pastures, agricultural marketing, animal health and agricultural policies.

The roles of agricultural extensionists should also be revised, because it is not possible for agricultural extensionists to master and stay updated with all technical issues, and there are only limited vacancies at the ministry. It is proposed that extensionists should therefore also play the roles of:

1. Mediators between farmers and the entities that provide solutions to farmers' problems;
2. National development advisers, as extensionists are aware of agricultural policies and economic development.

As well as at the Ministry of Agriculture's directorates, centres for agricultural research could also employ agronomists as extensionists. In this way, the working environment of extensionists could be expanded; when considering the appointment or transfer of an extensionist, the following should be taken into account: technical and extension qualifications, personal qualities, desire to work, and ability to communicate with farmers.

There is need for a mechanism to obtain extension information, evaluate it and transfer it to farmers. This could be achieved by technical committees consisting of an agricultural extension specialist, a researcher and experienced farmers nominated by the heads of extension programmes. The committees would be responsible for approving extension information, drafting extension messages, designing training courses for extensionists to transfer information and techniques to farmers, and providing publications and extension newsletters.

In order to build confidence between extensionists and their target clients there is need for:

1. Accurate information;
2. Timely delivery;
3. Ability to establish contacts;
4. Ability to communicate with local community;
5. Job stability;
6. Refraining from practices that affect extensionists' work negatively;
7. Averting bias towards specific groups.

v. REFERENCES

Annual Agricultural Extension Reports from 1992 to 2003.
Field visits.
El Shedida, A. 1999. *Study of training needs in agricultural governmental extension*. Baghdad University, Faculty of Agriculture. (Ph.D. thesis)

VI. AGRICULTURAL EXTENSION IN LEBANON

Atef Nabih ELHAGE[7]

i. THE AGRICULTURE SECTOR IN LEBANON

In Lebanon, an estimated 260 000 ha of land is cultivated: 62 percent directly by landowners, and the remaining 38 percent as leaseholds. An estimated 42 percent (nearly 104 000 ha) of total cultivated land is irrigated: 52 percent by groundwater, and 48 percent by surface water; 64 percent of irrigated lands depend on furrow irrigation, and 36 percent on irrigation by sprinkler or dripping.

An estimated 53 percent of landholdings (nearly 138 000 ha) have not been used for more than five years, and a large share have not been cultivated for more than 20 years. A total of 195 000 farmers own land. Areas of landholding are given in Table 3

TABLE 3 : Landholdings by area

Area	% of holders	% of total landholdings
Less than 5 dunums	53	9
5 to 10 dunums	20	11
10 to 20 dunums	14	15
More than 20 dunums	13	65
Total	100	100

Landholders use 38 percent of their produce for self-consumption and send 62 percent to internal and external trade.

The economic contribution of agriculture

Agriculture contributes 6.3 percent of national income. It earns 1 936 billion Lebanese Lira (LL) a year: LL 1 408 billion from crop production, and LL 528 billion from animal production.

In 2002, total imports were LL 1 799 billion: LL 1 083 billion for raw and semi-raw agricultural materials; LL 576 billion for animal products; LL 507 billion for plant products; and LL 716 billion for processed agricultural products – 29 percent of which were vegetables, fruits and nuts; 15 percent sugar and candies; 16 percent beverages and drinks; and 13 percent tobacco products.

Total exports in 2002 amounted to LL 252.5 billion: LL 98.35 billion from raw agricultural produce; LL 12.3 billion from animal products; and LL 86.2 billion from crops. Eggs were the main animal product exported, accounting for LL 1.7 billion and going mainly to Kuwait (65 percent) and Bahrain (18 percent). Of the main crops exported, LL 42 billion of fruits – apple, lemon, citrus, grape and banana – were exported mainly to Saudi Arabia (38 percent) and Kuwait (25 percent); LL 21 billion of potatoes and LL 7 billion of vegetables went to Saudi Arabia, the United Arab Emirates, Kuwait, Egypt and other countries; LL 154 billion of crop products and LL 11.5 billion of wine went mainly to the United Kingdom (39 percent) and France (21 percent); LL 3 billion of olive oil was exported mainly to the United States (36 percent) and Canada (16 percent); and LL 500 million of canned vegetables, fruits and juices were exported mainly to the United States (16 percent), Saudi Arabia (16 percent) and the United Kingdom (10 percent).

[7] Atef Nabih ELHAGE, Head of Education and Extension Department, Ministry of Agriculture - Lebanon

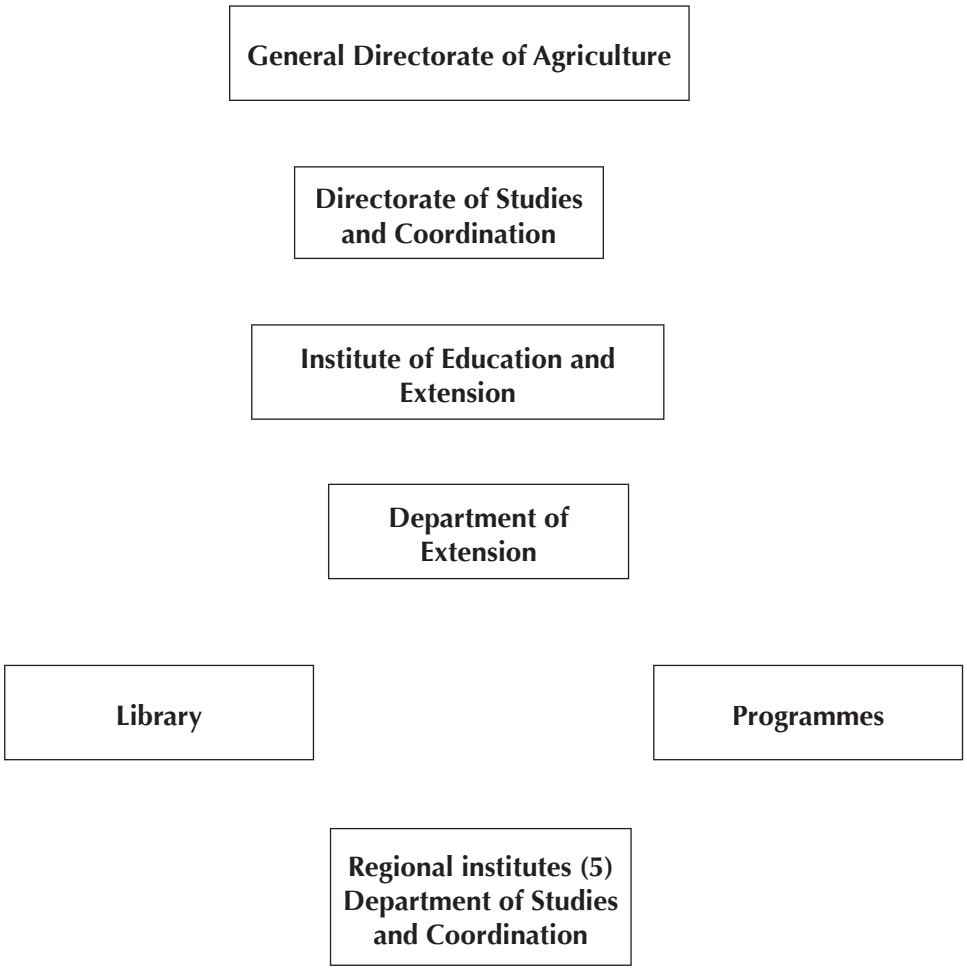
ii. AGRICULTURAL EXTENSION IN LEBANON

Agricultural extension is one of the main functions of the Ministry of Agriculture in Lebanon. This entails the ministry's interaction with farmers as the main target of extension. The roles of extension in Lebanon include disseminating information and applying state-of-the-art techniques to meet the needs of farmers, and solving any technical problems in order to develop effective agricultural practices and good management.

This requires improved performance in all Ministry of Agriculture activities, with agricultural extension complementing the work of other units in the ministry.

The institutional structure of agricultural extension within the Ministry of Agriculture is illustrated in Figure 5.

FIGURE 5 : Organization of agricultural extension in Lebanon



At the *ministry level,* as shown in Figure 5, agricultural extension begins with the Agricultural Extension Department under the Education and Extension Institute, which is affiliated to the Studies and Coordination Directorate. The Department has two units: Programmes and Publications.

At the *provincial level,* the Directorate of Studies and Coordination is represented in regional agricultural institutes by departments of studies and coordination. The head of the department is responsible for all extension activities in the province. The department employs an extensionist and technical assistants, who are affiliated technically to the Institute of Education and Extension and administratively to the regional institute.

At the *district level*, extension is represented in regional agricultural centres headed by a technical assistant who is appointed by the Director-General in each district. Extension centres are known as agricultural centres and are responsible for providing technical and practical advice to farmers and breeders through extension services in accordance with set programmes tailored by the Department of Agricultural Extension and the relevant scientific agricultural research unit.

Law 5246/1994 states that a centre must be established in each district. At present, there are only 14 centres, some of which are active while others are inactive.

Human resources and working methods

Law 5246/1994 limits the role of agricultural extensionists to that of technical assistants who cannot undertake new assignments in agricultural extension in the light of global developments. At present there are only six extensionists because retirees have not been replaced.

As a result of an administrative memorandum mandating extension centres to serve their districts, some centres have employed extensionists. The memorandum was issued to close the gap in human resources, but it needs to be updated.

Private sector and NGO extension services

Among the private and public entities that provide extension services are:

1. NGOs, such as the Ronie Mawad Foundation and ADR;
2. International NGOs, some of which are funded by international donors; these NGOs collaborate among themselves and with other agricultural cooperatives in district-specific areas of rural development, including organic agriculture and the planting of specific crops such as apple;
3. Private companies, which apply and disseminate new technologies and crop varieties or sell agricultural chemicals and provide relevant instructions;
4. Agricultural cooperatives, for limited areas such as animal husbandry in Arssal in Al Bekaah;
5. Universities, such as the Jesuit University and American University of Beirut through projects and research with the Ministry of Agriculture (including the Rehabilitation and Modernization of the Irrigation Sector Project).

These entities issue guidelines and organize field visits and training according to their own specific capacities. The Ministry of Agriculture aims to coordinate and organize their work by establishing mechanisms and joint programmes of work.

iii. CURRENT PROGRAMMES AND PLANS

In 2003, a strategy for agricultural extension was formed and submitted to the Minister of Agriculture and the Director-General, who were enthusiastic to implement it; it was therefore approved. The strategy was then submitted to other managers and general managers (Director-General of Cooperatives, Director of the Agricultural Scientific Research Institute) through the Extension Coordination Authority, which was established in 2003 and represents all directorates in the Ministry of Agriculture (General Directorate of Agriculture, Directorate of Cooperatives, and Directorate of Agricultural Scientific Research).

This strategy was later incorporated into the general strategy and budget of the Ministry of Agriculture 2004, which was submitted to the Prime Minister. It was prepared by the Department of Agricultural Extension and Libraries. The strategy was approved and a budget of LL 1.8 billion allocated for extension in 2004.

Recently, a workshop was held to design an extension programme for the Ministry of Agriculture. Units in the General Directorate of Agriculture, the Institute of Agricultural Scientific Research and the Green Project identified a number of priorities and a programme of work was adopted for each regional institute.

Bilateral meetings are now being held with NGOs in the field of agricultural extension in preparation for a national forum at which an annual joint work programme for extension will be agreed among the NGOs and the Ministry of Agriculture.

Existing projects

The following projects deal directly with extension:

1. The Rehabilitation and Modernization of the Irrigation Sector Project includes an agricultural extension and technology transfer component, which is funded by the International Fund for Agricultural Development (IFAD), supervised by the World Bank and implemented – in cooperation with the American University in Beirut (AUB) – in major irrigation areas. In the near future, a number of extension programmes will be implemented in cooperation with the Istituto per la Cooperazione Universitaria (ICU), the Young Christian Association, the Jesuit University and Global Vision Foundation Lebanon.
2. The Support and Develop South Lebanon Project is funded by the European Commission and implemented by ICU in Hasbia, Marja'yon and Bint Jbail.
3. The Technical Cooperation Project for Support and Enhance Capacities of Agricultural Extension of the Ministry of Agriculture has been prepared with FAO for implementation in 2005.

Such projects contribute to closing the funding and technical gaps and providing the necessary extension services. In addition, successful results from these pilot projects can be expanded and replicated for further development of the extension services of the Ministry of Agriculture.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN LEBANON

Constraints

The extension sector in Lebanon faces a number of constraints to its development. First among these is poor organization that does not meet or keep abreast with modern requirements to develop the agriculture sector. There is need to modify the organization, regulatory laws and job descriptions of extension.

There is also a severe shortage of human capital, in terms both of quantity and of quality. The Department of Extension and its divisions - including regional departments of coordination and extension – and village extension centres all lack employment opportunities for extensionists, owing to extensionists' limited roles as agricultural assistants. For more than 15 years, no technical assistants were recruited

in extension centres. Agronomists at the Ministry of Agriculture lack regular on-the-job training programmes, particularly for extensionists.

Absence of a fixed budget allocation for agricultural extension, and the Ministry of Agriculture's budget allocations are not flexible enough to include agricultural extension.

A lack of links with Ministry of Agriculture-affiliated scientific research institutes and other research centres in the private sector is making it difficult to provide solutions to farmers' needs.

Extension also suffers from shortages of logistics equipment (fuel, transport, etc.) and materials for extension activities such as workshops and publications.

The Ministry of Agriculture units that are necessary to extension services – such as research, marketing and laboratory services – have been underperforming, with negative effects on extension delivery.

Proposals for developing agricultural extension

In order to improve extension services in Lebanon there is need to:

1. Reorganize the extension department and library and improve their administrative performance;
2. Define which extension services to focus on, and provide incentives for these;
3. Define the role of extension centres;
4. Set job descriptions for extension staff;
5. Provide on-the-job training for staff;
6. Allocate flexible resources from the Ministry of Agriculture budget to implement agricultural extension activities;
7. Formulate annual work plans in cooperation with other public and private research institutes and NGOs working in agricultural extension;
8. Introduce joint departments between extension and scientific research in the Ministry of Agriculture;
9. Rehabilitate and update the Department of Agricultural Extension library at the Ministry of Agriculture.

VII. AGRICULTURAL EXTENSION ACTIVITIES IN OMAN

Khaseeb Salem Al MAANI[8]

i. THE AGRICULTURE SECTOR IN OMAN

The Sultanate of Oman is located between latitudes 16´ 40˝ and 20´ 20˝ north and longitudes 51´ 50˝ and 59´ 40˝ east in the southeast of the Arabian Peninsula. The coastline extends for 170 km from the Strait of Hormuz in the north to the border with Yemen in the south, and overlooks three seas – the Arabian Gulf, the Gulf of Oman and the Arabian Sea. With a total land area of 300 000 km^2, it is the third largest country in the Arabian Peninsula.

Annual rainfall puts Oman in the arid to semi-arid climatic zone. Agriculture is characterized by a variety of crops during the relatively short growing season (mainly from September to March). The latest figures – for 2002/2003 – indicate that the total cultivated area in Oman is 173 600 feddans (73 000 ha). In addition to seasonal cropping, fruit trees occupy 100 000 feddans, which constitutes about 57.6 percent of the total cultivated area. Date-palm represents more than 83 percent of the total fruit area (at 84 600 feddans); fruit crops such as lime, mango, banana and papaya are grown all over the country, and coconut plantations are concentrated in the southern region.

Forage crops play an important role in Oman's livestock production, particularly alfalfa and Rhodes grass, which occupy 42 500 feddans. Other crops, such as grain legumes and maize may be found in scattered areas. A smaller area (16 200 feddans) is cultivated with vegetables: tomato, cucumber, potato, pepper, onion and garlic being the most important in winter; while watermelon, muskmelon and okra are grown on approximately 4 000 feddans during the summer.

Agriculture in Oman depends mostly on groundwater for irrigation; water is carried to plantation plots through underground and surface canals known as Falaj (*pl.* Aflaj). This is a complicated irrigation system, and water is shared among the owners of several Falaj. When such a system is not available, water for irrigation is brought to the surface by diesel or electric pumps. Both systems are rainfall-dependent. Water quality for irrigation varies greatly among regions, ranging from fresh to highly saline.

Since dissolution of the Public Authority for the Marketing of Agricultural Produce (PAMAP) in 1995, the marketing of farm products is carried out by the producers. One central market has been established, and can be used for storage, export and import trade and local sales on a lease basis. Markets are supervised by a government body, and offer facilities for traders and producers. The agricultural agenda is updated annually in coordination with farmers and the Ministry of Agriculture and Fisheries in order to limit imports of certain commodities during their peak production seasons. This is supposed to protect local producers from competition with imports of similar products from neighbouring states. There are also local markets in the Wilayat (provinces), but there is no cooperation or exchange of information regarding products, prices or storage facilities. Other than the agricultural agenda, there has been no government policy regarding marketing, and free market principles are dominating the sale of agricultural products.

According to the available data, 95 145 people hold a total of 240 380 feddans of cultivable land, which support 804 000 people, including the landholders' dependants. The total number of permanent agricultural workers is estimated at 140 000, of whom about 47 000 are paid workers. The remainder are family members working without pay on family land. A large percentage of the population (1.5 million people) live in rural areas, and many others own land and property in the countryside even though they live and work in towns. Women represent 24.3 percent of the labour force for agriculture and related activities.

More than 77.7 percent of landholdings are less than 5 feddans. The rural sector is provided with many modern utilities; most villages have an electricity supply, telephone lines, television reception, a reasonable network of roads and most of the infrastructure necessary to reach extension services.

[8] Khaseeb Salem Al MAANI, Director of Agricultural Extension, Ministry of Agriculture and Fisheries - Oman

According to the latest agricultural census (1992/1993), 30.7 percent of farms in Oman are designated for agricultural production; 34.3 percent (32 600) of these specialize in animal production, 30.8 percent in crops, and the remaining 34.9 percent carry out mixed farming activities (crop production and animal husbandry).

ii. AGRICULTURAL EXTENSION IN OMAN

The Agricultural Extension Service in Oman was established in 1970 at an office staffed by expatriates from different sectors; it had extension agents to cover most aspects of agriculture. A school for agriculture was established in 1974. This was followed in 1975 by the establishment of five extension centres distributed among the country's main production regions. The number of these centres had increased to 36 in 1980 and 43 in 1999.

In 1986, a college of agriculture was initiated at Sultan Qaboos University. This was accompanied by the updating of duties and reorganization of the Agricultural Extension Centre to serve wider sectors within the rural community. The Agricultural Development Centre (ADC) in Oman was designated in 1993 and now serves farmers, livestock producers, beekeepers and fishers, as well as rural women. It uses the specific programme approach with the following aims: training and encouraging clients to adopt new technologies and use natural resources more sustainably; reducing farming costs; and encouraging the proper use of inputs through distribution of newly developed technologies such as chemical fertilizers, chemical pesticides, hybrid seeds and farm machinery. Demonstration plots are established in farmers' fields to illustrate the impact of new technology in improving farm productivity.

The agricultural extension structure in Oman can be characterized as central, with some regional planning, financing and evaluation. A great deal of flexibility is granted at the implementation level in regions. The Central Extension Department (AED) at the ministerial level plans programmes, provides inputs, finance, technical support and follow-up, and organizes training courses for extension staff. The ADCs in the regions are responsible for all aspects related to the implementation of extension programmes. There is good coordination between AED and research throughout because both are headed by an assistant to the Director of agriculture. The extension service in Oman comprises some 233 personnel with varied education levels ranging from Ph.D. degrees to Diplomas in Agriculture. Training courses are organized locally and abroad, depending on budget provisions.

Each ADC is equipped with modern audiovisual facilities, computers and sufficient means of transport. Female agents constitute more than 75 percent of ADC staff, and are in charge of rural women development programmes, which are coordinated through the two central departments at the ministry headquarters.

Career development

Extension staff are all government employees and no other organization is licensed to offer such services in Oman. Individuals are given opportunities to obtain higher degrees from universities and similar institutions either in Oman or abroad. Higher qualifications are not obligatory for the job, but can be advantageous for promotion and salary rises.

Extension mandate

Agricultural extension services in Oman can be categorized according to the following breakdown.

Extension programmes for fruit trees focus mainly on such agricultural practices as seedling care, plantation, fertilization, pruning, pest control and pre- and post-harvest handling. The main fruit crops are mango, lime, banana, orange and others such as pomegranate and grapevines that are grown in limited areas.

Extension programmes for vegetable crops focus on the introduction of new and hybrid varieties, cultivation practices, fertilizer requirements, disease control and aspects of quality control. The main vegetable crops are tomato, pepper, carrot, potato, cabbage, lettuce, courgette, aubergine, onion, garlic, watermelon, muskmelon and okra.

Extension programmes for field crops draw farmers' attention to the planting of new high-yielding varieties that are developed at research stations in Oman. Legumes are stressed for their role in improving soil fertility, and high-yielding strains of forage that are adapted to local growing conditions have been developed.

Extension programmes for agricultural marketing are designed to be integrated within other extension programmes in order to improve the marketing opportunities for local products, decrease losses and introduce farmers to pre- and post-harvest handling of agricultural produce from fruit, vegetable and field crops.

Other Department of Agricultural Production programmes include projects to introduce farmers to new and modern technology. Such projects include subsidies to enable farmers and traditional producers to adopt new techniques and to work in collaboration with the ministry's programmes in order to spread its policy. These projects comprise:

1. the farm machinery project;
2. the honeybee development project;
3. green/plastic-house farming;
4. the national project for date-palm improvement.

In all of these programmes, farmers are requested to contribute towards the purchase of certain equipment/machines or units; they are given subsidies from the ministry that range from 25 to 50 percent of total costs.

There is considerable cooperation between the Department of Agricultural Production and the Department of Extension.

Finance for extension

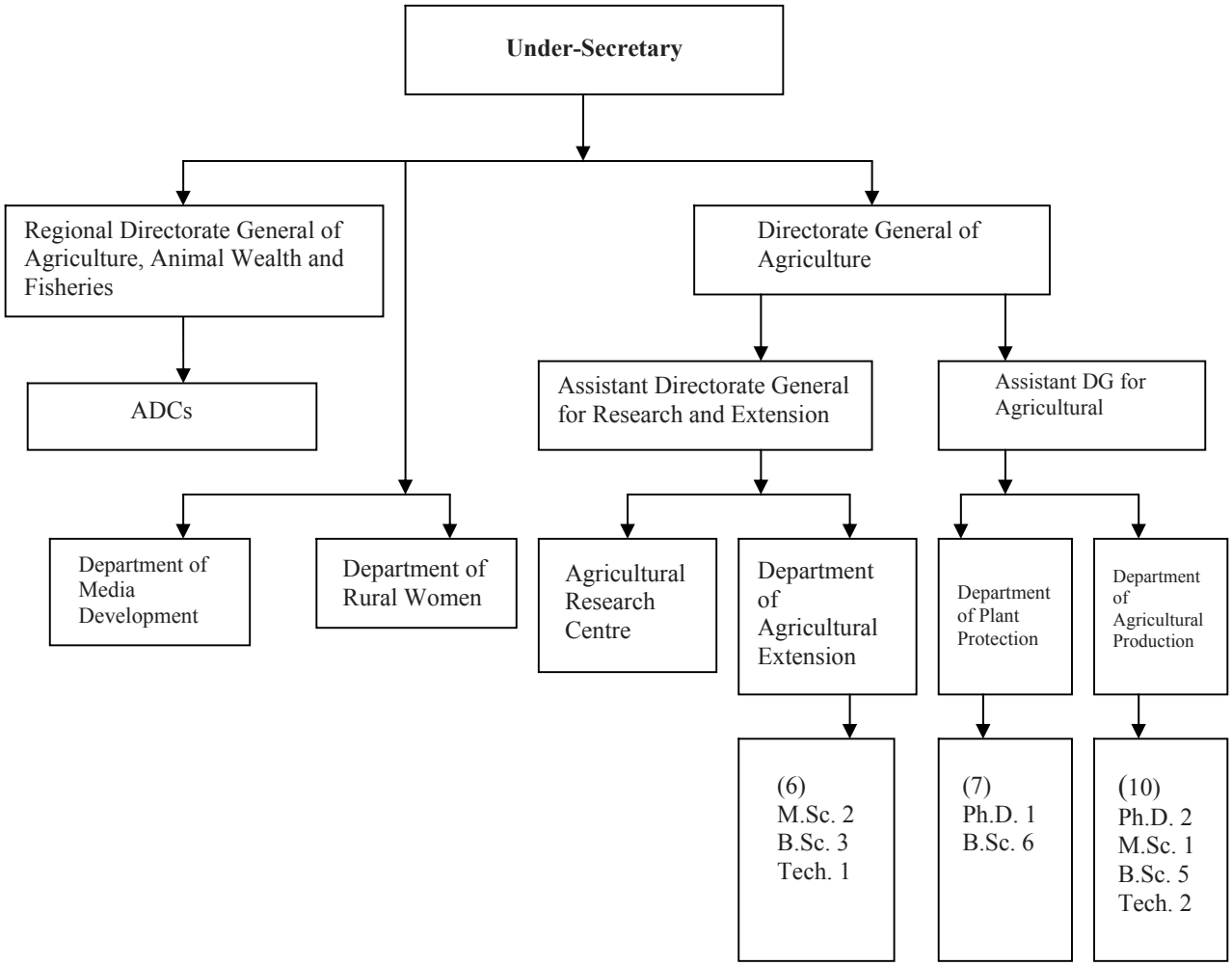
The budget for extension service programmes is planned annually from funds allocated for the Directorate General of Agriculture. More money is always needed in order to serve more farmers and improve working conditions.

Actors in the delivery of extension services

All extension activities – including non-agricultural programmes – are the responsibility of government organizations (see Figure 6). In a recent study (Ghabashi, 2004), various aspects of agricultural extension activities were investigated through a questionnaire covering 80 participants, all of whom were extension agents. Results showed that participants' opinions were identical regarding 90.6 percent of the elements on the questionnaire. The study findings can be summarized as follows:

1. Most participants (82.5 percent) indicated that the number of extension personnel in the ADCs is insufficient for the duties and tasks required of them.
2. The majority of participants (72.5 percent) expressed dissatisfaction with the nature and quality of relations between research and extension. In addition, 66.3 percent of them thought that research activities were not in line with the actual needs of extension programmes. However, 61.3 percent of participants felt that they enjoy a great deal of freedom and flexibility during the implementation of extension programmes at the ADC level.
3. Most participants (91.3 percent) agreed about the importance of the current extension programme for improving adoption levels of modern technology and increasing farmers' acceptance of new technical recommendations. 86.3 percent felt that there is a need for more subsidies to farmers in order to illustrate the impact of development programmes on productivity.

FIGURE 6 : Organization of agricultural extension in Oman



Capacity building of extension staff

Extension agents are trained in Oman and abroad. The duration of training depends on the availability of funds. However, there is an average of two to three training courses every year, each with 20 to 25 participants. Training courses cover various aspects of extension methods and techniques, principles of crop production, statistics, the use of media equipment, etc. Some two to four extension agents may have the opportunity of attending training or technical courses abroad when funds are available. In the Ghabashi study (2004), 82.6 percent of extension agents stated that training courses were irregular and inadequate.

iii. EXTENSION APPROACHES AND METHODOLOGIES

Farm and office visits are the most common extension methods used in Oman. Group meetings such as field days, fairs and symposia are less frequent, but may be conducted at special occasions. Women are involved in agricultural extension activities through specially planned programmes under the responsibility of the Department of Rural Women. Many other extension activities are shared between male and female extension agents, and both genders are involved in the planning, implementation and evaluation processes. Forms are designed to cover various aspects of each extension programme, and extension agents are requested to present these forms completed for 30 percent of the total number of participants in each project/programme. Findings of the evaluations for projects and programmes are discussed at an annual group meeting that is attended by representatives of each region to plan new extension programmes for the coming year/season.

Extension and training materials

All ADCs have sufficient equipment to present new ideas, methodologies, research results, training courses, etc. Projectors, tape recorders, video equipment, laptop computers, LCD projectors, slide projectors, etc. are available, and regular training sessions are organized for the staff operating them.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN OMAN

The agricultural extension service in Oman enjoys a great deal of support. Budget for upgrading the service is available annually, although it fluctuates according to oil prices. However, the study conducted by Ghabashi (2004) illustrated the urgent need for the following:

1. Extension starting at the ADC level must be completed so that activities can be conducted satisfactorily and efficiently.
2. There is a need for more integration between research and extension in all aspects in order to better tackle production and plant protection problems. Researchers should make more frequent visits to farmers' fields.
3. Production inputs and the means of illustrating positive impacts of new technology and production techniques are required and must be increased.
4. There is also need for more funds to conduct training courses for extension agents to enable them to communicate better and more efficiently with farmers.
5. Extension books, periodicals, leaflets and handbooks must be made available to both farmers and extension agents. Audiovisual equipment should be used by extension agents during meetings and at extension events in order to encourage farmers to attend. Implementation of new technology must be speeded up to fill the existing gap between research recommendations and progressive farmers who adopt new technology quickly.

REFERENCES

Ghabashi, A.A. 2004. Efficiency of agricultural extension techniques in the Sultanate of Oman. *J. Scientific. Res. Agric. and Marine Science* Vol. 9.1. Oman, Sultan Qaboos University.
Ministry of Agriculture and Fisheries. 1992/1993. Agricultural census.
Ministry of Agriculture and Fisheries. 1974 to 2003. Agricultural extension reports (various issues).

VIII. AGRICULTURAL EXTENSION IN PAKISTAN

Shakeel Ahmed KHAN[9]

i. THE AGRICULTURE SECTOR IN PAKISTAN

Agriculture plays an important role in the economy of Pakistan. About 67 percent of the population live in rural areas and depend on agriculture for their livelihoods. The agriculture sector employs about 42 percent of the labour force and contributes 73 percent of total export earnings. It accounts for more than 23.3 percent of GDP and provides raw materials for major industries such as textiles, sugar, food processing and leather. Efficient harnessing of the country's agricultural resources is therefore critically important for sustainable development and to meet the basic needs of the fast-growing population.

The cultivated area of Pakistan is about 22 million ha, of which 18 million ha are irrigated through canal networks and tube wells. Major crops grown are wheat, rice, sugarcane, cotton, maize, pulses, fruits and vegetables. The major contribution is from irrigated agriculture, which produces 100 percent of the country's needs for rice, cotton, sugarcane, fruits and vegetables, and about 85 to 90 percent of wheat, small grains, oilseeds and pulses. Irrigated agriculture in the Indus basin thus plays a vital role in the agricultural economy of Pakistan.

ii. AGRICULTURAL EXTENSION IN PAKISTAN

In Pakistan, the conventional system of agricultural extension remained in practice until the T&V system was introduced. Pakistan's agricultural extension programme was started in 1902, when the canal irrigation system was introduced in the India-Pakistan subcontinent. Agricultural extension remained an integral part of formal agricultural education and research. These three components of agricultural development – extension, education and research – were the responsibility of one department, administered by the respective provinces.

In 1961, agricultural extension was separated from agricultural research and formal education. Under this arrangement, the Director of Agriculture was made head of the Agricultural Extension Services. The Deputy Director, Assistant Director and Extra Assistant Director of Agriculture served as divisional and district heads, respectively. An agricultural officer was in charge of extension activities at the tehsil level. Field assistants served as field workers at the union council level. This system is still mainly operative in Sindh, Balochistan and NWFP. Through adoption of a devolution programme from 2001 onwards, agricultural extension has been devolved to district governments across the country.

National policies pertaining to agriculture and education at the federal level are in the purview of the Federal Ministry of Food, Agriculture and Livestock and the Federal Ministry of Education. Provincial agriculture and education departments are responsible for agriculture and agricultural education at the provincial level. Higher agricultural education is delivered through agricultural universities and colleges at Faisalabad, Peshawar, Tandojam, Rawalpindi, D.I. Khan, Multan, D.G. Khan, Quetta, Larkana and Rawalakot. Initially Agricultural Research, Extension and Education were the responsibility of the agricultural colleges. Later on separate institutions for agricultural research, extension and education were established in Punjab, Sindh and Balochistan. In Northwest Frontier Province (NWFP), the University of Agriculture is responsible for agricultural education and research. Agricultural extension in NWFP, as elsewhere, is a separate entity.

Agricultural extension makes a significant contribution to the diffusion of modern technologies. The extension system plays a major role in the introduction of new crop varieties, the use of fertilizers and crop protection measures. However, in spite of continuous efforts, agricultural extension has not been able to maintain a positive image among farmers. Before introduction of the T&V system, the traditional agricultural extension wing of the department of agriculture failed to provide adequate extension services to farmers. It was therefore generally criticized by the farming community.

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Agricultural extension in Punjab

The set-up of extension services in the Punjab Agriculture Department has undergone changes from time to time. The staffing structure established in 1959 was changed in 1974/1975 by appointing a Director-General (Extension) to supervise all the activities of both administrative and technical staff. In 1982/1983 extra technical staff at both the supervisory and field levels were taken on. The underlying philosophy was to enhance the level of contact between farmers and extension personnel. At present, there are 3 263 professionals and more than 2 600 ministerial/support staff members at the Punjab Agriculture Department.

A modified version of the T&V system operates in Punjab. In principle, this system allows the direct and effective transfer of technical recommendations through close linkages among research, extension services and farmers. The philosophy and concept of the T&V system of extension is based on a triangular relationship among researchers, extension workers and farmers. The main purpose is to bridge the gap between the modern technology developed at research stations and that used by the majority of traditional farmers, through massive transfer of technology. The T&V system aims to build a professional extension service capable of assisting farmers to raise production and increase income, and providing appropriate support for agricultural development. The major functions/objectives of the current extension system are:

1. Testing of research findings through adaptive research under local conditions, with subsequent amendments if needed;
2. Transfer of technology to farmers through personal and group contacts, demonstrations at farmers' fields, print and electronic media;
3. Feedback from farmers to researchers;
4. Monitoring the supply of agricultural inputs;
5. Quality control of pesticides and other inputs;
6. Pre-service, in-service and on-the-job training of personnel.

The T&V system has produced better results than the traditional extension system. However, the impact of T&V on agricultural production and its cost-effectiveness have remained somewhat controversial because linkages between adaptive research and field extension staff are generally weak under the T&V system.

Adaptive research for extension

Adaptive research plays a vital role in the current extension system. Adaptive research is directed to developing site-specific crop production technology packages that are oriented to solving farmers' problems. This is done through repeated experimentation at adaptive research farms and in farmers' fields, keeping in view local agroclimatic and socio-economic conditions. It bridges the gap between research findings and farmers' achievements and also maintains an effective linkage between research and extension. The main objectives of adaptive research are to:

1. Identify farmers' problems;
2. Compile a list of suggested trial topics arising from these problems;
3. Evaluate and demonstrate extension recommendations;
4. Develop and devise site-specific improved production technology packages to minimize the gap between potential and farmers' average yields;
5. Maintain an effective linkage between research and the extension service.

Private sector participation in extension activities

Currently, the fertilizer, pesticide, agricultural machinery and part of the seed industry are in the private sector, which provides agricultural extension services alongside those of the public sector, particularly in areas where private companies have a good chance of enhancing their own business profits. For private sector companies, their own interests provide them with the necessary incentive to reach out even to remote locations. The Government of Pakistan, as a matter of policy, is encouraging the private sector to contribute to agricultural development. Thus, the private sector – especially multinational pesticide companies – carries out various field activities, alongside aggressive pesticide marketing campaigns, backed up by very convincing publicity campaigns through electronic and print media.

NGO participation in extension activities

The NGO sector in Pakistan has grown rapidly in the last two decades. Even modest estimates indicate that there are at least 10 000 NGOs in the country, at least 5 000 of which are active. Many of these NGOs are single-community or village-based groups run by volunteers, with minimal administrative structures and usually a welfare orientation; however, there are increasing trends towards building up NGOs and developing more professional expertise and the capacity to reach out to larger numbers of beneficiaries. A small number of NGOs are actively involved in agricultural extension activities in Pakistan. These include the National Rural Support Programme, provincial rural support programmes and the Agha Khan Rural Support Programme. These NGOs contribute significantly in the field of agricultural extension. They follow the common strategy of harnessing individuals' potential in order to mobilize people's willingness through social guidance, and adopt the following approach:

1. Baseline information is collected through poverty profiles and village profiles.
2. Willing communities organize themselves into socially viable groups as CBOs.
3. The members of CBOs identify activities for harnessing the community's potential to help. They are also trained by NGOs in community management skills.
4. Micro investment plans that identify opportunities at the household and village levels are prepared so that the priority needs of the community can be met.
5. A skill enhancement training programme is offered to community members to enable them to carry out their activities on an individual or collective basis.

iii. OVERVIEW OF AGRICULTURAL EXTENSION IN PAKISTAN

Weaknesses and challenges

The current extension service does not suit the present requirement for a more progressive and integrated approach to agriculture. It neither identifies farmers' problems adequately nor responds to these rapidly. Weaknesses in the structure and the methodology for transferring technology to farmers must be addressed in order to strengthen and revitalize the entire extension services system. This will entail substantially increased resources for the sector.

The weaknesses and challenges of the present extension system in Pakistan include:

1. Poor access to electronic media for the transfer of technologies;
2. Low level of knowledge and skills among front-line extension workers;
3. High numbers of farming families per extension worker;
4. Inadequate training programmes and poor mobility;
5. Extension being blamed for the failures of other disciplines such as agricultural research, marketing and education;
6. Funding and resource constraints;
7. Scarcity of avenues for national and international exposure of agricultural extension;
8. Inadequate linkages with research and education.

Future focus

The role of the Federal Government is crucial for effective inter-provincial coordination and integration of the extension system. There is strong need to establish a Federal Coordination Agricultural Extension Cell in the Ministry of Food, Agriculture and Livestock.

The current devolution process has stopped the frequent flow of information and technologies from the top to the grassroots level. This has isolated extension workers from access to research-based modern systems in agriculture. This issue needs to be addressed.

It is not feasible to replace the work of public extension services with private companies and NGOs. As with other services provided by the public sector, such as roads and telecommunications, this would be neither cost-effective nor a good use of private companies' and NGOs' resources. What is required – and is currently being experimented with – is a form of partnership between the public extension services and participatory NGOs in order to bring about the most effective method for agricultural development at all levels of society, and to maximize the coverage of beneficiaries.

The electronic media have emerged as a very strong instrument for transferring new technologies. There is a need to increase the number of broadcast hours per week. Later on, an agricultural TV channel could be established to substantiate the efforts of the research and extension system in transferring technologies to the farming community.

Traditionally, resource-poor farmers have lacked the power and organizational ability to exert sufficient pressure on the research and extension systems to satisfy their needs. Resource-poor farmers' access to research information is restricted; their ability to articulate their needs is poor; their capacity to tolerate risk is limited; and the pressing concerns of their daily existence make it difficult for them to focus on long-term technological change.

Community participatory approaches involve people in the planning, implementation, monitoring and evaluation of various activities that affect their lives directly. The approach generally works better at the micro level. Hence, there is a need to establish farmers' organizations at the village level for effective community participation.

Links between agricultural research institutes and their clients – farmers and extension agencies – are vital for successful technology development and delivery. Direct links with farmers that are developed through on-farm research ensure relevance and rapid feedback. Links with extension agencies ensure impact through a wider dissemination of technologies. The two sets of links are complementary, and both are necessary; one cannot substitute for the other. Research managers have found these links difficult to organize and sustain, particularly when addressing the needs of resource-poor farmers.

Linkage problems not only reduce efficiency, they also impair performance and diminish the impact of agricultural research. There is no single recipe for strengthening links. The policy and institutional context determines the types of strategies and mechanisms that a manager can use to develop effective links. Key contextual factors influencing links are agricultural development and research policies, the resource situation and organizational structure of the institute involved, and technical issues such as the existing knowledge base, the inventory of available technologies and the diversity of agro-ecological conditions and production systems. Effective linkage mechanisms need to be adopted to improve performance, build stronger links and address the needs of resource-poor farmers.

It is not practical or desirable to establish parallel extension services for all subsectors of agriculture such as livestock, forestry, fisheries and irrigation; this would be very costly and highly confusing for the farmers, who would have frequent visits from numerous narrow specialists. All of these departments have their own technical officers at the district or sub-district level who provide specialist advice to farmers on request.

IX. AGRICULTURAL EXTENSION IN THE PALESTINIAN TERRITORIES

Abdulla LAHLOUH[10]
Shaker JOUDEH[11]

i. THE AGRICULTURE SECTOR IN PALESTINE

The role of agriculture in the economy

The agriculture sector is the backbone of the Palestinian Territories economy and one of the most important sources of food, providing 91 percent of vegetables, 90 percent of white meat, 61 percent of milk and 35 percent of red meat. It contributes 8.2 percent of GDP and provides 13 percent of total job opportunities. The agriculture sector is vital to the Palestinian economy in providing hard currency from agricultural exports, which account for 24 percent of total exports.

Agricultural resources

Palestine contains a diversity of environments and geography in a small area of land, which makes it unique. There are coastal and semi-coastal lands, highlands, the eastern hills and the Ghors (lowlands) of Jordan. The total area of the West Bank and Gaza Strip is 6.2 million donums, of which nearly 1.98 million donums (31 percent) is cultivated. In addition, 1.9 million donums are pasture, only 260 000 donums of which are used for grazing, because these areas are military zones.

Most – 88 percent – of the cultivated land is used for olive, grapes and other fruits, as well as winter and summer crops. The irrigated land area is nearly 240 000 donums (12 percent of the cultivated area) and has vegetables, citrus, fruits such as palms, grape and banana, and cut flowers.

Water is a scarce natural resource in the Near East in general and in the Palestinian Territories in particular. Water resources in the West Bank and Gaza Strip are estimated at 900 million m^3. This does not include the share of water consumed by Palestinian people from the Jordan and Al Yarmouk rivers, which is nearly 320 million m^3. However, Israel controls more than 85 percent of water resources; Palestinians use less than 230 000 m^3 (15 percent) of this water, of which 154 million m^3 (67 percent) is used for irrigation and the rest for domestic and industrial use.

Animal wealth plays an important role in Palestine where it contributes 39 percent of agricultural production. There are 1.2 million goats, with another 33 000 in the West Bank. of the 27 million birds, 2.9 million provide white bird meat. There are also 47 000 beehives.

Agricultural policies

Since the Palestinian Authority came to power in the West Bank and Gaza Strip, a number of economic and social policies have been formulated to achieve comprehensive development. Agricultural policy is one of the most important of these; the aim is to achieve integrated sustainable agricultural development and to meet local and international market needs. Competition will be in quality and price. The main objectives of Palestine's agricultural policy are:

1. Optimum use of agricultural resources such as soil and water;
2. Development of villages through integrated rural development;
3. Enhancement of the competitiveness of agricultural products in local and international markers;
4. Enhancement of the private sector's involvement in the agricultural development process;
5. Improvement of the infrastructure and legal framework for agricultural and human development;
6. Cooperation, Arab and regional agricultural integration, and active participation in the organizations and regional and international agreements related to agriculture and food.

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[11] Shaker JOUDEH, Assistant Under Secretary for Agricultural Extension Services, Ministry of Agriculture - Palestinian Authority

ii. AGRICULTURAL EXTENSION IN PALESTINE

Agricultural extension is an important means to help farmers improve production, in terms of both quality and quantity, as well as achieving financial profits. Increased production is the result of rapid development in research and technology and growing local and international competition, which is itself a direct result of international trade liberalization agreements. Agricultural extension is the backbone of agricultural development, which constitutes the basis for rural development.

Palestine therefore needs to formulate an agricultural extension policy and identify the needs and priorities of extension programmes. In order to satisfy the requirements of economic and social development and meet the main goals of agricultural policy. The agricultural extension policy covers:

1. Optimum use of and maintenance of agricultural resources such as water and soil to ensure sustainability and protection of the agricultural environment;
2. Maximization of farmers' profits and improved standards of living to achieve self-sufficiency;
3. Target audiences' involvement in agricultural extension activities, the identification of problems, the planning of activities and the decision-making process, with the necessary incentives;
4. Integration of social aspects in extension activities, and improving the role of women in agricultural extension by increasing their numbers in the field, as well as encouraging the establishment of agricultural unions and increasing women's representation – especially in decision-making – in all agricultural extension activities;
5. Efficient, cost-effective provision of agricultural extension with the involvement of farmer beneficiaries in paying some of the costs in future;
6. Use of the private sector, universities and NGOs as important resources to complement government activities in agricultural extension;
7. Enhancing links among agricultural education institutions and agricultural extension authorities, and redirecting education outputs to serve agricultural development goals;
8. Provision of extension services through groups and reduction of individual-based services;
9. Extension programmes that provide farmers with solutions to the latest market needs;
10. Encouraging farmers to work collectively by establishing unions and specialized councils;
11. Extension that covers rural development activities;
12. Enhancing links with national, regional and international agricultural extension organizations.

Government agricultural extension services

Agricultural extension activities began in Palestine during the British rule, and continued until 1967. In the early days of Israeli occupation of the West Bank and Gaza Strip, agricultural extension was increased, but by the mid-1970s, the authorities were restricting activities by limiting budgets and closing laboratories, which forced farmers to resort to agricultural cooperatives, NGOs and universities for support. At present, the government extension authority has 71 extensionists, there are another six main extensionists in the West Bank, and six in the Gaza Strip.

Human resources in government agricultural extension

Agricultural services are one of the main duties of the Ministry of Agriculture, and include veterinary, research and marketing services and extension. The government provides agricultural extension services through the General Authority of Extension and Rural Development in the Ministry of Agriculture, its 17 directorates throughout the country and 29 extension unit offices in rural areas. The services are provided free of charge through direct contact with individual farmers or groups.

The organizational structure of the Ministry of Agriculture (see Figure 8) includes the eight technical departments of the General Authority of Extension and Rural Development: the Horticulture Unit, the Animal Wealth Unit, the Field Crop Unit, the Vegetable and Flower Unit, the Plant Protection Unit, the Agricultural Awareness Unit, the Rural Development Unit, and the Extension Planning Unit. These departments include 28 technical sections.

The General Authority of Extension and Rural Development is mandated to:

1. Prepare policies, strategies, plans and projects related to extension, rural development, and the development of agricultural production quantity and quality;
2. Provide solutions to the problems facing agricultural production through technology transfer and technological packages for crops and systems;
3. Participate with all concerned entities to plan and prepare extension projects for all agricultural areas;
4. Participate with all concerned entities in assessing the training needs of agricultural extensionists, and set plans and projects for extensionists locally and internationally;
5. Plan, prepare and implement field visits to laboratories and farmers' fields, analyse findings and communicate them to farmers through the agricultural extension entity;
6. Produce information packages on agricultural extension (print and electronic);
7. Set up systems to develop agricultural production in cooperation with all the entities concerned;
8. Design rural development activities and identify the agricultural needs of both women and men;
9. Follow-up on harvests by sorting, documenting and maintaining accurate records of food and agriculture;
10. Attend local and international conferences and workshops.

The Agricultural Extension Unit can be divided into three levels: national, governorate and local.

National-level extensionists work at Ministry of Agriculture headquarters within the General Authority of Extension and Rural Development as heads of units and sections. They have field expertise and cover all agricultural activities: irrigated vegetables, flowers, poultry, bees, field crops and agricultural mechanization, and horticultural produce, especially grapes, olives and date palms. They are mandated to:

1. Prepare policies, strategies and plans for developing agricultural production quantity and quality;
2. Participate with all concerned entities to plan and prepare extension projects for all agricultural aspects;
3. Participate with all concerned entities in assessing the training needs of agricultural extensionists, and set plans and projects for extensionists;
4. Provide technical support to extensionists in agricultural directorates;
5. Prepare and produce extension awareness tools – newsletters, publications, posters, documentaries and TV and radio broadcasts;
6. Select general and specific goals for annual extension work plans that match agricultural extension policy;
7. Organize field visits in directorates and following the implementation of extension activities;
8. Attend local and international conferences and workshops.

Governorate-level extensionists work in directorates as heads of sections or units. They have technical expertise of agricultural systems and provide technical support and training for extensionists working in extension units, as well as for farmers and students. They are also mandated to:

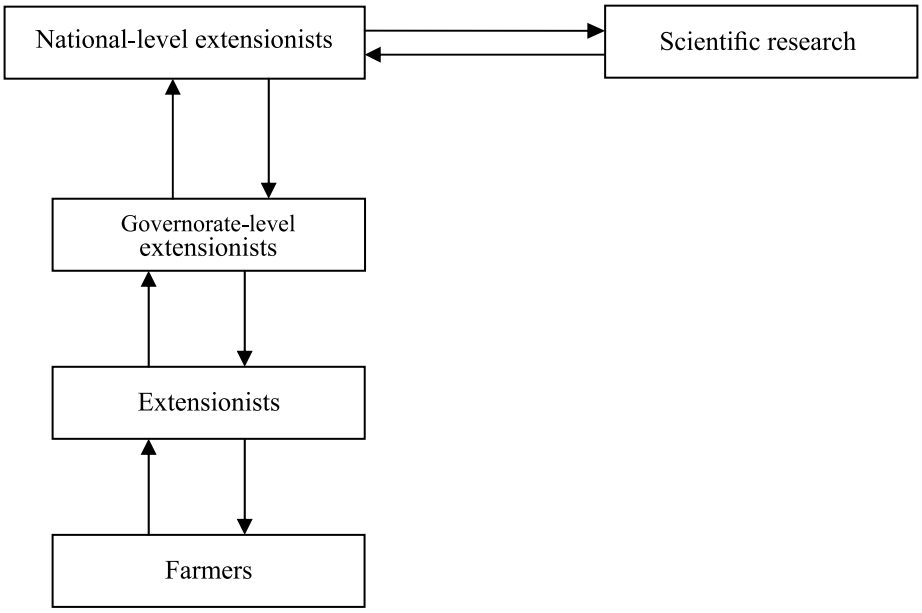
1. Plan and prepare extension programmes at the governorate level;
2. Gather information on extension activities at the governorate level;
3. Provide information to extension and research centres related to extension in the governorate;
4. Produce information and communicate it to producers;
5. Follow-up and organize visits to fields, and select appropriate technology;
6. Hold periodic meetings with farmers, farmers' unions and agricultural committees.

Extensionists at the *local level* work in villages where the ministry has established extension units. Each unit serves ten to 15 villages and employs two to three extensionists with the following duties:

1. Organizing field days for farmers, as well as conferences and extension meetings;
2. Following up on farmers' field activities;
3. Gathering information related to agricultural production in the governorate;
4. Directing farmers' concerns to extensionists at the governorate level.

Figure 7 indicates the relations among agricultural extensionists at all levels, farmers and scientific research.

FIGURE 7 : Relations among extensionists, farmers and scientific research



Human resources

The General Authority of Extension and Rural Development has 300 members of staff, 53 of whom work at headquarters while the remaining 247 work in directorates and extension units. Most extensionists hold university degrees in agriculture, but nine have only secondary school certificates. Regarding period of service, 85 percent of extensionists have served for five to ten years. Women make up 19 percent of the staff.

At present, there are no clear criteria for deciding how extensionists should be distributed across agricultural directorates. The Ministry of Agriculture, as part of its administrative reform and reorganization,

is establishing criteria with which to redistribute extensionists to the governorates that need them most. These criteria are as follows:

1. Field crops: One extensionist if the cultivated land is more than 50 000 donums.
2. Irrigated vegetables: One extensionist if the irrigated area is 5 000 to 10 000 donums, two if it is 10 000 to 20 000 donums, and three if it is more than 20 000 donums.
3. Orchards: One tree planting extensionist if the irrigated area is more than 5 000 donums, and two if is more than 10 000 donums.
4. Plant protection: One extensionist.
5. Soil and irrigation: One extensionist if the irrigated area is more than 20 000 donmus.
6. Bees: One extensionist if there are more than 2 000 beehives.
7. Poultry: One extensionist if there are up to 5 million birds, and two if there are more than 5million.
8. Bovines: One extensionist if there are up to 70 000 bovines, two if there are 70 000 to 150 000 bovines, and three if there are more than 150 000.

Entities involved in extension

The General Authority of Extension and Rural Development is responsible for providing extension services through the Agricultural Extension Authority in agricultural directorates and extension units in all governorates. NGOs, unions and companies that market seeds, fertilizers and pesticides act as committees to provide additional support and limited extension services. Nearly 120 agronomists work in these organizations, developing rural development and agricultural extension projects.

These organizations depend on donations from international organizations and other donors. A strengths, weaknesses, opportunities and threats (SWOT) analysis of these organizations made the following findings:

1. NGOs' role can be enhanced in preparing agricultural policies, annual work plans, laws and regulations for agriculture; providing solutions to marketing problems; national-level extension and technology transfer; and funding and implementing national agricultural projects in extension and training.
2. Universities can participate in training research and extension; provide experts to extension and research entities; provide scholarships in extension and research; and support the private sector with research.
3. The private sector's role can be enhanced in funding national projects for research and extension activities.
4. A high-level committee should be established to improve coordination among the Ministry of Agriculture and these organizations.

Target audience for agricultural extension services

The Ministry of Agriculture is currently working on communicating extension services to farmers in all areas, including 460 communities in the West Bank and Gaza Strip. The ministry has paid much attention to providing extension to vulnerable areas and populations and to less advantaged groups, including nomads. The following is a summary list of the beneficiaries of agricultural extension services:

1. All agricultural producers in animal and plant production, whether small- or large-scale, as well as agricultural unions such as cooperatives and specialized agricultural councils;
2. Agricultural manufacturing workers and companies providing agricultural inputs, etc.;
3. Other organizations, such as NGOs and faculties of agriculture;

4. Rural woman: the Rural Development Unit of the General Authority of Extension and Rural Development focuses on enhancing the role of women in agricultural development processes regarding participation in decision-making. To this end, it has set up intensive training programmes in cooperation with other technical units and implements income-generating activity programmes for women.

Funding sources for agricultural extension

There are two main sources of funds for the agricultural extension services provided by the Ministry of Agriculture: self-funding from the Ministry's budget, and external funding from donors and international organizations.

The Ministry of Agriculture's budget includes funds to cover salaries in the extension entity, as well as maintenance costs, transport costs, operation costs and equipment maintenance costs. The budget also covers costs related to extension activities such as field visits, laboratory testing, stationery and communications equipment. In 2004, the budget allocated to the General Authority of Extension and Rural Development amounted to nearly US$3 million, including staff and operation costs.

However, the budget for agricultural extension should be increased. For example, in order to ensure successful research and agricultural extension policy, it is necessary to allocate 2 percent of agriculture's contribution to GDP in agricultural research and extension.

The General Authority of Extension and Rural Development implements a number of projects to develop the agricultural extension workforce and farmers. The following projects to develop agricultural production receive funds from donors and international organizations:

1. The Agricultural Biodiversity Project has a budget of US$2 million, is funded by the Global Environment Facility (GEF) and is implemented in cooperation with the United Nations Development Fund (UNDP) and the Programme of Assistance to the Palestinian People (PAPP).
2. The Regional Danish Agricultural Project has a budget of US$3 million.
3. The Nomad Development Project has a budget of US$1.5 million, which is funded by the Italian Government in cooperation with UNDP and PAPP.
4. The Cow Improvement Centre Project has a budget of US$500 000, funded by an Italian organization.
5. The Extension and Training Project has a budget of US$1.9 million, funded by the Far Fund, which is managed by the Islamic Development Bank. It is implemented in cooperation with the Arab Agricultural Development Organization (Palestine Office).
6. The Poverty Eradication Project is a small income-generating project for rural women with a budget of US$62 000 funded by the Canadian Government.
7. Another Poverty Eradication Project with a budget of US$82 000 is funded by the Arab Agricultural Development Organization.
8. The Food Security Project in Tohbis governorate is a small income-generating project with a budget of US$120 000, which is funded by the Spanish Government in cooperation with UNDP.
9. The Support to Vegetables in Greenhouses Project has a budget of US$1 million funded by the Norwegian Government in cooperation with FAO.
10. Another Support to Vegetables in Greenhouses Project has a budget of US$250 000 funded by the Organization of Petroleum Exporting Countries (OPEC) in cooperation with FAO.
11. The Palm Development in Ghors Project has a budget of US$450 000, funded by the Spanish Government.

Training and capacity building in agricultural extension

Palestine has four faculties of agriculture at:

1. Al Najaah University, which provides MAs in agriculture in plant production, plant protection, and animal protection;
2. Al Khalil University, which provides MAs in agriculture in plant production, plant protection, and animal protection;
3. Al Azher University, which provides MAs in agriculture in plant production and plant protection;
4. Al Quds Open University, which provides MAs in agriculture in plant production, plant protection, and animal protection.

These faculties do not offer agricultural extension majors. Teaching is based on one curriculum for agricultural extension and rural development subjects. Since 2000, Al Quds University has provided MAs and Higher Diplomas in integrated rural development and sustainable agriculture, which include 39 certified hours in agricultural extension. The curriculum includes subjects in agricultural extension, rural communication, regulations and collective work strategies, among other topics.

The General Authority of Extension and Rural Development formulates training programmes at the local and international levels to enhance the capacities of its staff in communicating information to farmers.

The following is a summary of the training programmes undertaken by the Ministry.

Agronomist training programmes are organized through the Extension and Training Project. This project has a budget of US$1.9 million, funded by the Far Fund, which is managed by the Islamic Development Bank. It is implemented in cooperation with the Arab Agricultural Development Organization (Palestine Office) and comprises:

1. One-day technical sessions to address pressing issues;
2. Seasonal field days for agronomists to address specific issues, such as grading;
3. Central workshops addressing common issues for agronomists and leaders;
4. Local visits for farmers to fields where they can learn from applied tools.

In addition, the Annual Training Programme holds workshops with the Arab Agricultural Development Organization. The issues to be tackled at these workshops are decided by the Ministry. There is also a training programme for agronomists, which is organized with UNDP and delivered by The General Authority of Extension and Rural Development.

Training programmes for staff at the unit level are organized with the Japanese International Cooperation Agency (JICA); training is also organized with the French and Italian governments. These training courses last for nearly a year and lead to diplomas in subjects decided by the ministry and the donor government. Trainees can also complete MA degrees. The Danish government funds a programme for MAs or Ph.D.s in specific subjects set by the ministry.

Overseas field visits to Arab and other countries are organized through the Extension and Training Project funded by the Far Fund and the Arab Agricultural Development Organization, through the Danish Project. In addition, there is an Agricultural Biodiversity Project, and Palestinian extensionists take part in regional and international workshops.

Among the largest training programmes are those implemented by the Arab Agricultural Development Organization, followed by those of ACSAD, CARDNE, the International Centre for Agricultural Research in Dry Areas (ICARDA) and FAO.

Developing the agricultural extension profession

Agricultural extension is one of the most important services that the Ministry of Agriculture provides to the agricultural community; the ministry depends on extension to apply its policies and provide agricultural services throughout all governorate units. The ministry pays much attention to developing agricultural extension by formulating policies, strategies and plans to develop it. The ministry also aims to increase the number of extensionists in all fields and to implement local and international training programmes to enhance extensionists' capacities.

The monthly salary for extensionists in the Ministry is up to US$450, according to years of experience, scientific degree and position held. Compared with positions for similarly qualified staff in NGOs, research centres and universities, salary levels are low for extensionists. There is need to adopt a system of incentives to improve the performance of extensionists in the government services.

iii. EXTENSION METHODOLOGY AND TOOLS

The General Authority of Extension and Rural Development prepares annual extension work plans in cooperation with all its staff at all levels. At present, the annual work plan is based on the following criteria:

1. The General Authority cooperates with extensionists at the national level (heads of units and sections) to prepare general and specific goals for the annual work plan that match the policy for agricultural development and extension. The plan covers animal and plant aspects and has to be approved by the ministry.
2. The plan's general and specific goals are distributed to all governorate agricultural directorates. Extensionists then prepare annual work plans for each governorate; these must comply with the strategy adopted in each governorate and be in line with the general and specific goals of the plan. National-level extensionists provide technical support to governorate-level extensionists to ensure that plans meet agricultural needs.
3. Governorate-level plans focus on models, general and specific goals, the target audience, implementation modes, implementation dates and location.
4. Annual extension work plans are revised for all governorates and approved by the ministry to be published at a later date.

Extension follow-up system

After extension activities have been implemented, the Follow-up Section of the Department of Extension Programmes of the General Authority of Extension and Rural Development applies an automated follow-up system that uses models and measurable indicators. The directorates of agriculture send monthly, quarterly and annual reports to the General Authority of Extension and Rural Development.

Extension methods

The extension authority uses a number of tools to transfer technology to farmers:

1. Individual extension through visits to farmers in fields;
2. Public extension through TV and radio broadcasts;
3. Collective extension through extension sessions, seminars, meetings and field days;
4. Newsletters and posters.

Currently, the focus is on extension through communication and on collective extension; these play an important role in communicating information to farmers, especially during the difficult times that Palestine is experiencing.

Audiovisual tools used in extension

In recent years, the Ministry of Agriculture has provided the General Authority of Extension and Rural

Development with the following communication tools and training materials to enhance extension activities and transfer technology:

1. Overhead and slide projectors for extension sessions, seminars and meetings;
2. Cameras, recording equipment, TVs and documentaries;
3. Tools for soil and irrigation extension, such as those to analyse soil and measure pH;
4. Training material and hives for beekeeping;
5. Orchard tools for planting, grading and harvesting:
6. Tools for cattle-raising;
7. Tools to illustrate extension and veterinary services.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN PALESTINE

Despite the Ministry of Agriculture's efforts to enhance the performance of extension activities in meeting farmers' needs, and despite successes made at the national level, extension could still be improved by:

1. Limiting interventions and the responsibilities of extensionists, so that they are not involved in irrelevant activities;
2. Enhancing coordination mechanisms among the General Authority of Extension and Rural Development and other organizations working in agricultural extension and rural development;
3. Enhancing State commitment by gradually increasing the budget allocated to extension over the next five years;
4. Preparing training programmes that meet administrative, technical and environmental needs;
5. Enhancing relations between the General Authority of Extension and Rural Development and the national agricultural research centre, in order to benefit farmers and sustainable agricultural development programmes;
6. Applying decentralization and the delegation of authority in extension activities;
7. Applying fair incentive schemes based on productivity to improve the performance of extensionists;
8. Including producers' participation in selecting and evaluating technologies, with a focus on implementing research and knowledge transfer and communicating with farmers;
9. Improving channels of communications with farmers by developing staff skills and enhancing relations with audiovisual and print media providers;
10. Using information dissemination tools on environmental and agricultural impacts;
11. Educating the public on the importance of maintaining soil resources, and reducing land confiscations through pastures, planting and the establishment of nature reserves;
12. Providing technical support to Palestinian communities in regional and international negotiations.

Development of government agricultural extension

In recent years there has been significant development in the extension services provided to targeted farmers. In the past, extension was provided with no set system and depended on extensionists' experience. In the light of the Extension and Training Project funded by the Far Fund and the Islamic Development Bank and implemented by the Arab Agricultural Development Organization, the Ministry of Agriculture has set specialized extension programmes for important crops: olive, citrus, grape, vegetables, flowers, bovines and bees.

The objectives of extension programmes are to:

1. Identify the problems that the target sector suffers from;
2. Provide proper solutions to these problems through specialized committees of agronomists;
3. Prepare standard extension messages to be distributed to extensionists and that cover all agricultural operations;
4. Prepare annual work plans that identify activities, target audiences and numbers, places of implementation, achievement dates and progress indicators;
5. Identify extension tools;
6. Provide proposals for extension and research projects as outputs of extension programmes.

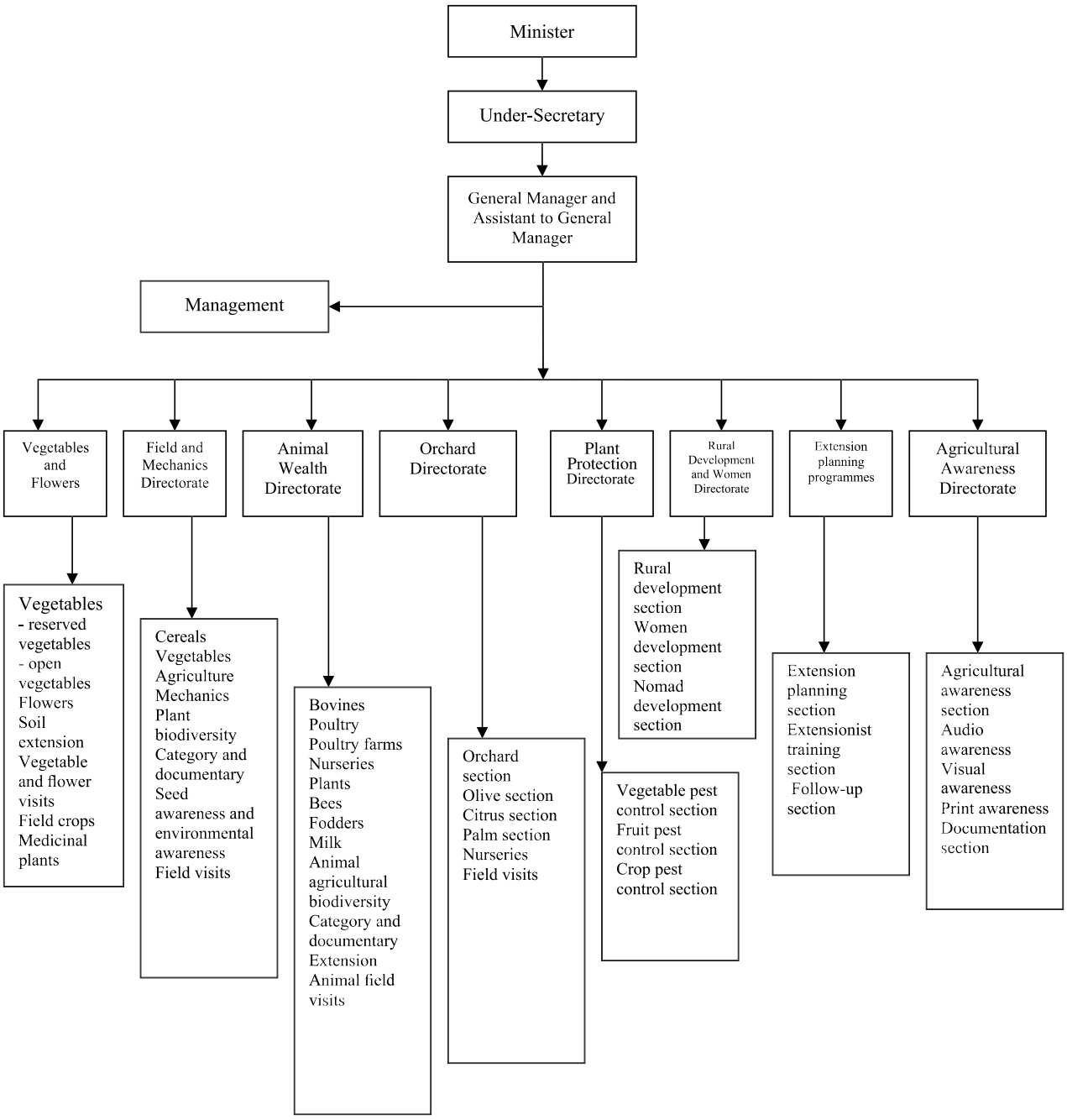
To achieve these ends, the government needs to:

1. Hold training in the planning of extension programmes to enable participants to design extension programme forms and their contents;
2. Design these forms with the participation of technical staff;
3. Compose a local committee in each governorate for each extension programme;
4. Identify sample sizes for each extension programme and its distribution to governorates;
5. Fill in forms with local committees;
6. Extract and analyse information to identify the main problems;
7. Establish a higher technical committee for each programme with a mandate to:
   - Set role model solutions identified through analysis;
   - Draft an extension message for the programme, to be printed and distributed to extensionists;
   - Prepare annual work plan proposals;
   - Identify research extension projects that the sector needs to solve its pressing problems.

Following such an exercise, future agricultural extension from the Ministry of Agriculture will have the following features:

1. Extension will be built on specialized programmes that address issues identified by the target audience. This will enhance the policies and strategies of research and extension regarding the involvement of target groups in identifying problems and solutions.
2. Agricultural extension will be directed to competitive products and those that make large contributions to agricultural exports (cash crops).
3. Extension messages will be standardized, and less irrelevant information will be sent to farmers.
4. There will be focus on training needs for extensionists so that they are able to communicate information accurately.

FIGURE 8 : Organization of agricultural extension in the Palestinian Territories



X. AGRICULTURAL EXTENSION IN SUDAN

Awatif Hussein KHALIL[12]

i. THE AGRICULTURE SECTOR IN THE SUDAN

The Sudan is endowed with considerable resources and has the potential to become a food surplus country. Currently, 20 million feddans (8.4 million ha) are under traditional rainfed agriculture, 15 million feddans are under mechanized agriculture, 4 million feddans are irrigated and the rest is uncultivated and used for grazing and forests.

Sources of irrigation water include: rain and wadis, which supply about 2 million m^3; the Nile and its tributaries, which supply 20.5 billion m^3; and underground water, estimated to supply about 2.2 billion m^3. Mechanized rainfed landholdings range in size from 1 000 to 100 000 feddans; the average size of landholdings in traditional rainfed farming is 5 feddans, and irrigated landholdings vary from 10 to 20 feddans.

The main crops are sorghum, cotton, groundnut, millet, Arabic gum, sugarcane, sunflower and various vegetables and fruits, mainly citrus, banana, mango, and medicinal and aromatic plants. Key farm inputs include agrochemicals, seeds, sacks and agricultural equipment.

Farm products are marketed at three levels: local, food security and export. Great efforts are being made to standardize the specifications of products for international markets.

Facilities for storing agricultural products include silos in Port Sudan and Gedarif and the Agricultural Bank of Sudan stores, which are scattered in most states. In addition, there are cold storage facilities for potatoes, sugar stores and traditional stores such as those at Matmura and Sweba.

The major policies affecting agriculture and rural development are food security, the protection and management of natural resources, and increased crop production through enhanced use of mechanization and certified seeds.

ii. AGRICULTURAL EXTENSION IN THE SUDAN

The main objectives of extension policy are to increase productivity, introduce new technologies and train personnel. Literacy among the women farmer clients of extension services – most of whom are in western Sudan – is 70 percent. In some of the rural areas where extensionists provide services there are good roads, transport facilities, electricity supply, communication facilities and telephones, in addition to State radio and television services that broadcast extension programmes.

Extension in the Sudan is mandated to:

1. Increase productivity;
2. Ensure sustainable agricultural development and food security;
3. Contribute to income generation and poverty elimination in rural areas;
4. Build the capacity of farmers.

Official supervisory and administrative staff are responsible for supervising field extensionists, as well as for carrying out administrative functions such as staff selection, salary administration, budgeting, financial management, programme evaluation and policy formulation.

An extension worker is expected to be a teacher, a facilitator, an organizer and a leader. Extensionists raise farmers' awareness of new research findings and technologies and contribute to adapting technology to local situations and conditions. The goal is to help farmers move through the adoption process to the

[12] Awatif Hussein KHALIL, Director of Agricultural Extension, Technology Transfer and Extension Administration,Ministry of Agriculture and Forestry - Sudan

point where they gain sufficient knowledge and skills, possibly changing their attitudes about the value of new technology. The objective is to improve farm practices that help to increase productivity and incomes and enhance the quality of life.

Financing of extension

The main source of funding for public extension services at the national level is the Federal Ministry of Finance; at the state level it is the state ministries of finance. Technology transfer and extension funds require 5 percent of the cost of each sack of product.

Institutional structures and staffing

Staffing is under requirements in both numbers and qualifications in terms of geographical distribution and numbers of farmers; in some states there is one extensionist to every 1 000 farmers, in others the number of farmers varies from 700 to 400, and for some projects it is 150, such as in the project to support and strengthen the role of extension and technology transfer in the traditional rainfed area of Sennar state.

The functional linkages for the adoption and transfer of new technologies between extension colleges and agricultural research centres are basic. The facilities available to staff performing extension tasks are transport, audiovisual equipment, training and funds, but all of these are below requirements.

In 1982, extension services were decentralized with the establishment of extension networks at the village level and the recruitment of extension staff at the state level. The negative effects of this are that financing for extension services has not been a priority and extension management has been weakened.

Actors in the extension services

The public institutions involved in delivering extension services are the Federal Administration of Technology Transfer and Extension, and the state and irrigated scheme technology transfer and extension administrations.

A number of NGOs also perform extension work; they make significant efforts to alleviate poverty through income-generating activities. International organizations such as FAO and IFAD provided support to extension programmes. Staff of NGOs are competent; most have experience of government extension, which they have moved out of because of the high salaries, incentives, good working facilities and overseas training that NGOs offer.

Preparation of extension professionals

Of the Sudan's 26 universities, 13 have agricultural colleges, but only a few of these have well-establishment extension departments: Khartoum, Sudan Polytechnic, El Gzeira, Juba, and Sennar universities.

These colleges offer high diplomas and B.Sc. and Ph.D. degrees. Extension is taught through lectures, and the ratio of theoretical to practical training is 2: 1. Extension programmes and training use audiovisual equipment, printed materials, radio, TV, overhead and slide projectors, cinema projectors, posters, films, leaflets, booklets and demonstrations.

Extension degree programmes are open to men and women who obtain the entry requirements and want to pursue careers in extension.

Career development

The salaries of extensionists are far lower than those of other professionals with similar educational qualifications, such as researchers. A newly recruited graduate extension worker earns only US$1 200 a year.

There are adequate opportunities to obtain training in the Sudan, but international training is very rare, except when it is part of a development project.

Capacity building of extension staff

The extension authority runs staff training programmes to train and upgrade the competencies of staff in performing the tasks related to their jobs. The objectives of training are to enhance competencies in technical subject matters and strengthen the educational process for skills that aid the delivery of programmes to appropriate audiences.

Orientation and on-the-job training are carried out to make new employees familiar with the practices and procedures of the organization and of their own jobs. Such training covers:

1. Rules and regulations governing the job;
2. Resources available to conduct specific tasks;
3. Administrative support to achieve work goals;
4. The social intention process, which helps employees to find job satisfaction;
5. Programme management, budget monitoring, etc.
6. Completion of extension programme forms;
7. Storing and retrieving information;
8. Utilizing the mass media.

The normal duration of training ranges from one to four weeks. The audiovisual equipment used in training includes overhead projectors, cameras, projectors, laptop computers and recorders.

iii. EXTENSION APPROACHES AND METHODOLOGIES

The most commonly used approaches are FFS, the T&V system, the integrated approach and the commodity approach. These approaches are selected for their impact on extension staff, farmers, stakeholders and productivity.

The planning, implementation and evaluation of extension programmes are assessed, and the results used to develop an agricultural methodology known as the integrated agricultural service programme. The impact of extension is measured through baseline surveys and impact assessment of the implementation of programmes.

iv. PROPOSALS FOR IMPROVING EXTENSION SERVICES IN THE SUDAN

Extension services in the Sudan could be improved by:

1. Allocating sufficient budget to carry out extension services at the appropriate time;
2. Providing audiovisual and communication facilities, and training extension staff to use these;
3. Providing transportation facilities;
4. Improving salaries;
5. Exchanging working knowledge of extension at the national and international levels.

XI. AGRICULTURAL EXTENSION AND DEVELOPMENT METHODOLOGY IN SYRIA

Darwish Al SHAIKH[13]

i. THE AGRICULTURE SECTOR IN SYRIA

The agriculture sector plays an important role in the Syrian Arab Republic and is the base for economic and social activities in the country. In the light of the development and modernization policy adopted by the President, the Ministry of Agriculture and Agricultural Reform aims to develop both the crop and animal production aspects of the agriculture sector, which at present contributes 25 to 35 percent of national income. The aim of this is to apply the latest technologies to achieve global food security and meet local needs for direct consumption or manufacturing, as well as to provide competitive products for export to Arab and other international markets.

ii. AGRICULTURAL EXTENSION IN SYRIA

Recently, the role of extensionists has been increasing in order to accelerate agricultural and rural development. This is reflected in Syria's efforts to develop extension units, increase their work efficiency and qualify technical staff so that they can contribute more to realizing national agricultural development goals.

The role of extension units is increasing in response to economic reform, organizational programmes and the introduction of concepts such as sustainable environments, biodiversity maintenance and the importance of target audience participation (rural people) in development programmes. Farmers are now facing the results of liberated agriculture and free market policies, and now need enhanced technology transfer and education in order to increase their production levels. Eventually, farmers' incomes will increase as a result of open competition and free market mechanisms. This situation requires the country to support and reform its agricultural extension system.

History of agricultural extension

Scientific extension started in Syria when the first agricultural secondary school, Al Salimia, was established in Hama governorate in 1910. Among the duties of the school's graduates were advising farmers on how to improve production levels and enhancing agricultural production in general and extension in particular.

There are now 49 agricultural and veterinary secondary schools in Syria, teaching a variety of subjects according to current needs. In addition, 32 institutes have been established where students study for two years after finishing secondary school. These institutes offer a variety of majors in agricultural and rural subjects.

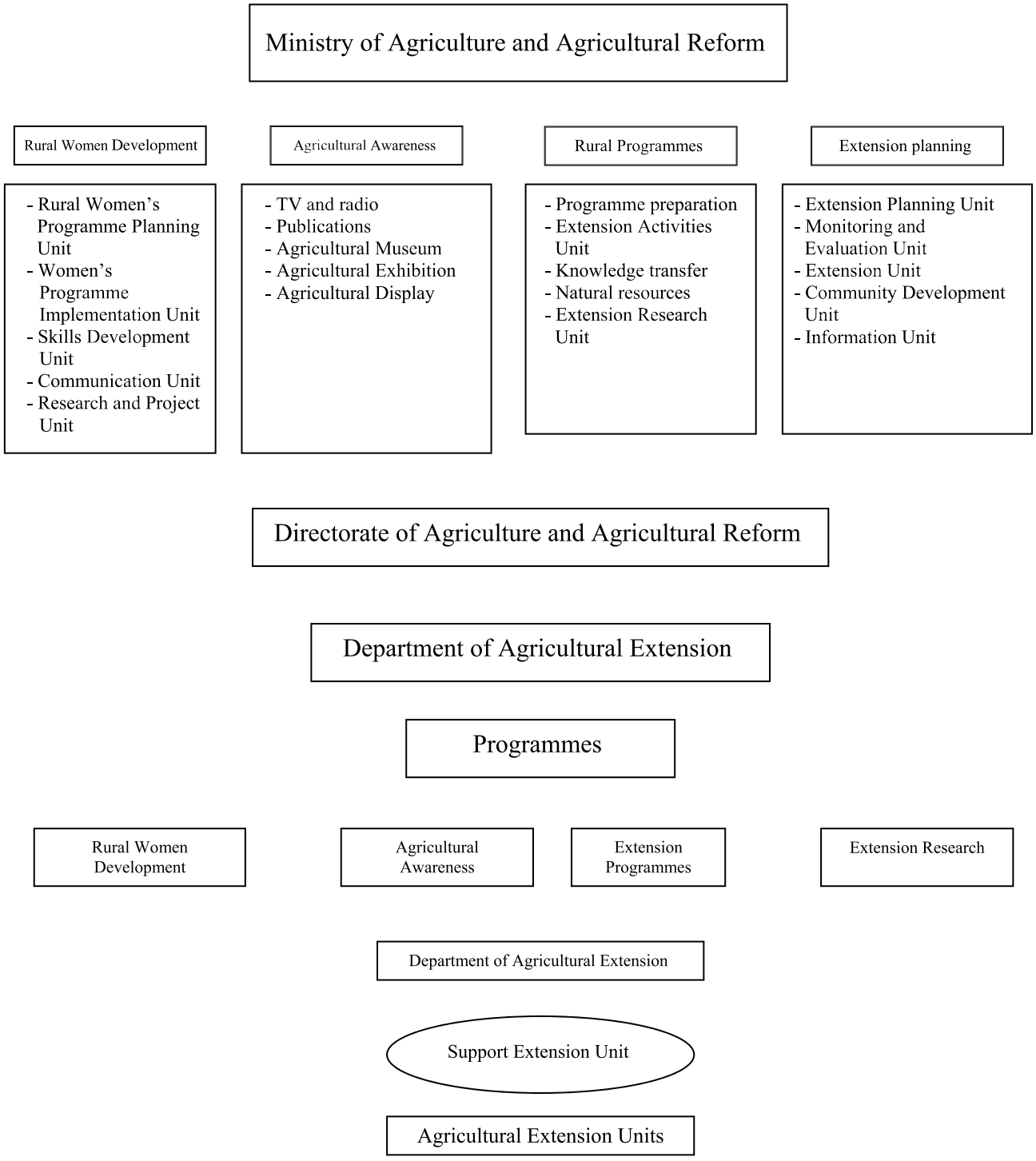
There are five agricultural faculties in Syria affiliated to the universities of Damascus, Halab, Tishreen, Albaath and Deir Elzor. These have provided the necessary agricultural and rural workforce, particularly in agricultural extension, which has been carried out by the Ministry of Agriculture since it was established in the 1940s.

In 1979, agricultural extension was given its own directorate, and started to focus on developing agricultural extension units to provide technical advice close to farmers. The directorate is the governmental authority mandated to communicate agricultural advice to farmers. It is also responsible for identifying problems and addressing these with research centres through the sound planning of extension programmes. The Directorate of Agricultural Extension has undergone a number of reforms to its organizational structure in order to meet changing needs over the country.

Figure 9 illustrates the organizational structure of the agricultural extension authority in Syria.

[13] Darwish Al SHAIKH, Director of Agricultural Extension, Ministry of Agriculture and Agrarian Reform – Syria

FIGURE 9 : Organization of agricultural extension in Syria



Duties of the Directorate of Agricultural Extension

The Directorate of Agricultural Extension is responsible for preparing, planning, following up on and evaluating agricultural extension programmes for both plant and animal activities. Such programmes aim to achieve development goals through the adoption of participatory approaches with farmers to identify their needs and the problems that hamper production. Technological aspects are addressed through coordination with specialized research institutions, which include the needs of extension in their research plans in order to provide solutions that can be transferred to farmers. As well as transferring research results, state-of-the-art agricultural technologies and new techniques to farmers, the agricultural extension system also provides training on the effective use of the new tools, and records farmers' feedback on and the impact of innovations in increasing and improving agricultural production.

Extension programmes, activities and field visits are organized in cooperation with the concerned authorities in Syria, as well as with agricultural scientific institutions, universities, international organizations, unions, private companies and the public sector. Joint programmes target the goal of realizing sustainable agriculture and rural activities. The directorate also cooperates with entities that are responsible for marketing agricultural products. It educates producers on obtaining access to local and international markets, and introduces them to marketing tools such as sorting, grading, packing and storing to meet consumers' needs, so that farmers get better prices at lower costs.

Rural leaders are identified and trained to show farmers how to apply the directorate's agricultural production plans, how to benefit from the agricultural services provided by the Ministry of Agriculture, the Agricultural Cooperative Bank and the entities that provide production inputs, and how to use new tools to achieve their own goals. Cooperation among farmers is encouraged though the promotion of cooperatives, producers' groups, the agricultural consortium policy and joint programmes. Production competitions are held to encourage farmers, and winners' fields are used as role models in extension activities directed at increasing yields.

Among its specialized extension activities are: 1) a programme to develop rural women and increase their participation in agricultural work and health, as well as projects to promote income-generating activities for women as a way of increasing family resources, backed by research and training; 2) programmes to support rural youth's participation in agricultural activities; 3) community programmes to enhance local communities' achievement of sustainable rural development; and 4) programmes to develop natural resources.

Other programmes are directed towards broadening extension work according to recent developments, and educating the public in the following areas:

1. Water extension on the rational use of irrigation, effective irrigation plans and use of the latest techniques in irrigation;
2. Protecting soil from degradation and maximizing its use through application of a package of techniques for land use, focusing on organic and chemical fertilizers and based on soil analysis results and the agricultural cycle;
3. Environmental extension through the development of environmental resources and the maintenance of soils through increasing plant coverage and limiting the cutting of trees;
4. Organic methods to combat pests while limiting the use of chemicals;
5. Marketing extension, farm and rural household management and consumption extension for agricultural production and rural consumption;
6. Agricultural polices and changes to local and international market economies.

The directorate prepares annual investment and work plans, including implementation timetables, which it follows up on to assess their timeliness and effectiveness in achieving goals. It encourages agricultural extensionists to settle in villages by providing them with housing, incentives and follow-up, which will eventually reflect positively on sustainable agriculture.

The extension service has the necessary audiovisual and computer equipment to establish integrated databases that help to indicate future extension work plans. It also designs special up-to-date software that is appropriate to improving extension work.

Methods used to increase agricultural awareness and support extension activities include:

1. Producing and airing TV and radio broadcasts for extension in cooperation with the General Authority of TV and Radio and the Arab Advertising Organization;
2. Producing and distributing information material for planned activities that meet the needs of farmers (publications, TV and radio broadcasts and local newspapers);
3. Renovating the agricultural museum to reflect all phases of agricultural development in Syria;
4. Organizing and participating in local and international fairs and agricultural conferences to introduce producers and other stakeholders to state-of-the-art agricultural methods and market products that have access to international markets;
5. Preparing and implementing agricultural shows that satisfy specific extension needs.

The development and modernization strategy adopted by the Syrian Government aims to improve production methods and involve all community members in the economic and social development process. This entails improving extension activities and supporting the extension system in villages through the establishment of village extension units. The following subsections describe some of the measures that have already been adopted.

Extension planning

The organizational structure and duties of the Agricultural Extension Directorate are being modernized to accommodate the latest developments and establish new departments and units according to decree No. 71 of 19 October 2002.

Extension Support Units have been set up by transferring 65 governorate extensionists (two or three from each governorate) to implement extension programmes according to the needs of each area. Under this scheme, agricultural research centres and extension centres collaborate to supply extension, technology transfer and training, in accordance with decree No. 379 of 22 March 2003, which stipulated the duties and goals.

A technical support committee has been established in each governorate to provide scientific information and advice. Each committee includes two delegates from agricultural extension, specialized authorities and farmers' unions in the governorate, one delegate from an agricultural research centre, and technical staff. According to decree No. 380 of 22 March 2003, these committees are mandated to study agricultural extension programmes and plans, provide for their needs and follow up in the field.

Among other outcomes of the extension development project is the provision of 9 898 motorcycles, 452 computers, water supply for 687 extension units, telephone lines for 650 extension units, electricity supply for 1 001 extension units, and 339 apartments for extension workers. The following training activities have been carried out:

1. 168 workshops on different subjects for technical staff in governorates (2 272 participants);
2. 146 workshops on plant production for farmers (2 594 participants);
3. 75 workshops on animal production for farmers (1 358 participants);
4. 515 workshops for women farmers, in cooperation with development projects (9 507 participants);
5. 15 workshops on crops for technical staff, in three phases (185 participants).

The capacity of extension units to work effectively has been increased by transferring some tasks from the agricultural authorities to the extension units. The aim of this is to facilitate extensionists' communication with farmers through the provision of agricultural licenses and crop cards, and through participation in analysis and control measures. Extensionists also compile statistics, and the work of agricultural authorities in extension is now limited to supervising the extensions units.

Monthly meetings are held for the heads of governorate extension units, with the participation of representatives from scientific research, the relevant authorities, universities, farmers' unions, engineers, etc. The aims of these meetings is to address the problems that face governorate-level extension.

A specialized workforce for extension has been provided through a ministry-level strategic plan to support specialized directorates for five years. From 2003 to 2007 there will be 24 specialists in agricultural extension, all of whom have Ph.D. degrees. These specialists work in the areas of:

1. General agricultural extension (ten);
2. Agricultural awareness (two);
3. Preparing and planning extension programmes (two);
4. Preparing and producing TV and radio broadcasts on extension (two);
5. Preparing and producing extension material (two);
6. Rural community development (two);
7. Marketing extension (two);
8. Statistical analysis of economic and social situations (two).

The following are the ways in which the Agricultural Extension Directorate has enhanced its computer and information technology capacities:

1. Two software programs have been developed. Marad includes information related to extension units, demographic area, soils and agricultural activities; and Labor includes information on the staff working in extension – workplace, current job, previous jobs, date of starting work, training, languages, etc. The two programs have been distributed to all Syrian governorates. Information is exchanged via intranets.
2. All information materials (457 extension newsletters) have been published on CD, and will be distributed to extension units and other interested parties in the agriculture sector.
3. The Directorate of Agricultural Extension is developing a mechanism to produce an agricultural magazine in printed colour and CD versions, in cooperation with the Information and Documentation Directorate.

Agricultural awareness

Agricultural awareness is being enhanced with a view to developing rural communities in general and agricultural ones in particular. Agricultural awareness uses public extension activities to communicate information and technologies to farmers at the grassroots level, in order to educate them on new tools through information material such as TV, radio, advertisements, newsletters, agricultural exhibitions, the agricultural museum and displays.

In cooperation with specialists at the agricultural research authority, universities and specialized directorates, a total of 457 newsletters, 15 quarterly agricultural magazines, 28 extension education publications, 16 stickers and 64 flyers have been produced.

TV and radio activities include "Agricultural Extension" and "World of Agriculture" on Channel One, which broadcast videos twice a week (Saturdays and Tuesdays) and replace the previous "Towards a better Agriculture". Other extension videos are broadcast, and there are morning and evening radio transmissions during "With Growers in the Field". In 2003, a total of 180 extension documentaries had been produced, along with 45 episodes of "World of Agriculture" and 47 of "Agricultural Extension".

Every year, 365 radio episodes are produced (one a day). The Directorate of Agricultural Extension's documentaries have won a number of awards; most recent of these is an honour award of the arbitrators at the 2003 AgroFilm Festival in Slovakia. Work is under way on a new agricultural museum.

The Directorate of Agricultural Extension organizes local exhibitions and festivals and takes part in international exhibitions to market products, where it informs other participants about the agricultural development achieved in Syria. Among the exhibitions organized by the directorate are the Central Agricultural Exhibition, held annually in Damascus since 1991, and specialized agricultural exhibitions held in governorates. These latter include exhibitions on grapes and apples in El Sawidia governorate, citrus in Lazkia and Tartous governorates, olives in Adlb governorate and nuts in Hama and Halab governorates.

The directorate also takes part in the following local agricultural exhibitions:

1. The agriculture section of the Syria stand at Damascus International Fair;
2. The International Flower Fair in Damascus;
3. Golan Flower Fair in El Kantara;
4. El Basal Fair for Innovation in Damascus;
5. The Agricultural and Industrial Fair in Halab;
6. Agritex Fair in Damascus;
7. The Communication Technology Fair in Damascus.

Internationally, it participates at agricultural fairs such as Berlin Green Week, the Saudi Agricultural Fair, Syrian Products in the Gulf, and the Expolivia olive oil fair in Spain.

Another tool used by the Directorate of Agricultural Extension to transfer information to farmers in a very simplified manner is agricultural theatre. Plays are put on in the governorates according to monthly plans. The plays address important seasonal issues for farmers, and 75 are staged annually. This activity is highly appreciated by the farmers and Arab and other international delegations that have participated. The delegations stressed that Syria is unique in using this interesting extension activity. Members of the agricultural theatres have been invited to visit and perform in Jordan, the Sudan and other countries.

Extension programmes

The directorate has set up a mechanism for preparing extension programmes that apply participatory methods to educate farmers on how to solve the technical problems facing production and how to use the latest agricultural technologies. Meetings are held with research authorities at all unit and country levels to analyse extension programmes, evaluate their performance and identify technical problems, in order to develop research plans according to the priorities of extension. The following activities have been carried out:

1. Ten extension programmes for strategic crops and animal husbandry have been prepared;
2. 153 extension field days have been held (108 on cotton, 35 on sugarbeets and five on silkworm);
3. 837 public extension workshops have been held (attended by 21 339 technical staff and farmers);
4. 193 field days have been attended by a total of 10 988 technical staff and farmers.

In addition, production competitions have been held to encourage and award the producers of 16 major crops and animal resources. These competitions have had a total of 9 118 participants, 738 of whom won prizes.

The Directorate of Agricultural Extension collaborates with other entities on a wide range of activities, including implementation of field activities, experiments, cooperation and extension programmes. Among these are a series of joint scientific cooperation programmes with ICARDA to:

1. Select barley with the participation of farmers in the governorates of Hama, Halab, Adleb, Al Raka and Al Hasaka, expanding into Daraa and El Swaida;
2. Transfer technology for the selection of lentils and mechanical-harvesting in Daraa, Hama, Halab, Al Raqa, Al Hasaka and Adleb governorates;
3. Apply field experiments to select other crops in the Al Hamara area of Hama governorate;
4. Introduce fodder crop agricultural workshops in Al Bab, Hama governorate;
5. Participate with the Halab extension section to prepare a study on improving goats and increasing farmers' incomes in northern Syria;
6. Undertake a joint study on goats in Daraa, Rural Damascus, El Swaida, Al Qantara, Homs, Hama, Halab and Al Ghab governorates;
7. Cooperate in selecting technologies, such as water harvesting and the introduction of fodder crops, in Kansher valley, Halab governorate;
8. Cooperate in the Annual Central Agricultural Fair;
9. Provide extensionists with materials to prepare newsletters, flyers and agricultural magazines;
10. Produce TV agricultural documentaries.

It is also cooperating with the Forestry Directorate on an environmental tourism project, and with the Ministry of Environment on the National Project for Combating Desertification, for which it carries out national awareness campaigns to educate local communities on natural soil, water and forest resources.

Development of rural women

Through the Department of Rural Women's Development, the Directorate of Agricultural Extension prepares plans and implements extension programmes to increase awareness of gender issues and to ensure that women are included in the sustainable rural development process. This is in addition to educating women on their social, economic, political and legal rights. These initiatives lead to improved living standards in rural villages and increased sources of income by introducing women to income-generating activities and training them to use loans efficiently.

Some of these projects are implemented in cooperation with local and international organizations. For example, the Rural Families Development Project is implemented in cooperation with the General Authority for Combating Unemployment, the Ministry of Agriculture and the Agricultural Bank. It aims to improve rural living standards, provide job opportunities and develop capacities. Since the project began, five agreements have been signed providing 50 200 job opportunities from 38 685 family businesses, at a total cost of 3 800 billion Syrian pounds (LS).

The Wadi El Khabor Development Project is a collaboration between the Ministry of Agriculture and the General Authority for Combating Unemployment. It will be carried out in the low Khabor villages in Al Hasaka and Deir El Zor governorates with the aim of increasing rural families' incomes. Training workshops will be held with a view to improving agricultural production and living standards.

The Support to Small Growers and Goat Farms Project in vulnerable and arid areas is being implemented in collaboration with the Ministry of Agriculture, the State Planning Authority and the United Nations World Food Programme (WFP). Its objectives are to achieve food security for poor rural families in arid areas and to involve women effectively in economic and social development. The Directorate of Agricultural Extension applies activities including illiteracy, vocational training and income-generating activities for rural women in cooperation with the General Federation of Women and the Directorate of Adult Learning in the Ministry of Culture. Among projects that have been carried out so far are 81 illiteracy workshops for 1 863 rural women and 31 skills workshops for three months, attended by 713 rural women.

The Technical Network of Small Projects implemented in cooperation with the Ministry of Agriculture and the United Nations Development Fund for Women (UNIFEM) aims to ensure access to economic resources for women in the Arab region by developing technical skills and gender awareness in institutions that support small projects. Projects have been carried out to:

1. Study gender indicators for small projects and programmes in Syria;
2. Establish a database on rural women's work in small-scale income-generating projects;
3. Hold local and international seminars and workshops for technical network members;
4. Hold three training courses on establishing small-scale income-generating projects for rural women.

This last project held a workshop in Jordan in July 2003 to assess achievements and set proposals.

In 2003, in cooperation with the United Nations Children's Fund (UNICEF), 24 training workshops were organized for rural women in El Zor governorate; 252 rural women participated.

In addition, 15 training workshops were held for rural women in El Raqa, El Hasaka and Deir El Zor governorates to develop skills in animal husbandry and milk production; 360 rural women participated. Other extension activities were organized for rural women in cooperation with the Ministry of Health's Village Health Project.

The Rural Women's Development Section has implemented the following studies and research initiatives:

1. Field research on the gender gap in rural women's participation in agricultural work;
2. Field research on a training manual for girls;
3. Field research on a small projects manual for rural women in Hesaka governorate;
4. Studies of rural women's awareness of their legal rights;
5. Strategies for rural women's resources management and food security;
6. Studies of rural women's participation in productive activities and projects;
7. Field research on the social and economic situation of Bedouin families in El Badia development project;
8. Social and economic research in El Raqa, Deir El Zor, Al Haska, Adleb and Halab governorates;
9. Studies on enhancing the role of NGOs in developing rural communities.

Extension staff

Since 1981, agricultural extension units have been established throughout Syria to enhance the availability of extensionists to solve farmers' problems and provide advice. Some 986 new extension units have been established, in addition to the existing ones, bringing the total number of working extension units to 1 043. Budget resources are allocated for the establishment of up to 30 new units a year, according to the Ministry of Agriculture's agricultural development strategy.

In 2003, these units were staffed by a total of 2 020 male agronomists, 956 female agronomists, 1 979 agricultural monitors, 562 veterinarians and 4 267 veterinary monitors, in addition to 1 247 full-time workers and 972 casual workers. This amounts to an overall technical staff of 12 003.

Table 4 indicates the numbers of agricultural extensionists from 1990 to 2003. Table 5 shows the numbers of extension units from 1981 to 2003.

TABLE 4 : Extension staff, 1990 to 2003

Staff	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Male agronomists	1 721	1 696	1 880	2 161	2 045	2 388	1 988	2 042	1 931	1 928	1 882	1 864	1 934	2 020
Female agronomists	406	418	438	522	514	599	597	718	722	748	760	784	876	956
Veterinarians and veterinary monitors	545	579	583	796	1 083	1 389	1 573	1 774	2 108	2 310	2 441	2 935	3 776	4 829
Agricultural monitors	403	430	509	586	865	883	952	932	932	871	823	995	1 925	1 979
Total	**3 075**	**3 126**	**3 410**	**3 035**	**4 507**	**5 259**	**5 110**	**5 522**	**5 693**	**5 857**	**5 906**	**6 578**	**8 521**	**9 784**

TABLE 5 : Numbers of new extension units established, 1981 to 2003

Governorate	1981	1982	1983	1984	1985	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Rural Damascus	3	9	13	9	6	0	0		1	1	0	0	1	1	0	2	1	2	3	2	**51**
Homs	3	9	13	9	16	0	6		0	2	2	0	1	1	2	1	2	2	2	3	**74**
Hama	3	7	9	6	10	0	6	3	0	3	1	0	1	1	3	4	4	2	7	3	**73**
Halab	4	12	14	12	20	13	15		0	0	3	0	1	1	1	0	2	2	1	2	**103**
Adleb	3	7	12	7	11	0	5		0	1	2	1	1	1	1	1	1	4	3	2	**63**
Lazkia	3	9	13	7	13	0	15	2	0	3	2	1	1	0	1	0	3	2	2	2	**80**
Tartous	3	9	13	7	13	0	9	8	1	2	2	1	1	0	1	2	2	3	3	2	**82**
El Raqa	7	9	13	9	12	13	10		5	3	3	2	1	0	0	0	1	1	1	2	**92**
Deir El Zor	9	7	13	10	21	0	15		0	2	1	2	1	3	1	1	2	3	1	2	**94**
Hasaka	7	10	13	11	19	13	20		0	4	5	0	0	2	1	2	1	2	2	2	**114**
Daraa	4	8	12	6	10	0	0		0	0	0	0	0	0	0	0	0	2	0	1	**46**
El Swaida	4	8	12	6	10	0	0		0	0	0	0	0	0	0	0	0	5	0	1	**46**
Qantara	1	2	2	1	0	0	0		0	0	0	0	0	0	0	0	1	2	1	1	**11**
Ghab	0	2	7	4	7	0	0		0	2	2	2	2	1	1	3	3	4	2	1	**48**
Total	**52**	**115**	**160**	**105**	**168**	**39**	**101**	**13**	**7**	**23**	**23**	**9**	**12**	**12**	**13**	**18**	**24**	**36**	**29**	**27**	**986**

iii. OVERVIEW OF AGRICULTURAL EXTENSION IN SYRIA

Constraints

At present, agricultural extension in Syria suffers from the following constraints:

1. The multi-supervisory role of extension units is overburdening them.
2. Extension units in agricultural authorities and villages lack means of transport.
3. There is a lack of specialized technical and extension labour.
4. The extension entity is being made instable and extension activities are being hampered by frequent staff reassignments within and outside extension.
5. There are few incentives to encourage extension work in rural areas, compared with other areas.
6. Agricultural extensionists are unevenly distributed across governorates and cannot cope with the volume of extension work.
7. The decree that regulates training (Decree No. 33) needs to be revised to meet training needs.

8. The governorates of Haska, Al Raqa, Deir El Zor and the eastern area of Halab lack extensionists.
9. Extension suffers from low education levels, especially among the elderly who are decision-makers.
10. Women have inadequate participation in development and decision-making processes.
11. Landholdings are small owing to heritage system and dependency on collective work.
12. There is little awareness of the importance of local community involvement in the development process.

Proposals for developing agricultural extension

More attention should be paid to extension units by organizing visits to identify work problems and propose solutions. The number of extension units should be increased to cover all agricultural sections in the country, and each unit should have one – and preferably two or three – cars in order to meet its working needs.

Newly graduated engineers should receive technical training in agricultural extension at research and agricultural centres before joining extension units. Extensionists should receive international training in aspects of agricultural extension at appropriate centres in other countries and regions.

Greater stability could be achieved for extensionists and extension activities by:

1. Not reassigning staff without approval from the heads of the agricultural extension departments at the governorate and central levels;
2. Providing daily subsistence allowances (DSAs) to extensionists on field visits, as well as monthly overtime payments;
3. Obtaining the necessary inputs from the extension entities concerned, according to previously set programmes.

Staff should be redistributed among the extension units in order to achieve a balance among all areas and units in each governorate, according to the volume of agricultural work in each area. Decree No 33 should be amended to provide DSAs to trainers and trainees for transport and accommodation costs. New agronomists should be employed in governorates that lack extension staff, and extension units should be provided with sufficient funds to maintain their buildings, especially the old ones.

Future extension programmes will focus on issues related to:

1. Applying the latest irrigation techniques;
2. Environmental protection and ways to maintain natural resources and sustainable development;
3. Marketing extension, and improving quality and post-harvest operations (sorting, grading, packing), as well as participation in local and international marketing fairs for both imports and exports;
4. Enabling rural women and youth to participate in community development programmes;
5. TV and radio documentaries about important animal and plant products, reflecting developments in Syria;
6. Participation in agricultural film festivals;
7. Cooperation with local and international organizations in projects and income-generating activities to improve living standards and income in rural communities.

The following is an outline of how best these developments can be achieved:

1. Village survey: to identify problems and the use of technology.
2. Preparation of village extension programme.
3. Preparation of extension unit programme.
4. Preparation of extension department programme.
5. Preparation of governorate extension programme.
6. Preparation of national extension programme.
7. Programmes for the current season based on results of the previous season.

XII. AGRICULTURAL EXTENSION IN TUNISIA

Mongia MAHJOUBI[14]

i. THE AGRICULTURE SECTOR IN TUNISIA

In recent years, Tunisia has undergone a number of reforms related to agricultural production and the use of natural resources with the aims of developing a competitive production sector, contributing to food security, boosting sustainable development and conserving natural resources. These reforms are in line with the development goals for the agriculture sector identified in the Tenth Master Plan.

The total area of agricultural lands in Tunisia is estimated at 10 419 million ha, of which 4 908 million ha are under cultivation (47 percent). The cultivated land is distributed into 4 627 million ha in private ownership and 218 100 ha of common lands. In terms of land use, tree planting ranks first at 2 137 850 ha, followed by cereals at 1 505 000 ha, fodders at 432 000 ha, vegetables at 142 720 ha, and others, including plantations, at 21 620 ha.

In November 2003, the total volume of water in dams was estimated at 1 455 million m^3; 500 million m^3 are used annually to irrigate 370 000 ha of land, representing 7.3 percent of cultivated lands – of which 264 000 ha are equipped with irrigation tools.

Total imports for the last ten years are estimated at nearly 1 134.1 million dinar (D): cereals D 371.39 million; potatoes D 124 million; and milk and dairy products D 34.7 million. Exports are estimated at D 531.1 million: fishery products D 134.6 million; dates D 97.4 million; pastries D 12.0 million; and olive oil D 55.7 million.

The total volume of investments in agriculture and fisheries during 2003 is estimated at D 862 million, representing 11 percent of total investments in the national economy and comparing well with the previous year's D 822 million – an increase of 5 percent. A larger increase, of 9 percent, was expected for 2004.

Growth of the agriculture sector in 2004 was 0.3 percent, to produce 17 million kintar (quintal) of cereals; 850 000 tonnes of olive oil, 240 000 tonnes of pastries, 345 000 tonnes of potatoes, 850 000 tonnes of tomatoes, 990 000 tonnes of milk and 105 000 tonnes of fish products.

Olive oil, citrus, date and fishery products are the main agricultural products in the national economy for internal and external markets.

An assessment of development in the agriculture sector over the past 30 years shows that investments in infrastructure and the use of natural resources have not been adequate to enable Tunisian products to compete with foreign products, especially regarding trade with the European Union. Agricultural development relies on farmers' competency, so agricultural extension has a significant role to play.

ii. AGRICULTURAL EXTENSION IN TUNISIA

Recently, the administrative authority for extension has undergone several changes and developments, including the establishment of vocational institutions. The extension system has been revised in light of the Master Plan for Extension, which was set by the National Programme for Developing Extension. This was implemented by the Extension Support and Agricultural Scientific Research Project funded by the World Bank since 1991. At present, 90 percent of extension is provided by the government's Agency for Agricultural Extension and its agricultural development units.

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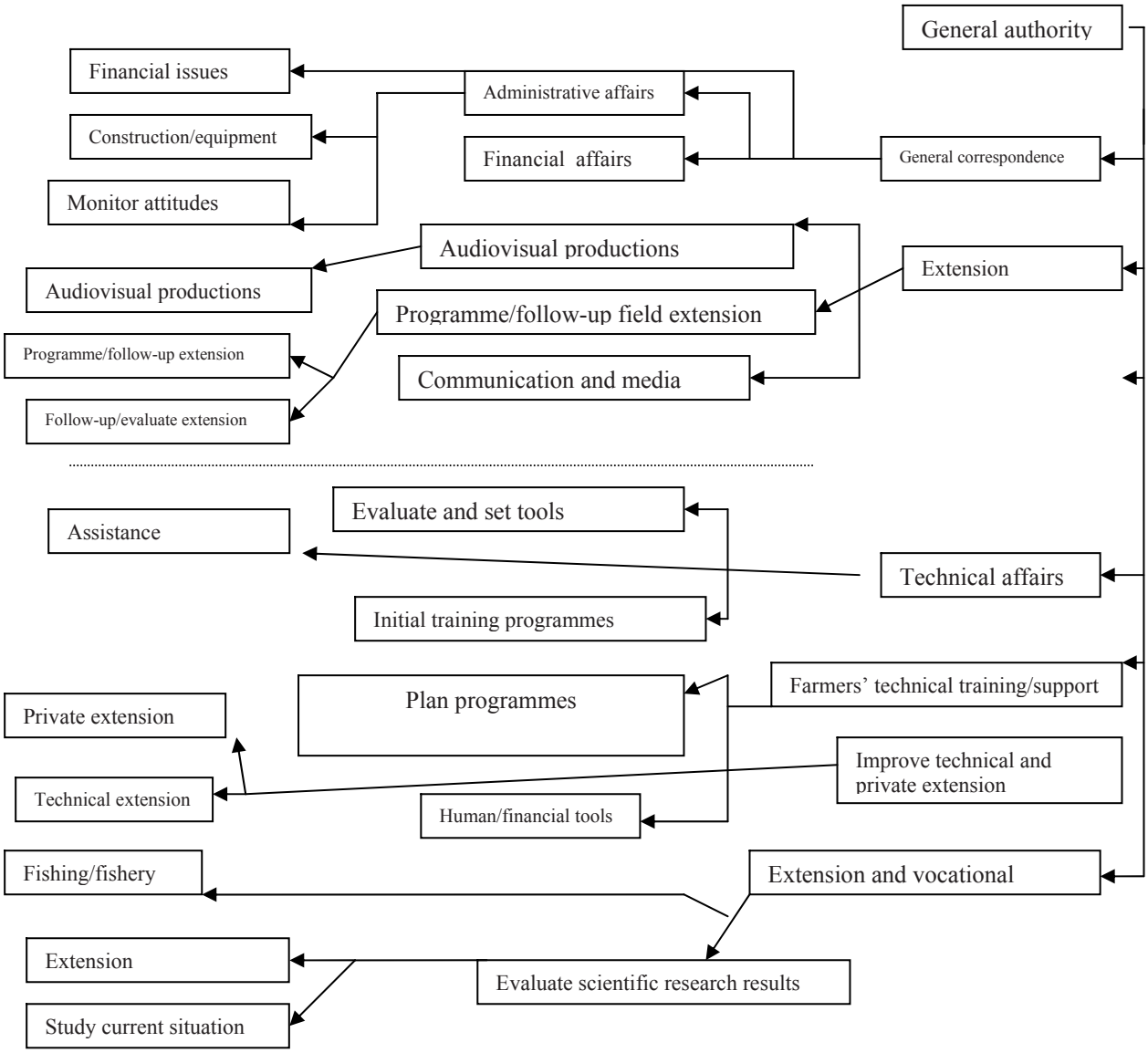
Central-level structure

Extension is carried out by three technical departments affiliated to the Agency for Agricultural Extension: the Extension Operation Department, the Vocational and Private Extension Department, and the Extension and Information Unit for Sea Fishing. These departments are responsible for programming, following up and coordinating field extension, producing audiovisual materials and publishing newsletters.

FIGURE 10 : Organization of agricultural extension in Tunisia



The work of these departments is carried out by 37 staff members:

1. One general engineer;
2. Two chief engineers;
3. Five senior engineers;
4. Seven operations engineers;
5. Three technicians;
6. Three technical assistants;
7. 16 Staff.

District-level structure

Field extension is carried out in districts from:

1. 24 coordination units, which coordinate extension activities in each province;
2. 183 extension field cells, distributed all over Tunisia;
3. 844 agricultural centres, representing the main base of field extension.

The field extension authority employs 841 staff members as shown in Table 6.

TABLE 6 : Extension staff

Staff		Chief engineer	Senior engineer	Veterinarian	Operations engineer	Technician	Technical assistant	Technical worker	Worker	Total
	Men	-	5	-	5	21	10	-	4	**47**
	Women	-	1	-	4	9	13	-	3	**30**
	Men	1	36	4	113	-	-	-	-	**166**
	Women	-	3	-	2	-	-	-	-	**5**
	Men	1	-	-	-	6	367	17	10	**580**
	Women	-	-		1	4	8	-	-	**13**
Total										**841**

Clients

Table 7 shows the client base for agricultural extension in Tunisia.

TABLE 7 : Extension clients

	Male	Female	Total
Landowning farmers	444 666	26 400	471 000
Tenant farmers	185 330	43 580	228 910
Hired labour	476 490	433 000	909 490

Extensionists are trained in the latest technical and research developments. Over the past year training courses have had equal numbers of men and women.

iii. EXTENSION METHODS AND TOOLS

The methods applied encourage producers' participation in identifying needs and formulating extension programmes. In general, extension campaigns aim to improve strategic sectors, as well as promoting the conservation and sustainable use of natural resources. Extension activities revolve around information days, field visits, applied training, best practices, audiovisual demonstrations, technical newsletters, and general and specialized publications.

At present, the main activities carried out by the Agency for Agricultural Extension are preparing monthly and yearly extension programmes; implementing programmes with appropriate tools; and following up on agricultural seasons, assessing needs, surveying natural resources and issuing loans. Extensionists themselves regard these last as a burden that hampers their work.

At present there are few extensionists in the field because of a lack of transport facilities and because many extensionists have been given assignments that take them away from their extension activities.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN TUNISIA

Achievements

Using the mechanisms and follow-up of the Agency for Agricultural Extension, district-level extensionists provide a field programme that provides an annual total of:

1. 3 500 information days for 43 000 farmers;
2. 2 300 applied training courses for 19 300 farmers;
3. 500 best practice demonstrations for 3 100 farmers;
4. 60 field visits for 700 farmers;
5. 186 000 individual field visits.

The work of the Agency for Agricultural Extension is at present limited to raising farmers' awareness on methods to improve production and using the services provided. Every year, it produces:

1. 180 TV advertisements (three days/week);
2. 365 daily radio lessons in "Always Cultivate the Land";
3. 48 radio episodes in cooperation with the Tunisian TV and Radio Authority and the Tunisian Federation for Agriculture and Fishery ("Land of Blessings");
4. 144 radio news broadcasts;
5. 12 technical newsletters for extensionists.

These programmes include messages related to agricultural and fishing activities, particularly regarding strategic products, as well as to maintaining natural resources and using them optimally.

Among the main clients of agricultural extension for associations are the Tunisian Federation for Agriculture and Fishery, vocational associations, farmers' associations, and associations involved in private extension.

Problems

Despite the developments made by the Agency for Agricultural Extension during recent years, it is still facing a number of problems that limit its performance and prevent it from contributing fully to the country's development process. These include problems at both the agency and field extension levels:

1. Lack of human resources at the central and district levels;
2. Extensionists' involvement in activities that are not related to agricultural extension, which prevents them from undertaking all their extension tasks;
3. Too many extension programmes for the available extension staff;
4. Lack of a specialized framework for extension, which results in extensionists being sent into the field before they have been properly trained to deal with specific situations; .
5. Poor research in extension.

Proposed solutions

Extension services in Tunisia could be improved by:

1. Improving assignments by allowing extensionists to undertake extension work only;
2. Providing means of transport to each field cell and agricultural centre;
3. Filling in the gaps in extension at the central and district levels;
4. Matching the volume of programmes with the current resources for carrying them out, so that extension programmes can be effective in addressing district priorities and goals for strategic sectors, including intensifying the work in irrigated areas;
5. Improving the role and image of extensionists to encourage farmers to become involved in the extension system;
6. Supporting links between research and extension;
7. Including features of the new extension in advertisements and documentaries.

v. REFERENCES

General Authority of Agricultural Planning and Development. 2002/2003. Survey on follow-up agricultural season.
Agency for Agricultural Extension. Information.

XIII. AGRICULTURAL EXTENSION IN TURKEY

Ahmet Müfit ENGIZ[15]

i. THE AGRICULTURE SECTOR IN TURKEY

Turkey is a major European tourist destination with the rapid development of both summer and winter resorts. Agriculture also plays a very important role in the Turkish economy. The main crops are wheat, rice, cotton, tea, tobacco, hazelnut and fruit. Sheep are the most important livestock, and Turkey is a major wool and cotton producer. The principal minerals extracted are coal, chrome (an important export), iron, copper, bauxite, marble and sulphur. Industry is developing rapidly for the processing of agricultural products, textiles and the manufacturing of automobiles and agricultural machinery.

The country has maritime and continental climates, with semi-arid, humid and almost arid rainfall patterns.

Historically, the agriculture sector has been Turkey's largest employer and a major contributor to GDP, exports and industrial growth. Agriculture still accounts for a relatively large share of total output and employment, but this share has tended to fall over time. As the country develops, agriculture has declined in importance relative to the rapidly growing industry and service sectors.

Turkey's agriculture is dominated by the crop subsector (see Table 8), which currently represents almost 70 percent of the agriculture sector; livestock represents 22 percent, and the rest is forestry and aquaculture. Only 16 percent of Turkey's 27 million ha of arable land is under irrigation; rainfed agriculture is the most common. The major problems facing Turkish agriculture are small farm sizes and fragmented land; there are about 4 million farm households, and about 24 million people dependent on agriculture for their livelihoods.

TABLE 8 : Cultivated Crops

Cereals	Wheat, barley, maize, rice, oats, rye
Industrial crops	Cotton, potato, sunflower, sugar beet
Perishables	Vegetables, fruits
Pulses	Chickpea, lentil, dry beans, peas
Forage crops	Clover, sainfoin, vetch
Edible nuts and dried fruits	Hazelnut, pistachio, sultanas (raisins), dried figs, dried apricots

Turkey's rural development policies as set out in the National Programme should be integrated into social and regional policies with the aim of establishing social and economic balance and providing cultural diversity. Rural development policies are directed at ensuring benefits to agriculture and the farming population in rural areas.

ii. AGRICULTURAL EXTENSION IN TURKEY

Extension approaches

The conventional extension system is characterized by a technology transfer approach as opposed to facilitating farmers' participation in technology development and dissemination. It does not attempt to target specific groups of farmers, and uses mainly face-to-face communication with little use of mass

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media. Linkages to research are weak. Extension agents provide mainly advice, and some activities such as demonstrations.

T&V extension has been introduced in Turkey on a pilot basis in 16 towns through the Agricultural Extension and Applied Research Project. Reorganization of extension at both the town and village levels under the T&V system placed emphasis on a cadre of subject matter specialists who have research and training functions in addition to extension functions.

Involvement of women in farming

Today, although the role and significance of women in development vary according to the social structure and level of development of the society, women have equal or even more burden and responsibilities than men in every field of life. The gender concept, which was disregarded or insufficiently included in legal regulations until recently, has become one of the most important social subjects under discussion. Women are now side-by-side with men in every field, including politics, management, social and economic activities, agriculture and industry.

Infrastructure and facilities

All villages have electric power, access to public TV channels, as well as private and satellite TV, telephones – mobile phones are very common – and roads that are generally in good condition.

Preparation of extension professionals

There are 19 agricultural colleges with five departments each, and 16 veterinary colleges, ten fisheries colleges, ten food engineering colleges, and eight forestry colleges with three departments each. In addition, there are 292 professional vocational schools teaching 45 different agricultural subjects. At the high school level of agricultural training there are 18 agricultural vocational schools under the responsibility of the Ministry of Agriculture and Rural Affairs, and seven handicrafts training centres.

There is no significant difference between the numbers of men and women acquiring extension degrees. Undergraduate degrees are offered in rural sociology, introduction to agricultural extension, and agricultural extension and communication. Postgraduate degrees are offered in evaluation in agricultural extension, rural development, diffusion and adoption of technological innovations in agriculture, advanced agricultural extension, and research methods in rural sociology.

Training is more theoretical than practical and includes lectures, group discussions, case studies, demonstrations, and visits to other institutions. Teaching aids include audiovisual equipment and information technologies.

Career development in extension

Career development for extensionists in the Ministry of Agriculture and Rural Affairs is equivalent to that for other professionals in the ministry in terms of conditions of service, benefits and in-country and overseas training. Criteria for promotion include experience and period of service, with differences among geographical regions.

Regular training programmes for staff are conducted two to five times a year; the duration of these ranges from one or two weeks to two or three months. Feedback and evaluation of training has started recently.

Teaching techniques used are lectures, demonstrations, role play and focus group interviews. Audiovisual aids and information technologies are available in all provinces and large towns.

Extension mandate

The current organization of extension in Turkey is divided into two main parts: central organization in the capital, Ankara; and town and village organizations. Extension services in the towns are the first links of the extension chain out of the capital. The last links of the chain are the village extension services, which reach rural communities through village extension workers. The basic goals of village

extension services are solving agricultural and rural problems in the area, collecting basic farming data to feed back to research institutes, and disseminating technology to farmers.

Most funding comes from the national budget, but some recent extension activities performed by volunteer village consultants have been funded by private organizations.

Institutional structure and staffing

The Ministry of Agriculture and Rural Affairs has enough staff for general extension activities; however, in order to provide more specialized extension services it needs more qualified staff with higher salaries, and better promotion opportunities for staff working in underdeveloped areas such as mountain villages.

The organizational structure for providing extension services in the public sector is illustrated in Figure 11. These services are performed by official agencies and financed by the government; their main characteristics are that 100 percent of financing is met by public funds and the actors are civil servants.

Some extension services are performed by commercial organizations, such as for-profit agricultural inputs and food processing companies and private advisers. There is mutual interest between farmers and the providers of these services, so they are fairly effective.

Other extension services are performed by farmers via their own organizations. Farmers' organizations do not aim for profit but to serve the sector that they represent, so their extension services are completely problem-oriented, which increases their efficiency. This is the most desirable method of agricultural extension because all or part of the costs are met by the organizations, so public funds can be switched to other fields.

Extension services are also performed through mass communication such as television, radio, press, exhibitions and fairs. These can draw large audiences and aim to make people aware of the services and to provide them with necessary information. They are very important because they provide up-to-date information that is needed in extension.

Extension services performed by voluntary organizations do not aim for profit and are carried out by foundations that are farmer-oriented.

The YAYCEP project

According to the YAYCEP project plan, farmers were to be trained in two main areas – animal husbandry and vegetable production. A total of 209 educational broadcasts were aired on TV, addressing the following subjects: feeding and breeding of cattle, sheep, goats and poultry; apiculture; sericulture; freshwater fishing; agricultural mechanization; agronomy; fruit production and viticulture; vegetable gardening; and landscape gardening. The broadcasts were prepared by the staff of the Ministry of Agriculture and Rural Affairs and Turkish Radio and TV. Each programme was on a specific subject and included a lecture, related graphics and relevant documentary films. To supplement the instruction, farmers were given books related to the subjects prior to the broadcasts. These books were published by the ministry's subject matter experts. At the conclusion of the broadcasts, participating farmers were examined by a multiple-choice test. Those who successfully completed the exams were given a certificate by the Ministry of Agriculture and Rural Affairs. They were also given monetary rewards or agricultural equipment for their successful participation.

iii. EXTENSION APPROACHES AND METHODOLOGIES

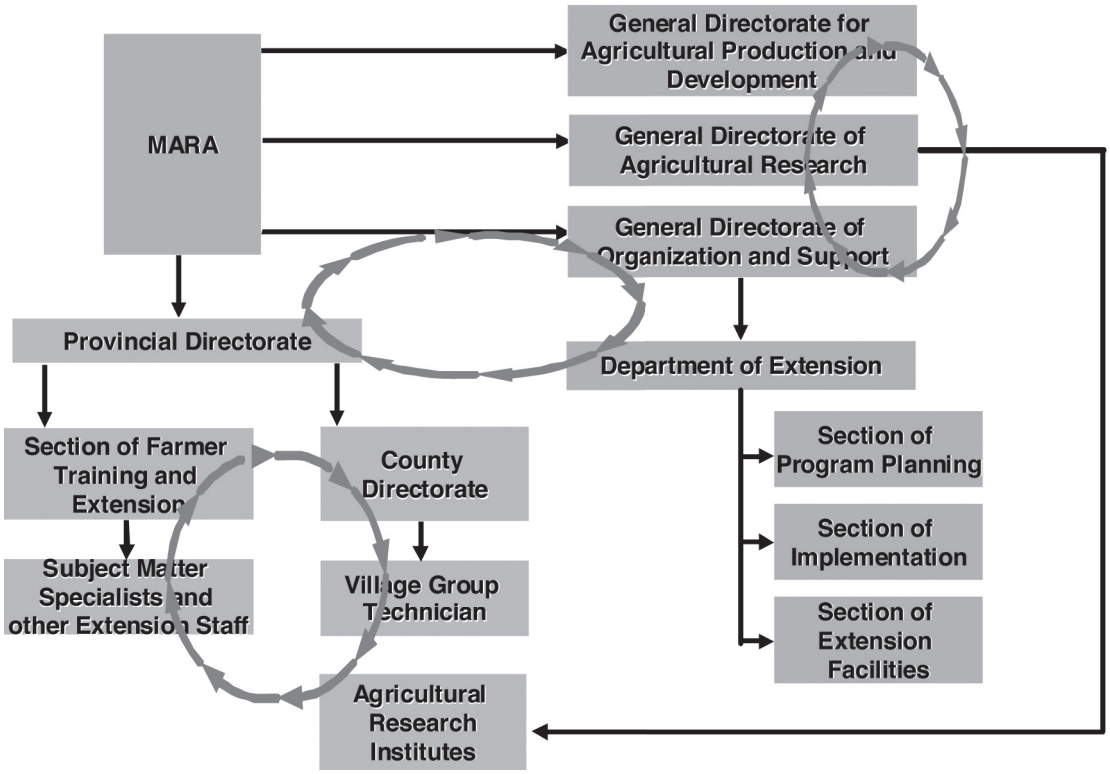
Farm visits, demonstrations with lecturing, and field days are the most commonly used methodologies owing to their simple and easy application. About 500 000 farmers have participated in extension training activities. Every year, 150 000 books, 50 000 booklets, 150 000 journals, 100 films, 1 500 radio and TV broadcasts, 500 000 newspapers and a total of 25 000 courses are produced for extension training purposes.

In some regions (e.g. western and southern parts of Anatolia), men and women farmers have adopted participatory approaches for extension programme planning, implementation and evaluation as a result of volunteer work undertaken by male and female university students.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN TURKEY

In the words of Margaret Mead: "All changes should be introduced with the fullest consent and participation of those whose daily lives will be affected by the change".

FIGURE 11 : Organization of agricultural extension in Turkey



XIV. EXTENSION SITUATION IN YEMEN

Mansour M AL-AQIL[16]

i. THE AGRICULTURE SECTOR IN YEMEN

The Republic of Yemen has an estimated population of 20.36 million people (2003), which is growing at a rate of 3.5 percent – one of the highest in the Middle East. About 73 percent of the population live in rural areas. The geographic area of Yemen is 555 000 km^2, ranging from coastal plains to highlands, which consist mostly of barren rock. Annual rainfall is usually in the range of 100 mm to 500 mm, but reaches up to 1 200 mm at higher altitudes. Scarce and diminishing supplies of freshwater restrict the annually cultivated area to 1.3 million ha, including 320 000 ha that is irrigated from spate flows or groundwater, and 1 million ha that is rainfed.

Agriculture occupies a dynamic position in the Yemeni economy, contributing 14.34 percent of GDP and 6 percent of foreign currency income.

Yemen contains by far the most fertile land in the Arabian Peninsula. Agriculture has always been extensively practised in the coastal plains, the Wadi, the highlands and the eastern plateau. The cultivated croplands comprise 1.3 million ha, with an overall intensity of 0.75. An additional 2 million ha of marginal lands are cultivated during years of high rainfall. Woody vegetation and shrubs cover about 3.3 million ha, rangelands cover 16 million ha, and the remaining land consists of rocky and desert lands.

In 2003, the total number of holdings was estimated at more than 1 million. Most of these are in the highlands, followed by the coastal areas; the eastern plateau is the least endowed region in terms not only of number of holdings but also of agricultural resources.

According to the rainfall, the availability of water for irrigation, the altitude and the temperature, the country has tropical, sub-tropical and temperate agriculture. The main commodity groups are cereals, industrial crops, vegetables, fruits and livestock. Cereals are grown on about 60 percent of the cultivated land; sorghum and millet cover 80 percent of this. The main industrial crops are sesame, cotton and tobacco and the main vegetables are tomato, potato, cucurbit and onion. Fruits produced include grape, banana, papaya, almond, walnut and dates. Livestock include sheep, goats, cattle and poultry.

Among the countries of the Arabian Peninsula, Yemen has a unique climate and landscapes; the topography varies from sea level in the western and southern coastal plains to altitudes of more than 3700 m in the northwest mountains. Yemen is classified into five major geographical regions:

1. The coastal plains;
2. The western mountain highlands;
3. The eastern plateau;
4. The deserts;
5. The island of Socotra.

Yemeni agriculture is characterized by the diversity of its climatic features, especially rainfall, temperature and humidity, and topographical conditions. This has led to a diversity of plant regions and accordingly has helped to diversify production. However, the reliance of some regions on rainfed agriculture affects the sustainability of agricultural production and contributes to poor productivity per unit area. Other regions depend on groundwater, cisterns and dams, spate irrigation, water springs or streams.

Yemen is considered an agricultural country by virtue of its natural and environmental features compared with the surrounding areas in the Arabian Peninsula and Gulf. Agriculture's significance in the Yemeni economy is reflected in the policies and investments that the government undertook during the 1970s and 1980s, which played a considerable role in growth of the agriculture sector. There were noticeable

[16] Mansour M AL-AQIL, Director General of Agricultural Extension and Information, Ministry of Agriculture and Irrigation - Yemen

increases in the outputs of fruits and vegetables, which were a result of protection and support as part of government policy to protect local production until Yemen became self-sufficient in these crops. However, there was no similar increase in cereals production, especially that of wheat – the cultivated area and productivity of which declined. There was also no coincidental change in production of other field crops (such as maize).

There were, however, relative improvements in the production of animal feed and livestock, both qualitatively and quantitatively, and in their associated farming systems. Despite this, there was only minor change in these systems, which clearly indicates the poor linkages between agricultural production on the one hand, and external production factors – particularly social and economic factors – on the other.

Water resources determine which specific agricultural systems can be applied. *Rainfed systems* are the most prevalent, accounting for 53 percent of the total cultivated area. In medium-rainfall areas, the cultivation of maize and sorghum prevails; whereas animal fodder cultivation prevails in the coastal plains. In the mountain plains, wheat, barley, maize and lentils are grown, while in high-rainfall areas of the highlands and in terraced mountain areas, maize, wheat, barley, some legumes and fruits are cultivated, as well as coffee and qat.

Irrigated systems include groundwater, runoff and spring irrigated systems, which together account for 47 percent of the cultivated area: groundwater irrigation for 30 percent, spate irrigation for 12 percent, and spring water irrigation for 5 percent. The crops grown in these systems vary according to the crop system applied, which is determined by the environmental features of each region. Crops include field and horticultural crops, and fodder crops for the feeding and raising of livestock.

ii. AGRICULTURAL EXTENSION IN YEMEN

The role and position of agriculture in Yemen are crucial because of the increasing need for agricultural products, the large population active in the agriculture sector and its contribution to GDP. The Government of Yemen therefore supports the development of instruments such as research and extension that increase agricultural production sustainably.

Since 1980, the need to organize and coordinate research and extension work has been felt increasingly. During the first half of the 1980s, the Agricultural Research Authority (ARA) and the Directorate of Research and Extension (DRE) were established to meet the extension needs of Northern and Southern Yemen, respectively. During the institutional restructuring of the unified Yemen, ARA, DRE and part of the General Directorate of Agricultural Extension and Training (GDAET) were merged in May 1990 to form the Agricultural Research and Extension Authority (AREA).

Before unification

The period up to 1970 was characterized by inadequate attention to agricultural extension in relation to the use of research results. Extension work was left to agricultural and other officers who had not been trained for such duties and had been recruited for tasks other than extension.

In 1970, a United Nations agricultural research, extension and training project was the starting point for the development of agricultural extension in Yemen. This led to establishment of DRE within the Ministry of Agriculture. The project also yielded a number of interesting research findings, but use of these results was limited to the level of individual farmers.

In the 1970s and 1980s a number of international projects were implemented to support the further development of agricultural extension. Among these were projects implemented by UNDP, the United Kingdom's Overseas Development Agency (ODA), the United States Agency for International Development (USAID), the German Agency for Technical Cooperation (GTZ), China and the Netherlands. The focus of most of the projects was on improving the performance of research, with less attention being paid to extension. Among the many activities undertaken were the provision of additional research facilities, but the linkages between research and extension remained weak.

ARA was established in 1983 by Presidential Law No. 32. The organizational set-up of ARA included a special unit for extension activities and technology dissemination called the Communication, Training and Documentation Section (CTDS). CTDS started to function in 1984 with the recruitment of a FAO expert. CTDS started to set up a number of extension activities, such as training of extension staff, seminars and workshops, visits between farmers and ARA, and improving the linkages between extensionists and researchers.

The period before unification was characterized by the following:

1. Research was developing in terms of obtaining more facilities and providing research results.
2. Research activities were mostly commodity-oriented and not directly responsive to farmers' problems.
3. Extension was developing slowly because of the limited attention it received.
4. Extension tried to provide farmers with new research results, but these often failed to suit the farmers' situations.

After unification

AREA was created as part of the restructuring of the government institutions of the united Yemen in May 1990. In addition to its mandate for research, the former ARA was assigned the central function of policy orientation and technical back-stopping for the extension system, based on the experiences of DRE and the country in general. With the transfer of the extension component from the former ministries, agricultural training and, gradually, agricultural information were also shifted to the new Extension and Training Division (ETD) within AREA.

Some of the first activities that ETD undertook were meetings and workshops to clarify its own role and position. Activities undertaken in the early 1990s can be summarized as follows: assessing training needs, helping to identify research priorities, developing linkages between research and extension, and carrying out overviews of the facilities and resources needed by extension.

Recent extension projects

ASMSP: This World Bank project started implementation in 1993 with the aim of improving agricultural research and extension in Yemen. The research part focused on improving the structure and functioning of the research department and stations of AREA. The extension part aimed at improving the extension situation by supporting ETD's efforts to make extension in Yemen more effective and efficient.

ETC: The Extension Training Component (ETC) started implementation in 1993, focusing on institutional development within ETD and related organizations. The second implementation phase from, 1998 to 2000, put greater emphasis on supporting extension agents at the field level to become better extensionists.

FSA: The research component of ASMSP supported introduction of the farming systems approach (FSA). FSA is based on a particular arrangement of farming enterprises (cropping, livestock, etc.) that are managed in response to the physical, biological and socio-economic environment and in accordance with the farmers' goals, preferences and resources. This approach therefore views the farmers as an integrated whole, and describes the unit(s) in this context. It recognizes various enterprises, such as crops, livestock or trees, as components of the farming system for fulfilling the household needs and objectives of farming families.

The starting point in agricultural research should therefore be adequate understanding of the priorities within farmers' needs and objectives, how the farmers are currently fulfilling these, what prevents them from fulfilling them, and what opportunities they have to improve household income while using natural resources in a sustainable manner. FSA uses tools such as participatory rural appraisal (PRA) and formal questionnaire surveys to obtain a good understanding of the farming system under study. The principles, concepts and methodologies are applied to both on-station and on-farm research and extension activities and ensure that all stakeholders are jointly involved in the process of technology

development and dissemination.

RIP: The Rapid Impact Programme (RIP) was introduced within the framework of ASMSP in 1996. RIP aimed to prove the value of AREA in general and of its research results and technologies in particular. It was a technology dissemination outlet rather than a research activity or programme. A number of readily available technologies had to be introduced to the farmers' fields and the farming community through demonstrations and field days. The concept was quickly formulated and implementation started promptly, as the required financial resources were readily available from the ASMSP fund contracted to ICARDA under its Research Component. In general, as the name of the programme implies, the main purpose of RIP was to show tangible results of technologies generated by AREA and the research programme. RIP was also on the one hand a joint activity at the AREA headquarters level between the research component and ETD, and on the other hand a participatory activity at the field level for all concerned parties, especially farmers, researchers and extensionists. RIP focused on rainfed farming communities, especially on crop varieties. RIP, and later on the Generalized Rapid Impact Programme (GRIP) mechanism, introduced an easier way of funding and managing research activities. Researchers have therefore had a chance to revive their professional activities. Extensionists involved have been also motivated.

GRIP: The RIP programme was followed by GRIP, which put more emphasis on on-station research and on-farm researcher-managed trials. During implementation of RIP it was recognized that both these types of research should be continued so that technologies are always available to farmers. It is also necessary to establish a system of linking problem identification, on-station research and researcher- and farmer-managed on-farm research in one technology generation and dissemination continuum. It was therefore decided to expand the scope of RIP to include on-station and on-farm researcher-managed activities.

Extension mandate

The principle objective of agricultural extension is to improve the standard of living of the rural population by increasing its awareness, through training in the proper utilization of available resources to ensure sustainability, and upgrading its ability to use modern agricultural technologies. Extension is the source for introducing and spreading technology, leading to an optimum utilization, maintenance and innovation of resources, and protection of the environment. It should be recognized that the extension services represent the main link between research institutions and the target groups.

The Yemeni extension service must have a clear aim, which has also to be known and understood by all extension staff members in Yemen. Other organizations in the agricultural network should also be informed about this aim. The national extension strategy provides relevant inputs. Its main elements are:

1. Contributing to the increase and improvement of farming households' and rural families' well-being;
2. Improving farmers' knowledge and skills on the rational use of natural resources to ensure sustainability of these resources and protection of the environment;
3. Increasing productivity in plant and livestock in a manner that ensures the sustainability of natural resources;
4. Increasing community participation and encouraging rural leaders in extension activities.

The national strategy demands the following roles and tasks for the extension service:

1. Work with small farmers and poor rural families;
2. Rational use of natural resources (water, soil, forests and range);
3. Direct extension to cover different production systems;
4. Work with prioritized commodities;
5. Activities related to rural women's development and home economics;
6. Participation in national campaigns to control crop and animal diseases;
7. Introduction and promotion of integrated pest management;
8. Coordination and cooperation with NGOs in the agriculture sector;
9. Continued delivery of extension messages.

The national strategy recommends that the extension approaches used take into account:

1. Available resources in the extension agencies;
2. Sustainability;
3. Government policies and strategies;
4. Agro-ecological conditions prevailing in the area;
5. Prevailing farming systems;
6. Needs and capacities of the target groups.

Based on observations made while preparing this case study, and on additional experiences, the author would like to emphasize that the national extension strategy should also pay special attention to the process of privatization that is taking place, the diversification and segmentation of target groups (especially between rainfed and irrigated farming) and a good structure and management of the extension services.

The extension organization will operate more effectively and efficiently once the lines of command from the extension agents at the grassroots level to ETD and the ministry have been formulated and implemented more effectively. This will support extension agents at the field level in planning, implementing, monitoring and evaluating their extension activities.

Combined with the characteristics of a well-structured and well-functioning extension organization, it is recommended that attention be paid to the following aspects in developing agricultural extension in Yemen:

1. Participatory extension planning;
2. Integration and effective use of the whole agricultural network and its various organizations;
3. Gender sensitivity translated into effective communication with all categories of farmers;
4. Client orientation, including (small) payments for services and products;
5. Active involvement of farmers, extension workers and researchers in developing extension messages;
6. Effective use of modern information technology;
7. Well-defined tasks, based on objectives/purposes;
8. Consideration of the farm as a system;
9. Market orientation at all levels;
10. Agro-ecological zoning;
11. Integration of governorate-level strategies;
12. Use of a balanced mix of extension methods and means.

Agricultural training centres

At present, there are three operational regional agricultural training centres (ATCs) at Ja'ar/Abyan, Taiz and Seiyun. These offer training courses for various target groups, such as farmers, cooperative members and leaders, women farmers, field extension agents, local leaders, farm assistants and technicians, other agricultural employees, and workers and labourers. The Cooperative Training Institute in Aden also offers short training courses on farm-related issues, mainly to the members of cooperatives.

All of these centres offer a range of courses covering such subjects as plant protection, soil and water, horticulture, crop production, mechanization, beekeeping, management, extension programme planning and evaluation, communication, marketing and accounting. However, social and economic aspects are very rarely addressed, with the exception of the national ATC. Most of the training centres have no full-time trainers; they therefore seek outside resource people either from AREA researchers – as is usually the case – or from teachers at agricultural faculties.

The relationships among the ATCs are unsystematic and confined to limited cooperation in the use of training facilities, the joint organization of some courses and personal contacts. No regular coordination and meetings take place among the centres. The attempt to formulate a National Agricultural Training Strategy in early 1999 failed, but the first step has been taken. A special committee formed by the Minister in early 2000 is now pursuing the effort.

Agricultural educational institutions

While ATCs play an important role in the in-service training requirements of target groups, agricultural educational institutions (AEIs) play a crucial role in the pre-service training requirements of future agriculturists. However, unlike the ATCs, which provide job-related and more specific skills and – to a lesser extent – knowledge, these are mainly academic, general and theoretical institutions. There are now five agricultural faculties at Lahj, Sana'a, Dhamar, Hadramout and Ibb. In addition to their regular academic teaching, some of these offer short-term training for different target groups on different subjects; among these are the Faculty of Agriculture, Aden University (Nasser College, Lahj) and the Faculty of Agriculture, Sana'a University, which also has its own ATC with facilities.

Some of the teaching staff of the faculties are former AREA staff who have become full-time academics. Other AREA staff members are part-time teachers at one or more of these faculties. This is one of the links through which farm research technology could penetrate the curricula of these institutions to reach potential future users. There might also be other links such as personal relationships between researchers and teachers at AEIs, particularly regarding common interests such as specialty and professional development aspects.

The teaching staffs of the faculties serve as referees for the *Yemeni Journal of Agricultural Research and Studies,* which is published by AREA. The review and evaluation of research papers and articles is an important channel for the exchange and dissemination of research results. Teachers could utilize the information they come across in these materials to enrich the contents of their own educational materials. In addition, although academic teachers have little involvement in extension and technology promotion activities, they do sometimes perform such role by taking their students on field trips.

At the institutional level, the deans of the agricultural faculties of Aden and Sana'a are members of the AREA Board of Directors. Similarly, the Chairperson of the AREA Board is a member of the College Council for the Faculty of Agriculture at Sana'a. These kinds of link are not technical, but purely structural or formal. They are infrequent because the councils and boards meet only occasionally. Nevertheless, they are important because they bring together influential people: policy and decision-makers whose decisions can enforce change and promote advancement in the desired direction.

These links, whether formal or not, are conducive to the exchange and dissemination of research information. These and other possible linkages between AREA and AEIs need to be developed, improved and encouraged.

Extension finance

The extension services in Yemen were established with the assistance of foreign donors through either loans or technical assistance. At present, there are no clear operational costs for field extension activities and there is no recognized procedure for extension budgeting.

iii. AGRICULTURAL EXTENSION POLICIES

The following are the main policies guiding agricultural extension at present:

1. Improving the institutional structure of agricultural extension through restructuring and through providing the means that enable extension to upgrade farmers' knowledge of advanced techniques in agricultural production, in terms of production and optimal use of agricultural resources, in order to reach the desired level of efficiency;
2. Strengthening the ties between agricultural extension and research to help the transfer and dissemination of modern and improved technologies, communicating to farmers the technical recommendations issued by agricultural research, and communicating the farmers' problems to agricultural research so that appropriate solutions can be found;
3. Activating joint planning for extension programmes, so that farmers can participate in the identification of problems and appropriate solutions and the adoption of recommended modern techniques;
4. Developing the monitoring and evaluation system, to promote the development of extension programmes that meet the urgent needs of farmers;
5. Involving the private and cooperative sectors in different agricultural fields;
6. Strengthening the ties between agricultural extension and other relevant institutions, in order to coordinate activities and make use of the available resources in these entities for backing the extension mission.

iv. OVERVIEW OF AGRICULTURAL EXTENSION IN YEMEN

The need for extension is increasing in Yemen as a result of the following factors:

1. Limited and underutilized cultivable area requires the efficient use of land and expansion into new areas that are cultivable but not cultivated.
2. Inefficient utilization and poor management of natural resources is leading to their deterioration and loss. This is clearly demonstrated by continuous land degradation, soil erosion, groundwater depletion, salinity, etc.
3. Population growth rates that are higher than the growth rate of agricultural production pose a serious threat to self-sufficiency and food security. This requires serious efforts to increase productivity per area unit.
4. New farm technologies are being spread across the country before farmers have learned how to apply them. Negative consequences have resulted from the misuse of new technologies such as chemicals, machinery and new seeds and seedlings. Intensive and continuous awareness and information campaigns are required to improve the use of new technologies.
5. There is a constant flow of new information, technologies and techniques relating to agriculture and allied fields and aspects in rural areas.
6. The nature of agricultural work and production is changing in response not only to climate and other natural conditions but also to policies, market conditions, institutional arrangements, etc.
7. The government emphasizes the necessity for people to participate in the development process, especially since the Law of Local Administration was approved. In addition, there are a number of other issues of concern to the Yemeni government and international organizations, such as women's involvement and gender sensitivity, environmental and development sustainability, and population education and reproductive health.

ANNEX I

AGENDA OF THE REGIONAL WORKSHOP ON OPTIONS OF REFORM FOR AGRICULTURAL EXTENSION IN THE NEAR EAST

Saturday, 2 October

09:00 – 09:30	Registration
09:30 – 10:00	Opening Plenary Session (statements by Host Government, CARDNE and FAO)
10:00 – 10:30	Coffee break
10:30 – 13:00	Introduction of participants Presentation of workshop objectives and programme Agricultural extension in the Near East: challenges and opportunities (May Hani, FAO). Global developments in agricultural extension and options for reform (M. Kalim Qamar, FAO) Discussion
13:00 – 14:30	Lunch break
14:30 – 17:00	Overview of extension systems in the Near East: a regional study (M. Shaker, and M. Kassem, AERDRI) Discussion

Sunday, 3 October

9:00 – 10:30	Experiences from member countries (country presentations)
10:30 – 11:00	Coffee break
11:00 – 12:30	Experiences from member countries (country presentations)
12:30 – 14:00	Lunch break
14:00 – 15:30	Working groups session I (based on country presentations, identification of specific aspects in national extension systems for reform)
15:30 – 16:30	Plenary presentation of conclusions of working groups session I, followed by discussion

Monday, 4 October

8:30 – 10:00	Wording group session II

10:00 – 11:00	Plenary presentation of conclusions of working groups session II
11:00 – 12:15	Open session on extension queries/How to request FAO assistance (Kalim Qamar and May Hani)
12:15 – 13:30	Recommendations/The way forward
13:30 – 14:00	Wrapping up (feedback from participants and closing statements from CARDNE and FAO

ANNEX II

LIST OF PARTICIPANTS
REGIONAL WORKSHOP ON OPTIONS OF REFORM FOR AGRICULTURAL EXTENSION IN THE NEAR EAST

2-4 OCTOBER 2004 AMMAN

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