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Science for resilient livelihoods in dry areas

Developing a Policy Framework for Agricultural Extension Systems in Tunisia

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List of Acronyms

A4D	Agriculture for development
AVFA	Agence de la Vulgarisation et de la Formation Agricoles
BTP	Brevet de Technicien Professionnel
CAP	Certificat d'Aptitude Professionnelle
CC	Certificat de Compétence
CRA	Centre de Recyclage Agricole
CRDA	Commissariat Regional de Développement Agricole
CTV	Cellule Territoriale de Vulgarisation
GDA	Groupement de Développement Agricole
ICARDA	International Center for Agricultural Research in the Dry Areas
INAT	Institut National Agronomique de Tunisie
INRAT	Institut National de la Recherche Agronomique de Tunisie
INGC	Institut National des Grandes Cultures
INPFCA-Sidi Thabet	Institut National Pédagogique et de la formation Continue Agricole de Sidi Thabet — Tunisia
IRESA	Institution de la Recherche et de l'Enseignement Supérieur Agricoles
NAESP	National Agricultural Extension Services Priority
NGO	Non-governmental organization
SMSA	Société Mutuelle de Service Agricole
SYNAGRI	Syndicat des Agriculteurs de Tunisie
SWOT	Strengths, weaknesses, opportunities, and threats
TAES	Tunisian Agricultural Extension System
UTAP	Union Tunisienne de l'Agriculture et de Pêche

Key Messages

Abstract

The Tunisian government is facing many challenges in delivering effective extension services to communities across the different regions within the country. Therefore, in the face of declining natural resources linked to overutilization, population growth and climate change, national extension services need to review their priorities and reform their modes of service delivery. New extension approaches need to emerge locally, based on experimentation, learning, and adaptation to prevailing as well as evolving conditions.

It is within this context that the proposition of a policy framework was developed, aimed at providing the national extension service and other actors with strategic guidance towards allocating resources and information where they are critically needed most. This approach is designed to meet the needs of final end users, who face an increasingly complex and evolving production and market environment. The policy framework adopted an analysis based on secondary information and interactions with key stakeholders involved in the extension information chain within the government, non-governmental organizations (NGOs), and the private sector.

The discussions and interactions suggest that extension staff should receive appropriate training to carry out their duties. They also reveal that scarce resources can be used more effectively through partnerships with the private sector and use of information and communication technologies where appropriate. From the interactions, it is critical to note that monitoring and evaluating the performance of extension service delivery, based on stakeholder feedback, is also crucial in ensuring that extension staff skills remain relevant to extension services' end-user's needs.

Keywords

Agricultural extension; extension system; system delivery; policy framework; SWOT; Tunisia.

Highlights

- We concisely review and assess the proficiency of agricultural extension systems in Tunisia, through analyzing and defining their priorities.
- We characterize the main benefits of formulating a new development policy framework for agricultural extension system delivery in Tunisia.
- We identify the national priorities and roles of extension systems and how they should be established.
- We identify the main elements for a new extension delivery system model, necessary strategies and interventions needed to support it, and how to operationalize it.
- We highlight the accompanying measures for implementation, which guarantee that extension services are delivered effectively to the end users (farmers).
- We provide key practical recommendations to ensure the successful implementation of this new extension model.

1. Introduction

1.1 Background

Agricultural extension (also known as agricultural advisory services) is a crucial, non-formal educational function involved in bolstering agricultural productivity, increasing food security, and improving rural livelihoods by acting as a mechanism for pro-poor economic growth (Rivera and Qamar 2003). Extension, through its use as a tool for rural support services and promoting and facilitating development, is critical in meeting new challenges agriculture is confronted with: changes in the global food and agricultural system, including the rise of supermarkets and the growing importance of meeting international standards; growth in non-farm rural employment and agribusiness; constraints imposed by climate change; market volatility; the deterioration of the natural resource base change; and other challenges that affect rural livelihoods (Aker 2011).

In terms of organizational structure, the Tunisian Agricultural Extension System (TAES) has been in existence for decades and is elaborate in its contents and coverage. It covers a wide range of functions, regions and activities, using large quantities of both written and audiovisual extension material to convey messages to farmers (Sioud 2014). While elaborate in its administrative structure, the TAES is nevertheless elementary in its conceptual nature and has a number of limitations that are inherent to the nature of the agricultural activities themselves. These limitations include: a lack of information on rainfall dependence, marketing channel functioning and power; the scattered nature of farms across different climatic regions; and the limited size of these farms. Dealing with these factors is critical to improving farming for farmers, as the factors negatively affect the profitability and, therefore, the economic viability of agricultural activities. Consequently, the demand for extension services by farmers is limited, localized, restrained and mostly public-incentive induced, resulting in extension service delivery being ineffective in bringing efficient support to farmers.

Improving the impact of extension services in Tunisia is dependent on how successful policy makers will be in designing ways, measures and instruments for relaxing the constraints that limit the profitability and overall attractiveness of investing in agricultural activities. These constraints include adapting to weather variability, restrictiveness of land tenure systems, market power, labor management issues, etc. The attractiveness of agricultural activities is also dependent on how effective an extension system is, as critical agricultural information needs an efficient knowledge transfer system so that end users (the farmers) can benefit from it. Consequently, agricultural extension is critical as it contributes to the evolution of the agricultural sector and the mobilization of resources towards investment in agriculture (Judd et al. 1986; World Bank 2014). It also stimulates a potential increase in agricultural production to enable better outputs to meet the challenges imposed by an ever-changing climate and the demands of an increasing human population (Ragasa et al. 2016). Therefore, in order to operationalize and employ the full potential of extension services, there is a need to invest significant efforts in information dissemination and training to enhance the knowledge and know-how of the majority of producers in the agricultural sector. This way, there will be an improvement in the performance of rural populations' principal source of income, and also an increase in the overall contribution toward eliminating poverty.

In order to be effective and positively influence the agricultural production of both commercial and smallholder farmers, agricultural extension needs to move toward addressing certain reforms. Such reforms need to ensure that: better links between farmers and input and output markets are created; the vulnerability of farmers to disasters such as droughts is mitigated; the voice of rural poor smallholder farmers through knowledge transfer is enhanced; environmental conservation is improved through better management; and farmer organizations are strengthened. While the transfer of technology and knowledge skills is important to farmers, it is also necessary to strengthen the relevance of locally available innovative processes and knowledge systems, such as locally developed resource management strategies and locally adapted crop varieties. In this sense, agricultural extension needs to find flexibility and embrace a broadened mandate that has nominally always existed yet has rarely been implemented. The limitations of a single model of approach in extension activities for addressing different scenarios needs transforming, giving rise to an increased realization that new extension approaches should emerge locally, based on experimentation, and learning from and adapting to prevailing circumstances.

The need for this new and expanded view of extension is clearly emerging in the case of Tunisian agriculture, where there is an increase in the degradation of natural resources, an unfavorable price regime for inputs, low-value addition (particularly in rural areas), and increasing competition from the import of agricultural commodities. Thus, farmers find themselves in an increasingly complex production and market environment, while lacking the necessary information and technical services to equip them to cope with these challenges. It is within this framework that this Working Paper discusses the challenges faced by extension reforms in promoting a learning-based approach, especially in public bodies where processes of transformation clash with prevailing organizational cultures.

1.2 Purpose of the research

In the face of declining resources, national extension services need to review their priorities and modes of delivery. A policy framework that provides a national extension service, and other actors, with strategic direction will help to ensure that resources are directed to where they are needed most, in line with farmers' needs and national priorities. It is within this context that this framework is developed to ensure that: extension staff receive the appropriate training to carry out their duties; scarce resources are used more effectively through partnerships with development organizations and the private sector; and there is use and transfer of information and communication technologies to promote farmers' capacity, where appropriate.

1.3 Objectives of the research

In line with the knowledge gaps justified above, the following objectives are proposed for consideration:

(i) Identify and characterize the main benefits of developing a new development policy framework for agricultural extension system delivery in Tunisia.
(ii) Delineate and identify the national priorities and roles of extension systems and how they should be established.
(iii) Indicate and identify what accompanying measures should be implemented to guarantee that an extension service is delivered effectively to the end users (farmers).

2. Role of the national agricultural extension service in Tunisia

Agriculture is of vital importance to the Tunisian economy and makes significant contributions to generating employment income and foreign exchange earnings. Farmers need technical assistance, access to new technologies, and capacity building to improve their economic, social and environmental well-being. Where commercial opportunities exist, the private sector is engaged in providing farmers with technical assistance, input and access to credit. However, there is still a lack in the provision of essential market services needed for improved social and environmental gains. Therefore, the private sector (mainly input providers) are involved in trying to address this "market failure" and may already be providing an effective service to some parts of the farming community of Tunisia. In light of this, government officers need to work with extension services, rather than duplicating their services. The use of partnerships and training of private sector staff and farmers to assist/provide extension should be encouraged to address low farmer—extension officer ratios.

The objectives to privatizing the TAES and incorporating private participation and partnership have been set for decades. To date, the supply of extension information is typically top-down in nature and based mostly on technical recipes: i.e. public-administration focused and lacking information on socioeconomic considerations that could provide farmers with viable alternative options and help reduce the risk and uncertainty they constantly face. Extension services have also lacked flexibility regarding the diversity of farmers and the differing farming conditions across different regions. Furthermore, agricultural extension information is mostly targeted towards the irrigated sector whereas Tunisian agriculture is by and large rain dependent (more than 90% of the area).

Box 1: Key Message 1 — Defining the priorities of the national agricultural extension service

Policy makers should define the role of the national extension service by: taking stock of the different organizations working in agricultural and rural development (by geographical area, structure and issue); assessing their effectiveness on service delivery (based on client/farmer feedback); identifying current gaps and opportunities for collaboration; and sharing resources and future priorities for the sector. Involving stakeholders (research, development, NGOs, farmers' organizations, etc.) in this process from the outset will assist in developing ownership and effective ongoing collaboration.

3. Agricultural extension system organization in Tunisia

Extension work in Tunisia is performed by approximately 500 extension workers and different institutions, which are classified into three categories: public, professional, and private.

3.1 Public system

This subsystem is made up of purely public institutions such as the Agence de la Vulgarisation et de la Formation Agricoles (AVFA). This institution orchestrates most of the extension work at the central level, but also regionally through its extension units, known as Cellules Territoriales de Vulgarisation (CTVs). The CTVs are supervised by the Commissariat Regional de Développement Agricole (CRDAs), as part of their regional coordination work of agricultural activities in general. The AVFA is in charge of (i) coordinating the extension activities conducted by all institutions involved (public, professional, and private), (ii) training extension specialists working for these institutions and (iii) monitoring and evaluating such extension activities. In this public extension category, technicians affiliated with CRDAs are involved in delivering extension work to farmers. They make up at least 43% of the total number of technicians involved in providing support to farmers (Thabet et al. 2015). At the same time, technicians affiliated with semi-public or parastatal institutions in charge of managing big sectors such as cereal farming, livestock rearing or olive cultivation, provide technical support to farmers. These technicians represent about 36% of the total number involved in information dissemination and technical support. Also, technicians from what are known as Technical Centers in Tunisia provide limited technical know-how and advice on information application for farmers. These Technical Centers exist for information on cereals, citrus, potatoes, dates and organic agriculture. In line with the technicians' service delivery, a recently created institute known as the Institut National des Grandes Cultures (INGC) — whose mandate is also to provide technical advice and support to farmers directly or indirectly through extension agents in the area of field crops — is assisting farmers with information dissemination.

In addition to the public or semi-public institutions, the Institution de la Recherche et de l'Enseignement Supérieur Agricoles (IRESA) network also contributes extensively towards farmer support. The institution operates throughout the country, providing research results contributing towards research delivery under INRAT (Institut National de la Recherche Agronomique de Tunisie), INAT (Institut National Agronomique de Tunisie), and other regional agronomic institutes, which are regularly feeding extension work with research findings as well as innovations. Under the public system approach of agricultural extension, there are other parastatal institutions qualified as inter-professional groupings, which primarily use public funds and are administered by public officials. These institutions provide extension workers with useful information on diverse aspects of agricultural activities, primarily technical information concerning ways of improving agricultural productivity. These institutions (groupings) exist for fruit cultivation, vegetable farming, milk production, red meat, poultry farming and the production of dates. Presently, the whole extension system uses about 500 full-time equivalent extension agents. This number corresponds to about 1300 agents who are actually involved in extension work, but on a variable part-time basis. This gives an extension-to-farmer ratio of one agent for about 1040 farmers (ACC 2014), indicating the unbalanced ratio of farmer-to-extension agents. In Tunisia, this ratio is overwhelming

extension agents; other developing countries have a ratio not exceeding one extension agent to 200 farmers.

In terms of agricultural institutions that are providing training in the extension field, the system is made up of 31 training institutions involved in i) basic and ii) on-the-job (continuous) training programs for extension specialists. One typical characteristic of these programs is that only unsuccessful students in regular mainstream primary or high school programs enroll to study under them. The INPFCA-Sidi Thabet (Institut National Pédagogique et de la formation Continue Agricole de Sidi Thabet — Tunisia) graduate institute offers higher education levels for engineers who are specialized in training and communication, and it also offers more equipping and skills development to already trained engineers. In terms of agricultural training curricula, there are two types of training programs that are given to extension agents:

i) The basic training system (covers 23 agricultural specialties), which delivers skills knowledge (CC — Certificat de Compétence), proficiency (CAP — Certificat d'Aptitude Professionnelle) and technical certificates (BTP — Brevet de Technicien Professionnel). This program delivers two, five, and two specialized diplomas, respectively for the CC, CAP and BTP levels. The number of graduates under this program for the year 2012 was 391.
ii) On-the-job (continuous) training program, available for distant learners. This program targeted more than 15,000 potential beneficiaries in 2012 and involved close to 85 training days. Under the continuous training program in this subsector, the number of beneficiaries reached 211 in 2012, for a total of 3991 training days (ACC 2014).

Both the basic and on-the-job training activities have been very active in bringing knowledge to extension agents and equipping them with the necessary information to help farmers develop sustained and increased agricultural productivity.

3.2 Professional system

The professional system, in an agricultural context in Tunisia, refers to individual farmers or farmer organizations representing farmers. With reference to extension work, professional organizations include Groupement de Développement Agricole (GDAs), and Société Mutuelle de Service Agricole (SMSAs). Professional organizations also refers to agricultural regional chambers, i.e., professional organizations such as farmers' unions or associations. Up to 2013, only the UTAP (Union Tunisienne de l'Agriculture et de Pêche) farmers' union was active in extension work because it was the oldest union and the one closest to the previous political regime in Tunisia. This meant that there was more accessible financial and technical support directed towards it. These organizations, and particularly UTAP, had regional representation and were supposed to provide extension services to farmers. However, these types of organizations showed a lack of effort toward developing farmers, instead focusing most of their energy on driving political goals, instead of defending farmers' interests. As a result, new farmers' organizations have surfaced since the uprisings of 2011. For example, the Syndicat des Agriculteurs de Tunisie (SYNAGRI) was created in 2012.

3.3 Private system

While this system has been in existence for a long period (particularly in terms of input and service provision), its role in extension service delivery is only recent, the latter due to its involvement in the corps of agricultural counselors. Information delivery has always accompanied service provision in the country. In regard to agricultural machinery, irrigation equipment, fertilizers, chemicals, seeds or other agricultural inputs, information delivery to farmers has also accompanied input sales. This assists farmers with important information concerning their budgets as well as how much to invest. Furthermore, service and input provision have, in many cases, been done on credit. Due to the low numbers of farmers eligible for institutional credit in Tunisia (7—8% in the country), most service and input providers have taken over from financial institutions in the provision of credit for input supplies and information delivery.

Agricultural counselor roles have not proven adept at providing extension services. This is largely because most of these agricultural counselors are mostly former Ministry of Agriculture employees and retirees, making them less effective in delivering efficient services to farmers. With the exception of a few counsellors who obtained their experience and expertise doing extension work, the majority of the counsellors presently listed (over 200) gained their respective expertise in agricultural domains other than extension work.

The question of how far this information provided by the private system is effective and neutral is an important one, especially considering how diverse farming systems are in Tunisia. In addition, the need to reach out to smallholder farmers with information that is both applicable and easy to understand requires that extension service providers approach this system in an impartial way, to avoid poor provision of agricultural and rural services. Other critical questions, which would bring extension services into context, include whether information delivered is ultimately equivalent to extension services, and whether it ties together the "triple challenge" of the market, state, and community cooperation. Debating these questions will ensure that private extension agents are effectively utilized for their expertise in other advisory work, since services such as agricultural extension are transaction-intensive, and are provided every day throughout the country, even in remote areas.

4. Review of agricultural extension services in Tunisia: a SWOT analysis

The synthesis of this work on extension in Tunisia is presented through the following SWOT matrix, which highlights the strengths of the system, its weaknesses, opportunities that can be harnessed, and threats/risks that need assessment.

SWOT matrix: agricultural extension services in Tunisia

STRENGTHS/ASSETS	WEAKNESSES/CHALLENGES
■ Large and well-developed institutional arsenal, which is available throughout the country and that can be easily mobilized to make the extension system operational ■ AVFA's recent experience with conducting successful pilot extension projects in coordination with other supporting institutions and stakeholders that can be replicated ■ Large AVFA experience conducting and supervising extension work ■ Availability of a wealth of necessary documentation (brochures and pamphlets)	■ Low extension agent-to-farmer ratios ■ Limited participation of the private sector in extension work ■ Limited means and recycling for extension agents at the regional levels of the CRDAs ■ Limited extension workloads for CTVs and CRAs ■ Limited coordination between partners ■ Limited research results to be disseminated ■ Limited participation of farm organizations in extension work when identifying needs and developing programs ■ Limited budgets for CRDAs to carry out extension work
OPPORTUNITIES/PROSPECTS	**THREATS/RISKS**
■ Recognition and emphasis on the role of the private sector (counselors) to contribute to extension work ■ New financing possibilities to carry out private extension work ■ Recognition on the part of professional organizations of their role in promoting extension work ■ Availability of new extension approaches and communication tools ■ Decentralization of extension management to the regions ■ Development of a synergy between training and extension ■ Instauration of a new charter for the corps of private extension agents	■ Declining rural livelihoods ■ Vulnerability of medium and small farms ■ Inadequate identification of extension needs ■ Lack of coordination between different extension players

Source: Reviewed from Thabet et al. (2015).

Box 2: Key Message 2 — SWOT analysis of agricultural extension services in Tunisia

The reviewed status of extension organizations in Tunisia revealed a number of strengths, weaknesses, opportunities, and threats the can be re-positioned to better focus effective extension services delivery. In addition, the review highlighted possible approaches to overcoming threats and to making these organizations more service delivery oriented. Therefore, efforts should be directed towards an extension organization/system that would be sustainable and responsive to the demands and conditions of farmers, and their economic productive capacities.

Box 3: Key Message 3 — National Agricultural Extension Services Priority (NAESP)

Agricultural extension services are one of the key instruments available to governments to bring about positive change in agricultural and rural communities. To be effective, priorities for extension services are as follows:

- Organizational regulation
- Strategic investments and compulsory partnerships
- Community mobilizing towards proactive participation
- Adaptation of delivery model approaches
- Strengthening social capital in rural communities

5. Priorities of the national agricultural extension services

There is a need to characterize the structuring, training, and resourcing of extension services. Clearly defining these priorities will drive the monitoring and evaluation of extension services toward high-quality service commitment. Because the focus may change over time, extension services need to be flexible enough to adapt to these changes and to adjust priorities. For example, in the face of market volatility, climate change, and socioeconomic transformation, priorities will need to be adjusted accordingly. Thus, farmers (men and women, old and young) and end users need to have an effective voice in determining national research and extension priorities. They could participate through a centrally-managed survey, regular meetings or workshops, or through farmer advisory groups. Governments and stakeholders should discuss the importance of different rural development outcomes and ensure extension services can best meet these priorities.

6. The need for an extension policy framework: toward a new extension model

During past decades, Tunisian agricultural extension services have been criticized for a perceived lack of effectiveness in producing outcomes. The agricultural extension services have maintained their focus on traditional technical assistance towards larger farming enterprises at the expense of smaller farms, women, youth and the broader value chain. They have also fostered a piecemeal system of participatory approaches, new information and communication technologies. National extension services must demonstrate that they are adding value to other service providers and meeting the needs of their end users (farmers, NGOs, etc.).

The absence of clear policy frameworks has resulted in services that lack clear core-function objectives, ineffective allocation of scarce resources, and inadequate training for extension officers that also fails to prepare them to work better with other partners. Cooperation needs to be well defined and include how to effectively

work with the private sector, development organizations, etc., and with new technologies to improve service delivery from extension agents and partners.

Box 4: Key Message 4 — Towards a new agricultural extension model

New needs/new skills: Constituting a core group of specialists at the local level with non-traditional extension skills such as: market development; institutional development; post-harvest strategies; enterprise development; and agribusiness management.

Sources of innovation in extension: Moving from generating innovation at the central/ national level to the local level through local experimentation and evolved partnerships.

Capacity development of staff and the extension system: A change of dimension from focusing on training to a "learning by doing" approach, whereby staff are given the platform to embark on programs that seek to address and empower the livelihood needs of farmers. Such programs should also target developing partnerships to stimulate working relationships and improve service delivery.

Organizational, management review, planning and implementation strategy: Reviewing the existing extension system and studying how to increase the ratio of highly-qualified field staff to farmers. It is also necessary to create new incentive structures for farmers and partnerships that provide more administrative and financial freedom at the smallholder level.

Better informed policy approach and process: Resources should be used for systematic institutional analyses of promising extension innovations so that generalizable principles can be drawn and new strategies suitably informed.

Sustaining the innovation model: Moving from the transfer of technology to innovation systems (through A4D innovation platforms).

In order to satisfactorily meet the demands and expectations of the different stakeholders and partners in an extension model, there is a need to review, address and adapt extension approaches in response to changes that influence effective service delivery and policy priorities (Elias et al. 2015). These changes include increasing pressure on government budgets, increased environmental and social concerns, the emergence of new communication technologies and the strengthening of the private sector. In order to meet these challenges and to adapt, there will be a need to: build on existing extension structures and strengths in different locations within the country; establish new programs in ways that explicitly recognize the experimental nature of the reform and change process; recognize the value of diverse approaches to farming activities; and reform strategies and arrangements with partnerships and different stakeholders.

The different stakeholders involved in the reform process will need to build skills that allow them, the partners and the farmers, to reflect on progress in both dimensions (successes and failures), and change their focus accordingly in order to effectively adapt. Indeed, this will require approaches that are less target driven and more concerned with learning and the development of new abilities to deal with local circumstances driven by change and increased pressure on resources (Sulaiman and Hall 2004).

7. Strategies and interventions to support the policy framework

The operationalizing of this suggested new policy framework requires the adoption of a number of strategies: resource mobilization, staff management, and a monitoring and evaluation system.

Resource mobilization: In general, the national extension services are funded by the government budget for agricultural and rural development. Thus, to sustain the suggested framework and keep it operational and effective, it is important to ensure that funding is aligned

to national extension services priorities and that external priorities do not take extension officers away from their agreed-upon roles.

Extension staff management: The inspiration and motivation of extension staff is central to an effective national extension service. Extension officers need clear roles, missions, and objectives with appropriate career development opportunities to do their jobs effectively. Adequate and continuous training and resource availability are vital to keep extension staff motivated. When officers are scattered widely, methods must be found to provide interaction, feedback and support. For example, staff can interact through mobile phone and internet technologies such as social media and regular staff get-together meetings and social gatherings.

Monitoring and evaluation impact: To support the suggested policy framework and identify any potential future changes required, the establishment of a monitoring system on the effectiveness of extension services is essential. This monitoring system should consider feedback from end users (farmers) on facilities and assistance received. This will guide the development of service delivery of this framework.

8. Concluding remarks and policy recommendations

8.1 Concluding remarks

The aim of this working paper is to develop a policy framework that provides national extension services and other actors with strategic direction to ensure that resources are targeted to where they are needed most, in line with final end-users' needs and national priorities. The analysis was based on secondary information and interactions with key stakeholders involved in the Tunisian extension information chain. Some concluding key remarks are outlined as follows:

- Agricultural extension work in Tunisia has been in existence for many years and decades. There is a significant institutional network already established, in which public investment was made in the past, that could be made more operational today.
- The accumulated experience from the interaction with key stakeholders will be beneficial for private promoters who want to set up extension projects, which could be diversified and extended to include other services.
- For the most part, extension service delivery and implementation has been exogenous to targeted farmers. It is only now, with pressure to liberalize the economy, that there is an increased awareness that the private sector should play a more significant and active role.
- Private extension services provided by service and input stakeholders has been partial to promoting commercial products and equipment, rather than being about bringing pertinent technical change in the agricultural sector.

8.2 Policy recommendations

The results from the present research study have led to the following recommendations:

- Review the existing policy framework for national extension services, to ensure that it clearly defines appropriate roles and priorities, at the local, regional, and national levels.
- Carry out a participative stakeholder diagnosis to see where government extension services are most needed, sustained, and relevant. There is also a need to identify opportunities for collaboration with the private sector. Given the large proportion of smallholder farmers in Tunisia, stressing the need for and incentivizing farmers' spontaneous and free motivation for alternative forms of collective work can be a justified public investment.
- Conduct a skills appraisal of extension staff to ensure that skills match the extension approaches required and provide training where gaps are found, or where new skills are needed.
- Ensure that external funding sources are aligned to national extension priorities and needs. Credit

facilitation can help many farmers acquire the means that could help them better resist, and compete with, market power in agricultural markets. Therefore, farmers will be able to dedicate more interest to agricultural work and consequently seek out targeted advice from extension specialists.

- Support extension staff through training and progression schemes by linking rewards to desired skills and outcomes. The profile of extension agents needs to be revised and upgraded to become more attractive to scholarly performing youth. This will encourage youth to develop an interest in extension work, with the goal of enrolling them as potential extension agents.

- Senior extension management training and qualifications need to be leveled with those of researchers and university staff. Teaching, research and extension functions need to carry equal weight as they are of equal importance for agricultural development promotion.

- Establish a monitoring and evaluation framework system for national extension services to ensure that they meet the needs of end users (farmers), and to ensure that the framework can be adapted to everyday changes.

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Established in 1977, the International Center for Agricultural Research in the Dry Areas (ICARDA) is a non-profit, CGIAR Research Center that focusses on delivering innovative solutions for sustainable agricultural development in the non-tropical dry areas of the developing world. We provide innovative, science-based solutions to improve the livelihoods and resilience of resource-poor smallholder farmers. We do this through strategic partnerships, linking research to development, and capacity development, and by taking into account gender equality and the role of youth in transforming the non-tropical dry areas.
www.icarda.org

CGIAR

CGIAR is a global research partnership for a food-secure future. CGIAR science is dedicated to reducing poverty, enhancing food and nutrition security, and improving natural resources and ecosystem services. Its research is carried out by 15 CGIAR centers in close collaboration with hundreds of partners, including national and regional research institutes, civil society organizations, academia, development organizations and the private sector.
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