

Jordan Country Report

Status of National Agricultural Information System in Jordan

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I. BACKGROUND

Reason for establishment

The agricultural sector of Jordan employs seven percent of the labour force, and contributes 16 percent to the country's exports. While primary agriculture accounts for only five percent of the GDP, the entire food and agricultural sector (upstream and downstream linkages like agribusiness services and agro-industry) contributes about 29 percent. Despite the country's insufficient water and cultivable land resources, the agricultural sector is considered as one of the most important economic pillars for integrated development in Jordan.

Reliable agricultural information constitutes a corner stone in the planning of agricultural development and formulating relevant policies. The availability of this information is critical in order to enable those involved in the agricultural sector, whether they are individuals or institutions, to make decisions on valid and scientific bases. However, the currently available agricultural information in Jordan is inadequate as a result of many factors, in particular:

- The array of institutions that collect agricultural data and information, and the diversity of the methodologies they use, which often leads to contradictory and unreliable information.
- The lack of certain types of data and information required in support of the development of the agricultural sector.
- The lack of coordination and collaboration between institutions concerned with data collection and information provision on the one hand, and information users in the public and private sectors on the other.

The National Agricultural Development Strategy (2002-2010), which was approved by His Majesty the King on 15 July 2002, referred specifically to the development of information and communication capabilities at a national and sub-national level. In order to address this issue, the Minister of Agriculture convened a Consultative Workshop on the Development of an Agricultural Information System in Jordan, which was held on 16 July 2002. The workshop brought together senior managers in the Ministry to discuss the development of a national system for agricultural information.

The common vision derived from the workshop was to establish a National Agricultural Information System (NAIS) that would strengthen and improve agricultural information

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generation, management, dissemination and exchange for policy-makers, senior managers and national stakeholder groups, using web-based applications and tools. In particular, the envisaged NAIS was expected to assemble and make accessible information that would:

- Support policy and decision-making in relation to national planning.
- Provide the basis for monitoring and assessing agricultural production and development.
- Support research and development, and disseminate the outputs.
- Support extension services.
- Provide an institutional memory for the MOA.

The following groups of stakeholders in the NAIS were identified in a preliminary way, and it was recognized that these groups and their needs and demands needed to be further defined:

- Policy-makers in agriculture and rural development, especially in the MOA.
- Department heads and professional technical officers within the MOA.
- Other Ministries related to rural development.
- Universities and colleges with agriculturally-related faculties and departments.
- Farmers' and producers' organizations.
- Credit and marketing associations and Chambers of Commerce.
- Private sector involved in agricultural and rural development.
- Non-Governmental Organizations involved in agricultural development and food security.
- Regional and International Organizations involved in agricultural development and food security.
- General Public.

The development of the NAIS shall be underpinned by the establishment of the necessary management bodies and organizational structures that offer flexibility and adaptability, so that the NAIS can respond to the rapidly changing environment of information systems and technologies. The workshop recommended that a Technical Committee be set up to provide technical oversight of the NAIS, to set strategy and approve and review progress on annual work plans, and to monitor administrative aspects including finances. In addition, an Advisory Group should be constituted to provide advice and input on the overall direction of the NAIS, acting on reports produced by the Technical Committee. The Advisory Group should be chaired by the Secretary General of Agriculture, and comprise selected senior officers of the MOA, heads of government bodies collaborating with the MO such as the Department of Statistics, the National Information Centre (NIC), the Agricultural Credit Cooperation, Ministry of Irrigation, the Royal Geographic Centre, and universities and colleges of agriculture.

The development of a relevant, effective and harmonized National Agricultural Information System (NAIS) is expected to preserve needed resources, make maximum use of the results of other projects and database applications, prevent redundancy and duplication of data and efforts, and ensure maximum co-ordination among various agricultural institutes, programmes and personnel.

The establishment of the NAIS is a long-term goal which will have to be achieved in several stages. As a first step, a sustainable information systems infrastructure will be designed, drawing on the requirements that will be identified during a consultative workshop. The design shall comprise a functional specification for the NAIS, as well as a technical specification of its software/hardware components. During its initial phase, the NAIS will specifically include the following, structurally-linked, modules:

- Document repository: a web based bilingual system capturing and disseminating information on technical reports and documents produced by the entire Ministry of Agriculture (MOA) and other relevant sources in Jordan; the possibility to develop a national Open Archive on Agricultural Information will be explored.
- Institutes and Experts directory: two web based bilingual systems capturing and disseminating information about institutes, departments, laboratories and subject experts (gender disaggregated) in the agricultural sector.
- Project information system: a web based bilingual system capturing and disseminating information about agricultural development and research projects carried out in the entire Ministry of Agriculture (MOA) and elsewhere in the agricultural sector, including project title, location, subject, objectives, summary, dates, main findings and funding agency.

The tools and methodologies developed by FAO's World Agricultural Information Centre (WAICENT), and other tools developed and packaged by national institutes collaborating with FAO, are considered to be particularly applicable in establishing the NAIS. In order to proceed with their introduction, to start promoting the use of modern information technologies so as to obtain access to already available information, and to assume its role as coordinator of the NAIS, the Ministry of Agriculture intends to strengthen its information management capacity without delay.

For the rapid achievement of the important and urgent first step towards the establishment of the NAIS, the Government of Jordan requested the assistance of the Organization under its Technical Cooperation Programme. The NAIS project was commenced in October 2007 and is supposed to be completed by December 2009. The successful implementation and long-term viability of the NAIS will be ensured by the Government's commitment to support the system and provide it with adequate resources for sustainability.

Key Organizer

The Information and Computers Department (ICD) of the MOA: It will be responsible for the coordination of NAIS activities. The ICD was established fairly recently with the aim of bringing together and coordinate various data and information functions that used to be scattered all over the Ministry of Agriculture. Information management expertise and resources that have been developed within the various MOA units in an uncoordinated way shall be incorporated into the NAIS in a manner which benefits the rest of the system while not undermining the enterprise that has fostered them. Standards and procedures for information management in the NAIS, specifically for data quality, processing, and dissemination, shall be developed and adopted, in

compliance with relevant regional and international standards.

The ICD Division is responsible for collecting, storing and analyzing the statistical data/information of agricultural production (areas and production of field crops) and animal production on regular basis and at village/district/directorate/governorate levels.

The Division is provider for 52 types of data/information and user of 22 types of data/information from various sources in Jordan. Fifty five persons are working in the 35 agricultural directorates to collect the data, and five persons in the MOA to store, process, analyze and present these data to support managers in the decision making in MOA and other relevant ministries such as Ministry of Irrigation and Ministry of Planning.

The Information Division is also in charge of a marketing information decision support system that has the capability to brief the decision makers on the annual area and production of crops in Jordan, the amount needed for consumption, and the amount required to be imported to satisfy the national requirement. The Division is collecting data using individual surveys. The data is stored and managed (processed, quality controlled and stored in an accessible format for specific analysis) in database applications developed by a private company using Oracle 10g and further development is given to Royal Scientific Society/ ITC to satisfy user requirements in MOA. The data is analyzed and the resulting information is communicated through reports generated to support managers in their decision making.

The National Center of Agricultural Research and Extension (NCARE ex-NCARTT): It is the leading agricultural research and extension institute in Jordan and has responsibility for applied and adaptive research in all areas of agriculture, and for associated technology transfer to farmers. As both an important producer and user of agricultural information, NCARE will be a major partner in the establishment of the NAIS. During the project formulation was identified as a major stakeholder in the envisaged NAIS. NCARE hosts the National Library for Agricultural Information (NLAI), which is considered to be one of the most important specialized agricultural libraries in Jordan, as well as Jordoc (Jordan Documentation Center), the national AGRIS centre.

The National Library provides its services through the following:

1. Jordan Documentation Centre which is a part of Agris system where the agricultural information is supplied by different institution in Jordan are collected and documented according to the AGRIS system.
2. Agricultural databases such Agricola, Cab- abstract, Plant Genet, AGRIS database

The National Centre for Agricultural Research and Extension (NCARE) is also providing at national level the following: Soil maps, Irrigation Management Information System (IMIS), and Gene bank database. (www.ncare.gov.jo)

FAO during the NAIS inception project workshop assisted in the re-activation of the collaboration with the AGRIS network which had stopped in 2004. The reason for the discontinuation was that the person responsible for AGRIS had changed twice in the last

four years and that there had not been any proper hand-over procedure.

The library uses the online services of AGROVOC thesaurus for indexing records, in addition to the Dewey classification. The repository currently includes some 8000 titles, some coming from FAO, ICARDA and other agricultural institutions. The role the NCARE library staff, as knowledgeable professionals in the field of cataloguing and indexing, could play in ensuring the quality of the future NAIS repository. WebAGRIS 2.0 was installed and support was provided for the migration of the legacy archive in the new WebAGRIS system. The Network Management & Information System Specialist is to follow up on any future system problems the NCARE Library may have. The cataloguers were also briefed on the use of the Data Entry module and on the use of the Export function, emphasizing the AGRIS AP as the guide to follow for the cataloguing of NCARE resources.

There are four employees in NCARE holding B.Sc. degree in computer science and Information technology, and 1 Master degree in computer information system.

The NCARE Director General and Deputy Director General are giving full support for the NAIS project and confirmed that NCARE is committed to cooperate and contribute to its establishment.

Other important stakeholders: They are the Department of Statistics, the Ministry of Water and Irrigation, the Faculties of Agriculture, Ministry of Transportation/Meteorology Department, The Higher Council for Science & Technology. This is because information databases related to the agricultural sectors in Jordan are distributed within the following Ministries/Department:

- Ministry of Agriculture (MOA): Productivity of ranges areas, type of plants, vegetation composition etc... (www.moa.gov.jo)
- Ministry of Water & Irrigation: Springs, surface water quantity, ground water quantity.
- Department of Statistics: Agriculture income, National income, Labors, Fertilizers (import/export), (Feed, meat, and milk import), amount of imported and exported seedlings. (www.dos.gov.jo)
- The Higher Council for Science & Technology: natural resources, range & range plants databases
- Ministry of Finance/Custom Department: Tobacco law, annual license, areas, Name of farmers, local production, amounts and values of import raw tobacco etc....
- Ministry of Transportation/Meteorology Department: Meteorological data, rainfall, humidity, soil, and air temperature.
- University of Jordan.
- University of Science & Technology.
- Mu'tah University:

Royal Scientific Society — Information Technology Centre (NGO – RSS/ITC)

The Royal Scientific Society is the largest applied research institution, consultation and technical service provider in Jordan; with more than 600 members of staff. It has seven

technical centres and departments, housing 38 specialized laboratories. Since its establishment in 1970 as an independent, not-for-profit non-governmental organization (NGO), the RSS has been providing technical services, consultations and specialized training to both the public and private sectors locally, regionally and internationally.

In the IT sector, the major services are application system development, which involve detailed system study, analysis, design, programming, testing, system integration, data conversion, and user training, in addition to system maintenance, for several institutions including the Ministry of Agriculture.

The IT Hardware Infrastructure Facilities

The MOA network is composed of the following:

- Leased line for internet with 2 mbps through national information centre, 1 467 PC's Windows based operating system. in MOA headquarter and Directorates,
- Fujitsu SiemensTX200 web server,
- Fujitsu SiemensTX200 Dbase Server for hazardous management and control Database,
- Fujitsu siemens TX600 for internet, ISA & Exchange server,
- Dell power edge 1600 Sc for Archiving System for Human Resource (800 thousands image)
- Dell power edge 1600 Sc for Application Server For database Server,
- AIX APP Financial Archiving for Farmer Service Unit Application, and
- Fujitsu siemens TX600 for agricultural information systems.

However, this network is characterized by diversity and multiplicity of hubs and switches that might have a negative effect on its performance. A disaster recovery plan does not exist, and it is essential to address this issue to avoid risk of losing information.

The NCARE existing hardware infrastructure is as follows:

- 250 PC Windows based operating system.
- LAN with 120 users.
- 1 server SUN 450, 2 X 167 MHz processors, 10 GB HD, Sun Solaris Operating system, 256 MB RAM used for Oracle 8i database.
- 1 Internet & Mail & Firewall server, 2 X 72 GB HD, 4 GB RAM, 2 X 1 GHz Processors, Sun Solaris OS.
- 1 PC server 1 GHz processor, 36 GB HD, windows 2003 server.
- 512 KB/s internet connection through leased line, 100 internet users.
- 1 (128KBfs) leased line with the MOA.

NCARE has a GIS Laboratory and is implementing GIS projects in collaboration with national and regional organizations.

II. DEFINITION of NAIS

NAIS is a national platform for Information and knowledge sharing and exchange for Agricultural Research and Development (ARD) for target groups and stakeholders in

Jordan.

III. OBJECTIVES of NAIS

- 1- To strengthen the capacity of the Ministry of Agriculture and other stakeholders to establish an effective and efficient information system that will support agricultural development and ensure food security in Jordan, based on the needs and demands of its stakeholders and integrating the various resources in the MOA.
- 2- To serve as an information and knowledge repository/exchange mechanism at the national level and a gateway to the national knowledge systems for Agricultural Research and Development (ARD) in Jordan, aiming for strengthening, coordinating, and adding value to initiatives by national programs and regional organizations in order to increase agricultural production and improve food security for the benefit of improving performance of farmers and agrarian businesses.

IV. NAIS PROJECT OUTPUTS (RESULTS)

During its first phase of three years of Operations (2007-2010)

- 1- A pilot National Agricultural Information System (NAIS), including modules on documents, institutions, experts and projects, facilitating access to other agricultural information services (e.g. marketing information) and databases (statistical, textual, hypermedia) relevant to the Jordanian agricultural sector, and enabling the exchange of information among NAIS stakeholder groups.
- 2- An elementary information network for the agricultural sector, consisting of the major stakeholders and a collaborative network of technical institutions and organizations committed to capacity building in this area, and coordinated by the ICD/MOA.
- 3- A team of nationally selected focal points and technical staff at the different agricultural institutions trained on how to adopt and integrate information from their institutions into the NAIS and to maintain it as a high-quality information and communication resource using NAIS content management system and modern information management. These trained staff will be expected to train others in the future.
- 4- Professional staff (agricultural specialists, researchers, and extension workers) and senior managers in the agricultural sector introduced to the use of modern information technologies as a means of accessing relevant information and to the strategic management approaches and skills required to implement new structures and procedures for effective information management using modern ICTs.
- 5- An implementation plan for the development of a virtual Jordan Agricultural Information Centre (JAIC) drawing on inputs from existing Departments within MOA, and functioning as an AGRIS Resource Centre.

- 6- A national information strategy for agricultural science and technology formulated, in compliance with the National Agricultural Development Strategy (2002-2010).

V. NAIS INCEPTION ACTIVITIES AND CURRENT DEVELOPMENT

NAIS INCEPTION ACTIVITIES

An inception project workshop has been conducted for the launching NAIS project activities in 20-26 October 2007. The workshop had three objectives: to engage stakeholders in the National Agricultural Information System project activities, to discuss and reach a consensus on the implementation plan for NAIS, and to contribute to the formulation of an information strategy for agricultural science and technology.

During the project inception workshop NAIS National Project Coordinator (NPC), explained that reliable agricultural information constitutes a corner stone in the planning of agricultural development and formulating relevant policies as the availability of this information is critical in order to enable those involved in the agricultural sector. She stated that the launching workshop brought together senior managers in the Ministry of Agriculture and other stakeholders to discuss the development of a national system for agricultural information. She mentioned to the attendees that the National Agricultural Information System Project (NAIS) should not be seen as the Ministry of Agriculture project or as FAO project, it is a National Development project aims at ultimately establishing a truly national agricultural information system to which all concerned will contribute and from which all will benefit. In this respect, it is encouraging to see the project steering committee been established with the participations of various stakeholders.

The Minister of Agriculture stated that information in the information is key of success in institutions and pleased to mention the *new royal initiative issued for information access right in Jordan*. He emphasized the vital role the Information that can play in the development of Agriculture and food security in Jordan and the commitment of MOA for improving Information availability, accessibility and dissemination with accuracy and regular update to provide a real contribution in development,. He stated that MOA has a wealth of information that covering all agricultural areas and the development of a relevant, effective and harmonized National Agricultural Information System (NAIS) is expected to lead MOA, and other stakeholders to improve the capacity to access and exchange information, and to convert it into useful knowledge which is essential for the development objectives of poverty eradication, food security, sustainable development and increased productivity and competitiveness. He encouraged staff of MOA to carry out their best efforts and cooperate to formulate an applicable and practical national agricultural information strategy that the national agricultural development strategy. He thanked FAO Representative in Jordan and FAO technical team for their fruitful efforts related to NAIS project

FAO Representative in Jordan talked about the importance of the project and how FAO was interested in it. He briefed participants on NAIS projects objectives and outputs and

the NAIS with the anticipated new information base and supporting capacity will facilitate strategic planning and strengthen institutional capacities in formulating, coordinating, monitoring and reviewing research policies in support of agricultural development and food security. He also briefed the attendees about the development of this project, and its importance to enable agricultural researchers and scientists to carry out research more effectively by creating access to research information from Jordan and elsewhere, as well as by providing modern tools for the management of agricultural projects. He emphasized that National Agricultural Information System (NAIS) would strengthen and improve agricultural information generation, management, dissemination and exchange for policy-makers, senior managers and national stakeholder groups, using web-based applications and tools. In particular, the envisaged NAIS was expected to assemble and make accessible information that would support policy and decision-making in relation to national planning, provide the basis for monitoring and assessing agricultural production and development, support research and development, and disseminate the outputs, support extension services and provide an institutional memory for the MOA.

Prior to the consultative workshop to launch the NAIS project, an official ceremony took place during which the project agreement of TCP/JOR/3102 was signed by His Excellency the Minister of Agriculture and the FAO Representative in Jordan in the presence of sixty four officials from various ministries and institutions form the agricultural sector, as well as press and media.

The stakeholders participated in the inception/consultative workshop had identified the following:

- The existing/required information sources which are accessible both internally and externally;
- The required sources which are not accessible both internally and externally;
- The existing and required mechanisms to access and share information; and
- List of Priorities

The existing/required information sources which are accessible both internally and externally:

Sources	Existing/required information
Ministry of Agriculture (MOA)/ National Centre for Agricultural Research and Extension (NCARE).	<ul style="list-style-type: none"> - Research Publication - Extension brochure - Projects - Institution - Experts and researchers - Extension service
Ministry of Agriculture (MOA).	<ul style="list-style-type: none"> - Areas/Production data on village, district, governorate, and national levels - Marketing information: export, import, and prices - Vegetables/fruits data: types, volume and prices - Laws and legislation - Documents: annual reports and studies

Sources	Existing/required information
	<ul style="list-style-type: none"> - Projects' information - Institutions and experts in formations
Department of Statistics.	<ul style="list-style-type: none"> - Agricultural census - National Statistics database: lane, water, production, areas, labors, food consumption, and trade
Ministry of Water and Irrigation.	<ul style="list-style-type: none"> - Data / information on: water resources, water requirement for agriculture, water quality and pricing, land information (areas, capital, classification), cropping pattern, climatic information, monitoring of agricultural resources, socio-economic data
Ministry of planning	<ul style="list-style-type: none"> - Projects information - National performance indicator (GDP / agriculture contribution) - Publications, reports, documents - Institutions - Experts - Country profile - Country profile by donors - Reports / studies by donors
Agriculture Credit Corporate (ACC).	<ul style="list-style-type: none"> - Studies on marketing information and reports on: loans, monitoring and evaluation, etc. - Extension brochure - Projects - Institutions information - Expert and researcher
Ministry of Transportation.	<ul style="list-style-type: none"> - Studies and reports - Maps - Institutions information - Expert and researcher - Meteorological data
Royal geographical centre.	<ul style="list-style-type: none"> - Maps and spatial information - Studies and reports
Universities: Jordan University, Jordan University for Science and Technology, and Mota University.	<ul style="list-style-type: none"> - Research studies, publications, and dissertations - Institutional information - Professors and teachers
NGO and Agricultural Organizations.	<ul style="list-style-type: none"> - Reports, studies, and advisory services documents - Institutions information - Expert and researcher - Projects information - Marketing information - Socioeconomic data and information
Private sector.	<ul style="list-style-type: none"> - Reports, and studies - Institutions information

The required sources which are not accessible both internally and externally:

- GIS tools applications in agriculture
- Agriculture direct and indirect contribution in GDP
- Food nutrition requirements

The existing and required mechanisms to access and share information

Existing mechanisms	Required mechanisms
Hard copies	Internet web applications
Digital copies	E-Forum
Internet (Web)	E-Learning
TV/Radio	AGORA
Conferences	Video conferencing
Seminars	
Workshops	
AGORA	

Priorities

- Publications, documents, and studies
- Projects information
- Institution information
- Experts / researchers information
- Communication and educational tools <ul style="list-style-type: none"> ▪ E-forum ▪ E-learning
- Extension brochures
- Statistical data
- Maps – GI
- Laws, regulations / legislation and coding

The Key Issues Affecting the Development of a National Agricultural Information System were also identified by the project stakeholders:

Issue	Constraints	Strengths/Opportunities	Challenges
Strategy/Policies	<ul style="list-style-type: none"> • Lack of agricultural information strategy • Absence of cooperation protocols for information exchange 	<ul style="list-style-type: none"> • Political commitment and support to give high priority for ICM • Availability of experience from abroad/Lessons learned 	<ul style="list-style-type: none"> • Prepare agricultural information strategy, including implementation plan • Create awareness to provide vision

Issue	Constraints	Strengths/Opportunities	Challenges
			<p>for strategy/policies for agriculture information for development</p> <ul style="list-style-type: none"> • Improve public awareness related to information
Institutional context	<ul style="list-style-type: none"> • Overlap in rules and responsibilities • Lack of enforcement of missions/tasks Absence of champion in ICM • Inadequate organizational setup • Lack of coordination, cooperation and communication • Bureaucracy delays obtaining relevant information • Resistance against innovation • Lack of team work → lack of job satisfaction 	<ul style="list-style-type: none"> • Existence of national agriculture development strategy • Existence of permanent national experts committee on agricultural statistics • Sufficient institutions' capacities to start • Decision makers' support • Willingness of staff to contribute to the current efforts 	<ul style="list-style-type: none"> • Avoid duplication of information • Identify an institution to lead the establishment of a national agriculture information center/unit for coordination, cooperation and communication on ICM • Develop a justified, solid and viable proposal for meeting the above mentioned challenge
People	<ul style="list-style-type: none"> • Lack of incentives • Lack of successive policy for human resources development • Lack of skills • Inadequate training for capacity building • Absence of 	<ul style="list-style-type: none"> • Adequate national educational system 	<ul style="list-style-type: none"> • Strengthen human resources and staff development plans for ICM to ensure that the right people are in the right place with adequate motivation and incentives

Issue	Constraints	Strengths/Opportunities	Challenges
	<p>linkages between training and human resources development</p> <ul style="list-style-type: none"> • Brain drain 		
Content	<ul style="list-style-type: none"> • Shortage of information in Arabic on the Internet • Inadequate access to research information • Lack of standards, methodologies, tools/systems • Intellectual property rights for publications 	<ul style="list-style-type: none"> • Capability for digitizing and publishing online existing Arabic/English content 	<ul style="list-style-type: none"> • Implement international methodology and tools for data/information management and exchange • Development and management of web-based information systems
Stakeholders	<ul style="list-style-type: none"> • Absence of coordination/cooperation • Lack of communication tools 	<ul style="list-style-type: none"> • Willingness of stakeholders to contribute to the current efforts (to establish NAIS) 	<ul style="list-style-type: none"> • Facilitate exchange of data/information
Infrastructure	<ul style="list-style-type: none"> • Ineffective distribution of facilities (computers, access to networks, etc.) among those who need it 	<ul style="list-style-type: none"> • Acceptable overall information infrastructure • NITC partnership agreements on behalf of public sector with Microsoft academy, CISCO academy, and Oracle 	<ul style="list-style-type: none"> • Maintenance and upgrading
Financial aspects/sustainability	<ul style="list-style-type: none"> • Lack of financial institutional support 	<ul style="list-style-type: none"> • Government guarantee of financial support to NAIS 	<ul style="list-style-type: none"> • Prepare project proposals to be submitted to donor organizations

Outcomes of the project inception/consultative workshop

- A main conclusion of the consultative seminar was that most of the information required by stakeholders is available somewhere, but that it is not always well known or easily accessible.
- A key issue to be addressed by the project, therefore, is to establish better mechanisms for accessing and sharing the existing information. In order to achieve this, more details need to be obtained about the technical specifications of the systems and applications that currently exist at the various stakeholder organizations. This task would best be assigned to a national institution with a relevant mandate and technical expertise, e.g. the Information Technology Centre of the Royal Scientific Society (RSS) which has already been contracted by several NAIS stakeholder organizations for similar assignments.
- Priority list is required to be established and implemented in phases to meet the requirements of the stakeholders keeping in mind the available resources and considering NAIS Project is the first phase to be utilized to achieve the information needs requested by the stakeholders. National Agricultural Information Management Strategy to be prepared to provide further elaboration on the information needs and the priorities in National Agricultural Research System (NARS) in Jordan. It is required and essential to develop requirement specifications based on the information needs requested by the stakeholders to provide a brief description of the features that could be provided by National Agricultural Information System (NAIS) project and some technical requirements specifications to help both the project owners and the development team reach a vivid image of the project scope.
- The output of the working groups provided useful material, which will have to be reviewed and analyzed further during the project activity on the establishment of a National agricultural Information Strategy. Priorities will have to be established when trying to meet the information needs of the various stakeholders, keeping in mind the available resources. It would be useful to prepare a draft document of NAIS requirements specifications building on the outcomes and feedback received from the working groups. This document would provide a brief description of the features of the NAIS, along with some technical requirements specifications to help both the project owners and the development team reach a vivid image of the project scope.
- It has been confirmed that there is a general agreement among the various stakeholder institutions about the expediency of a National Agricultural Information System, as well as a willingness to cooperate and contribute to its establishment. The project's launching workshop was well attended by representatives from various stakeholder organizations, which are also represented in the project's Steering Committee.
- The ICD of the Ministry of Agriculture, which is the designated coordinating unit of the NAIS, is well positioned to assume this role, but its information management capacity is still rather weak. Therefore MOA is required to assign additional staff to its ICD, which shall benefit from the training provided by the project.

- The Secretary General of the Ministry of Agriculture, acting as the Chairman of the Steering Committee, underlined the importance of the present project and expressed his full support. He emphasized that it should not be seen as a project for just the MOA, but that all stakeholders in the agricultural sector are expected to benefit from, and contribute to, the envisaged NAIS.
- The role of NCARE as a major stakeholder and potential collaboration modality in the NAIS project was clearly spelled out and the NCARE Director General and Deputy Director General gave their full support and confirmed that NCARE is committed to cooperate and contribute to its establishment.

NAIS CURRENT DEVELOPMENT IN JORDAN

- The NAIS project activities on a monthly basis to facilitate the actions required to be done by all concerned parties have been identified and under implementation accordance with workplan the approved by the project task force team and FAO. In addition, the training activities that are foreseen and budgeted under a contract are clearly identified and under implementation accordance with the approved workplan.
- Technical functional and functional requirements of NAIS are completed and submitted to government authority.

Stakeholders	Information Needs
Policy-makers in agriculture and rural development, especially in the MOA.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events Best Practice and Country Report Marketing Information Module (MOA developed using Oracle) Interfaces for technical applications developed using Oracle
Department heads and professional technical officers within the MOA.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Best Practice and Country Report Marketing Information Module (MOA developed using Oracle) Interfaces for technical applications developed using Oracle
Other Ministries related to rural development.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Best Practice and Country Report Marketing Information Module (MOA developed using Oracle)
Universities and colleges with agriculturally-related faculties and departments.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Best Practice and Country Report

Stakeholders	Information Needs
Farmers' and producers' organizations.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Marketing Information Module (MOA developed using Oracle)
Credit and marketing associations and Chambers of Commerce.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Marketing Information Module (MOA developed using Oracle)
Private sector involved in agricultural and rural development.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events Marketing Information Module (MOA developed using Oracle) Best Practice
Non-Governmental Organizations involved in agricultural development and food security.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Best Practice and Country Report Marketing Information Module (MOA developed using Oracle)
Regional and International Organizations involved in agricultural development.	Institutions, Projects, Experts/Researchers, Documents/ Publication, News and Events, Focal Points Best Practice and Country Report
General Public.	News and Events Best Practice and Country Report

- The NAIS system development is in progress and includes nine modules (Documents, Projects, Experts/Researchers and Institutions, News, Events and Focal Points, Best Practice, and Country Reports) in addition to the interfaces required to be developed in collaboration with national institute for the other technical applications developed by MOA using Oracle development tools and database. This is in addition to the existing marketing information module and statistical information agricultural/animal production). Laws and Legislations and Extension Documents Management Module should be considered at later stage, if possible and convenient.