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## ***The status of Data and Information Sharing in the Republic of Yemen***

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As the agricultural sector in Yemen has grown rapidly during the past 10 years, the need for information in agriculture was increased to help decision makers and researchers in policy development and to serve farmers needs of information. Despite the fact that there are more than 20 governmental and non-governmental institutions, concerned with research and information in various fields, this was not associated with the development of proper national information and communication strategies and policies. This situation has created confusion and mismatch in division of tasks between the different government institutions in one hand and with other non-governmental organisations in the other hand. Moreover, most of the efforts that were started to develop information strategies and policies came to a stand still situation with no ultimate outputs.

Generally speaking, several organisations, information centres and departments that deal with agricultural information could be found within the different ministries of the public sector. The National Information Centre (NIC) within the Ministry of Telecommunication and Information Technology, the Central Statistics Organisation (CSO) within the Ministry of Planning and Development, the General Directorate of Agricultural Statistics (GDAS), and the Documentation and Agricultural Information Centre (DAIC) within the Ministry of Agriculture and Irrigation, and the Agricultural Research and Extension Authority (AREA), are all organisations functioning at the National level and are concerned with collecting, processing, documentation and communication of agricultural information.

With regards to the mechanisms of data and information sharing between the different public and private institutions and their branches, available studies show that communication by telephone and fax is still the most commonly used. Communication by post comes second and the use of traditional communication tools comes third. The least used systems of communication is e-mail and networking.

For data and information storage and retrieval systems, the use of paper work (books and recording sheets) comes first, while the use of computers for storage and retrieval of data and information comes second, followed by the use of photography and microfilms. More than that, about 50% of the development organisations do not have libraries, and if found, these libraries lack many important facilities.

The Agricultural Research and Extension Authority (AREA) is the main agricultural research institution in Yemen that serve as an important source of agricultural farm information at the national level. AREA has 13 branches and centres of which 8 regional research stations, 4 specialised national research centres, and one national

agricultural training centre (NATC). The 4 specialised research centres are concerned with food and post harvest research, livestock research, renewable natural resources with GIS data processing, and genetic resources collection and preservation.

More than that Information are published in AREA through a scientific journal, research and extension linkage periodical, and AREA compendiums of improved and new research technologies. Hard copies of these data forms are distributed to various governmental organisations (Ministries, agricultural offices, development projects, universities and research and information centres), non-governmental and private agencies (private agricultural companies, agricultural cooperatives, and some input dealers), and regional and international organisations working in the country. Technical support is also provided by AREA for extension and rural development agencies.

Recently, AREA has established its own data entry systems concerned with financial and personnel aspects, and research projects (institutions, activities, scientists, and research outputs). These systems were locally developed using visual basic system and Microsoft access software. AREA has also its own website, [www.area.gov.ye](http://www.area.gov.ye), to communicate its own final research outputs (mostly in news feeds and PDF formats) and create public awareness.

Until the year 1990, AREA was involved in receiving AGRIS information packages and started to develop data entry under CDS/ISIS run by DOS system. But this was stopped, as the responsibility of this work was shifted to the Documentation and Agricultural Information Centre in the Ministry of Agriculture and Irrigation. The DAIC, then could not continue with the process due to several reasons of which lack of IT specialised persons, lack of financial resources and decision support, and the weak links with local and regional institutions.

At regional and sub-regional levels, AREA has established linkage mechanisms to coordinate and exchange agricultural information through specialised research associations such as the Association of Agricultural Research Institutes in the Near East and Northern Africa (AARINENA), and the International Centre for Agricultural Research in the Dry Areas (ICARDA). Example of the established research networks are the Nile Valley & Red Sea Research Network (focusing on draught resistance, water use efficiency, some virus and bacterial diseases, and socio-economic studies), Arabian Peninsula Research Programme (focusing on management of green houses, water management, and range and fodder research), and Neglected and Under-utilised Plant Species Research Programme, which includes distribution and marketing studies and information exchange.

The role of the private sector in the agricultural information system is still limited, although a considerable number of private companies are working in production and marketing of agricultural produce and agro-inputs. Some of the big private companies have their own information departments and websites, but most of the information is used to serve their own purposes.

It could be indicated that there is still a lack of real basis of information systems development and information sharing, particularly in the agricultural and rural development sectors, as there is a lack of survey data on information systems, Lack of proper national and institutional information strategies and policies, lack of interest

or awareness about the importance of information, the tendency among researchers in dealing with information as a "personal good" rather than a "public good", making it difficult for institutional interoperability, the little scope for the development of culture of information sharing, and the lack of allocated budgets, incentives and decision support, within government institutions, for building mechanisms of information processing and information sharing.

In order to facilitate proper information processing and information sharing, some actions need to be taken at national, regional and international levels as follows:

- To encourage government authorities to prepare and implement proper information strategies, policies and regulations and to remove barriers affecting information processing and information sharing.
- To encourage role definition between the different divisions within the same agency and creating incentives that encourage researchers to publish research information for public interest.
- To encourage Institutional capacity building and staff training in information systems development and interoperability.
- To encourage mobilisation of financial and human resources to support building a comprehensive agricultural information systems.
- To encourage the exchange of success stories of information management and exchange at various levels.
- To facilitate research studies that focus on technical, cultural and socio-economic barriers affecting information publishing and information sharing.
- To encourage research institutions to register with the CIARD RING for better information services.
- To encourage AARINENA to advocate and facilitate the adoption of shared web application tools and vocabularies by research institutions for the promotion of proper interoperability.

### **Case studies of available digital sources of agricultural research information**

Only two case studies, where agricultural research information are processed and shared or made ready to be shared, could be described. These are the GIS and PGR systems within AREA that are summarised as follows:

1. GIS & Remote Sensing Section was established in 1995, by AREA and an FAO project. Digital sources of agricultural research information/data are prepared in various fields such as soil, land use, water, agronomy etc. for the design and implementation of rural land use plans. The section focuses its activities on utilizing of satellite remote sensing and GIS techniques for improvement and development of natural resources database through studying and mapping of different aspect related to Agriculture such as Agricultural Lands of Importance to the ROY, Land Use / Land Cover Mapping, Land Use / Land Cover changes over times, Agricultural Land Use Maps, Agricultural acreage Assessment for different crops, Major Land Resource Areas, Land Degradation Assessment, Land Evaluation and Site Assessment, Land and Soil Classification, Land suitability for different types of crops, Prior Agricultural Lands, Prior Agricultural crops distribution, Vegetation Maps, Watersheds, Aquifers Maps, Water Quality Monitoring Sites, Wastelands, Agro-Climatic Mapping (Rainfall, Solar Radiation...etc.), and Flood Hazard Zones and others.

The section was equipped with hard ware and GIS & Remote Sensing software as ArcInfo , ArcView and analysis programs in GIS, AIMS and ERDAS Remote Sensing in activities. Several agricultural maps are produced using the new computerized technology of GIS and Remote Sensing applications using satellite imagery – Land sat <sup>™</sup> 7 band (27 scenes ), spot Satellite imagery, aerial photos, and topographic maps.

2. Another case study is the information sharing mechanism on Plant Genetic Resources. In 1995, within the efforts made by the AREA Genetic Resources Centre, Yemen have joined the Global Plan of Action (GPA) that represents an important contribution for the implementation of the Convention on Biological Diversity in the field of food and agriculture. The Global Plan of Action includes 20 priority activity areas, organized into four groups, namely: In Situ conservation and development, Ex Situ conservation, Utilization of plant genetic resources, and Institutions and Capacity building.

In 2008, Yemen, with support from FAO, has established Information Sharing Mechanism on Plant Genetic Resources for Food and Agriculture that is based on the participation of stakeholders at national level and seeks to promote information exchange and strengthen stakeholder cooperation, thereby contributing to enhance the capacity of the National Program in the conservation and sustainable utilization of plant genetic resources and agro-biodiversity (<http://www.pgrfa.org/gpa/yem/description1.html>). The Mechanism takes advantage of a computer application to facilitate the management of the information on the implementation at national level of the Global Plan of Action.

Available information are institutes (information on 58 institutes), contact persons (contact information on 277 persons), projects (1108 projects with activities, plans, and courses), taxatab (data on 75656 scientific plant names and authorities), cultivars (data on 238 cultivated varieties, their pedigree and origin), areas (data on 41 geographical areas within countries), references (data on 462 references), and agreements (data on 2 bilateral or multilateral agreements).

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