THE APPLICATION OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN AGRICULTURAL AND RURAL DEVELOPMENT IN EGYPT

RURAL AND AGRICULTURAL DEVELOPMENT COMMUNICATION NETWORK (RADCON)

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The application of information and communication technologies in agricultural and rural development in Egypt

Based on a techical report by
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Research and Extension Branch
Office of Knowledge Exchange, Research and Extension
FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ROME 2010

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ACKNOWLEDGEMENTS

The production of this booklet was coordinated by May Hani, with input from Clare O'Farrell, Kristina Mlikota and Shukri Badran (FAO). Thanks are due to all the people involved in the RADCON project, including staff at AERDRI and CLAES, and the communities who contributed their knowledge and enthusiasm. For further information, please contact May Hani (may.hani@fao.org).

CONTENTS

Introduction 1

Part 1: Designing the RADCON project 7

- Goals and objectives 7
- Project approach 8
- Project structure 9

Part 2: Implementing the RADCON project 13

- The information and communication network 13
- The participating communities 13
- Project promotion 16
- Project activities 17
- Key characteristics of project implementation 18

Part 3: Assessing and extending the RADCON project 20

- Key success factors 20
- Challenges and constraints 21
- Extending the project 23
- Lessons learned 24
- The way ahead 25

Acronyms and abbreviations 28

INTRODUCTION

Drawing on the principles of participatory communication and harnessing the potential of new information and communications technologies (ICTs) to strengthen communication among the stakeholders in agricultural and rural development, the Rural and Agricultural Development Communication Network (RADCON) was launched in Egypt in 2004.

Participatory communication in development aims to facilitate the integration of interpersonal communication methods with conventional and new media channels, with the focus on encouraging all stakeholders to participate in the process. The growth of internet-based technologies has created new opportunities for facilitating this participation and enhancing the ability of resource-poor communities to access information and support and to share experiences and knowledge. Egypt has an extensive and fairly modern telecommunications system that was upgraded in the 1990s.

The RADCON project built on the experience of the Virtual Extension and Research Communication Network (VERCON), initiated in 2000 by the Ministry of Agriculture and Land Resources (MALR) in Egypt in collaboration with the Food and Agriculture Organization of the United Nations (FAO). RADCON was designed and implemented as a pilot project, funded by the Government of Italy, to take the VERCON concept to a broader scale and involve a wider range of stakeholders, with the ultimate aim of improving the livelihoods of farm families and their communities in Egypt.

AGRICULTURE IN EGYPT

The Arab Republic of Egypt covers a total area of 1,001,450 km^2 and has a population of 78.7 million people. The agricultural sector is an important component of the national economy. It employs about 8.6 million people, contributes 14.8% to the gross domestic product (GDP) and accounts for about US$900 million in exports. The net capital outflow from agriculture to other sectors helps finance economic and social

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development in the country (for more information on the agricultural sector, see *Invest in Egypt*, published by the Ministry of Investment, 2008).

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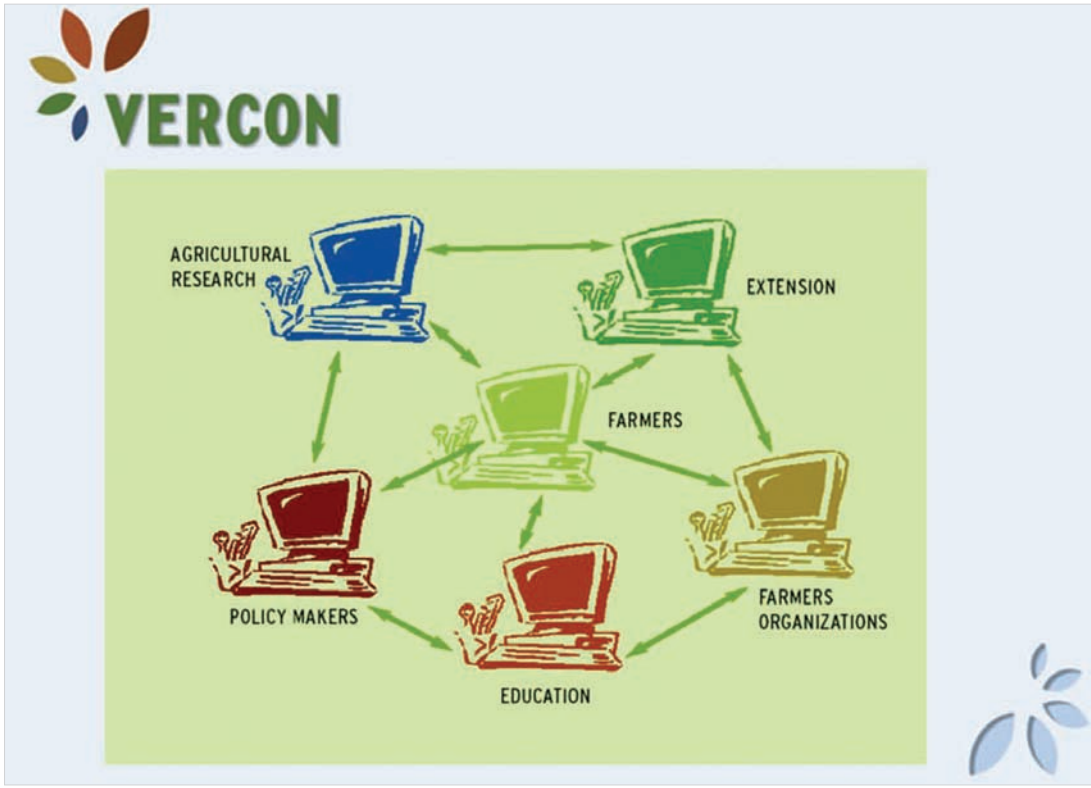
The economic changes introduced in the 1980s and 1990s had a major impact on the agricultural sector. Initiatives aimed at liberalizing crop prices and the cost of inputs, developing a solid agricultural infrastructure, improving irrigation systems and enhancing the skills of the agricultural labour force resulted in significant changes in the traditional system of agricultural production and substantial increases in crop productivity. This presented the country's agricultural research and extension systems with new challenges as well as new opportunities, and it became evident that enhanced information access and knowledge sharing, with farmers at the centre of this process, were critical if these challenges were to be met and the opportunities taken.

Until the changes, Egypt's agricultural extension services had been delivered by a vast network of specialized research institutions, central laboratories, regional research stations and extension centres. The transfer of knowledge was largely top-down and one-way – from the extension workers to the farmers.

With the changes, the extension services faced two main challenges: weak links and slow communication between extension and research; and the lack of farmer participation in setting research priorities. To address these challenges, the extension units needed to move away from a reactive mode to a more proactive one, and to see the beneficiaries of their services not simply as receivers of information, but also as providers of information. This called for new and challenging approaches in extension and communication in agricultural and rural development, and led to the launching of the VERCON project.

THE VERCON PROJECT

The goal of the VERCON project was to improve links among the key stakeholders in agricultural and rural development in Egypt. These included the institutions in the National Agricultural Research and Extension System (NARES) – the Agriculture Research Centre (ARC), the Agricultural Extension and Rural Development Research Institute (AERDRI), the Central Laboratory of Agricultural Expert Systems (CLAES), the Central Administration for Agricultural Extension Services (CAAES) and the Agriculture Directorates (AD) – as well as extension units, farmer organizations and the farmers themselves.



The key aims of the VERCON project were to:

- establish an Agricultural Research and Development Network (ARDN)
- increase local capacity to address farmers' changing needs
- strengthen the communication capacity of the existing systems to generate, transmit and retrieve information using the internet in order to meet the perceived needs of all stakeholders, from the research stations and extension units to the farming communities

The main components of the VERCON network were identified through consultations with the stakeholders. They included a problem-solving component, a search facility, a content management system, a directory of organizations involved in the project, a news component and a calendar of forthcoming events and activities.

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The problem-solving component was based on four databases:

- **Farmers' Problems:** problems reported by farmers and farmer organizations, with a description of the solutions recommended by researchers and extension workers; the main topics included production-related issues, environmental issues, marketing and administration
- **Expert System:** developed by CLAES and made available to extension workers online, providing information on a range of crops – wheat, rice, beans, grapes, tomatoes, barley and faba beans
- **Extension Brochures:** all extension materials prepared by various organizations on crop and livestock production
- **Agriculture Statistics:** information on crop production, cultivated area and production costs in each Governorate (Egypt is divided into 29 provinces known as Governorates); on-farm, retail and wholesale prices for agricultural products; and regulations relevant to the agricultural sector (e.g., plant and animal conservation, agricultural cooperatives, agricultural reform)

VERCON was governed by a Steering Committee that included representatives of all the stakeholder groups, and awareness-raising and capacity-building sessions were organized for the stakeholders. The project was run by a project manager and a project coordinator. Project management included monitoring the agricultural information flow and monitoring the use and maintenance of the software and hardware.

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A review of the VERCON project carried out in 2002 showed that it was very successful in facilitating the exchange of information and experiences among the various stakeholders, and cited several factors that appeared to have contributed to its success. These included:

- **Adopting a demand-driven approach:** The project started with an analysis of the information needs of the key stakeholders, creating the basis for the project's organization and activities, and proving to be one of its strongest points; the proactive approach taken by the research and extension services made them much more aware of the real needs of farmers.

- **Fostering multi-stakeholder dialogue:** The project was based on fostering dialogue among representatives from relevant ministries, research centres, extension units (in both the public and private sectors), agricultural education institutions, farmer organizations and farmers.
- **Raising awareness and building capacity:** A strong awareness-raising campaign was implemented, which included placing advertisements in media outlets; training sessions were organized to familiarize stakeholders with the project goal, objectives, components and organizational structure.
- **Using appropriate technology and providing technical support:** The technological solutions offered by the project were based on continuous improvement and were user-friendly, leading to a significant improvement in the flow of information among stakeholders and thus more rapid identification of stakeholder needs; the project also ensured that appropriate and timely technical support was available to all stakeholders, keeping computer system disruptions to a minimum.
- **Promoting sustainability:** The Steering Committee and the project management team successfully promoted the need for the financial sustainability of the project, given its importance in improving the agricultural extension services; this led to the MALR funding it as a core service.

Part 1

DESIGNING THE RADCON PROJECT

The positive impact of the VERCON project on the agricultural sector in Egypt, and the way it highlighted the potential of new ICTs in delivering development-related information, led the MALR to decided to expand the reach and objectives of VERCON through the RADCON project.

The MALR sought funding from the Government of Italy under a 'Debt-for-Development Swap' agreement to launch RADCON. The pilot project began in 2004 and was completed in 2008.

GOAL AND OBJECTIVES

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The overall goal of RADCON was to contribute to improving the livelihoods of rural communities by strengthening communication among the key stakeholders in rural and agricultural development. It aimed to provide a tool for rural people to link into and benefit from an interactive information network that integrated the use of internet-based technologies with the use of local media, and encompassed extension, research, NGOs, private and public sector institutions, universities, youth centres, and community and farmer organizations.

It sought to achieve this goal by:

- developing a sustainable operational information and communication network that responded to the needs of stakeholders, including resource-poor communities
- identifying 50 resource-poor communities who would be enabled by community facilitators to participate in RADCON activities and benefit from its information-access and knowledge-sharing resources

- developing an innovative media campaign to raise awareness of the project and its benefits

This required an expansion of the stakeholder base, the range of end-users and the services provided. RADCON was therefore established as a community-based network, with a bottom-up approach to identifying the information needs of the end-users using Participatory Rural Communication Appraisal (PRCA) methods.

PRCA is a participatory communication research methodology used to involve rural people in the design of effective communication strategies and programmes for development (for more information on the PRCA approach, see *Participatory Rural Communication Appraisal* published by FAO, 1998). The methodology facilitates dialogue among the rural people themselves and between them and development workers, with the aim of reaching mutual understanding and agreed plans for action.

PROJECT APPROACH

RADCON used an innovative participatory communication approach to assess the changing information needs of the resource-poor communities. The approach was based on a study conducted after the participating communities and facilitators had been selected.

The study was conducted in 10 communities to determine the most effective participatory approach to use in the communities. It involved testing a combination of five participatory models, and concluded that the most effective model was one in which the community facilitators organized awareness-raising and discussion meetings, followed by a needs assessment meeting, followed by group work meetings.

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Using this model, the facilitators were to organize meetings at which they presented RADCON to the communities and solicited their input, held needs assessment meetings to identify the communities' information and communication needs and organized group workshop meetings to address information gaps.

The main strengths of this approach were:

- the intended beneficiaries of the project were at the centre of the process
- the information needs of the beneficiaries were assessed continuously
- it provided timely responses (usually, within a week of identifying information needs, a response was provided to the intended users of the information)
- all age groups in a community participated in the meetings organized by the facilitators, and both genders were equally represented in the meetings

The main weakness of the approach was that most of the community meetings were focused only on the community where a RADCON centre was located, which resulted in a limited audience.

PROJECT STRUCTURE

In addition to some of the key stakeholders involved in the VERCON project, several other organizations were identified as key stakeholders in the RADCON project. These included the Policy and Coordination Unit for Women in Agriculture (PCUWA), CARE International and Agriculture and Economic Statistics (AES).

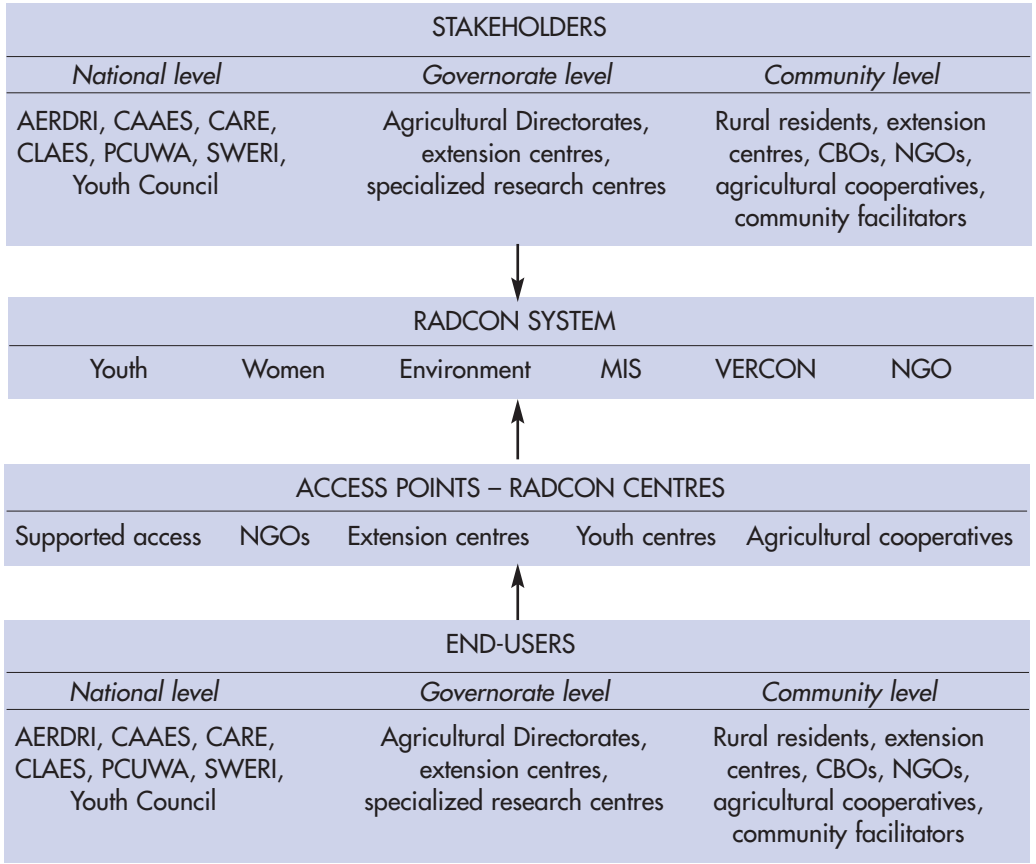
The responsibilities of the main organizations participating in RADCON were:

- MALR: overall responsibility for project implementation
- AERDRI: in charge of preparing and supervising surveys of farmers' problems and analyzing the findings
- CAAES: responsible for creating links among end-users and developing project systems
- PCUWA: provided support for extension activities targeting rural women
- AES: responsible for aggregating and publishing agriculture-related statistics
- CARE: developed and provided relevant information on the NGO sector and civil society

Hosted by ARC, CLAES focuses on designing and implementing computerised solutions for the agricultural sector, and it developed both the VERCON and RADCON websites and databases.

The organizational structure of RADCON was based on a Steering Committee and an Executive Committee, both at national level; the Information and Communication for Development (ICD) Groups at Governorate level; extension services and RADCON centres at community level; and community facilitators.

Figure 1 ORGANIZATIONAL STRUCTURE OF THE RADCON PROJECT



Steering Committee

The Steering Committee consisted of 11 members representing some of the key organizations (e.g., AERDRI, ARC, CAAES, CLAES, FAO, ICD Unit and MALR). Its main tasks were to review and approve the project workplan; monitor project activities and coordinate work with related institutions; assist in the preparation of the training activities; provide advisory services to the project team; evaluate and revise RADCON's operational framework and recommendations for the potential expansion of the project beyond the pilot phase; and evaluate proposals to be submitted to donors for extending it to national level.

Executive Committee

This committee consisted of 22 members representing CLAES, FAO, ICD Unit and project administration staff. Its main task was to provide overall direction in strategic decision-making and in the implementation of the project.

ICD Unit

There were three people in the ICD Unit – a director, a consultant in charge of the PRCA and a consultant in charge of the mass media component of the project. The main responsibility of the ICD Unit was to oversee tasks related to rural communication, giving particular attention to the continuous engagement of all stakeholders based on identifying and transferring key concepts of the participatory communication processes to them.

Specifically, the ICD Unit was responsible for:

- determining the overall development, objectives and strategies to be followed during project implementation
- organizing the ICD Groups at Governorate level
- developing and implementing the participatory communication plan
- coordinating and supervising multimedia production and dissemination
- conducting monthly performance appraisals of all the ICD Groups
- monitoring and directing monthly participatory communication workplans developed at village level
- developing training plans
- monitoring and directing training activities at Governorate level
- monitoring and evaluating communication, information content and flow
- re-adjusting field activities according to monitoring and evaluation findings
- reporting monthly to the director of AERDRI and the Executive Committee on the progress of the project and the challenges faced during implementation

The ICD Groups worked at Governorate level. Each group consisted of the head of extension in the Governorate, a researcher from the related research station, and representative lead extension staff. The Group members attended courses on communication for development (including PRCA approaches), courses on training the community facilitators and a workshop on evaluation. Their tasks were to participate in

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preparing, implementing and evaluating the mass media programmes, and to train the community facilitators in participatory communication, community mobilization and the use of the RADCON systems.

RADCON centres

RADCON operated partly through existing extension centres providing MALR services. These tended to be located in a 'central' village and served three to five nearby villages. A typical centre was run by a director and had three to five extension workers. In villages not covered by existing extensions, RADCON centres were established in cooperatives, NGOs, youth centres and other facilities, depending on what was available. Under RADCON, the centres' main tasks were to train and support the community facilitators and to serve as an access points to the RADCON systems.

Community facilitators

The facilitators were based in the communities selected to participate in the project. Their main tasks were to:

- implement the participatory communication approach by conducting awareness meetings in the villages
- conduct needs assessment meetings in the villages to identify specific problems faced by the communities
- conduct group mobilization meetings in the villages and organize speakers to participate in them
- review the information provided by RADCON
- coordinate RADCON activities with local leaders in the community
- help villagers to access the RADCON systems and publish local knowledge, experiences and success stories through the systems
- report regularly on their activities, using the RADCON monitoring system
- attend the monthly monitoring meeting at Governorate level

Part 2

IMPLEMENTING THE RADCON PROJECT

The RADCON project was implemented over a period of 4 years divided into four phases. The implementation revolved around the three main objectives of establishing a sustainable operational information and communication network, selecting and engaging 50 resource-poor communities to participate in the project, and designing an innovative mass media campaign to raise awareness of the project and its benefits.

THE INFORMATION AND COMMUNICATION NETWORK

This process started with identifying the stakeholders and assessing their information and communication needs. The analysis suggested that the five priority issues related to youth, women, environment, marketing and NGOs. This served as the foundation for developing the content of the RADCON systems and a user-friendly interface.

Twelve systems, two forums and a statistical database were created. The systems are listed in Table 1, together with their main objective and the organizations responsible for overseeing them. A 'system' was a repository of common knowledge related to a particular topic, providing an interactive and dynamic communication link among all stakeholders; a 'forum' was a public space where all stakeholders could post information on upcoming activities and other notices. The main objectives of each of the systems and forums, as well as the roles and responsibilities of each stakeholder in relation to information generation and management, were defined.

Apart from these specialized systems, there were two other systems dedicated to monitoring the use and efficiency of the overall project, one focusing on the VERCON components, and the other on components specific to RADCON.

The two forums were the VERCON forum and the RADCON forum, and the statistical database provided statistical and marketing information.

THE PARTICIPATING COMMUNITIES

Identifying and selecting 50 resource-poor communities was conducted in seven Governorates: Assuit, Beheira, Dakahiva Fayoum, Ismailia, Kafr Al-Sheikh and Noubaria. The initial number of communities included was 177. The first step in the

Table 1 THE RADCON SYSTEMS

SYSTEM	MAIN OBJECTIVES	RESPONSIBLE ORGANIZATION
Farmers' problems	Provide an interactive and dynamic communication system between farmers, extension workers and researchers	Research and extension
Expert	Provide on-the-spot solutions for agriculture-related problems	CLAES
Brochures	Serve as a digital repository for all the extension related brochures prepared in Egypt	CAAES
Multimedia	Serve as a digital repository for slide shows produced for a number of agricultural operations, as well as the multimedia materials prepared by the RADCON project	ARC, CAAES, ICD Unit
Youth	Provide information to help young adults to increase self-reliance and self-employment	CARE, SCY
Women	Provide information to help women to increase self-reliance and self-employment	AERDRI , PCUWA
NGO	Provide information on establishing and managing NGOS	CARE
Environment	Provide information on reducing environmental degradation	SWERI
Marketing information	Provide information to help farmers increase farm income, select high-value crops for production and be aware quality standards	Investment & International Studies
News	Provide information on televised extension programmes, and dates and locations for training sessions, workshops and seminars	MALR

process was based on a range of general criteria, such as farm size (less than 2 feddan), household size (more than eight members per household), education level of household members (low), physical infrastructure (inadequate in terms of electricity, water, transport, etc.), social infrastructure (limited in terms of NGOs, CBOs, etc.), telecommunication services (inadequate in terms of telephones and internet access), use of agricultural equipment and machinery (low) and presence of subsistence farming (high).

The second step focused on indicators that were more directly related to the RADCON project, including:

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- the existence of a popular local organization that dealt with rural families
- the willingness of this organization to serve as a RADCON centre from 5 pm to 8 pm, 5 days a week
- the availability of a suitable place in the organization to host rural people's visits and conduct meetings
- the commitment to select two people (a young man and a young woman) to work as community facilitators

The local organizations that were willing to serve as RADCON centres included local agricultural cooperatives, extension centres, youth centres, women's societies, veterinary clinics and local community development organizations.

The next step was for the ICD Groups to select community facilitators. This was done in close collaboration with the selected local organization and community leaders. The criteria used for selecting the facilitators included gender (to achieve a gender balance); residence (the facilitator had to be a resident of the community where the RADCON

Table 2 THE RADCON CENTRES

GOVERNORATE	TYPE OF HOST						
	Agricultural	*Extension*	*Youth*	*Women*	*Veterinary*	*CDO*	*Total*
Assuit	10	1	2			1	14
Beheira	7	2					9
Dakahiva	2						2
Fayoum	3	1					4
Ismailia			3				3
Kafr El-Shiekh	7	2	4		1		14
Noubaria				3		1	4
Total	29	6	9	3	1	2	50

Table 3 NUMBER AND GENDER OF COMMUNITY FACILITATORS

GOVERNORATE	NUMBER		
	Male	*Female*	*Total*
Assuit	14	14	28
Beheira	15	12	27
Dakahiva	3	3	6
Fayoum	4	8	12
Ismailia	3	3	6
Kafr Al-Shiekh	14	14	28
Noubaria	4	4	8
Total	57	58	115

centre operated); educational level (facilitators had to be educated to general or technical secondary level or higher); and willingness to be part of the RADCON team. At the end of the selection process, there were two or three facilitators for each RADCON centre, at least one of them a woman.

Training was provided to all the key stakeholders of the project, using two approaches. One approach was to train people directly involved in the implementation of the project (researchers, extension workers, ICD Group members, community facilitators). The other was a training-of-trainers approach (for staff from NGOs and universities connected to the project). The topics covered in the training sessions included the operation and use of the VERCON and RADCON systems, multimedia production and PRCA methods. Four training cycles were implemented, and a total of 804 people attended the training courses and workshops.

PROJECT PROMOTION

To promote the RADCON project at both the national and local levels, an awareness-raising campaign was designed.

At national level, the campaign included 12 radio slots and 12 TV slots. The radio programmes included episodes on the project background, farmers' experiences in fodder production and milk processing, voluntary efforts of local people to develop their communities, youth projects, extension work in tomato and bean production, livestock rearing and local recipes. The TV episodes took the form of interviews and demonstrations. Among the topics they covered were the RADCON concept and how to contact the centres, small projects, gender issues, milk processing, poultry rearing and local recipes. A survey was conducted after the radio and TV broadcasts to assess the campaign's effectiveness and to help shape future RADCON awareness and promotion campaigns.

At local level, awareness-raising meetings were held regularly, in line with the participatory approach adopted for implementing the project.

PROJECT ACTIVITIES

At national level the ICD Unit provided overall direction for implementing the project and coordinated the activities carried out by groups related to the project. Particular attention was paid to the monthly performance reports prepared by each of the seven ICD Groups in the selected Governorates. The unit used this information to adjust field activities, amend training sessions and courses based on identified stakeholder needs, and monitor the information and communication flow in the RADCON systems. As part of its monitoring and evaluation task, the unit met monthly with the seven groups to review progress and discuss objectives and activities for the forthcoming month.

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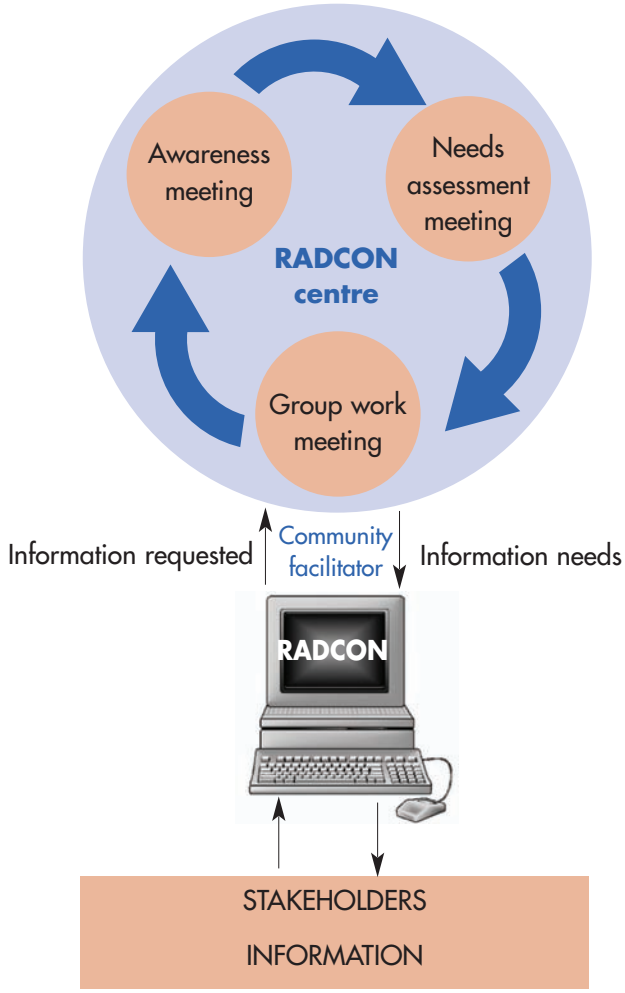
At Governorate level, the ICD Groups helped the community facilitators to organize the meetings that were part of the participatory communication approach and provided the facilitators with technical support. They also identified local development-related success stories and indigenous knowledge and helped the facilitators to identify, prepare and publish success stories and indigenous knowledge on the appropriate RADCON system. ICD Group members met monthly with all the community facilitators under their jurisdiction, reviewed their work and discussed plans for the following months. They used the information from these meetings to prepare their monthly performance reports for submission to the ICD Unit.

At community level, the activities conducted by the facilitators revolved around the meetings they organized in line with the participatory communication approach being used. Each of the three types of meetings – the awareness and discussion meeting, the needs assessment meeting, and the group workshop meeting – was held weekly (see Figure 2). To attract more community residents to the meetings, the facilitators invited keynote speakers once a month to address the meetings, usually extension workers with expertise in areas of interest to the community.

In addition to identifying and publishing indigenous knowledge and success stories, as noted earlier, the facilitators also provided regular web-based reports on the number of

Figure 2 THE RADCON PARTICIPATORY COMMUNICATION MODEL



daily visits by local people to the RADCON centre, the topics raised by participants in the awareness meetings, a summary of the discussions at the needs assessment meetings, and a summary of information uploaded onto the RADCON systems.

KEY CHARACTERISTICS OF PROJECT IMPLEMENTATION

The key characteristics of the implementation of the RADCON project were:

- **Multi-stakeholder dialogue:** RADCON was based on multi-stakeholder dialogue, including several ministries (agriculture, science, energy, water, resources), national agricultural research centres, extension service providers, agricultural education institutions, civil society and farmer organizations, and farmers

- **Use of PRCA approaches:** The use of PRCA tools to assess the information and communication needs of researchers, extensions workers and the selected communities made possible the continuous identification of the information needs of these groups and thus kept the project relevant for them.

- **Awareness raising:** The strong awareness-raising campaign that was implemented at national, Governorate and community level ensured early interest and project acceptance by rural communities.

- **Capacity building:** RADCON encouraged capacity-building activities for project staff and end-users; these activities were implemented throughout the project, based on needs assessments conducted for each stakeholder group.

- **Appropriate and user-friendly technologies:** The project encouraged the use of appropriate and user-friendly technologies; end-users provided continuous feedback to the project team and especially to the ICT team, ensuring that the technologies suited their capacities and needs.

- **Knowledge sharing:** The project activities were closely monitored and the knowledge and experiences gained were shared in a timely and accessible way, giving stakeholders information about how the other end-users were using the technology and identifying and resolving problems, and how the project was contributing to improving the livelihoods of the rural communities.

- **Role models:** The deliberate appointment and training of young male and female facilitators, previously not approached for advice and knowledge, gave these facilitators skills (e.g., in ICTs) and a sense of empowerment, thus creating new role models.

Part 3

ASSESSING AND EXTENDING THE RADCON PROJECT

The RADCON pilot project was widely viewed as successful by its stakeholders and outside organizations. In the assessment of the design and implementation of the project, several factors emerged that seemed to account for its success. The assessment also highlighted the main challenges and constraints that the project faced, the options for extending it, and the lessons learned.

KEY SUCCESS FACTORS

- **A community-based information network:** RADCON was established as a community-based information network, focused on identifying and meeting the information needs of rural communities. It was based on using innovative and tested PRCA methods tailored to the specific context of the communities that the project was designed to assist.

- **Decentralized system:** Once stakeholders were convinced of the benefits of the project, its decentralized nature quickly gave them a sense of ownership of the information they generated, eliminating 'communication bottle-necks' and allowing for dynamic communication among information providers and recipients.

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- **High level of end-user participation:** Although the rural people were the main users of the information provided by the project, they also generated their own information and improved the information generated by research and extension organizations; in identifying success stories in their own communities and uploading these stories onto the network, they served as examples for other rural end-users.

- **Expanded stakeholder base:** RADCON identified and brought together many national and local stakeholders whose work related to improving the livelihoods of the rural people, which provided a broader base of experience on which to draw when identifying the needs of rural communities and how to address these needs.

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- **Use of enabling solutions:** The use of ICTs provided the basis for a continuous and multi-directional communication network for the stakeholders, a timely flow of information among the stakeholders and a dynamic and pro-active system.

- **Increasing ICT literacy:** Through its training of the community facilitators in participatory communication methods and the RADCON systems, the project helped to improve the level of ICT literacy in rural areas; the facilitators served as information mediators and as the interface between the rural people and ICTs, which facilitated access to ICTs and helped rural people to apply the information provided in their communities.

CHALLENGES AND CONSTRAINTS

- **Composition of management units:** RADCON's main goal was to improve the livelihoods of rural communities, but the strategic direction and implementation of the project depended heavily on public sector agriculture-related stakeholders. This stemmed from VERCON being the foundation of the RADCON project and was reflected in the composition of the project management units at national and Governorate level. The lack of representation at decision-making levels of NGOs, women and youth organizations, and private sector agriculture-related enterprises limited the level of cooperation and support from these rural development stakeholders.

- **Quantity of information provided:** This lack of representation affected the type, quantity and quality of the information provided by the project. It meant that most information was related to the agricultural sector (basically, information provided by VERCON), non-agriculture-related information was limited, and much of the information provided was too general, often lacked the detail needed by end-users, and failed to address the specific needs of end-users in different Governorates.

Table 4 A SWOT ANALYSIS OF THE RADCON PROJECT

STRENGTHS	WEAKNESSES
Diversity of stakeholders Strong PRCA Good initial training program Engagement of community leaders Based on experience gained from VERCON Committed staff Community-based Monitoring and evaluation system Open to all stakeholders Independence of the ICD Unit Presence of community facilitators Strong awareness campaign Demand-driven	Weak cooperation with stakeholders outside of the agricultural sector No continuous training No representation of non-agricultural stakeholders in the decision-making bodies (national and Governorate level) No representation from the private sector No clear roles and responsibilities (in terms of who pays what for the RADCON centres) Community facilitators are volunteers; they can decide to leave at any time IT training and maintenance Lack of a 'champion' in central government
OPPORTUNITIES	**THREATS**
Can become the focal communication point in the communities Can expand to more areas The need and desire of rural residents to have more information on rural development	No financial plan; financial sustainability is not addressed Project with similar objective of providing rural communities with information

- **Lack of adequate human resources:** At national level, in terms of project management the ICD Unit was the most important single unit in the organizational structure of the RADCON project. The unit's independence from any government institution enabled it to work with a wide range of stakeholders without compromising the project objectives, but it lacked adequate human resources to deal with all the tasks it was mandated to carry out. At community level, the human resources constraint related to the fact that the facilitators were all volunteers, and therefore could leave the project at any time; this led inevitably to the need to identify and train new facilitators for time to time, which slowed project implementation.

- **Financial sustainability:** While VERCON had a clear 'host' organization (MALR), RADCON did not, and therefore no single organization included RADCON in its financial projections and budgets. Also, while the VERCON component in RADCON received ongoing financial support from the MALR and research organizations, no similar ongoing support was available for the RADCON-specific components, including the community facilitators. The project was also hampered by the lack of formal agreements with the organizations hosting RADCON centres in the communities.

- **Network sustainability:** The main financial constraints facing the network were related to human resources (including the salaries of those involved in implementing the project at national, Governorate and community levels) and the ICT component (the costs of internet connectivity and hardware and software maintenance, again at all levels, including the RADCON centres at community level).

EXTENDING THE PROJECT

- **Finance:** There are several options available for obtaining the financial support needed to sustain the RADCON project:

  - One option would be to include the project in the Government budget for a limited period of time. During this period, the project would expand to additional communities, increase the number of end-users at community level, and improve the quality and quantity of information provided to end-users. Once a critical mass of RADCON centres was established and operating across the country, a nationally based organization could be created in order to take over the management of RADCON.

  - A second option would be to create a two-tier service-provider organization. This organization would provide information services free-of-charge to rural people below a certain level of income, and for a fee to agri-businesses, agriculture-related organizations and individuals above a certain level of income.

  - A third option would be to draw up a cost-sharing agreement under which RADCON could share its network and resources with other government organizations working in the rural communities served by RADCON centres, such as the Ministries of Education, of Health, and of the Environment, and the Supreme Council of Youth (SCY).

- **The network:** There are three options available for sustaining the network:

  - One option would be to share the financial cost of the network, especially the cost of providing and maintaining the project's ICT components, with other organizations operating in the communities served by RADCON centres.

  - A second option would be to allow RADCON centres to serve as an extension of the village bank in communities where there are no village bank branches. Thus, the network could provide two services to the village banks for a fee: help rural people to prepare loan applications and business plans for their projects; and promote village banks to rural communities.

  - A third option would be for RADCON to share its resources on a fee-sharing basis with organizations already in the community, and serve as a representative or branch for organizations not presently operating at community level.

- **The RADCON centres:** There are several option to explore with regard to sustaining the RADCON centres:

  - One option is to encourage the centres to implement a for-profit activity, and support their core activities with the income generated. These for-profit activities could include a small project (e.g., dairy, poultry, crafts, selling agricultural inputs, providing communication services for a fee). A formal agreement would be needed from the organization hosting the RADCON centre in each community. If the centre is hosted at an extension centre, an agreement would be needed from the MALR; if hosted at a youth club, it would be necessary to enter into an agreement with the SCY; and if hosted by an agricultural cooperative, an agreement with the Central Administration for Agricultural Cooperation (CAAC), under MALR, would be required.

  - A second option would be to draw up formal agreements with organizations such as the SCY and CAAC, whereby these organizations shared the financial cost of running those RADCON centres that their community branches were hosting. For example, they could at least support the cost of internet connectivity, as they are direct beneficiaries of this facility.

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  - The most effective option might be an arrangement that allows for a combination of the above two options or a public-private partnership agreement.

LESSONS LEARNED

The key lessons learnt from the implementation of the RADCON project can be summarized as follows:

- **Acceptance of the participatory communication approach:** A successful and efficient project focusing on providing information requires a rapid, effective, continuous and community-accepted participatory communication approach. The earlier in the implementation process that an appropriate participatory communication approach is identified and implemented, the more efficient and effective the use of project resources is likely to be, and this increases the likelihood of achieving the project goal and objectives.

- **Stakeholder management:** An open information and communication network allows for timely interaction among project stakeholders. A key requirement for effective interaction, as well as for realizing potential benefits that such a network offers, is the continuous engagement and motivation of all stakeholders, and being aware that keeping stakeholders motivated and engaged during the whole project cycle requires considerable effort.

- **Community-based system:** A community-based information and communication network allows community members to be both information users and generators. This increases the effectiveness of the project, raises the self-esteem and sense of ownership of the rural stakeholders, creates new community-specific knowledge and exponentially increases the amount of information flowing through the network.

- **Bridging the ICT gap:** Appointing community facilitators is an effective and efficient way of reducing ICT illiteracy in rural communities. The facilitators encourage the communities to identify their information and communication needs, and then help them to address those needs through the use of ICTs.

- **Project management unit independence:** The independence of the project management unit (in RADCON's case, the ICD Unit) provides the basis for bringing a variety of stakeholders into the project and ensures objectivity and unbiased solutions to the challenges faced during the implementation of the project.

- **Demand-driven project:** A demand-driven project is likely to result in the efficient and effective use of project resources. Through the use of PRCA tools and the establishment of an open information and communication network in which all the stakeholders are both information users and information generators, RADCON was able to remain focused on the information and communication needs of the stakeholders.

- **Engaging local leaders:** The formal and informal engagement of local community leaders in the early stages of a project can accelerate its acceptance and use by the community. From the outset of the RADCON project, the management and implementation team worked closely with local leaders, engaged them in decisions related to establishing the RADCON centres and identifying the community facilitators, and kept them informed about project implementation and progress in their respective communities.

THE WAY AHEAD

RADCON enabled rural people to be proactively engaged in addressing their information and communication needs. This was achieved because it was a demand-driven project that put the needs of users at the heart of the project and built a network that

served those needs. Thus, it was a truly (and rare) bottom-up project. This factor, and facilitating communication and knowledge-sharing between all the project stakeholders and enabling rural residents to bridge the ICT divide, helped to make the project a success.

However, for the project to continue effectively and sustainably, there are several challenges to overcome, including the uncertainty over its long-term financial support, the lack of appropriate human resources and the lack of a balanced representation of all the stakeholders at various decision-making levels. During the project, financial insecurity interfered with the timely implementation of activities and limited the engagement of non-agriculture-related stakeholders.

Drawing on discussions with stakeholders and on observations during the field visits, measures to ensure that the project continues and to improve its efficiency and effectiveness could include:

- **Addressing financial sustainability:** If the evaluation of the RADCON project recommends that it should continue, one of the key areas to be addressed as part of the planning must be the long-term financial sustainability of the project.

- **Having a more balanced decision-making structure:** One way to ensure the continuous and full engagement of non-agriculture-related stakeholders would be to include them in the decision-making structures that the project has in place or might create in the future. Allowing these stakeholders a voice in the decision-making process will improve the efficiency of the project and increase its chances of success.

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- **Formalizing arrangements with stakeholders:** To use the project resources more effectively and efficiently, and maximize the benefits from the knowledge and experience of the stakeholders, there should be formal agreements with all stakeholders. These agreements should clearly identify the roles and responsibilities of each stakeholder in relation to RADCON, the resources and contributions that they will commit to the project, the incentives for fulfilling obligations and the benefits that they can derive from the project.

- **Ensuring community ownership:** A successful project enables the community to take ownership of the project or its relevant components. In the case of RADCON, community ownership could be enhanced by: identifying local champions and working with them to expand awareness of the project at community level; engaging rural people in various activities that reflect community diversity in terms of gender, economic status, education level, etc., enabling everyone in the community to see themselves as a potential user of a RADCON centre; and improving the quality and quantity of information provided by RADCON so that the centres become the focal development-related information centre in the community.

- **Establishing a network of community facilitators:** Currently, the community facilitators share their achievements and challenges only with facilitators within their particular Governorate. By establishing an online network through which facilitators can exchange information with each other, whatever Governorate they are working in, would significantly improve project impact.

ACRONYMS AND ABBREVIATIONS

AD	Agriculture Directorate
AERDRI	Agricultural Extension and Rural Development Research Institute
AES	Agriculture and Economic Statistics
ARC	Agriculture Research Centre
ARDN	Agricultural Research and Development Network
CAAC	Central Administration for Agricultural Cooperation
CAAES	Central Administration for Agricultural Extension Services
CBO	community-based organization
CLAES	Central Laboratory of Agricultural Expert Systems
FAO	Food and Agriculture Organization of the United Nations
GDP	gross domestic product
ICD	Information and Communication for Development
ICT	information and communication technology
MALR	Ministry of Agriculture and Land Resources
NARES	National Agricultural Research and Extension System
NGO	non-governmental organization
PCUWA	Policy and Coordination Unit for Women in Agriculture
PRCA	Participatory Rural Communication Appraisal
RADCON	Rural and Agricultural Development Communication Network
SCY	Supreme Council of Youth
VERCON	Virtual Extension and Research Communication Network

Participatory communication in development aims to facilitate the integration of interpersonal communication methods with conventional and new media channels, with the focus on encouraging all stakeholders to participate in the process. The growth of internet-based technologies has created new opportunities for facilitating this participation and enhancing the ability of resource-poor communities to access information and support and to share experiences and knowledge.

Drawing on the principles of participatory communication and harnessing the potential of new information and communications technologies (ICTs) to strengthen communication among the stakeholders in agricultural and rural development, the Rural and Agricultural Development Communication Network (RADCON) was launched in Egypt in 2004. It built on the experience of the Virtual Extension and Research Communication Network (VERCON), initiated in 2000 by the Ministry of Agriculture and Land Resources in Egypt in collaboration with the Food and Agriculture Organization of the United Nations (FAO).

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ISBN: