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**RDI Unit
FINAL REPORT**

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INTRODUCTION

The Reform Design and Implementation Unit (RDI) of the Agricultural Policy Reform Program (APRP) began its work in early November 1996. At that time, RDI had four American and four Egyptian experts, two each in the areas of institutions and public administration, resource economics, price policy and marketing, and privatization. In addition, RDI also employed a cadre of high-caliber short term technical experts, both Egyptian and American to work on targeted studies and specific tasks. The focus of the work during the first year or so was to assist the four GOE ministries - Ministry of Agriculture and Land Reclamation; Ministry of Trade and Supply; Ministry of Public Works and Water Resources; and Ministry of Public Enterprises -to make policy adjustments to create an economic and political environment conducive to the development of a private sector-led agricultural economy.

The first sets of policy reforms concentrated specifically on: pricing of cotton and other government interventions in the cotton market; means of adjusting water and agricultural policy to reduce the amount of water used on rice and sugar cane; altering the roles of the private and public sectors with respect to research and extension, cotton pest management and the pesticide industry in general; the development of a modern seed law and regulations for plant variety protection; and the privatization of textile and ginning companies.

In mid-1999, RDI expanded from eight technical staff to 13. In addition to the original set of experts, RDI acquired one American and Egyptian each in the areas of agribusiness marketing and agribusiness policy, and RDI acquired the services of two experts, one full-time American and a part-time Egyptian, to work with the other technical staff in policy reform and public awareness.

An additional focus of work, beginning in 1999, was designed to tackle "second tier" reforms, that is, regulatory reforms in such areas as pesticides registration, fertilizer, seeds, genetically modified organisms, and horticulture development. Unlike RDI's original focus, which was to reduce government interference in the market, the next set of project activities focused on the most appropriate types of government interventions. Thus, for example, the project assisted with development of food safety and environmental safety regulations for the release of GMOs.

Starting in 1999, after concluding that information is the foundation of a market economy, RDI began work in this area. RDI's first venture into the information field was with the Economic Affairs Sector (EAS) of the MALR to institute a new system for collecting, managing and distributing cost of production and farm income data. Starting in pilot governorates in 1999, the new system is now implemented countrywide by the EAS. In addition, RDI helped to establish websites for market information. RDI in 2002, turned over three marketing information websites in cotton, rice, and horticulture, to the Ministry of Foreign Trade. RDI also helped CATGO to develop a website to distribute results of high volume instrument testing of cotton destined for export.

As the project progressed, the RDI Unit assisted the government and the private sector to establish mutually beneficial relationships between them. For example, RDI Unit worked with the Egyptian Seed Association to upgrade its capability to be a part of the policy making process. RDI helped pesticide organizations to establish protocols and training for dealer certification and licensing in anticipation of a government decree requiring this. The efforts to promote proper roles for the public and private sectors, and to establish positive working relationships between the two are some of the most significant accomplishments of the project. Certainly, these efforts will lead to sustainable progress in the policy adjustment process.

Inter-ministerial cooperation is also an important achievement of the project. Before APRP/RDI, the MALR and the MPWWR had few, if any, joint programs, despite the common problems they faced. RDI, in cooperation with the Water Policy Reform Program in the MPWWR (later the Ministry of Water Resources and Irrigation), facilitated inter-ministerial cooperation through working groups. The sugar cane and rice working groups, with members from the two ministries, worked to promulgate joint policies on water savings on these two important crops.

The greatest success in the area of inter-ministerial cooperation was the work of the matching irrigation supply and demand working group. This national program instituted a system of information flow between the two ministries so that the MWRI has improved knowledge of farmers' irrigation water needs. The information system is designed to improve the ability of the MWRI to deliver irrigation water when farmers' need it and in the right amounts. In late 2001, HE Minister of Agriculture and HE Minister of Water Resources and Irrigation signed a joint memorandum of understanding acknowledging the importance of the program and assigning a Joint Inter-ministerial Committee to implement the MISD program throughout the entire Nile Valley and the Delta. To date, this activity covers 3 million feddan in the Nile Valley and the Delta, and the Joint Committee has specific plans for the expansion of the program to another 2.2 million feddans by the end of the 2003.

A word must be said about how RDI did its job. In addition to the many specific policy and regulatory changes, the RDI Unit always operated in a transparent mode with the active participation of all stakeholders. Gone were the days when policy changes occurred in closed meeting room. RDI's operating principles includes the notion that sustainable positive change will happen only if all those affected by a change are involved in the process of making that change. Thus, RDI sponsored hundreds of meetings, workshops, roundtables, and other open fora to ensure that all had a chance to voice their opinions and concerns. Each of these events was designed to produce concrete plans for policy reform action. In addition, notes, memos and summaries of meetings and public fora were made public, either electronically or in hard copy.

RDI is proud of its accomplishments. RDI is also proud that it has had excellent working relationships with hundreds of colleagues in the GOE, the private sector, and other donor groups. All of us at RDI are grateful for the opportunity to work with these colleagues.

Bringing together all stakeholders to discuss ideas and conduct joint work programs on the most important issues facing the agricultural sector has been the basis of RDI's success.

In the pages that follow, the RDI Unit presents its work and accomplishments from the past 6 years. The structure of this final report is by commodity, input, or other practice area. There are 18 chapters. Each has a small introduction which considers what RDI intended to accomplish in the particular area, followed by discussion of the main areas of intervention.

PEST CONTROL

Prior to the APRP project, the Government had maintained a role in the direct provision of pest control services, especially in pest control of cotton. Farmers were not able to choose between providers in a market for pest management services, and they were not charged the true costs of pest control. RDI aimed to promote the expansion of the role of the private sector in the provision of commercial services to farmers.

With the development of a private sector-led, liberal economy, it was important that the Government take on the role of regulating—licensing and monitoring—private service companies. This included recommending IPM strategies, monitoring the implementation of recommendations, providing pest forecasting and an early warning system, monitoring pesticide use and quality, conducting research on and extension of efficient and safe pest control techniques, and collecting and analyzing data on pesticide use, areas treated, and the costs associated with different pest control techniques.

In order to promote effective pest management, RDI first focused on defining the role of the government in pest control. This policy issue was aimed at creating a market for pest control services so that: 1) farmers were charged the real costs of pest control; and 2) the Government took on the role of regulator and licensor of pest control services.

DEFINING THE ROLE OF THE GOVERNMENT

Beginning in 1997, RDI worked with the GOE to establish a pest management strategy that defined clearly the roles of government agencies, private sector service providers (including cooperatives), and farmers in pest control. They aimed to develop a strategy that would include provisions to ensure environmental protection and government regulation, inspection, and oversight of pest control operations carried out by private sector companies. Farmers were to have a choice of service providers in a competitive market.

In order to accomplish this, RDI and GTZ conducted meetings and a workshop to gather input for the development of a strategy. On April 29, 1998 a workshop was held in collaboration with the IPM Collaborative Research Support Program of USDA with 50 participants from MALR and the private sector. A roundtable meeting followed on May 25. In June and July, RDI sponsored an additional three pest management planning workshops, with 65 participants in attendance in total.

These efforts led to the development of a draft strategy. This document outlined the objectives of the new strategy and clearly set out the roles of the MALR, farmers, and the (rest of the) private sector. Some priorities were given, e.g., the need to make a transition in cotton pest management because of the still extensive participation of the MALR. It stated that “Farmers will be free to purchase pest management inputs and services in a competitive market of providers.”

This strategy was formally presented to HE Minister Youssef Wally, along with a cover letter drafted by Dr. Saad Nassar on 13 August 1998. Minister Wally indicated his approval of the strategy by noting on this letter that the MALR should take steps to implement the strategy. HE the Minister also issued Ministerial Decree 663/1998 to establish a dealers training program (further discussed below). In order to consolidate these reforms, RDI held a series of pest management liberalization workshops in October and December. A total of 268 representatives from MALR and the private sector attended these sessions.

These activities fulfilled Tranche II Benchmark C.9.

COTTON PEST MANAGEMENT

The APRP Tranche II pest management strategy benchmark outlined the need for improved regulations and the removal of GOE from provision of pest management services. As noted above, Minister Wally approved this strategy in principle which effectively privatized pest management services. By 1999, pest management services for all crops except cotton were provided by the private sector. In cotton production the MALR still provided all pest management goods and services under the integrated pest management (IPM) regime. Cotton farmers were not permitted to choose service providers, nor were they permitted to determine what types of goods and services should be applied to their fields.

The MALR and farmers encountered severe pest problems with the 1998/1999 crop that led to a significant change in approach to cotton pest management. Decree 256 of 1999 called for an important shift from complete GOE provision of cotton pest management services to cooperatives offering the services with pesticides supplied, in part, by the MALR. This decree illustrated the MALR's willingness to advance the process toward privatizing these services.

Building on this progress, RDI aimed to work with the GOE to withdraw completely from the provision of cotton pest management services and supplies. Within this strategy, the MALR's role would be limited to inspecting, monitoring, licensing and providing extension advisory services. The MALR would coordinate and collaborate through its extension offices with cooperatives and the private sector firms involved in distributing pesticides and application services. Pesticide management practice decisions were to be made by those who would gain or lose as a result of those decisions, not by third parties who had no financial stake in the production decisions. However, the promulgation of Decree 256/1999 was not sufficient.

Pest management in cotton is complicated. Proper scouting, timing, application and monitoring effectiveness require substantial farmer and extension agent training which has been an ongoing activity of the GTZ Cotton Sector Promotional Program (CSPP). APRP therefore coordinated with CSPP/GTZ to develop a pilot program in cotton pest

management. This program was designed to establish a system whereby an individual farmer or group of farmers would contract with a farmers' cooperative or a private sector company to supply services for all steps required to manage cotton pests. The farmers and companies were then to work out a payment system based on the effectiveness of the services provided.

In order to implement this program, RDI activities focused on 1) explaining to government officials, who had been responsible for cotton pest management on farmers' fields for many years, that their role was now limited to scouting for bollworms and assuring proper use of pesticides; and 2) explaining to farmers that they were now responsible for making all decisions and performing all pest management on their cotton fields. Farmers were told that they now had a choice as to whom to purchase pest management services from: the cooperatives, private companies, or private traders. Thus private companies and traders were not excluded from the program; many such individuals attended the meetings of the pilot programs.

Beginning in 1999, the initiative was implemented through a policy program in 8 villages in four governorates (Menoufiyah, Daqhaleya, Kafr El-Sheikh, and Beheira Governorates). RDI and CSPP conducted governorate- and village-level meetings to explain the liberalization program, and all the farmers in these villages were trained in IPM by CSPP.

The first workshop was conducted in Cairo on February 3, 2000 with 20 representatives from MALR and the private sector. Tasks of the workshop were to discuss the objectives of the implementation program, and raise specific issues regarding the feasibility of the workplan. RDI and CSPP subsequently held six workshops in February 2000, at least one in each of the participating governorates. In total, 254 private and public sector representatives attended. These were followed by four farmer meetings in February where a total of 560 farmers attended, and six meetings in March attended by 350 farmers. Several issues of technical coordination and financing of pest management costs were raised and discussed in the farmer meetings. Four review workshops were then held in May, one in each governorate to assess progress, to review the roles of farmers, extension staff, and cooperatives, and to receive other village-level feedback. In September and October evaluation teams visited the villages of the pilot program to assess its success. They found that:

- Pesticides, sprayers, and for the most part credit were available at cooperatives.
- Farmers understood the program and approved of it.

MALR staff presented the results of their evaluation at a workshop on November 14, to which private companies providing pesticide goods and services were invited.

In 2000, this program had expanded to include 16 villages, and in 2001 it worked in 51 villages in the four Governorates. In 2002, the pilot program expanded to 8 governorates to include Beni Suef, Sharkiyah, Minya, and Gharbeya and approximately 150 villages.

In addition, the Government began changing its policy on provision of pesticides and sprayers by traders and private companies. Before 1999, all pesticides and sprayers used on cotton fields in Egypt, without exception, had to come from the Government. Beginning with the 1999 cotton production season, all materials used for early pest management on farmers' fields were allowed to be purchased from private companies, traders and cooperatives. This began first in the pilot villages and was later implemented in all cotton-growing areas in Egypt. In the same season, farmers were permitted to purchase or rent sprayers from private companies, traders, and cooperatives to use on all cotton fields in all cotton-growing governorates.

Due to these efforts, MVE determined that RDI's work on these pilot programs "exceeds that required for full accomplishment [of Tranche IV Benchmark D.6.1]. The indicator specified pilot programs in two governorates, which might have included five or six villages. In fact the programs covered 16 villages in four governorates. The scope of the programs was appropriate for the careful transition from government- and cooperative provided goods and services to a system where the entire private sector, including traders and companies, can provide such services."¹

Furthermore, APRP/RDI worked closely with GTZ/CSPP and MALR (Central Administration for Pest Control) to draft a ministerial decree allowing the private sector to provide all goods and services required for pest management in cotton. After several revisions of this draft decree, H.E. Minister Youssef Wally signed the document first as a set of instructions on January 18, 2001 and then as a ministerial decree on June 13, 2001 (Decree 1796 of 2001).

The new policy allowed cooperatives and the private sector to provide goods and services for cotton pest management as long as they were certified/registered by MALR. During a three-year period the MALR is to provide farmers training in pest scouting, determining threshold levels of infestation, and pest control methods. Farmers are to bear the full costs of cotton pest management, while MALR will provide technical supervision. This ministerial decree completed Tranche IV Benchmark D.6.2.

Due to the work of MALR, RDI, and GTZ, farmers are now able to operate as free agents, taking full control of their crop and making all decisions in all aspects of cotton production. In fact, farmers in the pilot areas are making informed decisions regarding pest control:

- The pilot program showed that farmers, when properly trained in all aspects of IPM and involved in the decision-making process, achieved higher cotton yields at reduced pest control costs and used fewer pesticides (and in lesser quantities) than neighboring farmers not included in the program or when MALR performed this job.
- Farmers, operating as businessmen, seek to maximize their yields and lower their production costs. They have reduced their cotton pest management bill to less than LE 100 per feddan, in comparison to neighboring villages where the cost of

¹ MVE Verification Report, Tranche IV.

pesticides per feddan reached as high as LE 170. The result of the program is that pesticide effects on the environment have been reduced.

- The program also contributed to the enhancement of the role of the village cooperative as a private sector provider.

PESTICIDE AND PESTICIDE COMPANY REGISTRATION AND LICENSING

As discussed above, in Tranche II of APRP the GOE developed a pest management strategy that redefined the roles that the Central Authority for Pest Control and the private sector. The strategy concluded that pest control decisions would be undertaken by farmers, and that farmers would be responsible for all costs.

RDI concluded that these decisions, privately taken, had to be made within the context of the GOE's regulatory framework for pest management. That regulatory framework should include registration of pesticides and spraying equipment and licensing and certification of private sector companies and individual applicators.

At that time, the GOE had a body of regulations which governed pesticide management services. The regulations were, however, incomplete with respect to their application to private sector activities. RDI noted several reasons to formulate complete regulations for the private sector. First, regulations were needed to ensure that pesticides were chosen and used safely and effectively with minimal negative environmental effects. Second, incomplete or ambiguous regulations did not provide the private sector with clear direction on what was legal. This increased business risk in the sector. This would be remedied by clear cut regulations to reduce the possibility that unilateral policy decisions could be made which could have adverse affects on companies or on the environment.

The Tranche III two-year benchmark targeted registration and licensing and resulted in three workshops with the GOE, the private sector, and cooperative representatives that focused on acceptable alternatives for transferring responsibility for pest management services to the private sector.

PESTICIDE COMPANY AND APPLICATOR LICENSING

In 1997, RDI therefore began working with the GOE to establish regulations to govern the activities of the private sector pest management services industry. The GOE began to prepare licensing procedures for private companies and for individual applicators. Licensing procedures were designed to ensure that official, public, and clear pest management recommendations were adhered to. To be licensed, a private company or an applicator had to prove knowledge of proper recommendations and field implementation techniques, including safety measures.

Following a series of meetings and awareness raising workshops held by RDI, the MALR issued Ministerial Decree 663/1998 which provided for transparent pesticide regulation

and issued regulations concerning the licensing of pesticide companies and applicators. This contributed to accomplishing Tranche III Benchmark D.7.

PESTICIDE REGISTRATION PROTOCOLS

Another area of concern in the pest control sector was government decision making regarding the registering of pesticides. For example, Ministerial Decree No. 874/1996 banned the import, use, experimentation and handling of USDA/EPA Group B and Group C pesticides. The imposition of the ban came from the classification of Group B products by the United States Environmental Protection Agency as probable human carcinogens and of Group C as possible human carcinogens. The decree did not give any scientific, regulatory, socio-cultural or economic justification for the ban. Most of the pesticides found in Group B and Group C were still used in the United States, although some were listed as restricted use pesticides, that is, pesticides that must be applied by licensed applicators.

Decrees such as No 874/1996, which did not provide clear rationale for its promulgation, constrained the development of a private sector pest control industry. RDI determined that the GOE needed to develop and routinely use a registration process for pesticides which took into account data and analysis, conducted in Egypt or perhaps other selected countries, to determine the level of risk associated with a particular pesticide, and should identify special precautions, such as licensing of applicators, that may be required. This registration process was to take into consideration hazard identification, dose-response assessment, exposure assessment, and risk characterization. Much of this discussion was based on a letter from the United States Environmental Protection Agency.

RDI's objective was therefore to develop and implement a registration procedure for pesticides which was consistent with international standards for safety, and which allowed for the growth of a private sector pest control industry. The policy would permit use of a wide range of pesticides banned by Decree 874/1996.

In 1998, Dr. Salwa Dogheim, Director of the Residue Analysis Lab for Pesticides and Heavy Metals, circulated a draft of new regulations for pesticide registration. This draft was reviewed by the public and private sectors, and a consensus was reached by the public and private sectors on the nature of the new regulations for pesticide registration. The document was published in late 1999.

RDI also completed a review of the pesticide laws and regulations published in 1999. The document included summaries of decrees affecting pesticide use which were issued from the 1950s to the present, and an analysis of ministerial decree No. 663/1998 providing for agricultural pesticides. The review also included models proposed by MALR as guidelines for pesticide management in Egypt.

In order to publicize these new registration procedures, RDI held public awareness workshops throughout 2000 and 2001. A total of over 450 representatives of the private

pest management goods and services industry, MALR, the Ministry of Health, EEAPA, and EATSAP attended the workshops. In September and October, RDI conducted an additional two vision seminars on the roles of the public and private sectors in pesticide registration. A pesticide registration follow-up session took place in November 2000 attended by 28 representatives from EAAPA, EATSAP and MALR Central Laboratory for pesticide residues.

As a result of these efforts, Tranche III Benchmark D.7 was accomplished.

PESTICIDE DEALERS TRAINING

There are as many as 4000 pesticide dealers/traders in Egypt, and many are not qualified to handle, transport, and store pesticides safely. Some dealers are unscrupulous, some are unable to read and understand labels, and many are simply uninformed. The effects of this have included excessive pesticide application; use of improper pesticides; unsafe handling, mixing, and application; and improper disposal of unused product or discarded containers.

In response to this situation, in 2000 and 2001 RDI worked with two associations to sponsor association dealer training: Crop Life Egypt (CLE) and the Egyptian Seed and Pesticide Traders Association (ESPTA). The goals of the associations matched those of MALR: to increase the capacity of dealers to offer good and safe products and services, identify and remove disreputable dealers, and ensure environmental safety.

These activities began with a workshop on pesticide trade and certification and training on October 10-11th 2000 for 140 representatives of the pesticide industry, ARC, MARL, GTZ/CSPP and APRP. In February 2001, RDI conducted public awareness and training workshops for over 190 pesticide and seed traders in Assiut, Tanta, and Mansoura. From April to June, RDI trained an additional 151 pesticide traders in Alexandria and Sharkeya. In November, RDI held a three day pesticide training and certification workshop in Assiut for 25 trainers from Crop Life Egypt and EATSAP (Egyptian Association of Traders in Seed and Agricultural Pesticides).

RDI, in cooperation with the GTZ Cotton Sector Promotion Program (CSPP), also designed a dealers training manual and a manual for training of trainers (TOT) based on ministerial decree No. 663 of 1998. (*Pesticide Dealers Training Course-Trainers Manual* and *Pesticide Dealers Training Course-Technical Manual*, July 2001). The manuals included the registration requirements, the renewal of the registration, the application form for registration of chemical pesticides, and the protocol for testing package efficiency and its conformity with the technical standards. The manuals also provided technical standards for toxicity, allowable daily intake, residuals, and environmental chemistry and rate of toxicity.²

² The manual additionally provided a number of forms for approval of pesticides. This included labeling, uses, application mode, name of the pesticide, chemical composition, safety measures, first aid, anti-poisoning drugs, preharvested (safety) period, pesticide classification according to the WHO, pre-cautions, producers' address, importers' address, date of manufacturing, expiry date, operation number, lot number, and domestic registration number. The manual had a number of annexes, such as the conditions to be

Upon completion of the manual, the two associations identified 25 prospective trainers that would receive TOT courses, and subsequently conducted training pilot courses for pesticide dealers. Financial support from RDI and CSPP covered the TOT and initial training pilots, and DT2 training financing covered all additional training through August 2002.

PUBLICATIONS

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Oteifa, Bakir. *Analytical Review of Pesticide Laws and Regulations in Egypt* (RDI Report 70). June 1999.

RDI Unit, *Cotton Pest Management Service--Shifting Responsibilities from MALR to Farmers, Cooperatives and other Private Sector Providers*. (Policy brief #21). June 2000.

El-Fattal, Lamia, Treen, Tony, Shehata, Samir, and Fahmy, Tarek Mourad. *Cotton Pest Management Services: Transferring Responsibilities from MALR to Farmers, Cooperatives, and Other Private Sector Providers*, (Report 136). June 2001.

fulfilled in pesticide stores, application for pesticide analysis (for clearance from the customs or for approval of handling a locally-produced pesticide), certificate of analysis, and a specimen form for clearance from customs.

COOPERATIVES

In a free market economy, farmers have the chance to invest in their own production, to choose the products they grow, the form in which they will sell their goods, and the markets into which they sell their output. With moves toward liberalization, however, small-holding farmers have found themselves at a significant disadvantage in purchasing inputs, marketing their products and, especially, in adding value to their output through investments in post-harvest handling.

In response to these market conditions and increased competition, Egyptian farmers now have to overcome the disadvantages inherent in the country's pattern of small landholdings, where the average farm size is under three feddan and a great majority of farmers have less than one feddan under cultivation. The most effective strategy small producers can utilize is to organize themselves into groups of sufficient size to achieve marketing economies of scale.

Cooperatives have been and remain the only private organizations which represent and protect farmers' interests in Egypt. They cover the entire country. Membership is optional but nearly universal. With support from the MALR and from RDI, many Egyptian and foreign private companies have begun approaching multiple purpose cooperatives (MPCs) and specialized cooperatives and investing together to increase and improve the quality of on-farm production and to install post-harvest handling infrastructure for sorting, packing, cooling, and transport to add value to their output. Despite this growing pattern, many private firms, and even many cooperatives, remain somewhat reluctant to risk their funds in enterprises which seem, in some ways, subject to governmental control.

Due to this situation, in 2000 RDI began to identify and address several elements that compromised full management autonomy of the multi-purpose and specialized cooperatives. RDI found that while these organizations were receiving no subsidies from the GOE, many of their members still viewed the GOE as controlling and guiding their activities. This feeling came from two GOE intrusions in cooperative management, which were:

- The MALR had the right to name one member to the Board of Directors of any cooperative. This was often an influential local personality who generally had a strong influence on cooperative policies and decisions; and,
- MALR assigned to the cooperatives, *gratis*, technical staff to manage many key cooperative activities. This included profit-making endeavors such as mechanization units and poultry farms.

From this analysis, RDI concluded that the MALR could make a significant contribution to the independence and sustainability of the agricultural cooperative movement in Egypt by voluntarily renouncing its right to name board members for multipurpose or specialized cooperatives and by allowing and encouraging cooperatives to hire and pay

for the staff which were providing services at GOE expense. If the cooperatives did not wish to hire these specialists, the MALR would take them back or provide them with retirement packages.

In 2000, RDI began collaborating with the MALR and cooperative leaders in order to promote the independence and sustainability of multi-purpose cooperatives in Egypt. After defining the objectives of cooperative reform, RDI worked in close consultation with MALR and the Central Administration for Agricultural Cooperatives (CAAC) to select the pilot Governorates and to determine the selection criteria of the cooperatives that were to be involved. Through a series of meetings involving representatives from MALR and CAAC, RDI explained the points of the program, fielded comments and suggestions, and selected the pilot Governorates of Daqhaleya and Assiut to participate in the project. Staff meetings at the Governorate level resulted in the selection of four multipurpose village-level cooperatives in each Governorate.

Upon selection of the pilot areas, RDI held a series of workshops in Daqhaleya and in Assiut in September and October 2001. The workshops had two primary purposes: first, to work with cooperative leaders in defining the organizational mission of their cooperatives and in clearly delineating the respective roles of the board of directors and of the cooperative manager. This was designed to improve managerial capacities of cooperative leaders and prepare them for fully autonomous governance. Second, workshops were designed to underscore cooperative independence from local and national government control. Working with cooperative leaders to set time frames for when free elections for board members would be held, cooperative and government officials agreed on the preeminence of cooperative autonomy and the importance of independent management. In total, 50 cooperative members from Assiut and 65 from Daqhaleya attended these workshops.

COOPERATIVE AUTONOMY

Promoting autonomous governance of the cooperatives is key to decoupling these associations from government control. The Minister of Agriculture has traditionally had the prerogative to appoint members to the cooperative Board of Directors at the governorate and national levels. With the launching of RDI's cooperative reform project, however, Minister Youssef Wally agreed not to appoint any members to the boards in Assiut and in Daqhaleya.

This decision was finalized in a memorandum submitted to Dr. Youssef Wally by Dr. Saad Nassar, the Chair of the Agricultural Research Center and Director of APRP, 29 January 2001. This memorandum underscored the importance of cooperative autonomy and specifically stated that "local cooperatives are to nominate their own directors by themselves." Additionally, cooperatives will now "establish the administrative boards from the elected members only." Dr. Wally agreed to the provisions of the memorandum and approved RDI's action plan.

Elections for the board of directors were held in Daqhleya November 3 to 7 and in Assiut January 4 to 9, 2002. These elections determined board members for cooperatives at the village, district, and governorate levels, and entailed no government involvement in the electoral process.

Furthermore, during a workshop in June 2001, the special committee for promoting agricultural cooperatives succeeded in formulating a new vision for the period 2002-2017, which stated:

The agricultural cooperative society is an economic enterprise with a social return, based on optional membership and international cooperative principles, working in a market economy, representing the interest of its members, within a legal framework which protects its capital, and enables the cooperatives to manage its financial resources as a private enterprise, and which participates in the formulation and implementation of the agricultural policy.

The draft strategy for promoting agricultural cooperatives was discussed and approved by the committee in its meeting on November 10-11, 2001. According to the strategy, the ultimate goal of the cooperative is to provide services to its members at reasonable prices, of the best quality and at the appropriate time. This includes availability of production inputs, marketing and exports, increasing and modernizing production, and rural and environmental development. The strategy covered the following major, strategic dimensions for the development of agricultural cooperatives:

- Democratic Structure and Autonomy
- Improving and stabilizing capital resources and financial management
- Developing the organizational structure of the cooperative system
- Human resources development
- Legal and regulatory environment

On November 13, 2001, Eng. Mohammed Omar Raslan, Chief of Monitoring and Agricultural Services Sector, Undersecretary for Cooperatives, sent a memo to HE Minister Wally requesting approval of the new cooperative strategy. HE the Minister gave his approval and noted on the memo that implementation steps should be taken.

MVE judged that RDI had exceeded full accomplishment of Tranche V Benchmark D.5 due to the fact that the Minister approved an entire new strategy, in addition to MALR's initiation of this concept in pilot areas.

IMPROVING THE MANAGERIAL CAPACITY OF COOPERATIVES

The Ministry of Agriculture also has plans to remove government-paid technical staff from the cooperatives. In order for this to be effectively accomplished, however, managerial staff and the board of directors of cooperatives must have a clear understanding of their roles and responsibilities in operating effective and profitable cooperatives.

RDI began the process of training cooperative board members and staff in order to build the leadership and management skills needed to successfully operate and compete within the free market system. Participants included cooperative boards of directors, executive managers, and financial officers.

These training sessions focused on brainstorming with cooperative leaders about the respective duties of the board of directors and of the cooperative manager, and in defining the organizational mission of the cooperatives. This helped board members both to focus on improving the services provided by the cooperatives, as well as to clarify their responsibilities and those of the manager. This has assisted cooperatives in hiring their own managers or in determining by whom and how their cooperatives will be run in the future.

Specifically, training covered three key areas:

1. How to become financially self-sustainable
2. How to become a self-managed entity (drawing on membership)
3. How to develop a business plan that leads to valued and high quality products that fulfills the needs and wants of the community which the cooperative serves.

The Horticultural Export Improvement Association (HEIA) implemented the training program funded by DT2 and RDI. Two pilot programs were held in Daqhaleya and Assiut in 2002. Each pilot included four cooperatives. The programs were targeted at three levels within the cooperatives:

1. The board members of the cooperatives, who attended two five-day courses;
2. The executive managers of cooperatives, who attended one five-day course; and
3. Financial officers of cooperatives (one five-day course).

All sessions were interactive in nature, allowing participants to express their opinions and create their own ideas to face the challenging environment. This interactive approach also enabled the trainers to customize the concepts and techniques provided in the course to the conditions under which the cooperative operates.

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RICE

LIBERALIZATION OF RICE SUB-SECTOR

When APRP began, the GOE had already begun to make progress in liberalizing the domestic market for rice trading and processing. Producers had the freedom to sell to any purchaser, and entry into small-scale rice trading had grown. These advances were creating employment for many people, particularly young, educated people with few alternative opportunities in Delta producing zones. Similarly, private investment in small-scale and commercial rice milling had increased.

However, the rice sub-sector had not been completely liberalized due to regulations and decrees that contributed to uncertainty. Private rice traders were under the impression that imports were not allowed, in part because no one was importing. This was due largely to the 20 percent import duty, which protected the domestic rice sub-sector, as well as to cumbersome import procedures. On the export side, the GOE had decreed that rice exports would be subsidized (by sharing rice processing costs), a measure designed to assist the distressed public rice mills. However, the decree was not actually implemented since it was promulgated in March, 1996.

RDI therefore began to work with the GOE in 1996 to abolish government controls on rice exports (and imports), and allow the private sector to purchase, process, store and export rice at prevailing free market prices. This entailed removing any restrictions on inter-governorate movement of rice, bans or restrictions on the exportation of paddy or other international trade in rice, restrictions on milling, and similar restrictions. RDI assessed that controls on access to credit were also possibly having a serious impact on the ability of the private sector to invest in and operate trading and processing facilities. The private sector's ability to competitively export rice was limited by the public sector's ownership of mills able to produce the quality of rice demanded in the international market.

Beginning in 1997, RDI held a series of meetings and working groups with stakeholders from both the private and public sectors. These sessions focused on identifying key obstacles to the development of a thriving rice trade, and also worked on finding solutions. These meetings resulted in a series of proposed action plans for the GOE to liberalize Egypt's rice sector.

Through the collaborative efforts of the government, the private sector, and RDI, the GOE called for complete liberalization of the rice sub-sector in 1997, and major controls of rice marketing were abolished. By allowing private dealers, millers and exporters to operate freely and invest in new equipment and facilities, the GOE created a positive enabling environment that contributed to the emergence of a vibrant, liberalized rice sub-sector.

Furthermore, the number of rice dealers, especially *un-registered ones* that included unemployed skilled graduates, increased substantially. MVE noted that there were reports that their numbers had increased as much as tenfold since compulsory paddy procurement and export authorization were abolished. Furthermore, the number and quality of modern, private mills capable of producing export-quality products increased markedly due to market liberalization. These accomplishments led to the fulfillment of Tranche I Benchmark C.1.

DOMESTIC RICE PRICES IN RELATION TO THE INTERNATIONAL MARKET

In 1998, rice imports continued to be hampered by protection that was effectively 30 percent of the cif value. The import tariff was 20%, limiting imports to very small volumes of some expensive long grain rice and basmati. RDI concluded that lowering protection on imported rice could lead to greater imports of lower grade rice, which would be sold to lower income consumers. This would put downward pressure on Egyptian domestic rice prices, which would reduce the profitability of rice cultivation and hence lead to water saving through reduced paddy cultivation.

Rice uses excessive amounts of water compared to other crops and the Government's efforts up to that time to reduce area planted to rice had failed. Farmers were planting nearly double the area authorized by the Government, and consumers were paying rice prices far higher than those in the international market. While the Government had authorized only 700,000 feddan to be cultivated with rice in 1996/97, over 1,300,000 were planted. Similarly, area planted to rice in 1997/98 greatly exceeded GOE targets.

The Government had shown great commitment to reducing the area planted to those crops that used large quantities of water, particularly as new projects in Sinai and Toshka demanded water usage only for the most productive and highest value uses. The Government also wanted to expand area planted to cotton, and the main competing crop was rice, which was highly profitable in part due to the restrictions on imports. Progressively lowering the tariff on rice would therefore help to reduce the strong incentives that had propelled growers to plant 1.3 million feddan or more to paddy in 1997.

RDI therefore worked with the GOE reduce the import tariff on rice. The intent was to eliminate any quantity or quality restrictions on paddy or milled rice imports, except those required for normal public health inspection and certification. Furthermore, RDI focused on working with the GOE to reduce the 20% tariff on imports of rice. This tariff offered significant protection to both domestic producers and traders, allowing domestic prices for rice to exceed international prices. Reducing the tariff would increase domestic competition for rice, reduce prices, and contribute to reducing the area dedicated to rice cultivation.

In order to encourage reform, in 1998 and 1999 RDI held a series of meetings involving stakeholders in private and public sector milling companies and the government. As a result of these efforts, H.E. Dr. Youssuf Wally, Deputy Prime Minister and Minister of Agriculture and Land Reclamation, issued a letter supporting a reduction of the tariff on imports of the regular varieties of rice to 10%.

Minister Wally forwarded his recommendation to H. E. Dr. Goweli, the Minister of Trade and Supply, and H.E. Dr. Mohie El-Din El Gharieb, the Minister of Finance. Minister Goweli attached his own letter to Minister Wally's letter to the Minister of Finance requesting the reduction of the custom tariff on regular varieties to be 10% by June 30, 1999. These moves in favor of reducing tariffs on rice imports were targeted under Tranche III Benchmark A.4.

RICE MILL PRIVATIZATION

When APRP began, the Government rice mills were held by the Holding Company for Rice and Wheat Flour Milling. These entities milled the rice, stored it and distributed it. They were also involved in exports and imports of rice. The GOE intended to privatize these mills.

The HC began to face pressure to privatize its rice milling companies following the decline of their collective market share from 50% to 10% in the mid-nineties. This lost share had been taken up by village, commercial, and modern private sector mills. At the same time, the public sector rice mills were piling up debts and operating at less than ten percent of installed capacity. Public sector mills were producing a high-quality, export-grade rice, but their costs were high (two to three times those of private mills) and the domestic market preferred cheaper rice, typically with a much higher proportion of broken grain. Preliminary IFPRI household survey data suggested that per capita rice consumption had increased, particularly in the Delta, and that most households were consuming lower-quality rice milled at small village mills.

While the public sector mills emphasized producing the highest-quality export-grade rice, the heavy investment in private mills had enabled private exporters to procure their own paddy for processing and export. In the 1980s and early 1990s private exporters depended on the public mills for processing of exported rice. By the mid-1990s, however, the installed public sector rice milling capacity of 1.2 million tons per annum appeared to be increasingly redundant.

The rice milling ACs were therefore not coping with the tough competition from the private sector. RDI judged that unless these assets were transferred speedily to the private sector, their inefficiency and market over-capacity would drive them out of the market completely. Some units would have to be liquidated as their *raison d'être* ceased to exist. However, RDI emphasized that the sub-sector should not be left to die out and waste resources that had already been invested in these processing facilities if there was

any possibility for orchestrating their recovery. RDI's activities therefore focused on improving the performance of the privatized and restructured public sector rice mills.

With support from RDI, the HC began preparing its ACs for privatization. Based on the comprehensive study of rice marketing, milling, and trade completed in December 1994, and the updated analysis of October 1995, RDI developed a privatization plan. This plan was laid out in RDI Report #6, *Liberalization and Privatization in the Cotton and Rice Sectors: the roadmap to procedural and regulatory reform*. (Vincent Ruddy and Melvin Spence, March 1997). This study assisted RDI and the Ministry of Public Enterprises in introducing a policy for transferring excess assets to the HC, providing early retirement compensation plans and technically restructuring some of the companies.

In mid-June, 1997 the Minister of Public Enterprises, Dr. Atef Ebeid, announced that the employees of the public rice mills would have an opportunity to acquire ownership. This privatization option was taken up by the Sharkeya Rice Milling Company.

APRP's RDI Unit worked with the managers of Sharkeya Rice Milling Company to develop a business plan for an agro-industrial complex that would add feed mixing and cattle feeding to rice milling (rice bran from milling could be used as an important "energy" ingredient in feed). As more public milling companies privatized, RDI provided additional technical assistance to managers through workshops designed to assist mills to compete effectively in the private sector (further discussed below).

Due to these efforts, RDI fulfilled Tranche I Benchmark II.D, Tranche II Benchmark B.4, and Tranche III Benchmark B.4.

In order to more fully understand the impact of policy reforms on the rice sub-sector, RDI also commissioned a study by a group of privatization experts in 1999. The results were published in RDI Report #53, *The Effects of Liberalization and Privatization on Employment: the case of rice* (Ron Krenz, Abdel Sattar Shenshan, Lawrence Kent, January 1999). RDI additionally published a policy brief highlighting the key findings of the study in Policy Brief #11, *Liberalization can lead to net increases in employment: the case of rice*. (January 1999, Ron Krenz, Lawrence Kent, Dr. Abdel Sattar Ahmed Shenshan).

ORGANIZATIONAL DEVELOPMENT

As the rice sub-sector has been liberalized and public milling companies have been privatized, managers of new ESA rice mills have confronted new challenges in the market. With the withdrawal of government funds, these mills are faced with the prospect of either adjusting and succeeding, or failing and disappearing. Liberalization therefore requires effective and innovative action on the part of ESA management to reorient itself to meet these challenges and run profitable enterprises.

Recognizing this, RDI worked with ESA senior and middle company managers in order to improve the business efficiency of the rice mills. In 2000, RDI sponsored two organizational development workshops in Mansoura. One workshop was for the Dakahleya Rice Mill ESA held May 15-17th for 23 senior and middle company managers. The second workshop was for the Damietta Rice Mill ESA which took place on May 30 June 1st for 21 senior and middle company managers.

These workshops focused on:

- Core management skills, such as planning, work organization, implementation and control.
- How to maximize working hours and human resources.
- How to motivate subordinates.
- How to delegate authority and responsibilities to others.
- Making decisions and solving problems.

ACC RICE SUBCOMMITTEE

APRP/RDI also worked with the rice subcommittee of the Agricultural Commodity Council (ACC) to help improve strategic planning. Beginning in 1999, RDI assisted rice subcommittee members to develop a detailed work plan to promote the exports of rice. RDI then had follow-up meetings with groups of rice farmers to coordinate export efforts.

RDI has additionally collaborated with the ACC subcommittee to lobby the government to promote rice exports. Their most notable success was in the clarified rules on credit for rice marketing and milling. Although the GOE had not imposed formal restrictions on credit to agribusinesses for several years, some banks had remained reluctant to countervene outdated regulations forbidding credit to private rice traders and millers for the purchase and processing of paddy. Due to lobbying efforts of the Rice Subcommittee, the rice union, and RDI, HE the Minister gave clear instructions to the large state-owned banks (Misr, Alexandria, National Bank of Egypt) to provide credit on normal terms to all qualified borrowers in October 2000.

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SEEDS

Egypt has made outstanding advances in the production of field crops during the past two decades, mainly because of productivity increases from the expanded use of improved crop varieties developed by the Agricultural Research Center (ARC). Improved varieties have been introduced through the production and distribution of certified seed. Maize and wheat yields have doubled and Egyptian rice yields are now among the highest in the world. This experience has demonstrated that farmers can dramatically increase their production and incomes by planting seeds of new, improved varieties.

When RDI began to work in the seed subsector, RDI experts emphasized that Egypt needed an effective system to continue to develop and deliver the newest and best varieties to farmers through high-quality seed. International experience showed that private seed industries were generally more effective than government ones in accessing, developing, and delivering the best seeds. This was due to the fact that competition among private companies serves as the incentive to develop and introduce more varieties than might result from a government program alone. Furthermore, with the private sector handling production, the government could better focus on basic research and enforcing standards through certification and plant variety protection systems.

RDI, working in cooperation with the GOE and the private sector, therefore focused on helping the seed sector progress on several fronts, mainly in policy and regulatory reform. One of RDI's primary aims was to develop a private seed industry—particularly in seed production, multiplication, and distribution—beginning with the formation of the Egyptian Seed Association (ESAS) capable of advocating for private sector concerns. RDI also worked with the GOE to improve the government's role in plant variety protection, voluntary certification, truthful labeling, and research.

Through private-public collaboration with RDI, much progress has been made in the seed sector. Before 1994, certified seed of wheat, rice, and fava beans was produced exclusively by the GOE. Today, more than twenty private companies produce these seeds, supplying over 30% of the market. Fifteen private companies produce maize seed, covering 80% of that market. Six private companies now own their own seed processing plants and many have created their own distribution networks.

EGYPTIAN SEED ASSOCIATION

The Egyptian Seed Association, ESAS, is a trade association representing most Egyptian seed companies. The association's goals are to build an internationally competitive and private seed industry, which attracts foreign direct investment, engages in strategic alliances and joint ventures with foreign partners, and provides the most modern seed technologies to the farm community. It works with the government to redefine the roles of the government and private sector in the seed industry.

RDI worked with key representatives of the public and private sector to establish this association in 1997 and 1998. In 1998, RDI sponsored five seminars and workshops attended by more than 300 representatives of the seed industry and MALR. These activities were aimed at defining the goals of the seed association, providing technical assistance in strategic planning, and identifying plans of action and advocacy strategies. APRP also helped ESAS in the establishment of the Seed Industry Code of Ethics. A code of ethics workshop was organized by RDI in October 1999 attended by 105 representatives of ESAS, MALR, the Peoples Assembly, and GTZ.

By working closely with ESAS on numerous policy and regulatory reform issues through these workshops as well as meetings and consultations, RDI helped build the association's capacities in analysis and advocacy. The Egyptian Seed Association (ESAS) has become a powerful association in the area of policy reform and liberalization of the seed sector.

DEVELOPING A STRONG PRIVATE SECTORY SEED INDUSTRY

Before 1994, certified seed of wheat, rice, and fava beans was produced exclusively by the GOE. Today, more than twenty private companies produce these seeds, supplying over 30% of the market. Fifteen private companies produce maize seed, covering 80% of that market. Six private companies now own their own seed processing plants and many have created their own distribution networks. This progress has been due to six years of policy reform efforts on the part of RDI, GTZ, and key private and public sector stakeholders.

Seed Privatization Committee

Beginning in the 1990s, the Government began to raise seed prices to increase the available margin for private or privatized companies and allow them to be profitable. By 1996, the price of rice seed, for example, was triple what it was in 1994. Prices reached the required double the cost of raw material, and the private sector began to produce.

With RDI assistance, the Government agreed to establish a committee to set the procedures for privatization. It needed to understand the legislation regarding moving the seed processing function to the private sector; at the time it was unclear whether the Government would be able to relinquish this key service without a presidential decree. Ministerial Decree 691/1997 founded the committee with the mandate to develop a program for enabling the private sector to enter into seed production. Ten of the members of the committee were from MALR, while the remaining five were from the private sector, under the leadership of Eng. Salah Abdel Wanis of CASC. RDI held the first workshop convening all members of the seed privatization committee to discuss key issues in February 1998. This was followed by a series of informal meetings and seminars.

While by the end of Tranche I, no offer of privatization was made, there was significant analysis, discussion of the relevant issues, and support by the Government of the development of an action plan. RDI held three workshops in 1998 attended by members of the seed privatization committee and representatives of CASP, HSU, EAO, MALR, and the private sector. This work took place under Benchmark II.E.1. Further steps such as raising prices to reasonable levels, and the consequent production in the private sector, set the stage for later reform efforts undertaken in subsequent Tranches.

Seed Production and Marketing

The Agricultural Research Center (ARC) is the main organization responsible for the development of self-pollinated and other crop varieties in Egypt. It is also responsible for multiplying and producing seeds for farmer clients. It maintains the varieties it develops and produces foundation seed for other seed producers. These are legitimate functions of an agricultural research entity. Self-pollinated seed can be reproduced by farmers, unlike hybrids, and as a result, their development and control is not easily managed by the private sector because they cannot capture all the benefits from the development of the seed. In most developing countries and even many developed countries, the government sector maintains control over this activity to insure the quality of foundation seed and to assure farmers of equity in distribution.

In addition to these legitimate functions of an agricultural research entity, however, ARC was also among the major producers and suppliers of maize seed in the early 1990s. RDI studies had indicated that government-run seed development and reproduction institutions were generally not the most efficient entities for carrying out these development and distribution activities. ARC had also established business units for producing and marketing seeds of the main cereal grains and legume crop varieties. Some of these seed multiplication and production rights were retained exclusively or strictly controlled.

RDI experts concluded that what was required was the development of a common vision around private sector participation in the seed sub-sector and CASP and the new role that the Government would play under the new conditions. As discussed above under Tranche I, the GOE set up a seed privatization committee to analyze this situation in the Egyptian context, and recommended how commercialization would proceed. Once the appropriate approach was determined, the GOE agreed to implement the revised strategy.

Under Tranche II, the seed sub-sector privatization committee prepared a plan for the government's approval that included allowing at least 4 CASP seed processing units to operate on a competitive basis (i.e., as a private sector business). Important legal issues that needed to be addressed were handled by the new committee, which adopted a study by RDI expert Mr. Ahmed Hassan as the legal basis for the privatization of the seed processing centers. The committee issued the Proposal of the Seed Sector Privatization Committee for Procedures of Privatization of the Central Administration of Seed Production (CASP) in MALR. The major privatization provisions were as follows:

- There were no direct subsidies and the volume of indirect subsidies (salaries and depreciation) had been reduced. The plan implied there would be no subsidies in the future.
- Five seed preparation stations, more than the four called for in the benchmark, were to be offered for sale or lease to the private sector. Divesting these units meant that they would be independent.

Additionally, the Minister of Agriculture and Land Reclamation sent a letter dated September 8, 1997 to Mr. Thomas Schurig, division head in the Ministry of Economic Cooperation and Development in Germany. In this letter the Minister committed the Government to tendering four seed processing centers for sale to the private sector during 1998/99. Additional points in the letter included:

- The Government raised the selling prices of seeds to breakeven price, completely removing any direct subsidy. This encouraged the private sector to produce at least 30% of the country's seed.
- The Ministry planned to remove all indirect subsidies as well and bring selling prices to the real cost in 1998. Commercial management would be applied in the processing centers.

The Government's privatization program with RDI and GTZ assistance therefore proceeded on two fronts. In addition to moving forward on privatization, the Government created more of an enabling environment for private investment by raising the prices it charged for seed to cover its full costs. This allowed the private sector to compete on a reasonable basis, which they could not do before. Within a year of the establishment of the privatization committee, the seed sector had at least four or more large seed companies, who had their own plants through recent investments, and about two dozen or so others who were leasing the government facilities to process seed. The Government's commitment to privatization of seed processing became clear from its work under Tranche II, completing Benchmark B.5.

Government Withdrawal from Seed Multiplication and Distribution

Tranche IV policy reforms represented one of the final steps in a long process of promoting private sector participation in the seed industry in Egypt, a process that several MALR departments, RDI, and GTZ worked on for years. The reform built on previous APRP benchmarks, and ongoing RDI analysis of the maize seed industry aimed to help with implementation of the reforms, including research on impediments to wider adoption of hybrid maize seed among farmers.

In Tranche IV, RDI worked with the GOE to cease the multiplication and distribution of hybrid seed and encourage the development of improved private sector capacities for seed production and marketing. RDI research indicated that hybrid seed was particularly well suited to private production and marketing because it dramatically outperformed

traditional seed varieties and farmers had to purchase a fresh supply of hybrid seed each year.

RDI reform efforts by 1999 were based on two studies of the seed industry performed by RDI. The first recommended a number of steps to promote the privatization of seed production and marketing. The second found that public production contributed to an over-supply of seed that hurt the financial performance of private seed companies and contributed to uncertainty in the seed sub-sector. The study also found that the price that CASP charged for its certified hybrid seed was lower than the full cost of production, creating unfair competition. The study recommended that the GOE stop public-supported production of certified maize seed by CASP and other government entities after the 1999 production year and that the sale of the resulting seed be completed by June 2000.

Under Benchmark D.5, RDI discussed reform plans in detail with the Egyptian Seed Association, individual seed companies, the GTZ seed project, and individual members of GOE seed committees. Private maize seed producing companies expressed a strong desire for the GOE to cease production and marketing of hybrid maize seed because it represented unfair competition. International seed companies such as Pioneer cited government production of hybrid maize seed as a major obstacle to further private investment in the industry. Based on this input, RDI worked with the GOE to ensure that commercial multiplication and marketing of hybrid seed was left to the private sector, and that the government focus on research, variety development, maintenance of parent lines, certification and quality control.

In response to RDI and stakeholder efforts, GOE began the process of privatizing CASP, EAO and HSU. By ministerial decrees 1236, 1237, 1238, and 1239, special committees were created in 1998 to conduct book valuations of the assets of these three GOE seed production entities. By December, these committees completed their work and RDI published Report 135, *An Economic Valuation of Public Sector Seed Production: Privatization legal strategies and policy issues*.

RDI also worked with private sector companies to improve their quality control in seed production and expand their capacities to distribute and market seeds. RDI and ESAS developed market research and related training activities to assist in this process. The first training session, attended by 20 policy makers from the MALR in February 2000, was a seminar on transferring the production of self-pollinated seeds to the private sector. This was followed by an ESAS seminar on steps to increase the private sector's share of production and marketing seeds of self-pollinating crops. Following this, RDI held two seminars on future steps for private management of the seed processing units.

These efforts resulted in a decline in estimated hybrid maize seed production by GOE entities from 2000 to 2001, partially accomplishing Tranche IV Benchmark D.5.

Privatizing delinting plants for cottonseed

In 1994 CAS arranged for seed to be delinted by a seed crushing firm. This program was important because the use of delinted seed dramatically reduced the amount of cottonseed needed for planting. By 1996, all varieties with linters were delinted.

GTZ constructed an acid delinting plant in February 1997 under the control of MALR with the intention of establishing it as a private firm. While Decree 455/1996 called for private management of the new plant, in reality 9 of the 11 board members were from the public sector. GTZ and RDI therefore continued to work together in order to push for privatization of the delinting plant.

This plant was the first out of a total of four--enough to process all the cottonseed Egypt requires--that were proposed to be constructed with German assistance. According to an agreement between the two governments, the agencies charged with project implementation were to "ensure the organizational establishment and legalization of a private sector oriented company as a legal entity and owner (through purchase, lease, or management contract) of the delinting and seed processing plant."

At a meeting sponsored by RDI and GTZ on December 7, 1997, the Board of Directors of the new plant made several decisions, including:

- The composition of the Board would be modified to reduce the total number from eleven to seven, and the balance between public and private sector members would be altered to four public and three private.
- These steps would be recommended by the management committee to the Minister of Agriculture and Land Reclamation for a decree to be issued in the very near future.

With the assistance of the RDI Unit and GTZ, a plan was developed for the privatization of the acid delinting plant. This plan covered the following activities:

- A financial analysis of the plant's operations would be conducted in January and February, 1997. Based on the resulting cash flow analysis and performance projections, the form of privatization would be determined.
- In March and April of 1997, a study would be undertaken of the germination rate of the delinted seeds. RDI estimated that past problems with germination may have been erroneously ascribed to the delinting process.
- An adoption rate study was to be conducted from March to September, 1998 on the use of delinted seeds in both 1997 and 1998.
- In October, 1998 a profitability study for the plant would combine the results of all the previous studies to prepare a feasibility study for presentation to the private sector.
- The Board would solicit private bids and proceeded with privatization at the end of 1998.

These detailed plans to proceed with public sector participation in acid delinting fulfilled Tranche I Benchmark II.E.2.

PLANT VARIETY PROTECTION LEGISLATION

Regulations to enforce breeders' rights were a high-priority reform issue in the late 1990s. At that time, there were no regulations which governed and protected private sector development of new seed varieties. There is no modern seed law in Egypt, and until very recently there was no modern intellectual property rights law. These regulations were essential.

Through a series of stakeholder meetings, RDI determined that in order for the private seed industry to invest in breeding programs—an expectation consistent with a healthy private seed industry—CASC had to have the rules and regulations to ensure that the intellectual property rights of those private companies were respected. Private investors were unwilling to invest in seed businesses in Egypt without the protection that an IPR law would provide. This prevented the development of a private sector-based seed industry. In addition, the WTO requires an IPR law that establishes plant variety protection.

Regulatory reform to enforce breeders' legal rights was also imperative if Egypt was to participate in the international seed market and gain access to genetically engineered seed material. For example, in early 1998, the Cotton Research Institute attempted to purchase genetically engineered cotton seed (BT seeds) from American cotton seed companies. The U.S. companies would not sell in Egypt because there were no regulations to enforce breeder's rights. Unless and until Egypt had the means to enforce breeders' rights through written regulation, many biotechnology advances were going to continue bypass the country.

The Government had a plan for private seed sector development, and a law protecting intellectual property rights and providing for plant variety protection was therefore a necessary precondition for this to occur. While the Ministry of Agriculture and Land Reclamation had enacted by decree most of the provisions of the seed law before the People's Assembly, two critical policy reforms required a Law, not a decree: providing legal protection for intellectual property in agriculture, such as new seed varieties; and imposing adequate penalties for infringement of these rights. Without the latter, the former was worthless. RDI therefore worked with the GOE to issue regulations and procedures on Plant Breeders' Rights in accord with the relevant Uniform Performance of Variety (UPOV) convention.

In 1997, RDI began to provide technical assistance to the Ministry of Agriculture in order to develop three articles to establish plant breeders' rights as part of an amendment to the seed sections of the Agricultural Law (Law 53). These articles defined and established the breeders' rights, as well as penalties for violation of the rights. The articles were then placed under consideration by the People's Assembly as part of the broader amendment

to the seed sections of Law 53. The new seed law proposal was presented to the Suggestions and Complaints Committee on the February 16, 1998, and on April 13, 1998 it was approved by the Committee. The next step was to discuss it in the Agriculture and Irrigation Committee on May 10, 1998 as part of getting the joint approval with the legal committee. After this approval, the proposal was then presented to the People's Assembly.

Negotiations, however, stalled in the People's Assembly. With increasing emphasis on meeting WTO requirements, RDI shifted its emphasis to the promulgation of IPR legislation that would include plant variety protection. RDI experts worked closely with CASC and with the International Union for the Protection of New Varieties of Plants (UPOV) to ensure that the draft regulations were in conformity with the requirements of the UPOV convention and, therefore, in conformity with the TRIPS Agreement of the World Trade Organization.

Eng. Salah Abdel Wanis visited the UPOV office in Geneva in October, 1997 to discuss the draft regulations. UPOV responded by suggesting some modifications to the draft. Dr. Mohamed Hawary of CASC subsequently modified the draft regulations and traveled to Geneva to deliver and discuss them with the Vice Secretary-General of UPOV (October 29, 1998). UPOV suggested further changes, and CASC incorporated these edits into its draft regulations. The development of these regulations on plant breeders' rights in conformity with UPOV fulfilled Tranche III Benchmark D.4.1.

In order to publicize these advances in plant variety protection legislation in Egypt and advocate for passage of the IPR law, RDI also sponsored a series of seminars and workshops on PVP. In total, over 500 representatives from MALR, MSHT, ESAS, universities and the private sector attended. These events included:

- An Intellectual Property Rights Seminar and Course held in Cairo from April 18-22, 1999 under the co-sponsorship of MALR, MTS, RDI, SIPRE, and USAID. Dr. Marsha Stanton, the former head of the Plant Variety Protection Office in the U.S., delivered lectures on "Plant Variety Protection," "Plant Breeders' Rights and UPOV" and "Special Discussions on PVP." Over 75 representatives of public agencies and private companies participated in this course.
- A UPOV Regional Workshop was held in Cairo on May 3 and 4, 1999, organized by UPOV and the WTO in cooperation with the GOE. Topics covered included: plant protection, the 1978 and 1991 Acts of the UPOV Convention, and "Advantages of Introducing Plant Variety Protection and of Becoming a Member State of UPOV". Dr. Mohamed El Hawary of CASC made a presentation on Egypt's development of breeders' rights. Attendance exceeded 100 people from the private and public sectors.
- The Third Egyptian National Seed Conference, held in Cairo on May 10-12, 1999 under the auspices of H.E. Dr. Youssuf Wally, also featured talks on plant variety protection systems and served to raise awareness about plant breeders' rights.

Over 200 people attended this conference from both the private and public sectors.

In addition, the Egyptian Seed Association discussed the importance of breeders' rights in its newsletter (distributed to all major seed companies) and at several public workshops.

RDI also helped the Central Administration for Seed Certification (CASC) to create a Plant Variety Protection Office in order to facilitate implementation of the law. In May 2001, RDI conducted workshops with private and public sector stakeholders clarifying the role of the PVP office. In total, 80 participants attended the two workshops.

The intellectual property law with PVP provisions was passed by the People's Assembly in 2002. The new PVP provision of the IPR law formally establishes agricultural intellectual property rights in Egypt for the first time. This allows foreign seed companies and breeders both to establish themselves in Egypt and to export their best genetic materials to Egypt. This will have a direct effect on productivity and profitability in agriculture in Egypt with a consequent positive impact on jobs, exports, incomes and foreign direct investment. Promoting the promulgation of plant variety protection and intellectual property rights was the focus of Tranche II Benchmark C.3 and Tranche III Benchmarks D.4 and D.5.

EXCLUSIVE RELEASE OF SEED VARIETIES

While RDI was working with MALR officials, private sector seed companies and other experts in the seed industry to pass the IPR legislation, stakeholders and RDI experts agreed that the law would be more effective if the government established regulations regarding exclusive release of new government-bred seed varieties.

Regulations to govern exclusive release of government seed varieties were a related, though separate, issue from plant breeders rights. At that time, inbred lines from government breeding programs were given to the Central Authority for Seed Production, a unit managed by the Horticultural Commercial Unit, for mass production of new seed varieties and sale to farmers. This meant that the government competed directly with the private sector, a situation that private companies had vehemently complained about. Exclusive release regulations would allow the transfer of government-bred seed to the private sector, thereby eliminating the role of the government in the production and sale of seed, a necessary condition for the growth of the private seed sector.

Private sector companies were also concerned that inbred lines from the ARC and other government agencies would be given to one company. The potential was high for this anti-competitive situation to occur. Thus, RDI emphasized that exclusive release regulations should be based on fair and open competition in which all seed companies in Egypt would have equal access to lines and varieties that were produced by government funding. The three main steps for exclusive release were: 1) The government agency

would issue a request for proposals that a private company can respond to; 2) a committee would evaluate the proposals fairly and transparently; and 3) the regulations would include a provision to ensure that a dominant company did not win all exclusive releases.

RDI therefore worked with the GOE to issue regulations for exclusive release of new seed varieties and inbred lines to private companies and cooperatives. These regulations were to include a competitive bidding process with safeguards to ensure that one firm could not gain access to a large percentage of new seed varieties.

In March, 1999, RDI contracted Dr. James Delouche to work with Dr. Abd El Salam Gomaa of the ARC to develop draft regulations for the release of new seed varieties developed by the ARC. The consulting team held a workshop and two meetings of an informal working group, including representatives of the private and public sectors. Through these events the team developed and refined a draft policy document providing for exclusive releases of new seed varieties. This draft document and the notes from the workshop and meetings were published in *RDI Report 62, Policy and Procedures for Release of New Publicly Developed Crop Varieties in Egypt*, (Delouche and Gomaa, April 1999).

After these meetings, RDI sought and obtained the approval of Dr. Saad Nassar to create a formal working group to finalize the draft policy document. The Working Group met on May 24 and June 1, 1999 to revise and agree upon the regulations. Changes were made to the regulations to satisfy all concerns and the draft document was nearly finalized. On June 1, Dr. Abd El Azim Tantawi informed the group that His Excellency the Minister had seen the draft regulations and requested that Dr. Youssuf Abdel Rahman and Ali Sadaa join the Working Group. The enlarged Working Group met again on June 7 and June 24 to discuss the concerns of the new members and refine and edit the draft regulations.

The regulations included a competitive bidding process for exclusive releases of new varieties and safeguards to ensure that one firm could not gain access to a large percentage of the new seed varieties. Once a particular company won a competitive bid and was awarded an exclusive license for a new variety, that company was to be barred from competing for additional ARC varieties of the same crop for five years.

A meeting was held on June 30, 1999 to finalize the draft regulations, after which they were presented to the Undersecretary for Agricultural Services and the Director of the ARC for approval. The Minister approved the provisions for varietal release, leading to the full accomplishment of Benchmark D.4.2.

In order to raise awareness about the new seed variety release policy, RDI developed and distributed a brief on variety release policies and held a workshop on March 11, 1999. About 30 key government and private industry leaders attended. This was followed by two informal working group meetings, each attended by 14 to 18 people, mainly from private seed companies. Afterwards, four meetings of the formal working group in May

and June served to promote further public awareness, as three companies from the Egyptian Seed Association participated actively in these meetings.

The Third Egyptian National Seed Conference also featured a presentation on the development of variety release policies in Egypt. The recommendations of the Conference, transmitted by Ali Saada to the Minister of MALR, specifically suggested: "Giving seed producers equal opportunities to obtain foundation seeds and hybrids from the output of the governmental research centers through a specific release system for varieties. Such a system should be transparent and fair to encourage private sector's participation in seed production and marketing." All of these activities led to the full accomplishment of Tranche III Benchmark D.4.3.

Building on this significant progress, in 2000 RDI turned its attention to maize seed production which had not been included in the initial seed variety release program. Until that time, CASP had shown no commitment to stopping its maize seed production in spite of advances made in seed variety release for other food crops. It found this production too profitable to give up, and it wanted to maintain this profitable activity in preparation for the possible transfer of CASP to private sector management.

The main reason that CASP was able to produce maize seed profitably was that it had been given control of the best varieties developed by the Agricultural Research Center, particularly the single-cross hybrids, which are the highest-yielding. Farmers preferred to buy these varieties. RDI estimated that as long as CASP had a monopoly on the best ARC varieties, it would maintain its share of the market.

To break this impasse, it was necessary to break the CASP monopoly on the best varieties. This process began in 2001 when RDI sponsored a number of workshops in conjunction with ESAS elaborating on these issues. On March 25th, 20 representatives of the private sector and MALR attended a workshop held by RDI on seed variety release policy. This was followed in April by a maize seed workshop attended by 30 participants. Meetings with private and public sector representatives built on workshop findings, and in December 2001 the head of the Horticultural Services Unit (which manages CASP), agreed to a new policy that ended the CASP monopoly on new varieties of maize. This policy stated that the newest varieties of maize developed by the ARC would be allocated through a competitive tender system involving private seed companies. This system was defined in the Variety Release Policy of the ARC (approved by His Excellency the Minister of MALR in July).

Due to the work of RDI, ESAS, and MALR, these new varieties are now made available to private companies through the Variety Release Policy. This new policy was established in the following documents:

- A letter dated November 11, 2001 from Dr. Hussein Soliman, Project Director of APRP to Dr. Youssef Abdel Rahman, Chairman of the Horticultural Services Unit of ARC, with an attached draft policy on release of new maize varieties developed by ARC.

- A letter dated November 18, 2001 from Dr. Youssef Abdel Rahman, Chairman of the Horticultural Services Unit (HSU) of ARC to Dr. Hussein Soliman, Project Director of APRP approving the policy.

FEES FOR IMPORTING REGISTERED FRUIT AND VEGETABLE SEED

Improving Egypt's performance in horticulture, particularly in exports, is particularly important to expand employment opportunities in rural Egypt and accelerate economic growth. Horticultural production generates more jobs than other sub-sector and can be very profitable when targeted effectively to export markets.

However, in the past, high registration fees (of \$5,000 per variety) for imported registered fruit and vegetable seed had deterred Egypt's potential expansion as an exporter of horticultural products. It also penalized smaller importers and exporters of horticultural products who could not pay \$5,000 for each of a wide variety of imported registered seeds. Ultimately the cost was paid by someone, and in trying to pass higher costs onto potential customers, the prices of Egypt's exports had become less competitive in very competitive international markets.

In 1997, RDI therefore began to work with key stakeholders to craft a regulatory, trade and tax/tariff environment that was consistent with the GOE's stated intention to diversify agricultural exports and expand foreign exchange earnings. Within Tranche II Benchmark A7, RDI aimed to collaborate with the government in reducing the registration fee for imported registered seed from US \$5,000 to US\$3,000. Throughout the year, RDI developed advocacy strategies in concert with ESAS, and presented their position to the GOE through meetings and informal roundtables.

In 1998, RDI and ESAS succeeded with the issuing of Ministerial Decree 82/1998 that stated that registration fees were LE 2500, \$735 at the time, for the main agricultural crops: cotton, wheat, rice, maize, beans, sunflower, soybean, berseem, sugarcane, and some others. For 27 other vegetable crops, the GOE reduced the registration fees in 4 groups: the first group was about LE 4000, which was equivalent to \$1176, the second group was to LE 3000, which was equivalent to \$882, the third group was to LE 2500, which was equivalent to \$735, and the fourth group was to LE 1500, which was equivalent to \$441. Due to the fact that the reductions in registration fees were in fact greater than the amount required in the benchmark, MVE judged that RDI had exceeded Benchmark A7.

VEGETABLE SEED VARIETY REGISTRATION

Until 1999, the variety registration system represented an additional bottleneck in the development of the horticultural sub-sector, because it caused delays in the distribution to farmers of the latest varieties of vegetable seeds. At that time, the GOE's role in the registration and sale process, on behalf of farmers, had included phytosanitary control

and ensuring that varieties sold were true to type (i.e., the subject of DUS testing). The Variety Registration Committee (VRC) of MALR was responsible for plant variety evaluation and registration. Companies that imported or developed new varieties had to obtain registration from the GOE before they could market these seeds in Egypt. Registration was not granted until complicated and time-consuming tests were completed, sometimes causing *multiyear delays before farmers were able to gain access to the best seed varieties*. Much of this testing was unnecessary and not worth the costs and delays it created in getting the best seeds to farmers.

Under Tranche IV Benchmark D.10, RDI therefore collaborated with the GOE in order to simplify its requirements for registering new varieties of vegetable seeds and abolish registration requirements for the import and trade of vegetable seeds already registered or protected in countries belonging to the OECD.³ *The reforms envisioned by RDI did not advocate elimination of phytosanitary testing, which was a separate and independent requirement that needed to be continued to protect against diseases and pests. These reforms focused only on streamlining the variety registration process.*

RDI's policy reform goals were originally identified through an RDI-supported study of the seed industry. The proposed reform was subsequently discussed with the Egyptian Seed Association, which analyzed the issue further and adopted a position paper asking the government to adopt these policy changes. The Egyptian Seed Association fully supported the reform and regarded it as essential in reducing delays and frustrations associated with the introduction of new varieties. The proposed reform was reviewed and refined during discussions with the Secretariat of the National Variety Registration Committee. RDI experts also discussed this reform with representatives of the GTZ seed project and obtained their support.

RDI's activities in vegetable seed variety registration built on earlier RDI benchmarks highlighted above that had achieved a reduction in the fee for variety registration and a reduction in the number of years required for VCU testing. This reform effort aimed to go a step further in streamlining the registration process by eliminating VCU testing for vegetable seeds and ending the retesting of varieties that were already registered in OECD countries.⁴

Throughout discussions of these reforms with MALR, RDI and seed industry representatives made clear several technical elements of their position, including that:

³ The term "protected" refers to varieties that have been awarded Plant Variety Protection or Breeder's Rights. The VCU testing mentioned above is for Value for Cultivation and Utilization. This mainly tests the yield and maturity of the variety.

⁴ The European Union and other OECD countries do not require VCU testing for registration of vegetable varieties. They consider such testing to be unnecessary in a market economy, as it focuses on yield, which is often less important than other characteristics important for marketing like color, shape and taste. In the United States there is no registration required for any seed varieties. If the owner wants to obtain a plant variety protection certificate (the equivalent of a patent), then DUS testing would be required. However, most vegetable seed varieties are not covered in this way, probably because their lifespan is relatively short, so the protection is not necessary.

- VCU tests had been discontinued by most other nations;
- VCU tests were not useful because the characteristics important to the market could not be objectively measured;
- In accordance with the UPOV agreement and Egypt's accession to the OECD with respect to seed certification systems, registration meant that varieties had already undergone DUS testing, so re-testing was not necessary; and
- All European and OECD countries accepted the DUS test of the registering country, because the DUS test measured genetic identification, not local adaptation, so no local re-testing was required.

RDI commissioned consultants Curt Delouche and Amin Okasha to further study the reform issues. Their report was completed in September, 2000. RDI convened two meetings with officials and representatives of the seed companies in September to discuss results of the Delouche/Okasha report. There were also two meetings in the office of the Undersecretary for Horticulture, one of which included a Powerpoint presentation by RDI. The Undersecretary for Horticulture then asked the head of CASC to draft a new decree. This was done and sent to the Undersecretary.

Due to the concerted effort of ESAS, MALR, and RDI, two key proposals were approved:

1. The February, 1999 meeting of the executive committee of the EgyptianGerman seed certification project, the minutes of which were signed by the Minister, which included the following suggestion:
 - For imported varieties registered in OCED member countries (except for strategic crops) no re-registration is done. On the other hand VCU tests of one-year duration have to be carried out to determine the suitability of the variety for Egypt and its resistance to pests and diseases.
2. The October, 1999 mid-term plan for the EgyptianGerman seed certification project, as signed by Dr. Saad Nassar, Eng. Fawzi Shaheen, Eng. Fawzi Naeim, and Eng. Ali Saada, which included statements as follows:
 - DUS testing will be done only for new fruit and vegetable varieties bred in Egypt. For OECD-registered vegetable varieties, no new DUS test will be required in Egypt; instead DUS data from the origianl country must be submitted and only a one-season test for resistance to pests and adaptation tests are done.
 - According to the agreed-upon procedures of the VRC, VCU tests for horticultural crops are not performed, but instead the one-season test above is conducted.

These proposals were a significant step forward in a long process of streamlining vegetable seed variety registration. Furthermore, in May 2001, changes in seed

registration policy were codified officially. This success was due to the very considerable amount of study and debate by all concerned with moving ahead with these reforms, both in the GOE and in the private seed industry. RDI continued to build the capacity of the Egyptian Seed Association to monitor progress of this reform and to pursue complementary reforms in collaboration with the MALR.

Public Awareness Concerning Vegetable Seed Registration

Policy reforms are effective only if those who will benefit are made aware of the changes and are able to benefit from the new policies. Therefore, as part of the effort to streamline the vegetable seed variety registration, RDI recognized that it was essential that private vegetable seed companies be made aware of these policy changes and that these reforms were implemented.

RDI worked with CASC, HRI, and ESAS to publicize the policy reforms. CASC and HRI officials informed seed company representatives, and RDI distributed copies of the new decree at a conference (Sahara) September 9-12, 2001. These efforts fulfilled Tranche IV Benchmark D.10.3.

VEGETABLE SEED VARIETY SCREENING

Every year, international seed companies develop hundreds of new varieties of vegetables with improved characteristics such as flavor, storability, insect resistance, virus resistance, drought resistance, yield, color, and ease of processing. These improved characteristics are designed to meet the needs of specialized markets, particularly export markets where competition is fierce.

To determine which of the newest varieties are best suited to a particular country's growing conditions and its farmers' interests, seed companies usually import small samples of a large number of varieties to test on a small scale. These tests typically involve asking volunteer farmers to try out the seeds of the new varieties on a few rows and then monitoring their results and asking for their opinions. This approach allows a seed company to try out, for example, fifteen cucumber varieties in order to identify the two or three that are most promising. The company then formally applies to register these most promising varieties. This process is known as variety "screening" and internationally it serves to facilitate the transfer of the best-adapted vegetable varieties.

The problem in Egypt, however, was that variety "screening" was virtually illegal in the past. Seed companies were prohibited from importing seeds of new varieties until those varieties had been formally tested, approved, and registered by MALR. Seed companies that had formally requested to import samples of new varieties had been told any such samples had to be turned over immediately to the MALR and could not be handled by private companies. In 1994 the Ministry issued a decree (No. 700) permitting the import of samples of seeds of new varieties but only under strict conditions – the quantities had to be approved by the MALR and not exceed an amount that could be planted on one

piece of land controlled by the applicant. As a result of this tight regulatory framework, (a) the introduction of new varieties was slowed, (b) new varieties were rarely tested in distant areas such as Upper Egypt, (c) many companies resorted to smuggling in seed samples, and (d) international seed companies were reluctant to invest in Egypt, preferring instead countries like Jordan that had friendlier regulatory climates. All of this hurt Egypt's ability to compete with its international competitors in export markets for horticulture.

This problem was elaborated by a group of international seed companies in May 1999 when they presented a formal statement at the Egyptian National Seed Conference calling for regulatory reform to facilitate "screening" and therefore the introduction of new varieties. The call for reform was supported by the Egyptian Seed Association (ESAS) and by key officials in the Ministry of Agriculture, including the head of Agricultural Research Center.

RDI therefore aimed to achieve a modification to Decree No. 700 that would allow companies to import and retain sample seeds of new varieties for the purpose of pre-registration trials under farmers' conditions. RDI emphasized that the amount of sample seed allowed for import could be limited and its sale could be forbidden to assure the authorities that the samples were for testing purposes only and not for commercial distribution. The ministry could also limit the policy to hybrid varieties, which could not be multiplied in Egypt.⁵

Such a reform would not affect existing phytosanitary controls on imported seeds, which needed to be maintained to guard against the introduction of pests. Similarly, it would not affect existing controls on the import of genetically-modified organisms (the Bio-safety Regulations).

After a significant number of meetings involving officials from MALR, ESAS, and the private seed industry, HE the Minister issued a new policy statement drafted with RDI assistance. Consultations and deliberations included the seed companies, their agents, ESAS, the Director of the Horticultural Research Institute, and others. This statement was contained in a memo from Drs. Hussein Soliman, Assem Shaltout, and Ibrahim Sheta to HE Dr. Youssuf Wally, which was signed by HE the Minister on December 9, 2001, with the notation "steps to be taken."

This significant policy change fulfilled Tranche V Benchmark D.8.

⁵ Most imported vegetable seed is for hybrid varieties.

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WATER

There are a number of demands on Egypt's water sources that make conservation and proper management essential to ensure sustainable use. With the completion of the Aswan High Dam in the mid 1960s, Egypt began bringing more and more desert land under cultivation. The growth in population resulted in ever increasing demands for food and new employment. Sufficient land outside the Old Valley of the Nile is of good agricultural quality, and apt for agriculture, but the main constraint on Egypt's agricultural expansion is water.

Egypt's share of Nile water is fixed at 55.5 billion cubic meters of water annually, as determined by international law. While in recent years Egypt has had high floods, this situation will likely not continue into the near future. In Egypt, where water resources are scarce, the success or failure of farming in arid lands hinges on the efficiency of irrigation systems and water conservation efforts.

SUGARCANE & RICE

RDI's focus on rice and sugarcane arose from the fact that these crops used much more water than other crops and therefore contraction of the area cultivated to them could free up water for other crops or uses. In 1996, RDI developed and implemented an extension program to promote the cultivation of sugar beets (to substitute for sugarcane as raw material for sugar production). Specific steps to be taken were devised in a series of RDI working papers.

Sugar beet cultivation began to be promoted vigorously by the extension service, and area cultivated expanded from about 60,000 feddan in 1995/96 to 90,000 feddan in 1996/97 to 120,000 feddan in 1997/98. Additionally, sugar beet processing plants were established in several governorates, and in El Minya, sugarcane processing machinery was adjusted to allow processing of sugar beets. These changes at the farm level accomplished Tranche I Benchmark D.3.b.

While the cultivation of 120,000 feddan of sugar beets was a significant step forward, it did not address many of the larger issues in water cultivation and high water consuming crops. Because sugar beets have different agroclimatic requirements compared to sugarcane and are cultivated mostly in the lower Nile Valley and Nile Delta, they were not a direct substitute crop for sugarcane in Upper Egypt.

Following an extensive review of these policy issues beginning in Tranche II, RDI and the Water Policy Reform Program (WPRP) in the Ministry of Water therefore decided to focus on the following:

1. Introduction and adoption of less water-intensive varieties/crops;
2. Modification of irrigation practices and reduction of total water requirements;

3. Monetary incentives within the production and marketing system to influence cropping decisions;
4. Water allotment policies that account for companion water, agricultural, and market policies;
5. Empowerment of farmers, WUAs and groupings of WUAs to cooperatively administer water allotments within distributary canal and mesqa service areas;
6. Elimination of mandated crop area allocation targets.

Strategies pursued by RDI considered policy analyses and developments that would encourage the use of farm-level water allotments leading farmers to use less water when irrigating rice and sugarcane; to use new, shorter-season rice varieties; and to consider alternative high-value crop rotations.

Tranche II Benchmarks C.4 and C.5 therefore focused on working with MPWWR and MALR jointly to establish a strategy for the optimal use of water for rice and sugarcane production.

In 1998, APRP established a Rice Task Group and a Sugarcane Task Forces, both of which included members from the APRP RDI, PMU and EPIQ WPRP TA teams, MPWWR irrigation staff, and MALR research staff. The task groups used the participatory rapid appraisal method to carry out their work. They held several meetings to examine previous studies, reports and available data. Field trips were conducted. Interviews and presentations were made by invited experts.

The Rice Task Group prepared a document describing strategies and alternative policy options which would lead to the optimal use of water in rice cultivation entitled "Assessment of Egypt's Rice Policy and Strategies for Water Management," WPRP Report No. 6, June 1998. The Sugarcane Task Group in turn prepared a strategy document entitled "Egypt's Sugarcane Policy and Strategy for Water Management," RDI Report No. 33, June 1998.

The strategies and policy options of the rice and sugarcane task groups were reviewed and approved by the MPWWR Steering Committee at the Hurghada workshop (June 17-18, 1998). The recommended policy options and strategies were presented to H.E. the Minister of MPWWR and H.E. the Minister of MALR. The recommended policies were approved by H.E. the Minister of MPWWR on June 24, 1998, and H.E. Dr. Wally asked his senior advisers for their comments on the strategy.

Additionally, a policy test area in Kafr El Sheikh governorate on Sedi-Gamee Canal was established to investigate water savings from the introduction of short-duration rice varieties.

Due to these efforts, MVE judged that RDI had exceeded Benchmarks C.4 and C.5. The approval of the Minister of Public Works and Water Resources was not required for fulfillment of the Benchmarks, and showed the full commitment of the Government.

Following on these successes, RDI continued its work in rice and sugarcane in Tranche III.

Sugarcane

Sugarcane has a growing season of nearly one year, resulting in high total crop evapotranspiration (ET). Estimated consumptive use of water by sugarcane is approximately 5000 m³ per feddan per year more than alternative annual crop rotations that might be produced in middle and upper Egypt (although land lies fallow for 1-2 months during the intervals between crops with these alternative annual rotations).

In the mid-1990s, irrigation diversions for sugarcane were estimated to average as high as 17,000-18,000 m³ per feddan, reflecting inadequate water management in *mesqa* water distribution and on-farm application systems. Small individual farm holdings in intensively cropped sugarcane areas prevented efficient water delivery and distribution to the farm and efficient on-farm distribution and application.

RDI recognized that water quantity savings and quality improvements could be realized by concentrating sugarcane on large plantations in those canal areas with many small plots of sugarcane. Large plantations were amenable to laser-leveling and improved surface irrigation methods.

Sugarcane Water Use Policies

In 1999, approximately 300,000 feddan of sugarcane were being irrigated. Each feddan required approximately 8,000 cubic meters (cm) of water in consumptive use, and water application often exceeded 12,000 cm/feddan. These high rates of water application were a particular problem in the areas in which sugarcane was irrigated from gravity systems (generally in the Aswan area). In these areas, water application often exceeded 16,000 cm/feddan. RDI and WPRP estimated that improving onfarm irrigation efficiency could reduce water application to approximately 9,000 cm/feddan.

The sugarcane processing sector is an extremely important economic sector in Egypt, with high value added and employment. Thus, the GOE was reluctant to reduce current levels of sugarcane production. Reducing sugarcane water consumption had to be accomplished through increases in productivity in order to offset reductions in cultivated area. The Sugar Crops Research Institute had found on experimental plots that sugarcane productivity could be increased from 10 to 25 percent by improved irrigation and water management techniques.

The objective of Tranche III reform efforts was therefore to achieve improved sugarcane production and efficiency in water use. In 1999, the Sugarcane Working Group (SCWG) identified 14 sites for field experiments in Luxor and Qena governorates for pilot projects. SCWG developed the pilot projects involving the installation of gated-pipe irrigation systems that included training of extension personnel and a program for

training farmers. In total, more than 500 farmers and 65 extension agents were trained in 13 workshops held throughout the year. The main objective of the training component was to provide farmers with adequate information about the use of the improved irrigation method in the pilot area. Local water engineers were in turn introduced to water measurement and monitoring requirements and trained to collect and report the appropriate data. RDI also developed an information/awareness video used for further expansion of the project.

Upon successful completion of these initial awareness raising workshops, RDI and WPRP conducted eight more seminars for both farmers and extension agents in new areas (outside the project area) in order to increase the rate of adoption of the project idea. The approach followed by the RDI unit included grouping the new trainees in one of the project areas and using the trained farmers and extension agents as trainers in the new sessions. Discussion paid special attention to the lessons learned during the previous season.

The gated-pipe systems were installed on farms in the Luxor and Qena Governorates totaling more than 450 feddan. The pilot locations included various types of farm holdings, such as large-scale farmers and small farmers, near the main canal or away from it, different types of soil, and various cropping patterns in the neighborhood of the project area. This meant that the sample represented all or most of the sugarcane farm types, and helped in getting a more representative technical and economic evaluation of the post-project impact.

Water measurement and monitoring devices, including weirs and on-farm pump totalizing meters, were also installed in the pilot locations. Productivity gains for each farmer were measured and monitored by the sugar companies, in part to involve the farmers in sharing the cost of the installation of the systems.

The private sector played a significant role in carrying out the major responsibility in establishing, managing and monitoring this project. The establishment of the new irrigation system of sugarcane in all of the project locations was conducted by private companies.

RDI's work under Tranche III Benchmark C.5 achieved the following:

- A demonstration of the benefits of irrigation improvement in the form of alternative technologies for sugarcane production on private commercial farms in Upper Egypt.
- Irrigation improvements reducing field application of water by a minimum of 3,000 m³ per feddan, and increasing yields by as much as 25 percent.
- A template for a policy package and a plan for implementing improved irrigation practices on at least 60% of sugarcane production over the next 5 to 10 years.

RDI's work under Tranche III therefore served as a step toward reducing consumptive water use by sugarcane, achieving efficient water management, and developing a sustainable sugar industry. MVE judged that RDI had exceeded Benchmark C.5 due to several reasons:

- The benchmark referred to two areas of private sugarcane growers for the application of new system of irrigation, but the SCWG exceeded that requirement by working in 14 locations in both Luxor and Qena.
- The GOE strongly encouraged the private sector to participate in all of phases of establishing, managing, and operating the pilot project. This important dimension was not in the benchmark.
- The training included more than 500 farmers and 65 extension agents, and was very successful in conveying to farmers an understanding of the new technique. The rate of adoption in new areas was estimated at more than 100% of the current project area.
- The collaboration and coordination between various partners in this program, especially between the staff of MALR and MPWWR, was continuing, and was likely to lead to further and sustainable improvements in the project area.

Furthermore, following a visit to the joint MWRI/MALR Upper Egypt On-Farm Water Management Program, HE Dr. Mahmoud Abu Zeid, the Minister of Water Resources and Irrigation, declared the program a success. In June 2000, HE Dr. Abu Zeid allocated resources to offer 20 year loans to farmers on advantageous terms to extend the successful gated pipe irrigation system to all sugarcane growing areas in Egypt. Dr. Abu Zeid stated that the program saved up to 30 percent of the water required for sugarcane cultivation, while increasing yields up to 25 percent.

Since this time, the Sugar Council and MWRI reached an agreement with the Ministry of Military Industries to produce gated pipe. The schedule is to phase in between 3000 to 5000 feddan annually until 2005, and to then accelerate implementation. Tenders were being processed in summer 2002 to begin this phase of the program.

Rice

Egypt produces more rice than is consumed, allowing a portion of the crop to be exported annually. It is an attractive crop for farmers because of the relatively higher returns per feddan, the lack of water delivery service cost recovery, and the lack of adequate controls on the volume of water farmers may obtain. It is also comparatively easier to grow than cotton, which is more labor intensive.

In the past, an allocation of water per unit area was implied in the design capacity of main canals and intake works and was often quoted based on an assumption that rice would be grown on a maximum of 60% of the area served. However, this allocation of water often failed at some point within the delivery system, resulting in inefficient allocation of water among farmers at the distributary canal and *mesqa* levels. Farmers producing rice at the head ends of distributaries and mesqas often diverted larger volumes of water per unit

area than the average the system was designed to deliver. Consequently, with large areas planted to rice in the initial reaches of a command area, downstream water users suffered shortages and the financial burdens of developing supplemental water supplies.

Rice Water Use Policies

By 1997, rice production had grown from about 1 million feddan in 1986 to approximately 1.56 million feddan. MPWWR studies had demonstrated that from 700,000 to 900,000 feddan of rice production each year were required for rehabilitation of soils and prevention of salt intrusion in the Delta. The "allowed" production, however, had also increased from about 1 million feddan in 1986 to about 1.08 million feddan in 1997. Rice consumptively uses about 4,700 m³ per feddan, as compared to about 3,700 m³ for cotton and about 2,700 m³ for maize. Thus, water use in rice production had increased by about 2.6 bcm since 1986, and the net increase in consumptive use, as rice replaced cotton and maize, exceeded 1 bcm.

Studies had suggested that short season rice varieties (Giza 177 and Sakha 102) could reduce growing time, and thereby consumptive use of water by the rice crop by about 25%, close to the consumptive use of cotton, while producing the same, or even higher, rice yields. This represented a water saving (consumptive use) in rice production of about 1,200 m³ per feddan, or about 1.9 to 2.0 bcm over the entire 1.56 million feddan of rice. Additionally, water releases from the canal for rice production could be turned off after August 31 for short season varieties, fifteen days earlier than what was required for traditional long season rice. Planting short season varieties furthermore allowed for the cultivation of a nili crop between the summer and winter seasons, providing increased income for the farmers. Incorporating the water requirements for nili crops led to a net decrease of water consumption of 13 percent.

1998 was the first demonstration of short-season varieties, in which MALR and MPWWR cooperated to arrange for cultivation of these varieties along one branch canal to show water savings from changing the irrigation schedule. The previous irrigation cycle had been 4 days on and 6 days off, although farmers might pump remaining water out of the canal on the fifth day. The new system had 5 on and 10 off. In addition, rather than ending the irrigation cycle for rice on/about October 15, it stopped in 1999 in short-season rice growing areas on August 31. The demonstration covered 500 feddan in Sidi Gama, Kafr el-Sheikh Governorate.

Based on the good results in 1998, the program expanded to six governorates, with a total rice area of over 11,000 feddan and a total area including the control area of over 48,000 feddan, a truly impressive increase.

These gains were made through a number of activities undertaken by the two Ministries and RDI. In 1999, this included the following:

Joint activity:

- Selection of demonstration and control canals (January)

MALR activities:

- Training of national rice and local village extension staff (February and March; over 300 trained in total)
 - Meetings with farmers (March; 266 farmers attended)
 - Seed distribution (March and April)
 - Nursery establishment and transplanting (May and June; 586 farmers in total)
 - Continued extension activities during the growing season (April through October)
 - Completion of education/awareness/training package
 - Collection of production and economic data (October, 1999)

MPWWR activities:

- Training of district engineers and supervisory personnel in water measurement and monitoring (February through May)
 - Canal maintenance
 - Water rotation change (August)
 - Data analysis (October through December)

In addition to these activities, HE the Minister of Public Works and Water Resources issued a letter approving the rice policy package. The ARC of MALR discussed the policy package in its meeting on June 28, 1999. This meeting was chaired by HE the Minister of Agriculture and Land Reclamation. At this time, he approved extending the rice program to the entire country by the year 2000/2001. RDI fulfilled Tranche III Benchmark C.6.

This activity was officially transferred to the government in 2000. By 2002, 100 percent of rice cultivated was short season variety. Furthermore, the MWRI mandated that in all rice growing canals water distribution cease on August 31. This thereby guaranteed that all farmers would continue to grow short season rice varieties.

MATCHING IRRIGATION SUPPLY AND DEMAND

In the past, the MWRI delivered water to farmers on the basis of cropping patterns and calendars determined by the MALR. Water releases from the High Aswan Dam were based on these "indicative" cropping patterns and calendars, which were often released months in advance of real planting dates. Frequently, they were not accurate representations of the actual crops grown.

Liberalization and farmer free choice resulted in much more uncertainty about actual irrigation water demands. Cases of significant "mismatch" were occurring. In some cases, large amounts of water (sometimes millions of cubic meters) were delivered but not used, while at other times water was not available to farmers when needed, causing a

reduction in agricultural production. The MWRI identified several specific problems that gave rise to mismatching, which could be grouped into three general categories:

1. *Under or over-estimating of crop water demands under liberalized cropping choices*, including cropping patterns and calendars;
2. *System constraints*, such as canal capacity, system storage capacity, and lag time between water releases from Aswan High Dam to the farm; and
3. *External factors*, such as climatic change and unanticipated drainage water reuse.

Water shortfalls had resulted from lack of information and from cropping pattern and calendar selections by farmers that were not consistent with the ability of the Nile system to deliver adequate supplies when needed. Information on crop selection and the dates of planting and harvesting is essential for good water management. However, before 1999 there had been no routine, accurate, and systematic transfer of this information from farmers or the MALR to the MWRI, nor was there an understanding of the system constraints on the part of the MALR and the farmers.

Both Ministries recognized that matching real-time irrigation water demands with water deliveries was an important step toward an efficient, demand-driven irrigation system. The systematic and timely flow of accurate information from farmers and the MALR to the MWRI and back was an essential component in such a system. Indeed, there was a need for improved cooperation between MWRI and MALR on Nile operation issues. District engineers and local agriculture cooperatives did exchange information at the time, but this flow was primarily in the form of complaints from farmers about water shortages.

In addressing this important issue, RDI and WPRP convened an informal working group, composed of MWRI, MALR, and RDI personnel, to discuss proposed benchmark activities. RDI's objective was for the MALR and MWRI to develop a coordinated system of routine, real-time information transfer on actual irrigation water demands and supplies. Information on cropping intentions, particularly planting and harvesting dates, had to be collected, organized and provided to MWRI decision-makers in sufficient time to permit the release of appropriate amounts of water, taking into account the lag between release from AHD and delivery to the farm, which could take up to two weeks. Further, farmers and MALR personnel had to be made aware of any expected shortfalls or problems in water supply with sufficient time to allow farmers to adjust.

The two Ministries, with assistance from RDI, EPIQ, and WPAU, initially began pilot programs in five irrigation districts in Beheira, Sharqeya, Beni Suef, Luxor and Qena Governorates covering 300,000 feddan. The pilot programs had two main objectives:

1. To create an information system to provide real-time information on the demand for irrigation water at the canal level. Farmers could not get water at the appropriate time and in reasonable quantities unless MWRI had access to accurate and timely information. One primary objective of the MISD program was therefore to develop a system that facilitated the systematic transfer of water

demand information from farmers to MALR and to MWRI.

2. To provide the basis for a national policy to match irrigation water supply and demand. In order to guarantee that water met farmers' needs across the country, it was essential that the program be implemented nation-wide.

In order to devise a strategy for determining how to match irrigation water supply with demand, RDI worked with both ministries to form bi-ministerial working groups in each of the pilot areas. At the beginning of the pilot program, RDI held several joint meetings and workshops to explain the need for having good information on farmers' cropping patterns. From September to December 1999, RDI held workshops with over 90 representatives from MALR and MWRI, including officials from Beheira, Sharqeya, Beni Suef, Luxor and Qena Governorates. During these meetings the groups devised how they would obtain data on what crops were planted and what farmers' intentions were.

From these planning workshops emerged the Matching Irrigation Supply and Demand (MISD) Information System that incorporated data from both ministries, and provided decision makers with immediate and accurate information to meet farmers' irrigation needs. In order to implement this complex system involving the work of two ministries, however, it was necessary to pursue a series of activities incorporating farmers, agriculture and irrigation engineers, and government officials:

- During the first six months of Tranche IV, the two Ministries jointly evaluated methods of collecting, compiling and delivering data on actual crop water demands, particularly cropping patterns and calendars, from farmers and the MALR in a time frame which permitted the MWRI to assess constraints, provide the MALR and farmers with accurate water supply information, and deliver the required water at the needed time. A plan to formalize these exchanges was developed in December 1999.
- Pilot canals were established at the district level in four governorates to test the plan and to serve as a basis for modifications and adjustments to the plan.
- A joint MALR/MWRI policy for implementing the plan nationwide was approved by the two Ministers. The national plan was designed to be the basis for a major shift from the current water delivery system to a real-time, demand-driven system.

Furthermore, computers in the pilot areas were upgraded and provided in areas where there were none, and a series of training sessions took place with the agricultural engineers. The computer training courses on data entry were provided by the Economic Affairs Sector (EAS). The EAS conducted five training courses at the pilot locations in 1999 and provided computers. EAS staff also designed the program for data entry with assistance from RDI.

Work on this benchmark was a breakthrough in collaboration between the two ministries, and a very substantial amount of work was accomplished. There were a number of workshops and other meetings to plan and coordinate the collection and management of

the required information. A pilot program was started during the winter season (1999-2000) in the five water districts of four governorates: Beheira, Beni Suef, Qena/Luxor, and Sharqeya.

Expansion of the MISD Program

Based on the workshops, meetings, and winter trials, a more refined plan was developed for collecting summer planting intentions data and for how to transfer the data among the parties in MALR and MWRI collecting and receiving the information. Data were collected and transferred every two weeks. These efforts were reviewed and a final plan was developed for the winter season (2000-01) expansion.

RDI sponsored a Tranche IV MISD wrap-up workshop on August 29, 2000 in Cairo. The goals were to identify and address specific issues that emerged during the first year of implementation and to discuss the possible means of expansion of the program. Participants in this workshop were agricultural and irrigation engineers from the pilot districts as well as the heads of agricultural and irrigation directorates in these governorates.

In the meeting held on January 8, 2001 the team reviewed the last phase of the MISD activity in the five districts. The EAS/MALR trained the district engineers and data collectors at the agricultural directorate level on the design of an electronic program for matching water supply and demand in the pilot districts. The databases for the five districts regarding the cropping patterns, acreage of each crop, and time of planting, were established at the branch canal levels and reviewed by each district's irrigation engineer.

Three workshops on MISD were furthermore held in January and February, 2001: in Tanta for Beheira and Sharqeya governorates; in Beni Suef; and in Luxor for Luxor and Qena governorates. The workshops each had the following goals:

- To review achievements of the last phase.
- To identify problems from the last phase to overcome.
- To assess training and other needs for the next phase, including possible modification of the data sheet.
- To establish the timetable for the implementation of the next phase.

The success of the MISD program prompted the two Ministries to expand the program to cover the old lands of the entire country. Five planning workshops took place in 2002, attended by officials from the MALR, MWRI, as well as governorate representatives. The workshops were held in Munifeya, Kafr El Sheikh, Aswan, and Cairo, and involved officials from eighteen governorates.

Training and public awareness for MISD

RDI also worked with MALR and MWRI to expand training and awareness programs to cover all regions of the country and involve all stakeholders. Through their activities,

field staff and farmers alike became more aware of the need to improve the use of water through participation in MISD. In addition, training in computers helped to build the capabilities of the two Ministries to adopt other new programs using computerized solutions.

- Awareness raising workshops. Orientation activities took place in Cairo as well as in the governorates, and involved key decision makers including Undersecretaries and Directors of Agriculture and Irrigation, as well as project engineers responsible for collecting and transferring data from farms to local authorities. These activities were aimed at raising the awareness of stakeholders crucial to the successful implementation and sustainability of MISD. Workshop sessions discussed the idea and rationale of the program, underscored the necessity of water conservation, and outlined the functions of the information system.
- Training sessions. The field extension officers are the heart of MISD information-gathering activities. The quality of the data obtained depends on their abilities and dedication to the program. RDI therefore continued to expand training and public awareness for extensionists throughout 2001 and 2002. Specifically, several training sessions took place:
 1. Training in data collection techniques for extensionists. *More than 6000 individuals were trained in 18 governorates.*
 2. Computer training for agronomists in Agricultural Administration Units at the district level. *Training took place in 55 Agricultural Administration Units in 69 districts.*
 3. MWRI-led computer training for irrigation engineers to calculate water requirements for each canal using computer software. *MWRI supplied computers to 50 irrigation districts to be utilized for the trained engineers.*

MISD Joint Committee

MALR and MWRI also worked with RDI to form the MISD Joint Committee to transfer responsibility of MISD to the government. The Joint Committee is composed of representatives from both the MALR and MWRI, and is a collaborative effort to monitor information collection and expand the program to include all old lands. Each month the Joint Committee receives reports from all districts involved in the program. These reports are based on bi-monthly on-site field visits that review data collection activities and identify any bottlenecks in the process of information gathering. Responsibility for monitoring and evaluation has been transferred to this Committee, thereby guaranteeing the long-term sustainability of MISD.

This sustainability is further guaranteed by official financial support from both Ministries. In July of 2002, HE the Minister of Agriculture and Land Reclamation and

HE the Minister of Water Resources and Irrigation each committed LE 500,000 to continuing the project. This is a significant sign of support of MISD, and augurs well for the program's continuation.

By 2002, the number of feddan covered in the information systems collection had expanded at an amazing rate, with real-time reliable information available for 69 districts. This amounted to nearly 3 million feddan, half of all arable old land in Egypt. Creating a real-time information system on actual and anticipated crops grown in the field enabled MWRI and MALR to estimate with a high degree of accuracy water requirements at every canal, and succeeded in matching irrigation supply and demand across the country.

Due to these significant accomplishments, MVE judged that RDI had exceeded full accomplishment of Tranche IV Benchmark C.1.

ANTIQUITIES PRESERVATION

Antiquities are one of Egypt's most important economic resources. According to a June 2000 study, tourism revenues directly comprise 4.4 percent of Egypt's GDP (totaling \$3.6 billion). Equally important, foreign tourists' spending directly and indirectly supports 2.7 million jobs in various economic sectors (12.6 percent of the total work force), generates 5.1 percent of taxes (\$850 million), and is fast becoming Egypt's most important source of foreign currency.

However, in the early 1990s it had come to the attention of the Egyptian government that antiquities, particularly those in Luxor, were being threatened by groundwater corrosion. This was a direct result of the land use patterns employed by local farmers in irrigation techniques and illegal squatter settlements.

Antiquities degradation reflected a conflict between three competing resources: land, water, and antiquities. As population pressures on the land compelled more farmers to move onto newly reclaimed land, demands for irrigation water had increased. Additionally, the need for urban land had gone up and resulted in unregulated squatter settlements on the sites of antiquities.

RDI began to address the important issue of antiquities preservation in 1999. RDI first had to identify the many and diverse actors responsible for agricultural development and antiquities preservation, and to then design an effective management strategy. In 2000, RDI sponsored a series of workshops involving decision makers from the Ministry of Culture, the Ministry of Agriculture and Land Reclamation, and the Ministry of Water Resources and Irrigation. These collaborative efforts led to the following conclusions:

- Antiquities are threatened by both on-site and off-site activities;
- The number of antiquities is very large, they are often located in remote areas, and many are still undiscovered or inadequately inventoried; and
- Antiquities vary in importance, as do impacts.

Workshop participants concluded that antiquities preservation had to be a shared responsibility. It was beyond the capacity of any single agency to ensure the protection of Egypt's antiquities. Each private sector firm and public sector agency needed to take responsibility for ensuring that its actions did not result in unacceptable impacts. Additionally, GOE officials needed to identify resource management priorities.

In response, RDI and the GOE collaborated to implement pilot projects and develop policies that would mitigate impacts from rural land use and farming.

Encouraging farmers to install gated pipe irrigation systems

In 2000, RDI implemented a pilot program to test gated pipe technologies on sugar cane farms in the Luxor area. Initial results from village leaders who participated in the pilot program indicated a 40 percent reduction in water application and increased crop yields associated with improved drainage.

Devising a policy establishing buffer zones around antiquities

The size of the buffer zone needed for protection at any particular site and the types of activities that can take place within the buffer zone without resulting in significant impacts is a function of local environmental conditions (hydrology, topography, etc) and cumulative impacts from other adjacent land uses. RDI therefore worked with GOE to tailor buffer zone specifications to local conditions rather than establishing a single rule on buffer zones for all sites.

Encouraging farmers to switch to less water-consuming crops.

As discussed above, RDI and GOE have aimed to restrict the production of high water-consuming crops. Such a strategy was obviously highly important in the areas immediately adjacent to antiquities, particularly in buffer zones.

Together, these activities have resulted in increased collaboration between Ministries, contributed to the preservation of some of Egypt's most important resources, and succeeded in improving farmer productivity and income potential.

WASTEWATER REUSE

Land for cultivation for BOT wastewater treatment plants

GOE has invested significant sums in wastewater treatment plants throughout the country as urban agglomerations have grown. The water from these plants is generally unfit for human consumption or for use on food crops. The wastewater treatment plants are usually set at the edge of inhabited areas to avoid health- and odor-related problems. Many such plants are thus contiguous to non-irrigated wasteland.

Research commissioned by RDI in 1997 found that the treated wastewater and the wasteland could be put to constructive use through the planting of non-food crops, irrigated with the treated wastewater. This would reduce dangers of water table contamination while creating significant areas of cultivated land for crops that would have real economic potential. This would also create a good number of real jobs. In 1998, the MALR Undersecretary for the Environment and Afforestation put this plan into action in several areas near public sector wastewater treatment plants (Luxor, Sadat City, Ismaileya, Kennatara, etc.). High value tree crops were growing well in these areas.

The opportunity for the private sector to take on the responsibility for treating urban wastewater at no cost to the GOE and to generate jobs, incomes and potential industries, as well as exports therefore appeared promising. In some tourist areas, the GOE had already authorized private wastewater treatment plants. The land in question was owned by the MALR or, in some cases, by local authorities. These issues were discussed thoroughly at two conferences sponsored by RDI on wastewater and agriculture in Luxor on August 4-6, 1998 and in Ismaileya October 14-15. 60 representatives from MALR, USAID, the private sector, and RDI attended each workshop, and HE Dr. Wally approved the recommendations issued.

The approved policy resulting from the workshop included the commitments of MALR and related government organizations to specify areas for private companies to grow high-value tree crops using treated wastewater. This policy also provided for the establishment of a committee of representatives of the Undersecretariat, the private company, and related government organizations. It allowed selling, long-term leasing, or using the land for a time period long enough to achieve profitability from the selected crops. HE's approval of this policy instructed Dr. Saad Nassar to implement the procedure in coordination with the Undersecretariat.

Due to these accomplishments, RDI fulfilled Tranche III Benchmark D.3.

Forests from Wastewater

To cope with scarce land and water resources, Egypt looked to agricultural research to identify new crops and develop improved varieties of known crops which could provide higher yields of more valuable commodities while using less water. As highlighted above, this research included experiments with unconventional water and land sources, namely wastewater and wasteland. The reuse of wastewater for forestry had three primary advantages: 1) it saved fresh water; 2) treated sewage water was filtered and further purified when used to irrigate tree crops; and 3) wood was a high value commodity that could generate significant revenue and job opportunities.

In Tranche V, one of RDI's policy objectives was thus to encourage the efficient use of Egypt's scarce land and water resources. An equally important objective was to establish the basis for long-term investments in the production of wood, which would generate employment, incomes, profits, and exports from the agricultural economy.

At a conference sponsored by RDI on New Valley afforestation and wastewater held in March 1999 in Kharga, the Ministry of Agriculture and Land Reclamation (MALR) Under-Secretariat for Afforestation and the Environment decided to try what was considered to be either impossible or impractical--using wastewater to plant tropical hardwoods in Egypt. The idea was to use wastewater on wasteland to cultivate a crop to which no one had before paid attention.

RDI therefore collaborated with MALR to establish a policy stating which crops and crop varieties could be grown safely with treated wastewater. This included fast and slow-growing tree species and all other eligible crops, including ornamentals. Following a series of meetings with GOE officials, RDI drafted a policy in collaboration with the Undersecretariat for Afforestation and the Environment and received HE the Minister's approval on December 9, 2001. The required agronomic, economic, and public health parameters of growing trees and crops with treated wastewater in Egypt were discussed, and findings were presented in an RDI report, *Safe Use of Treated Wastewater on Crops in Egypt* (Lorene Flaming, Tawakul Younis Rizk, Seham Hendy, and Abdel Azim Hammady, December 2, 2001).

The findings of this report were:

- Studies conducted to date on wastewater irrigation of timber, oil, grain, and fiber crops in Egypt show satisfactory to excellent growth yields and positive economic returns.
- The dilemma is not identifying adequate standards, but ensuring adequate enforcement.
- Perhaps more important than enforcement of wastewater use guidelines is raising farmers' and consumers' awareness of food safety measures.

RDI also worked with MALR to fund and carry out a pilot project to determine the agronomic, economic, and public health parameters of growing crops with treated wastewater in Egypt. MALR/Undersecretary for Afforestation and the Environment initiated a pilot program at Saaf, in Beni Suef governorate. Greenhouses were set up to begin planting crops (on the list of acceptable crops) that would be grown with treated wastewater.

These trials proved successful. Results showed that it was absolutely feasible to grow tree crops outside the Nile Valley in sandy soil wasteland using secondary treated sewage water. The treated water contained indol acetic acid, a natural hormone that promotes vegetative growth. Tropical hardwood and other trees, irrigated with treated sewage wastewater, grow remarkably fast in Egypt.

In order to take advantage of these promising pilot projects, MALR and RDI expanded tree crop plantations, working closely with the private sector and with other government agencies and ministries. Private sector participation was vital for investment in afforestation and in the commercial production of trees for wood. The pilot program

eventually expanded from 500 to 16,000 feddan. There are now jojoba, mulberry, and jatrova forests in Luxor, Sadat City, Mansoura, and Kharga.

Due to these activities, RDI accomplished Tranche V Benchmark C.4.

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FERTILIZER

Egypt has one of the highest rates of fertilizer application in the world. According to FAO estimates, in 1992 the rate of application amounted to 349 kilograms per hectare of agriculture land, only exceeded by South Korea with 437 kg per hectare. Between 1979 and 1991, the application rate in Egypt increased by 64.6 percent. Nitrogen fertilizers (urea, ammonium nitrate, ammonium sulfate, and calcium nitrate) are the most important types of fertilizers in Egypt, accounting for 85.7 percent of total chemical fertilizer consumption in Egypt in 1996. Phosphoric and potassic fertilizers account for 12.1 percent and 2.2 percent of total fertilizer consumption in Egypt.

Prior to 1991, PBDAC had been the sole fertilizer distributor to all farmers in Egypt. Growers received subsidies of low price levels for all inputs, including fertilizers, and these inputs were distributed under in-kind credit policies. Farmers repaid these in-kind loans through a crop quota delivery system.

This system slowly began to change when the GOE eliminated direct production subsidies in 1989 and then removed PBDAC distribution subsidies in 1991. Private sector traders moved into fertilizer marketing in July of the same year, and by July 1992 they dominated the market. In 1995, a "fertilizer crisis" arose whereby there was a shortage of nitrogenous fertilizers and a dramatic rise in their prices. The "fertilizer crisis" led to a temporary reversion of the sub-sector back to a public sector monopoly (with PBDAC once again sole distributor of domestically-produced fertilizer), but since this time PBDAC never again was able to capture fully the fertilizer market. Cooperatives and the private sector continued to operate parallel to the Bank, and farmers had the option of purchasing fertilizers from three primary sources: private traders, PBDAC, or their local cooperatives.

REDUCTION OF THE TARIFF ON NITROGEN FERTILIZER

In 1995 the local production of nitrogenous fertilizers was about 6.1 million tons, an increase of 8% over 1994. However, the local consumption of nitrogenous fertilizers was estimated at about 6.3 - 6.4 million tons per year on a 15.5% nitrogen basis, and there was generally a need to import about half a million tons.

Presidential Decree No. 38/1994 subjected all imports of nitrogenous fertilizers (urea and ammonium nitrates) to a duty of 30% beginning in 1994. Two years later, Presidential Decree No. 304/1996 reduced different customs tariff categories by different amounts. Nevertheless, that reduction did not include the 30% tariff category, thus excluding any custom tariff rate reduction for nitrogenous fertilizers.

In Tranche I, RDI therefore focused on reducing the tariff on nitrogen fertilizer (ammonium nitrate and urea) in order to meet the needs of local farmers.

Through a series of meetings with government officials and RDI, GOE agreed to grant an exemption to import 1 million tons (later expanded to 1.5 million tons) in 1997 with a ten percent tariff. This exemption partly accomplished the short-run objective of allowing fertilizer to enter the country without payment of duty. These objectives were laid out in Tranche I Benchmark I.B.1.

PRIVATIZATION OF FERTILIZER INDUSTRY

When APRP began, the privatization of fertilizer plants had begun with small non-nitrogen producers. Some additional plants had been included in the overall privatization plan for the country, but a comprehensive plan to privatize the entire industry had not yet been developed. Beginning in 1996, RDI worked with GOE to devise a privatization plan that would include all major and minor producers.

Based on an RDI study of fertilizer production completed February 1996, RDI worked with the GOE to adopt a time-phased liberalization and privatization plan for fertilizer production, marketing, and international trade. In the same year, the GOE established a process for privatization in the entire economy. It proceeded from getting political approval for a wide array of companies to listing a subset of these companies on a specific privatization agenda for specific time periods. This process was flexible, in that it allowed the Government to add to the implementation list those companies in which it detected interest from the private sector. The fertilizer industry was included in this process.

This work led to the fulfillment of Tranche I Benchmark II.B.1. The GOE developed an overall privatization strategy for a broad range of public sector dominated industries. The fertilizer industry was included in this plan, and the privatization of fertilizer producing companies began.

In August, 1996, the GOE privatized Kafr El Zayat Insecticide Company. The company produced several farm inputs including fertilizer, namely phosphates. 75% of the shares were sold through the stock market. EFIC, another fertilizer producer, was privatized in May 1996. 75% of its shares were sold through the stock market that year. Tranche I Benchmark II.B.2 called for the privatization of one fertilizer company. Due to the fact that two were privatized by the summer of 1996, MVE judged that the GOE had exceeded full accomplishment of this benchmark.

DISTRIBUTION OF FERTILIZER BY THE PRIVATE SECTOR

In July 1997, the Minister of Agriculture and Land Reclamation issued instructions to fertilizer factories to sell their output in the following proportions: 49% to PBDAC, 10% to the export market, and 41% to all comers, including cooperatives and private sector traders. While this allocation decision was an improvement over the PBDAC-dominated

distribution system of 1995, it did not truly represent an open and competitive market for fertilizer

In Tranche II, RDI worked with the government to return the private sector to fertilizer distribution. Within this aim, GOE and RDI developed a policy framework governing fertilizer pricing, trade, and distribution, so that the problem that occurred in 1995 would not happen again in the future.

In 1998, the RDI unit held a number of workshops to develop and agree on fertilizer production and marketing and marketing policy goals. In May, RDI held three workshops attended by 110 participants from the public and private sector (Abu Kier Fertilizer Pricing Workshop, Mansoura Fertilizer Pricing Workshop, and Fertilizer Policy Framework Workshop).

RDI also contracted a specialist who prepared a policy entitled, "Policy Framework for Fertilizer Sub-Sector." It addressed numerous issues in the fertilizer subsector and made recommendations in a section entitled, "Implementation Activities." This policy framework delineated the principles on which the GOE wanted the fertilizer production, distribution, utilization, and trade system to operate. The plan included a clear statement of a strategic vision as to how the fertilizer subsector would continue to evolve towards a liberalized, market-driven system. The document also included brief analyses of past situations to extract lessons learned as support for the policies espoused.

Based on this policy framework and through the meetings and discussions sponsored by RDI, the PBDAC quota decreased from 49 percent to 25 percent in 1997. By April 1998, instructions were given to reduce PBDAC share to 10 percent, with the remaining 15 percent to be delivered to the "Northern Upper Egypt Company."

No quota was determined at any time for the private traders or the public trading companies. The declining share of PBDAC resulted in increased share of the private distributors, from 2 percent during the period from August 1996 to July 1997; 27 percent from July to December 1997; and 55 percent from January to June 1998.

The number of private distributors receiving fertilizer from Abou Qir factory increased from three during the second half of 1997 to twelve companies dealing in both local distribution and exports. Fertilizer at Talkha factory became available for any private distributor or trader even with discounts and on credit.

Furthermore, by 1998 the ex-factory price of all fertilizers was determined by the management of the producing factories without any interference from the government, even in the public sector factories.

In order to consolidate these gains and stimulate further progress, in March 1999, RDI continued training with the Fertilizer Pricing Tranche IV Workshop held in Ismailia. The workshop was attended by forty policy-makers from fertilizers trading companies, private fertilizers trading companies, the Ministries of Agricultural and Land

Reclamation (MALR), Trade and Supply (MTS), Finance (MOF), Public Enterprise (MPE), and MPE Holding Companies. The workshop findings were published in RDI Policy Brief 13, *Reforming Fertilizer production and marketing policies*.

In summary, by 1998 the share of PBDAC had declined to a very low level and had no practical effect on the operation of the market. The private sector's share of fertilizer distribution continued to increase, especially at the wholesale and retail levels, and the market was increasingly operating on commercial and competitive terms. RDI accomplished Tranche II Benchmark A.3.

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HORTICULTURE

The successful GOE drive to expand exports is critical to the future of Egypt's agriculture economy. Horticultural exports offer the greatest potential rate of volume and value growth of all agricultural sectors. The potential can be achieved only by improving overall quality of exported product.

Egypt is expected to triple the value of horticulture subsector exports by 2003. The subsector is particularly critical to new job creation. Noted experts point out that horticulture is the most significant agro-economic subsector for generating jobs. In turn, these jobs result in increased real incomes and promote additional job creation in the service sector. This multiplier effect is derived from incremental demands for goods and services in rural areas as on-farm incomes increase. Potentially, the secondary jobs created by increased agricultural incomes can reach double the total number of agricultural jobs created.

While Egypt's yields for many food crops are among the best in the world, current yields for many fruit and other tree crops are well below world standards. Yet, Egypt's geographic location, climate and other favorable conditions are well suited to horticulture and should allow it prominence in markets in neighboring European and Arab countries. To take full advantage of these markets, RDI has worked with the public and private sector to generate a competitive advantage in horticulture by establishing the technical and microeconomic foundations for horticultural development.

RDI's first substantive effort on the horticultural subsector was a study of its critical policy and regulatory constraints (*Horticulture Subsector Policy and Regulatory Constraints*, Joseph Pietrus, January 1999). This comprehensive study was instrumental in shaping RDI's policy reform activities in horticulture during the ensuing four years of the project. Key intervention areas recommended in the report were transportation, pesticides, research and extension privatization, market information systems, and seeds.

TRANSPORTATION

Experts estimate that within 10 years, Egypt could export about \$90 million worth of fresh horticultural products (outside of the traditional commodities) per month during the EU off-season, mainly October-May. In volume terms, this would approach (and in a few peak winter months exceed) 100,000 mt/month. Investment is required (in new lands production, post-harvest handling, cold chain) to make this a reality. These exports must meet EU standards for quality, value for money, flavor, variety and firmness/ripeness. In order for this to be accomplished, post-harvest handling has to be greatly improved and transit temperatures must be held constant from field to market. Breaks in the cold chain, which currently occur at the Cairo and Alexandria International airports, must cease for Egypt to meet EU quality standards. Produce needs to make it from field to aircraft in

12-24 hours and from field to sea vessel in 24-72 hours to prevent deterioration and loss of market value.

Recognizing this, RDI worked with the Horticultural Export Improvement Association (HEIA) and the Agricultural Commodity Council (ACC) to improve the cold chain and establish refrigerated transport, cooling units, and packinghouses across Egypt.

In May 1999, RDI sponsored a workshop on logistical constraints to horticultural exports. Ninety representatives from the private sector, MOF, MTS, MALR, MPE, USAID, ATUT, DEpra and APRP attended. The results of this and other meetings led to the following conclusions:

- Air freight rates need to be reduced.
- Ground services and petrol costs are high.
- Customs rates on imported reefers need to be reduced.
- The cost of landing and marine services must decrease.
- Private Egyptian air shipping companies should be supported.
- There should be a perishables terminal at the Cairo Airport.

These conclusions prompted coordinated activity between RDI, ACC and HEIA to tackle these transportation obstacles. Their success has been impressive.

Refrigerated Containers

Highly perishable fresh fruits and vegetables intended for export are very sensitive to time delays; every hour spent in transit results in loss of quality, price and shelf life. Cumbersome export procedures and time-consuming paperwork prevent expansion of exports of high-value horticultural products by introducing uncertainty into shipping schedules, particularly airfreight. Perishables must be packed in temperature-controlled refrigerated containers (reefers) at the farm-gate or after cooling in pack houses if they are to have maximum shelf life and first-quality appearance and taste. This is required for access to the most profitable and competitive markets in Europe and the Middle East.

The Agricultural Technology Utilization and Transfer (ATUT) project identified access to refrigerated containers as one of the critical impediments to the expansion of agricultural exports. Exporters were complaining that the quality of their product was harmed when they were forced to truck perishable fruits and vegetables without refrigeration to the port and transfer boxes by hand into refrigerated containers under the sun. This was often necessary because the costs and/or bureaucratic requirements for importing reefers into Egypt were prohibitive.

Inspections of the cargo by customs and phytosanitary authorities also at times required unloading and reloading at ship side. When containers were stuffed at the farm or packing house, these inspections needed to take place there, not at ship side. Packers had to pay extra fees to bring customs officials to the pack-house and even so, could not always get them to come.

Prior to 1998, a customs deposit had to be paid for each container (empty or full) leaving the sea port. These deposit payments were refunded when the containers were returned under the duty draw-back procedure, but the process was time-consuming and cumbersome. As a result, many, if not most, imported containers were unloaded in the port and were exported empty. This problem was particularly acute for refrigerated containers critical to supporting the GOE goal of expanding exports.

In 1998, GOE began considering several alternatives to facilitate the entry of reefers provided by shipping lines to the farms or packing plants: 1) the import duty on containers and refrigerating equipment reduced from 40% to 10%; and 2) containers could be brought in under "temporary admission" procedures by the shipping line to avoid the payment of duty. RDI advocated for the free entry of 'reefers' for reshipment with exports of Egyptian fresh or processed produce. RDI emphasized that this would allow Egyptian exporters of fresh and processed food to compete effectively with exporters from other countries

GOE announced unofficially in 1998 its intentions to liberalize and privatize port operations and handling, including allowing foreign shipping lines to establish their own shipping agencies. Several private shipping companies began taking immediate advantage of these anticipated changes in regulations. Maersk Lines, for example, opened offices in Cairo and Alexandria and, in June 1998, assigned a small feeder container ship to begin connections between Alexandria and Italy. This made the issue of free entry for reefers all the more urgent.

RDI assisted the GOE in devising, adopting, and implementing simplified procedures to facilitate entry of refrigerated containers (reefers) for use in exports of fruits and vegetables. These reforms were stipulated in Law 1/1998. With this law, export growers were able to pack their produce at pack-houses for uninterrupted, refrigerated delivery into the cargo holds of airplanes or ships. Speeding transfer of fresh produce improved the final quality of produce.

The promulgation of Law 1 also allowed private trucking companies (or shipping lines) to establish bank guarantees to cover the customs duty deposit. Customs agents now monitored container numbers leaving the port against the bank guarantees, with no cash transactions required unless the container did not return to the port. Law 1 opened the door for private investment in port terminals and private provision of port services. It allowed private companies to get licenses for owning vehicles, stevedoring, shipping agency services for foreign vessels, performing container handling activities, and building warehouses and dry docks in ports. Relevant decrees in Law 1 of 1998 issued by the MTS covered the following:

- Decree 30 specified the conditions and controls governing licensing of private companies, among other things, as shipping agents, as owners and operators of storage and warehouse activities, and as owners and operators of container handling facilities.

- Decree 31 covered the fees charged for licenses for bulk goods (LE 1 per ton) and containers (LE 20 per container).

In order to publicize Law 1 and inform key stakeholders of the changes that would affect horticultural transport, RDI, ATUT, and DEPRA organized an important workshop, "The Main Constraints of Transporting and Handling Egyptian Horticulture Crops", on May 18, 1999. The Deputy Minister of the MTS, Mr. Ayman Abdel Ghaffar, opened the one-day workshop.

Following this workshop, the GOE published procedures in the EEPC magazine in early July 1999 that enabled and informed exporters of fruits and vegetables to bring refrigerated containers on a duty free basis up to their farms, factories or packing sheds for direct loading and export. Technical committees (agricultural, quarantine, export control, customs) were now sent to the station or to the farm to finish the investigation process on the spot. In addition, the Government simplified the shipping documents and custom procedures, and now allowed private companies to enter the field of handling and marine services.

Due to these accomplishments, RDI fulfilled Tranche III Benchmark A.1.

Airport Terminal Cold Storage

As many larger exporters improve their operations by adding on-farm level refrigerated packing and transportation capacity, the absence of adequate cold storage facilities at Cairo airport had become a greater constraint. The lack of a complete cold chain from pack house to the aircraft hold was contributing to product losses and quality degradation, particularly in the summer, as horticulture products had to be handled and stored in areas lacking climate control. The negative impact was even greater due to condensation when produce that was pre-cooled and transported in refrigerated trucks was exposed to warm temperatures.

The public sector cold stores within the Customs area at Cairo airport—the Global Village—were old, poorly operated and too small to accommodate offloading refrigerated trucks. Horticultural exporters had a few options to circumvent the problem. They could 1) use the relatively modern but small private cold stores and packing facilities at the International Export Center (IEC) at the airport or 2) arrange to ship cargo via passenger aircraft departing early in the morning when temperatures were lower. Unfortunately, the IEC was outside the Customs area and not close to the aircraft loading area. The palletized produce leaving the IEC had to be taken to the bonded Customs area for agriculture inspection and clearance and then to the aircraft loading area—all in open air. Using early morning flights worked well for some products and exporters (e.g., green beans on KLM). However, passenger cargo capacities were limited, so large volumes aggregated by freight forwarders could not be accommodated on smaller passenger aircraft.

RDI and HEIA proposed that the solution would be to permit private construction and operation of cold stores within the Customs area at all Egyptian international airports. Egypt had six international airports with customs offices: Cairo, Alexandria, Luxor, Hurghada, Sharm El Sheik, Aswan & East Oweinat. Of these, only Cairo and Alexandria had cargo terminals and storage facilities. RDI and HEIA technical experts emphasized that the facilities had to be of sufficient size to allow direct offloading from refrigerated trucks into the refrigerated storage area where produce could be inspected and delivered directly to the aircraft hold just before departure.

An RDI 1998 study on the regulatory and policy issues affecting the horticulture subsector identified this issue as a critical policy constraint. Another study, by DEPR, compared transportation costs for Egyptian exports to its regional competitors. The study concluded that cold storage facilities at cargo terminals were overloaded during peak seasons and that up to 50% of exporters' produce suffered deterioration or spoilage.

RDI assisted the Horticultural Export Improvement Association's Transportation Policy Advocacy Task Force to focus its activities on areas of central importance to its members. Lack of airport cold storage and adequate cargo space for perishables emerged from the task force sessions as the two critical constraints. Subsequent discussions with exporters, cargo and passenger airlines serving Cairo, and the largest air freight-forwarding company, illustrated the costs of operating without modern, well-positioned facilities and reinforced the need for improved and privately-run facilities. Private sector exporters argued that the GOE as owner/operator of cold storage at Cairo Airport did not provide adequate cold storage services for exporters of perishable horticultural products. Airport facilities needed to be improved and competitive, and market-driven rates should be charged. As the government could not improve the facilities, RDI collaborated with HEIA, ACC, and GOE to allow private companies to build and operate cold storage facilities within the Customs area at international airports.

In early 2000, the Minister of Transportation, the Minister of Economy and Foreign Trade, and the Chairman of the CAA gave approval for HEIA to select a lot of 26,000 m² at the airport and build a facility within the customs area. A contract was signed by the Ministers on May 5 that stipulated the conditions under which HEIA would build and own the cold store. The Prime Minister personally attended the laying of the cornerstone of the new facility on October 23, 2000, which demonstrated the Government's commitment to this step.

Design work on the new facility began, under funding from the ATUT project. HEIA received loans of LE 12 million for construction of the perishables terminal and construction is underway. The facility is slated to be operational by the end of 2002.

In addition to the GOE's efforts at Cairo Airport, there has also been significant progress in building a perishables terminal in the Luxor airport. In response to a request from the Chairman of the Supreme Council of Luxor (whose position is equivalent to that of a governor), the head of the Central Administration for Luxor Airport in the ECAA wrote with his assurance that a cold storage comprising 400 m² for the export of graduates' products would be included in the planning for areas available inside the airport.

Through the perishables terminals in the Cairo and Luxor airports, postharvest losses will be reduced, and the volume and product quality of horticultural exports shipped through Egyptian airports will increase. This significant achievement will benefit the horticultural industry, as well as the economy as a whole. These activities were specified in Tranche IV Benchmark D.3.

Sea Freight Transport

Sea freight, because of its cost advantage over airfreight, will be the primary mode for exports as Egypt improves its competitive export position in horticulture. While Law No. 1 of 1998 paved the way for commercialization and privatization of port services, progress in services affecting containerized products had been slow. The critical role of sea freight and the emerging commercialization of services underscored the need for continued policy reform in this area.

During the peak export season for horticultural products, refrigerated containers needed to be available. If they were not, export opportunities for highly perishable products were lost. A major problem affecting the supply of refrigerated containers in Egypt had been the time delays in clearing imported foodstuffs from the seaports. All food consignments had to be inspected by four agencies: Atomic Energy Organization (radiation), General Organization for Export and Import Control (GOEIC) (food quality), Ministry of Health (safety and quality) and Ministry of Agriculture—fresh produce and veterinary inspections for meat, fish and dairy products (safety and quality). With few exceptions, inspections were done independently. In all cases, laboratory analyses were done independently, which meant these activities were usually done sequentially rather than concurrently.

The multiple, and sometimes random, and unpredictable nature of inspections resulted in substantial container dwell times (the length of time between vessel off-load and container clearance) at the port. Exporters, freight forwarders, shipping lines, shipping agencies and container handling companies interviewed by RDI reported typical dwell times of 20-30 days. This resulted in high demurrage costs to importers, as shipping lines typically offered 5 to 21 days free time before demurrage was charged. Shipping lines

were thus penalized because their stocks of containers were not generating revenue during the dwell period. Also, horticultural exports were reduced as some exporters were not able to obtain refrigerated containers when their product was ready to ship.

RDI, in conjunction with ATUT/TA, conducted site visits to the container ports in Alexandria, Port Said, Damietta and Adabeya in 2000. Meetings were held with horticultural exporters, freight forwarders, shipping lines and shipping agencies, truck transportation companies, cold storage companies, container handling companies, Port Authority personnel, Customs officials and officials responsible for inspections of imported foodstuffs.

Following these site visits, a "Workshop on Logistics" with support from RDI, ATUT/TA, and DEPR/TA was held on May 18, 2000 in Cairo. The purpose of the workshop was to forge a common understanding of the policy and technical constraints affecting horticultural exports. RDI presented its findings of key sea, air, and truck-related transportation constraints to small working groups. Participant feedback strongly supported the need for more coordinated inspection procedures. The impact of multiple and uncoordinated import inspections was chief among the problems affecting sea transportation. Workshop participants concluded that coordinated import inspections were urgently needed to reduce duplication of testing and time delays on clearing imported foodstuffs and refrigerated containers.

Following an advocacy campaign led by HEIA and the Agricultural Commodity Council (ACC), with support from RDI, the Minister of Economy and Foreign Trade, ATUT, and DEPR/TA, the President issued a decree (106/2000) that unified inspection procedures at the ports under the authority of the General Organization for Import and Export Control (GOIEC) of the MEFT. It accorded sole authority for inspections to GOIEC and seconded the employees of the various concerned ministries to GOIEC for this purpose. According to an MVE assessment report, "the rapid implementation of the change in policy is remarkable and demonstrates the GOE's firm commitment to speeding up the importation process. The Government has gone beyond simply approving a change in policy to carrying it out effectively and immediately. For this reason the level of accomplishment [of Tranche IV Benchmark D.8] is considered to exceed full."

Improved port operations

In response to policy advocacy efforts led by ACC, HEIA, and RDI, the GOE issued another 2 Presidential Decrees and one Prime Ministerial Decree to improve and coordinate the operation of seaports in Egypt.

- Prime Ministerial Decree No. 486 of March 2000. This Decree established 24 hour port operations for exports and 16 hour/day port operations for imports without additional fees for services during the added hours. The Decree also ensured that no port or port agency or individual can impose any charges for services within the ports without the prior consent of the Supreme Council for Ports. This makes importing and exporting much easier and makes operating costs for exporters and importers more predictable and transparent.
- Presidential Decree No. 109 of March 2000. This Decree established a Supreme Council for Ports within the Ministry of Transport to coordinate Egyptian ports policy, develop strategies for improving efficiency and speed of port operations, and establish and enforce a uniform and transparent schedule of port charges in all Egyptian sea ports.
- Presidential Decree No. 110 of March 2000. This Decree established within all Egyptian seaports the authority of the port chairman to supervise and administer the activities of all GOE agencies that operate within the port. The Port Chairman will have the authority of the Ministers to which the agencies within the ports normally report. This will avoid conflict of authority and confusion over port activities, priorities, policies and strategies.

Truck Transport Regulations

Law 8 of 1997 reduced the import tariff on new refrigerated trucking equipment to 5%, but the legislation did not include used or reconditioned equipment which would help lower truck operating costs and encourage more rapid expansion of the domestic trucking fleet. Large horticultural exporters addressed the problem by purchasing their own trucks, but small and medium exporters that lacked capital found it difficult to purchase and/or lease trucks. The lack of capacity also affected sea and air exports, as refrigerated trucks were needed to provide a cold chain link between farm, packing house and export facility. Plus, the domestic market was affected by high postharvest losses that reduced supply and increased price.

As discussed above, RDI's 1998 study on the regulatory and policy issues affecting the horticulture subsector identified truck transport regulations as a critical policy constraint. A 1997 DEPRA study focused on the maritime sector, but examined truck, air and sea transportation costs to determine whether Egyptian transportation costs place the country at a competitive disadvantage in the region. Their preliminary results underscored the high operating costs of domestic trucking based on high purchase cost, the high degree of empty backhaul and the absence of a domestic recapping industry, thus requiring companies to purchase costly new tires, or worse, to use worn tires that contributed to breakdowns.

In 2000, APRP therefore assisted the Horticultural Export Improvement Association Transportation Policy Advocacy Task Force to focus its activities on areas of central

importance to its members. RDI conducted a transport workshop during the week of February 24, 2000 at which the various parties (traffic department, truckers, MT, customs department) discussed the transport issue. Trucking regulations on imported trucking equipment emerged as a main policy constraint.

Trucks permitted to transport full rated load

Government policy via Ministerial Decree had previously limited all loads of refrigerated container trucks and other road transport to 19.5T regardless of the rated capacity of the truck. This drove transport costs up and reduced the competitiveness of Egyptian exports. In 1999, RDI worked with HEIA and the ACC to obtain from the Ministry of Transport a decree allowing all road transport to carry their full rated load on arteries which can support this weight.

Imports of older trucks permitted

Egypt's truck fleet is old and owners replace their trucks at a rate far slower than the world norm. In part this is because of customs duties on imported trucks and components that are higher than those of neighboring and competing countries; and in part because Egypt forbade the importation of used trucks more than one year old. Following an advocacy campaign led by RDI and agricultural exporters of ACC and HEIA, MFT issued Decree No. 348 in June 2000 which allows imports of trucks up to seven years old, as long as the trucks meet current Egyptian safety and environmental standards. This decree has contributed to the accelerated renewal of Egypt's fleet, making road transport less expensive and products more competitive abroad and affordable at home.

CONTRACT FARMING

Contract farming, where exporters or processors agree in advance to buy a farmer's or group of farmers' products under certain conditions, has helped countries in many parts of the world increase their exports of agricultural products, both fresh and processed. For the more than 85% of Egyptian farmers who own 3 feddans or less and who cannot, by themselves, hope to export their products, contract growing provides hope for achieving higher levels of income from agriculture. It is difficult for them to achieve export quality production without the technical and financial support of guaranteed markets and reliable contracts.

Prior to RDI's activities, contract farming had already been a feature of Egyptian agriculture for a long time. Exporters and processors of horticultural products, including fine beans, peas, potatoes and tomatoes, had established contracts with both small holders and investors to provide them with product of specific quality and type at specified times. The contracting firms often provided credit, inputs and extension advice as well as a guaranteed market.

At that time, however, the rules governing contract farming were nonexistent. Farmers often complained that firms went back on their promises of price and conditions of sale, such as quality standards. Contracting firms in turn complained that farmers accepted their credit, inputs and extension and then sold their crops elsewhere. RDI agreed with stakeholders that contract farming had very high potential for increasing exports, employment and productivity in export crop sub-sectors. It also had a very strong potential to spread the benefits of increased exports to small holders.

Beginning in 1999, RDI therefore worked with growers, exporters, and GOE officials to establish contracting norms to help regularize relationships between crop growers and crop-buyers by establishing norms for the performance of farmers and firms in contract farming agreements and norms for firms to interact reliably with groups of farmers (WUAs, cooperatives, any other group). RDI's reform objective was to enable farmers, farmer groups, investors and exporters/processors to increase exports, income and employment in export-oriented, high-value agriculture in Egypt through more frequent use of the contract farming approach.

RDI hired a consultant lawyer, Dr. Safwat who drafted several model contracts. An expert in agricultural contracts, Dr. Safwat incorporated input from actual contracts and from interviews with prominent firms and individuals currently involved in contract farming.

Once the draft contracts were finalized by Dr. Safwat, they were reviewed by focus groups and selected individuals for further amendments and improvements. Dr. Parks furthermore drafted a policy memo that encouraged the proper use of contract farming, and endorsed the model contracts. Upon completion of the model contracts, the APRP Director presented the draft policy and model contracts to HE the Minister.

These contracts have proved highly useful in farmer-exporter negotiations. Small holders' share of benefits from increased exports have in turn increased. For example, Ismaeleya small farmers have become actively involved in selling potatoes to exporters, and the terms of the negotiations beneficial to both parties were negotiated using an RDI model contract. These activities took place under Tranche III Benchmark D.1.

TRUE-TO-TYPE GRAPE ROOT STOCK PROGRAM

In the past, Egyptian grape growers complained that the grape planting stock that they bought from nurseries was often misidentified, that is, not "true-to-type." HEIA therefore requested RDI assistance in developing a policy to promote "true to type" varieties in fruit trees and vines. This was a serious problem because misidentified seedlings were discovered only when they bore fruit after several years of significant investment by grape growers. Correcting the problem was very costly and time consuming.

An RDI consultant, an expert in grape nursery regulation/certification, worked with HEIA to solve this problem. After consultations between HEIA, RDI, and ATUT, HEIA

established a private foundation plant material service or “repository” based on imported virus-free budwood. Seedlings from this repository would be sold to nurseries for propagation and certification by HEIA. The timeline for building the repository system was for four to six years, and in early 2002, HEIA contracted with an Italian company for the provision of virus-free budwood.

HORTICULTURAL MODERNIZATION

Becoming competitive in world markets for horticulture meant the GOE needed to create the conditions which would encourage the importation of planting materials, especially for tree crops. It also meant funding long-term research on tree crop varieties to identify and multiply highly productive varieties appropriate to Egypt’s conditions and markets. The private sector also needed to be encouraged to undertake research on these varieties in close collaboration with the Egyptian Agricultural Research Center (ARC).

More than 20 years ago the ARC brought a great variety of fruit and other tree crop planting materials into the country. These included such tree crops as grapes, olives, peaches and apricots. Since then, very few new varieties of tree crops had come into Egypt. Without renewed public sector support, RDI judged that it would be difficult to interest private sector involvement in this arena.

RDI therefore began by identifying a series of initial constraints to establishing a policy that facilitated the renewal of the stock of fruit and other tree crop planting materials in Egypt. Through meetings with stakeholders, RDI found the following:

- Private sector reluctance to undertake long variety-testing research was due to the relatively high cost of variety trials and the opportunity cost of the relatively large areas of land which such trials required.
- The private sector, with the notable exception of some large-scale, influential planters, faced regulatory obstacles in trying to import non-seed planting materials.
- Public sector research institutions in Egypt preferred to concentrate on food crops that provided quicker returns to investment.
- GOE policy placed a strong research and extension emphasis on food security—the development of strong varieties of Egypt’s staple crops: wheat, rice, maize, beans, clover, etc.
- Nurseries in Egypt purported to produce high-quality tree crop varieties, but often sold ordinary, local varieties under assumed names.

To address these concerns and devise policy solutions, RDI began to work with the GOE (MALR/ARC) to declare a policy that promoted long-term research on horticultural crops, especially tree crops. The resultant policy draft assigned no less than 50 feddan in at least one station each in Upper, Middle, East Delta and West Delta Egypt to carry out these trials, as well as staff and budget resources required for long-term, ongoing trial series.

Through a series of meetings and roundtables held with key stakeholders in the government and private sector, Dr. Saad Nassar issued three memos to HE the Minister of Agriculture and Land Reclamation. His Excellency's signed marginal comments covered the following:

- Importance of the program in improving Egyptian producers' and exporters' competitive positions in local and international markets;
- Types of varieties, by species, and the specific varieties to be imported with their sources, by country;
- Provision for phytosanitary control;
- Provision for testing by field research stations and laboratories of ARC, CAH, and HSU over many years;
- List of approved private nurseries for the initial phase;
- Expansion of private nurseries to handle the distribution;
- Preparation of a schedule for distribution of the approved varieties to private nurseries;
- Monitoring program by the Ministry covering the seedlings produced by the nurseries and distributed to farmers;
- Request for funding for three years, with approval for the first year's funding;
- Mention by the Minister that the experiment should be evaluated and that the program should be self-financing.

The memos and Minister approvals succeeded in creating a policy that enabled research stations in Egypt to acquire planting materials regularly and to carry out longterm testing of promising fruit and other tree crop varieties.

In the first memo (January 10, 2000), Dr. Saad Nassar explained the purpose of the program to import new varieties, that years of testing would be required, that the Ministry's laboratories were the appropriate place for this testing, that a schedule would be prepared for distributing the successful varieties to private nurseries (for multiplication and distribution to farmers), that a monitoring program would be set up, and requested approval for three years' funding in the amount of LE 2.8 million.

In the second memo (February 4, 2001), Dr. Nassar clarified the species, their sources, and the local nurseries that were selected to participate in the first phase of the program. On this memo, His Excellency added comments, emphasizing the importance of phytosanitary control. The species covered in the memo were citrus, grapes, mangoes, and olives.

In the third memo (February 12, 2001), Dr. Nassar described the phytosanitary procedures that would be taken, mentioned that the sources would all be reputable nurseries, and requested allocation of LE 1 million for the first phase of the program. On this memo, the Minister gave his approval with the comments:

Procedures to be taken, including an evaluation of the experiment and [it should be] self-financing after production is a success.

HE Minister Wally has written--mostly as a formality, since approval is already inherent in the Minister's letter--to the Minister of Planning and International Cooperation, asking for the latter's approval of LE 1 million from tranche funds for implementation of this activity. Due to these impressive steps forward, MVE judged that the accomplishment of Benchmark indicator D.12 had exceeded that required. "The MALR," MVE noted, "has gone beyond changing the policy to approving substantial funding to carry it out."

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RESEARCH AND EXTENSION

Egypt's official agricultural extension system—based in several agencies of the Ministry of Agriculture and Land Reclamation, the cooperative movement and in certain other public sector agencies—has proven itself effective in getting technical innovations into the hands of Egypt's farmers and other rural producers. This work in both crop and livestock sectors has achieved notable results.

However, as Egypt's agricultural economy was becoming more export-oriented in the 1990s, growers began to require new information that MALR extension and research institutions and staff needed to provide. Many of these needs—market information, economic analysis of the returns to investment in specific cropping patterns or equipment, information about processing and storage, etc.—had not been available in the past from the state services.

By the 1990s, richer farmers had already begun to pay for these services from private agencies. Many Egyptian agribusinesses were hiring international consultants when needed, and many more hired Egyptian expertise from the universities, the Agricultural Research Center or private sector agricultural service companies. However, medium-scale and small-scale farmers, many of whom provided (or wished to provide) export-grade production to processors, traders, packers and exporters, badly needed support from public sector extension and research services.

It became evident that without responsive public sector research and extension services, many farmers were going to find it hard to make the transition from low-income food producers to productive participants in the development of Egypt's agricultural economy. Without an appropriate policy and incentive structure, the public sector extension and research services would no longer meet farmers' needs.

RDI therefore began working closely with the MALR to improve the provision of agricultural extension services and to define the role of the public sector research and extension in a liberal, private sector led, free market agricultural economy. This was a major organizational change effort, and the success of this effort required the active participation and support of all groups—from field extensionists and governmental officials to exporters, growers, and cooperative leaders. To ensure this active participation and support, representatives of all key groups were involved in each of the phases of the reform project. This entailed participation in meetings and workshops in Upper, Middle, and Lower Egypt as well as in Cairo. RDI also worked with MALR research and extension agencies, as well as with rural organizations, cooperatives, and the private sector to implement the policies developed at these seminars in the pilot Governorates.

In its focus on research and extension reform in Egypt, RDI's work passed through two distinct phases. First, RDI worked to define the new policy of government research and extension services within the specifications of Tranches I and II. In its second phase,

RDI moved to implement this new policy in the pilot Governorates under Tranche III and Tranche IV.

PHASE I: DEVISING THE POLICY FRAMEWORK FOR RESEARCH AND EXTENSION REFORM

In Tranche I, RDI commissioned a study to analyze research and extension institutions, with the aim of developing a plan for improving institutional arrangements, improving the efficiency of investment, and reducing budgetary pressures where possible. This study, *Research and Extension: Looking to the Future* (Oteifa, Gomaa, and Osman, 1997), included a review of mechanisms for contracting out services to private sector firms.

Under Tranche II, RDI worked with the MALR to utilize findings from the study to approve a policy which defined the respective roles of the public and private sectors in research and extension. At the time, the ARC and the Extension Services Department were operating on charters developed in the distant past. Their professional staff had begun the process of adapting themselves and their agencies to the new world of privatization and liberalization in the agricultural economy. But this process was ad hoc without a charter to guide and validate their new approach to research and extension: a suitable system to develop and transfer new and appropriate technology to farmers and agribusinesses in the agricultural sector.

In order to develop a comprehensive policy, RDI conducted a series of workshops in Upper, Middle, and Lower Egypt. These workshops were utilized in order to clarify the needs and expectations of all groups.

The first workshop was conducted on 16 March 1998 in Fayoum. The Fayoum research and extension workshop ended with three groups of recommendations for the private and cooperative sectors, private sector participation in research and extension, and the role of the private sector.

The second workshop was conducted March 23-24, 1998 in Luxor. There were five groups of attendees, of which three presented recommendations. The producers' working group dealt with the private sector role, the second set of recommendations came from the combined research and extension working group, and the technical assistance team suggested resolutions to various issues raised, including the role of the private sector in research and extension, financial sustainability, and technology transfer. Private sector producers and traders of inputs also attended.

The third workshop was conducted on 14 May 1998 in Damanhour. There were four groups of recommendations: from the research group, from the producers' group (dealing with input and output issues), from the foreign technical advisors, and the most important recommendations of the workshop.

A policy document was completed by Drs. Bakir Oteifa and Abdel-Salam Gomaa. MALR adopted the document's policy recommendations, as indicated by H.E. Minister Wally's instructions to proceed, noted on a letter from Dr. Saad Nassar .

The proposal approved by the Minister specified the background to the development of the policy, its objectives, and specific directions the MALR would take in order to ensure the implementation of a suitable system to develop and transfer new and appropriate technology to farmers and agribusinesses. This work satisfied Tranche II Benchmark D.4.

PHASE II: IMPLEMENTATION OF THE NEW POLICY

From 1996 to 1998, RDI had therefore worked closely with the MALR to define the role of the public sector research and extension services in a liberal, private sector led, free market agricultural economy. The Minister then requested RDI to work with MALR research and extension agencies, as well as with rural organizations, cooperatives, universities and the private sector to select a pilot governorate for the implementation of this policy and to prepare for replication of the process throughout the country. The MALR chose Ismaileya Governorate for this pilot activity.

In 1998, the MALR implemented a phased plan for the support and transfer of specified research and extension activities to the private sector. The plan included: a) specification of the research and extension functions which the public sector would enable the private sector to provide in Ismaileya, the first pilot Governorate; and b) administrative and management structures and rules to ensure MALR inspection, certification, licensing and quality control for services and information offered by the private sector.

Tranche IV witnessed the development and implementation of a second pilot plan in Luxor/Qena, as well as implementation of the successful elements of the pilot activities in Giza, Beni Sweyf, and Beheira.

In implementing the new research and extension policy, RDI focused on four main areas of reform: training extension agents in export-oriented production; facilitating contract farming between growers and exporters; improving post-harvesting facilities for export crops; and forming farmer cooperatives focusing on export production.

Training Governmental Extension Workers

In cooperation with RDI and the Governorates, HEIA trained extension specialists in horticultural cultivation and Good Agricultural Practices (GAP) for export-quality produce. Trainings were directed at agricultural engineers, farmers, and women, and were conducted in Aswan, Luxor, Qena, Sohag, and Cairo.

Training was divided into three stages. The first stage of training took place over a period of two days for over 100 engineers from the four governorates. Training focused on meeting EU Good Agricultural Practices (GAP) standards.

The second stage entailed a two day training session for engineers, a one day session for farmers, and a one day session for women. In total, over 200 farmers (men and women) and 100 engineers had completed training by May 2002. Training focused on post-harvest handling.

The third stage of training continued throughout June. It was divided into eight groups, with two days dedicated to each group. Training included study tours of grape farms for export in order to expand areas of export-oriented horticulture cultivation.

As these training sessions progressed, specialized extension workers became trainers themselves, further disseminating information in order to reach a wider range of growers. This is assisting farmers in meeting the standards of the export market and increase their sales and profits.

Grower-exporter study tours

Exporters worked with RDI, HEIA and the MALR to promote onsite visits to those farms engaged in modern methods of production for farmers interested in cultivating for export. The objective of the visits was twofold. First, to promote transfers of technology and new methodologies of cultivation to farmers through first-hand exposure to modernized farms in the country; and second, to promote the cultivation of new crops which had not previously been grown in many areas of Egypt (particularly Upper Egypt) but which would be an advantage to both growers and exporters. In total, over twenty farmers from Upper Egypt visited farms dedicated to export grape production.

Contract Farming

Contract farming, where exporters or processors agree in advance to buy a farmer's or group of farmers' products under certain conditions, has helped countries in many parts of the world increase their exports of agricultural products, both fresh and processed. For the more than 85% of Egyptian farmers who own 3 feddans or less and who cannot, by themselves, hope to export their products, contract growing provides hope for achieving higher levels of income from agriculture. It is difficult for them to achieve export-quality production without the technical and financial support of guaranteed markets and reliable contracts.

Prior to RDI's activities, contract farming had already been a feature of Egyptian agriculture for a long time. Exporters and processors of horticultural products, including fine beans, peas, potatoes and tomatoes, had established contracts with both small holders and investors to provide them with product of specific quality and type at specified times.

The contracting firms often provided credit, inputs and extension advice as well as a guaranteed market.

At that time, however, the rules governing contract farming were nonexistent. Farmers often complained that firms went back on their promises of price and conditions of sale, such as quality standards. Contracting firms in turn complained that farmers accepted their credit, inputs and extension and then sold their crops elsewhere. RDI agreed with stakeholders that contract farming had very high potential for increasing exports, employment and productivity in export crop sub-sectors. It also had a very strong potential to spread the benefits of increased exports to small holders.

Beginning in 1999, RDI therefore worked with growers, exporters, and GOE officials to establish contracting norms to help regularize relationships between crop growers and crop-buyers by establishing norms for the performance of farmers and firms in contract farming agreements and norms for firms to interact reliably with groups of farmers (WUAs, cooperatives, any other group). RDI's reform objective was to enable farmers, farmer groups, investors and exporters/processors to increase exports, income and employment in export-oriented, high-value agriculture in Egypt through more frequent use of the contract farming approach.

RDI hired a consultant lawyer who drafted several model contracts. An expert in agricultural contracts, Dr. Safwat incorporated input from actual contracts and from interviews with prominent firms and individuals currently involved in contract farming.

Once the draft contracts were finalized, they were reviewed by focus groups and selected individuals for further amendments and improvements. Dr. Parks furthermore drafted a policy memo that encouraged the proper use of contract farming, and endorsed the model contracts. Upon completion of the model contracts, the APRP Director presented the draft policy and model contracts to HE the Minister.

These contracts have proved highly useful in farmer-exporter negotiations. Small holders' share of benefits from increased exports have in turn increased. For example, Ismaeleya small farmers have become actively involved in selling potatoes to exporters, and the terms of the negotiations beneficial to both parties were negotiated using an RDI model contract. These activities took place under Tranche III Benchmark D.1.

Improving Logistics for Horticultural Exports

Recognizing the importance of effective post-harvest care and transport of horticultural produce, RDI worked with MALR and HEIA to establish refrigerated transport, cooling units, and packinghouses in the pilot Governorates.

Ismaeleya Packinghouse Center

In 2001, HEIA green beans council and RDI began working to set up a packinghouse

center with a cooling facility in Ismaleya. This packinghouse center will have an agricultural extension center annexed in order to offer private extension services to those growers cultivating their crops for export. The project's overall aim is to assist growers in getting their products to the global market.

It is anticipated that the center will play a key role in working with farmers to follow the right steps in all agricultural operations in accordance with the GAP. This will include training extensionists and growers in document filing in order to keep an updated tracking system of crops from planting to harvesting, which are an integral step in getting the internationally accredited certificates which are necessary for exporting local products.

It is planned that the facility will have ten governmental extensionists participating, and these workers will continue to get paid by the government, but will receive additional compensation from the facility based on performance as well. This bonus system devised by the facility will supplement governmental salaries and work as incentives for extensionists to get out to the fields and work directly with the farmers.

The packinghouse will be designed to serve both growers and exporters. Growers will benefit from up-to-date harvesting and post-harvesting methods as well as contract negotiations with exporters. Exporters, on the other hand, will benefit from receipt of the quantities and varieties needed according to the contract brokered by both growers and exporters at the beginning of the season to meet external market demand.

Perishables Terminal in Luxor

In addition to RDI and HEIA efforts in Ismaleya, there has also been significant progress in building a perishables terminal in the Luxor airport. This perishables terminal will serve as a complement to the terminal in Cairo slated for completion at the end of 2002.⁶ In response to a request from the Chairman of the Supreme Council of Luxor (whose position is equivalent to that of a governor), the head of the Central Administration for Luxor Airport in the ECAA wrote with his assurance that a cold storage comprising 400 m² for the export of graduates' products would be included in the planning for areas available inside the airport.

Through the cold storage facility in Ismaleya and the perishables terminals in the Cairo and Luxor airports, post-harvest losses will be reduced, and the volume and product quality of horticultural exports shipped through Egyptian airports will increase. This significant achievement will benefit farmers, as well as the horticultural industry and the economy as a whole.

Formation of Private Commodity-Based Associations

RDI worked with MALR to encourage the formation of private commodity-based associations and to decouple existing cooperatives from government control. In total, 21

⁶ Details of the Cairo terminal are found in the chapter on Horticulture.

associations have been formed in order to promote their interests and take advantage of marketing economies of scale. Approximately 400 farmers now belong to these associations, and representatives from the associations have recently begun to become members of HEIA.

The successful completion of these pilot projects led to the fulfillment of Tranche IV Benchmark D.4.1.

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WOMEN IN AGRICULTURE

Successful agricultural enterprise in Egypt—from farming through trading, handling and exporting fresh and processed agricultural products—depends on women. The higher the value of the product, the more women participate in on-farm production and add value to the product throughout the handling and marketing chain. In Egypt today, laws and regulations protect women and afford them equal rights. But in practice, the productivity of women and their employment and income opportunities in the agricultural economy have lagged those of men. To ensure women equal opportunity for success as farmers, agribusiness managers and owners, employees and entrepreneurs, the government needs to carry out some basic reforms that will have an immediate impact.

The MALR has shown a long-standing commitment to promote participation of women in Egyptian agriculture. The Ministry has had an office of coordination for women in agriculture for several years; the Minister himself has encouraged a long series of donor-funded projects that promote women in agriculture.

The RDI program to improve women's access to incomes, employment and participation in the agricultural economy did not aim to establish new bureaucracies nor to launch new technical assistance projects. Rather, RDI sought to improve the policy environment in which women worked in agriculture and agribusiness, so that their progress could become self-sustaining and permanent.

RDI STUDIES

In 1998, RDI undertook a study of women's employment, incomes and participation in the agricultural economy in Egypt. This study reviewed the literature on women in Egypt, especially in agriculture; visited many ongoing projects; and consulted with donors, government officials, private business people and academics. They identified five main areas worthy of further study: women in agribusiness, women and land, women and technology transfer, women and privatization, and women and associations. This research culminated in the report, *The Impact of Liberalization and Privatization on Women in Agriculture in Egypt*, (El-Sanbary, Mansour, Hamid, ElBindari, Hassan, Nasser, January 1999).

In 1999, a second team looked in depth at these five areas. They spoke with farmers, with graduates, with extension agents and researchers, and then presented recommendations at a workshop in Cairo on 19 May 1999. The 95 workshop participants from the public, private, donor and NGO sectors discussed the team's recommendations and came up with many of their own. The groups reached general agreement on the highest priority reforms. Findings were published in the report *Gender Issues in Privatization and Liberalization of the Agricultural Economy in Egypt* (El-Sanbary, Mansour, El-Fattal, Sherchand, El-Fiki, Hassan, August 1999).

GENDER DISAGGREGATED DATA

Recognizing the importance of accurate information in formulating policy, RDI aimed to work with the GOE (MALR) to publish and implement a policy calling for AERI and CAAE to collect and analyze gender-disaggregated data.

EAS had occasionally produced reports covering women's activities, but these were not regular or statistical. Dr. Saad Nassar wrote a memo to HE Minister Youssuf Wally asking for his approval for EAS to disaggregate and publish data by gender. HE the Minister of Agriculture and Land Reclamation approved (in the same memo) that AERI would, in the future, gender disaggregate all of the studies, surveys and research activities, in line with the process currently implemented by the EAS.

EAS completed and published 23 reports (one report for all the country and one for each of the 22 agricultural governorates), which disaggregated agricultural holdings (land, machinery and animal ownership) by gender by governorate, district and village. These reports included all of the relevant tables and analyses.

EAS also collected (from sources such as CAPMAS and PBDAC) and published general statistics concerning the proportion of women employed in agriculture (classified by age, education and marital status). EAS additionally collected and published the value and percentage of credits received from PBDAC by women in the agricultural sector (by type of agricultural activity) in the years 1998/1999 and 1999/2000.

EAS furthermore published data on women's employment in agriculture by activity, crop type and farm income prepared from the Farm Budget Survey Database (1998-2000).

In its analysis of this activity, MVE noted that "EAS has gone well beyond collecting and analyzing the data by issuing several publications. For this reason, the accomplishment [of Tranche IV Benchmark D.11.1] is considered to exceed full... Publication by the Government of key economic data is an important step in the transition from central planning to a market-based economy. The importance of this additional step (publication) taken by MALR should therefore not be underestimated."

PUBLICATIONS

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El Sanbary, Nagat, Mansour, Kamla, El Fattal, Lamia, Sherchand, Bagie, El Fiki, Amini, Hamid, Hassan, Nihad. *Gender Issues in Privatization and Liberalization of the Agricultural Economy in Egypt*, (RDI Report 75). August 1999.

DAIRY AND MEAT

The beef and dairy sectors in Egypt are important sources of employment and income for all farmers, small-holders and larger producers alike. They are especially important sources of jobs for women and for small-scale producers.

In recent years, the per capita consumption of animal protein in Egypt has been 18 gm/day (2000), a rate considered low by international standards. Imports of red meat are permitted to cope with the meat gap, and they fluctuate from year to year depending on local supply. Milk powder is also imported to fill the gap between local supply and demand.

The objective of the MALR has been to improve the provision of animal protein to all sectors of the population. The performance of the red meat and dairy markets, however, has not been as efficient as it could be. Through several studies, RDI found that efficiency would improve as commercial farms grew and became better organized. The market would also improve once market information was more readily available and when inspection of grades and quality standards was improved.

RDI therefore focused on assisting the dairy sector to organize itself in order to promote its interests to the GOE. The Dairy Union was formed in 1999. RDI also worked with the GOE to institute a policy of labeling all milk containers to protect local consumers and promote dairy exports. RDI furthermore completed an in-depth study of the beef and dairy sectors in order to highlight future areas of reform.

DAIRY UNION

The dairy industry has been an important generator of employment in Egypt. Policy advocacy for measures to improve the competitiveness of Egyptian dairy producers have therefore proved extremely effective in generating jobs, especially jobs for women, elevating rural incomes, and in helping small-holding farmers throughout the country, including Upper Egypt.

Following more than 18 months of analysis and advocacy, carried out with support from RDI, dairy producers, processors and distributors joined together in 1999 to form a federation to represent their policy reform interests to the government. Initially, many thought that the divergent interests of these groups would prevent the formation of such a union. However, as a result of patient negotiations, all participants in the dairy subsector of the agricultural economy agreed to work together to develop their industry. They included cooperatives and small-holders as well as small and large firms and farms.

This group consulted closely with senior MALR advisors and developed a policy agenda

for negotiation, in the interest of the entire dairy subsector. HE Dr. Wally formally approved the initiative and agreed to sponsor the required founding legislation in the People's Assembly. The Founders Group of the New Egyptian Dairy Federation (EDF) engaged RDI legal advisors to draft a proposal for a law, and His Excellency reviewed it and asked the EDF to submit it to the People's Assembly.

Their founding law was presented to People's Assembly and approved. This group has become active in advocating for policy changes that will benefit the dairy sector as a whole. In 2001, for example, the Union was key in working with the GOE to incorporate U.S.-style milk labeling regulations in a decree from the concerned ministries.

PROPER LABELING OF FOOD PRODUCTS

Over the past several years, Egypt has made significant progress in labeling food products. Most processed foods, especially those of which enter the export market, bear labels which conform to U.S. and/or European Community (EU) food labeling requirements for safety, nutrition, and contents. This provides improved food safety to consumers and reduces contamination in food products, whether from pathogens or from foreign objects or products. Improved labeling has a direct impact on the export of Egyptian products, as most countries require a strict description of the content of processed foods before admission to their market.

RDI's technical assistance teams began to work closely with the dairy sector in identifying policy-based barriers to development. The dialogue with the dairy industry, both processors and producers, revealed that labeling issues were important in domestic markets as well as in export markets. RDI as well as industry representatives believed that improving the labeling of dairy products for domestic consumption could promote local production which would, in turn, create jobs.

Milk in Egypt is sold in two principle forms: a) unprocessed fresh milk from cows or buffaloes, sold by farmers or middlemen directly to consumers, without inspection or labeling; and b) long-shelf-life milk in tetra-pak cartons, sold in shops and supermarkets. The latter is labeled for fat and nutritional content. However, until recently many manufacturers were taking advantage of the availability of subsidized powdered milk from the EC to add reconstituted milk (powder plus water) to fresh milk. This cut the cost of their product and increased their profits.

Using the reconstituted EC powdered milk as an admixture with Egyptian fresh milk had two negative effects. It presented the consumer with a falsely labeled final product, and it undercut the efforts of Egyptian milk producers to supply adequate quantities of fresh milk to local processors at prices fair to both producer and processor. The former was unfair for many Egyptian families. The latter hurt the development of a potentially profitable economic sub-sector.

Proper labeling of popular consumer products such as fresh milk was thus an important policy issue. Studies performed by RDI showed that at typical international costs of production, one could not ship milk powder from Europe to Egypt at LE 5000/ton without heavy subsidies. While Egypt could not forbid the importation of such products without legal proceedings before the WTO, it could insist on 'truth in labeling' such that consumers got what they paid for.

RDI therefore worked with the Egyptian Dairy Union to have the GOE incorporate U.S.-style milk labeling regulations in a decree from the concerned ministries. Both the MSHT and MALR stated their support for this reform.

RDI and the Dairy Union's efforts resulted in Ministerial Decree 242/2001 from the Minister of Industry and Technology Development. The decree covered both pasteurized (fresh, chilled) and sterilized (UHT) milk and mandated that dairy producers state whether their dairy products were made from fresh milk or dehydrated milk or a mixture of the two.

On November 7, 2001, RDI organized a meeting with milk processors in order to inform milk processors about the new labeling requirements and almost all of the large processors were represented at this meeting. Copies of the decree were passed out, and the issues involved were discussed. Due to the decree and RDI's public awareness raising efforts, all milk processors now have a special statement on the label of their fresh milk or UHT milk container explaining whether the contents are made from fresh milk or powder.

These activities led to the accomplishment of Tranche V Benchmark E.1.

POLICY ISSUES IN BEEF AND DAIRY PRODUCTION AND MARKETING

In 2002, RDI contracted a study to review the state of the beef and dairy industries and pave the way for future reform. This study, *Policy Issues in Beef and Dairy Production and Marketing in Egypt*, concludes that small and medium-sized beef and dairy producers offer the greatest potential for improving the performance and size of the beef and dairy sectors, because they contribute most of the domestic output. Technical and policy interventions that are directed at these producers would in turn improve the nutritional status of the population at large.

The specific findings of the study are as follows:

- Egypt's population has increased by 50 percent since the early 1980s, whereas in the same period, the production of red meat increased by only 22 percent.
 - The red meat and milk markets suffer from many problems:

- The high price of feed reduces profit potential.
- The poor quality of feed concentrates requires producers to purchase ingredients to improve feed quality.
- The high costs of good breeding stock and the limited access to artificial insemination programs are resulting in a low genetic ability in the stock overall.
- The majority of the villages throughout the country do not have a farm service center or collection system to provide access to milk cooling, filtering and storage tanks where processors or large traders could pick up milk.
- Producers have limited access to low interest rate financing for short, medium, and long-term loans.
- Heat stress and parasite infestation from feed, water and housing is running rampant, especially in herds of small and medium producers.
- Areas of Upper Egypt—particularly Sohag, Qena, Luxor and Aswan—have received less attention for development than northern parts of the country.

The study's main recommendations included the following:

- Review and revise existing agricultural loan programs to assure low interest financing for one, three, and five year loans, and give priority to small and medium beef and dairy producers.
- Establish a core-breeding herd to enable genetic improvement, and give small and medium producers access to this stock.
- Establish dairy and beef associations to represent the interests of all stakeholders.
- Support development of *privately owned and operated* Livestock Service Centers (LSC) to provide basic services to small- and medium-sized dairy and beef producers throughout the country.

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RESEARCH AND TECHNOLOGY TRANSFER

Egypt's arable land is limited but its population continues to grow. Continued increases in agricultural production will need to come from higher yields and the production of higher value crops on this limited land. For agricultural incomes to improve, agricultural productivity must improve, and this means that better technologies must be developed, marketed, and adopted.

Until recently, agricultural research in Egypt, like in most developing countries, was a purely government affair. The Ministry of Agriculture conducted the research, developed the technology (usually a new variety), produced the product, then distributed it to farmers, often at subsidized prices. Universities conducted research too, but had little connection with the farm community.

Conditions have changed, however, rendering this old model obsolete. In an open market economy, new technologies can no longer be developed in isolation from market demands and the availability of imported, competing technologies. To be effective, government research centers must engage in dialogue with farmers and companies to assess the demand for certain technologies, and cooperate with international partners to "license in" new technologies and integrate them into their R&D work. This is particularly true in biotechnology – the current cutting edge of agricultural research – where international companies own much of the best technologies. Research centers must be "connected" locally and internationally to serve farmers' needs for constantly improving productivity.

Governments have also come to recognize that the private sector is better adapted to carry out the production and marketing functions of technology transfer. New policies and institutions are needed to allow government researchers to license their technologies to private companies for production and marketing.

RDI, working in collaboration with the Agricultural Research Center (ARC) in the Ministry of Agriculture, has helped foster progress in several areas of agricultural research and technology transfer.

TECHNOLOGY MANAGEMENT AND COMMERCIALIZATION

Intellectual property rights (IPRs) have come into prominence in recent years. Agricultural researchers have recognized that IPRs must be respected in order to access new technologies owned by foreign entities (such as the "gene gun"). Local IPR laws are also being recognized as a means to protect local innovations, facilitate their licensing and the collection of royalties. New regulations and procedures are required to take advantage of new IPR laws.

In 1999, RDI conducted a series of workshops to discuss intellectual property rights and their legal enforcement. The week of April 18th, a total of 148 participants from MALR, MTS and the private sector participated in RDI-sponsored workshops on IPR. This work was followed up by a Seminar on the Technology Commercialization and IPR Policy of the ARC held in Cairo in October 1999 for 26 representatives of the MALR.

Based on the results of these workshops and policy forums, RDI provided key technical assistance for the development and acceptance of the Technology Management and Commercialization Policy of the ARC. This policy allows the ARC to apply for intellectual property protection for its innovations and then license them to private companies for production and marketing. Revenues are to be shared with the innovators to provide an incentive for innovative research that results in useful products, including new plant varieties. The policy also allows the ARC to "license in" others' technologies and the signing of Cooperative Research and Development Agreements (CRADAs) for joint research with private companies.

In order to publicize the new policy, RDI sponsored workshops on intellectual property and technology commercialization for 100 ARC institute directors and researchers in August 2001, and for 16 deputy directors of research institutes of ARC in November 2001.

RDI also provided essential support for the creation of the Technology Management and Commercialization Office. The office has been established by draft ministerial decree that should be signed with the passage of the IPR law in the near future. In July 2001, RDI held a staff orientation workshop for nine ARC staff selected to participate in the implementation of the new intellectual property and technology commercialization policy office. Following RDI technical assistance, the Office is now implementing the Technology Management and Commercialization Policy and raising awareness of intellectual property and technology transfer issues at the ARC.

VARIETY RELEASE POLICY

Until 2000, the government entity responsible for maize seed production, the Central Administration for Seed Production (CASP), had shown no commitment to stopping its maize seed production. It found this production too profitable to give up, and it wanted to maintain this profitable activity in preparation for the possible transfer of CASP to private sector management.

The main reason that CASP was able to produce maize seed profitably was that it had been given control of the best varieties developed by the Agricultural Research Center, particularly the single-cross hybrids, which are the highest-yielding. Farmers preferred to buy these varieties. RDI estimated that as long as CASP had a monopoly on the best ARC varieties, it would maintain its share of the market.

To break this impasse, it was necessary to break the CASP monopoly on the best varieties. This process began in 2001 when RDI sponsored a number of workshops in conjunction with ESAS elaborating on these issues. On March 25^h, 20 representatives of the private sector and MALR attended a workshop held by RDI on seed variety release policy. This was followed in April by a maize seed workshop attended by 30 participants. Meetings with private and public sector representatives built on workshop findings, and in December 2001 the head of the Horticultural Services Unit (which manages CASP), agreed to a new policy that ended the CASP monopoly on new varieties of maize. This policy stated that the newest varieties of maize developed by the ARC would be allocated through a competitive tender system involving private seed companies. This system was defined in the Variety Release Policy of the ARC (approved by His Excellency the Minister of MALR in July).

Due to the work of RDI, ESAS, and MALR, these new varieties are now made available to private companies through the Variety Release Policy. This new policy was established in the following documents:

- A letter dated November 11, 2001 from Dr. Hussein Soliman, Project Director of APRP to Dr. Youssef Abdel Rahman, Chairman of the Horticultural Services Unit of ARC, with an attached draft policy on release of new maize varieties developed by ARC.
- A letter dated November 18, 2001 from Dr. Youssef Abdel Rahman, Chairman of the Horticultural Services Unit (HSU) of ARC to Dr. Hussein Soliman, Project Director of APRP approving the policy.

PLANT VARIETY PROTECTION LEGISLATION

Regulations to enforce breeders' rights were a high-priority reform issue in the late 1990s. At that time, there were no regulations which governed and protected private sector development of new seed varieties. There is no modern seed law in Egypt, and until very recently there was no modern intellectual property rights law. These regulations were essential.

Through a series of stakeholder meetings, RDI determined that in order for the private seed industry to invest in breeding programs—an expectation consistent with a healthy private seed industry—CASC had to have the rules and regulations to ensure that the intellectual property rights of those private companies were respected. Private investors were unwilling to invest in seed businesses in Egypt without the protection that an IPR law would provide. This prevented the development of a private sector-based seed industry. In addition, the WTO requires an IPR law that establishes plant variety protection.

Regulatory reform to enforce breeders' legal rights was also imperative if Egypt was to participate in the international seed market and gain access to genetically engineered seed

material. For example, in early 1998, the Cotton Research Institute attempted to purchase genetically engineered cotton seed (BT seeds) from American cotton seed companies. The U.S. companies would not sell in Egypt because there were no regulations to enforce breeder's rights. Unless and until Egypt had the means to enforce breeders' rights through written regulation, many biotechnology advances were going to continue bypass the country.

The Government had a plan for private seed sector development, and a law protecting intellectual property rights and providing for plant variety protection was therefore a necessary precondition for this to occur. While the Ministry of Agriculture and Land Reclamation had enacted by decree most of the provisions of the seed law before the People's Assembly, two critical policy reforms required a Law, not a decree: providing legal protection for intellectual property in agriculture, such as new seed varieties; and imposing adequate penalties for infringement of these rights. Without the latter, the former was worthless. RDI therefore worked with the GOE to issue regulations and procedures on Plant Breeders' Rights in accord with the relevant Uniform Performance of Variety (UPOV) convention.

In 1997, RDI began to provide technical assistance to the Ministry of Agriculture in order to develop three articles to establish plant breeders' rights as part of an amendment to the seed sections of the Agricultural Law (Law 53). These articles defined and established the breeders' rights, as well as penalties for violation of the rights. The articles were then placed under consideration by the People's Assembly as part of the broader amendment to the seed sections of Law 53. The new seed law proposal was presented to the Suggestions and Complaints Committee on the February 16, 1998, and on April 13, 1998 it was approved by the Committee. The next step was to discuss it in the Agriculture and Irrigation Committee on May 10, 1998 as part of getting the joint approval with the legal committee. After this approval, the proposal was then presented to the People's Assembly.

Negotiations, however, stalled in the People's Assembly. With increasing emphasis on meeting WTO requirements, RDI shifted its emphasis to the promulgation of IPR legislation that would include plant variety protection. RDI experts worked closely with CASC and with the International Union for the Protection of New Varieties of Plants (UPOV) to ensure that the draft regulations were in conformity with the requirements of the UPOV convention and, therefore, in conformity with the TRIPS Agreement of the World Trade Organization.

Eng. Salah Abdel Wanis visited the UPOV office in Geneva in October, 1997 to discuss the draft regulations. UPOV responded by suggesting some modifications to the draft. Dr. Mohamed Hawary of CASC subsequently modified the draft regulations and traveled to Geneva to deliver and discuss them with the Vice Secretary-General of UPOV (October 29, 1998). UPOV suggested further changes, and CASC incorporated these edits into its draft regulations. The development of these regulations on plant breeders' rights in conformity with UPOV fulfilled Tranche III Benchmark D.4.1.

In order to publicize these advances in plant variety protection legislation in Egypt and advocate for passage of the IPR law, RDI also sponsored a series of seminars and workshops on PVP. In total, over 500 representatives from MALR, MSHT, ESAS, universities and the private sector attended. These events included:

- An Intellectual Property Rights Seminar and Course held in Cairo from April 18-22, 1999 under the co-sponsorship of MALR, MTS, RDI, SIPRE, and USAID. Dr. Marsha Stanton, the former head of the Plant Variety Protection Office in the U.S., delivered lectures on "Plant Variety Protection," "Plant Breeders' Rights and UPOV" and "Special Discussions on PVP." Over 75 representatives of public agencies and private companies participated in this course.
- A UPOV Regional Workshop was held in Cairo on May 3 and 4, 1999, organized by UPOV and the WTO in cooperation with the GOE. Topics covered included: plant protection, the 1978 and 1991 Acts of the UPOV Convention, and "Advantages of Introducing Plant Variety Protection and of Becoming a Member State of UPOV". Dr. Mohamed El Hawary of CASC made a presentation on Egypt's development of breeders' rights. Attendance exceeded 100 people from the private and public sectors.
- The Third Egyptian National Seed Conference, held in Cairo on May 10-12, 1999 under the auspices of H.E. Dr. Youssuf Wally, also featured talks on plant variety protection systems and served to raise awareness about plant breeders' rights. Over 200 people attended this conference from both the private and public sectors.

In addition, the Egyptian Seed Association discussed the importance of breeders' rights in its newsletter (distributed to all major seed companies) and at several public workshops.

RDI also helped the Central Administration for Seed Certification (CASC) to create a Plant Variety Protection Office in order to facilitate implementation of the law. In May 2001, RDI conducted workshops with private and public sector stakeholders clarifying the role of the PVP office. In total, 80 participants attended the two workshops.

The intellectual property law with PVP provisions was passed by the People's Assembly in 2002. The new PVP provision of the IPR law formally establishes agricultural intellectual property rights in Egypt for the first time. This allows foreign seed companies and breeders both to establish themselves in Egypt and to export their best genetic materials to Egypt. This will have a direct effect on productivity and profitability in agriculture in Egypt with a consequent positive impact on jobs, exports, incomes and foreign direct investment. Promoting the promulgation of plant variety protection and intellectual property rights was the focus of Tranche II Benchmark C.3 and Tranche III Benchmarks D.4 and D.5.

EXCLUSIVE RELEASE OF SEED VARIETIES

While RDI was working with MALR officials, private sector seed companies and other experts in the seed industry to pass the IPR legislation, stakeholders and RDI experts agreed that the law would be more effective if the government established regulations regarding exclusive release of new government-bred seed varieties.

Regulations to govern exclusive release of government seed varieties were a related, though separate, issue from plant breeders rights. At that time, inbred lines from government breeding programs were given to the Central Authority for Seed Production, a unit managed by the Horticultural Commercial Unit, for mass production of new seed varieties and sale to farmers. This meant that the government competed directly with the private sector, a situation that private companies had vehemently complained about. Exclusive release regulations would allow the transfer of government-bred seed to the private sector, thereby eliminating the role of the government in the production and sale of seed, a necessary condition for the growth of the private seed sector.

Private sector companies were also concerned that inbred lines from the ARC and other government agencies would be given to one company. The potential was high for this anti-competitive situation to occur. Thus, RDI emphasized that exclusive release regulations should be based on fair and open competition in which all seed companies in Egypt would have equal access to lines and varieties that were produced by government funding. The three main steps for exclusive release were: 1) The government agency would issue a request for proposals that a private company can respond to; 2) a committee would evaluate the proposals fairly and transparently; and 3) the regulations would include a provision to ensure that a dominant company did not win all exclusive releases.

RDI therefore worked with the GOE to issue regulations for exclusive release of new seed varieties and inbred lines to private companies and cooperatives. These regulations were to include a competitive bidding process with safeguards to ensure that one firm could not gain access to a large percentage of new seed varieties.

In March, 1999, RDI contracted Dr. James Delouche to work with Dr. Abd El Salam Gomaa of the ARC to develop draft regulations for the release of new seed varieties developed by the ARC. The consulting team held a workshop and two meetings of an informal working group, including representatives of the private and public sectors. Through these events the team developed and refined a draft policy document providing for exclusive releases of new seed varieties. This draft document and the notes from the workshop and meetings were published in *RDI Report 62, Policy and Procedures for Release of New Publicly Developed Crop Varieties in Egypt*, (Delouche and Gomaa, April 1999).

After these meetings, RDI sought and obtained the approval of Dr. Saad Nassar to create a formal working group to finalize the draft policy document. The Working Group met

on May 24 and June 1, 1999 to revise and agree upon the regulations. Changes were made to the regulations to satisfy all concerns and the draft document was nearly finalized. On June 1, Dr. Abd El Azim Tantawi informed the group that His Excellency the Minister had seen the draft regulations and requested that Dr. Youssuf Abdel Rahman and Ali Sadaa join the Working Group. The enlarged Working Group met again on June 7 and June 24 to discuss the concerns of the new members and refine and edit the draft regulations.

The regulations included a competitive bidding process for exclusive releases of new varieties and safeguards to ensure that one firm could not gain access to a large percentage of the new seed varieties. Once a particular company won a competitive bid and was awarded an exclusive license for a new variety, that company was to be barred from competing for additional ARC varieties of the same crop for five years.

A meeting was held on June 30, 1999 to finalize the draft regulations, after which they were presented to the Undersecretary for Agricultural Services and the Director of the ARC for approval. The Minister approved the provisions for varietal release, leading to the full accomplishment of Benchmark D.4.2.

In order to raise awareness about the new seed variety release policy, RDI developed and distributed a brief on variety release policies and held a workshop on March 11, 1999. About 30 key government and private industry leaders attended. This was followed by two informal working group meetings, each attended by 14 to 18 people, mainly from private seed companies. Afterwards, four meetings of the formal working group in May and June served to promote further public awareness, as three companies from the Egyptian Seed Association participated actively in these meetings.

The Third Egyptian National Seed Conference also featured a presentation on the development of variety release policies in Egypt. The recommendations of the Conference, transmitted by Ali Saada to the Minister of MALR, specifically suggested: "Giving seed producers equal opportunities to obtain foundation seeds and hybrids from the output of the governmental research centers through a specific release system for varieties. Such a system should be transparent and fair to encourage private sector's participation in seed production and marketing."

All of these activities led to the full accomplishment of Tranche III Benchmark D.4.3.

BIOSAFETY REGULATIONS

Biotechnology has become a source of great potential for the engineering of increasingly productive, pest-resistant, and nutritious crops. Many see biotechnology as the fundamental tool for a second Green Revolution. For Egypt to benefit from biotechnology, it needs good IPR laws but it also needs biosafety regulations. Only when biosafety systems are in place, can genetically enhanced crops be tested for food safety and environmental safety and approved for use by farmers.

After extensive consultations with representatives from the private and public sectors and research community, RDI helped develop draft Biosafety Regulations, which are currently being considered by the National Biosafety Committee. These regulations will allow for commercialization of genetically-modified crops once they have passed rigorous food and environmental safety assessments.

COMPETITIVE GRANTS PROGRAM IN AGRICULTURAL BIOTECHNOLOGY

In 2002, RDI helped devise the framework for a potential endowment for a competitive grants program in research and technology transfer in agricultural biotechnology. The proposal is currently being studied by USAID.

Such funding typically results in high returns, as illustrated by a recent IFPRI study of Egyptian rice research. Much of this funding can be allocated through a competitive grants formula to ensure it targets the best projects. This is the approach embodied in the proposal of the Egyptian Seed Association to manage and endowment from USAID to fund the best research and technology transfer projects in the field of biotechnology.

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COTTON

Cotton is Egypt's largest agricultural export and accounts for a large number of jobs both on farms and in downstream activities including ginning, yarn spinning, fabric weaving and dyeing, and ready made garment manufacturing. Exports of cotton and textiles in 1999 reached LE 4 billion, or roughly one-third of the LE 12 billion total value of exports from Egypt, exceeded in importance only by the contribution of oil exports and derivatives.

Furthermore, each feddan of cotton generates 127 days of employment, compared to 32 days for wheat, 48 days for rice, and 62 for maize. As much as 20 percent of the LE 2.1 billion of apparel exports is attributed to labor costs, equivalent to about 200,000 full-time jobs. The textile industry constitutes by far the core of industrial employment in Egypt. In addition to employment and export creation, the downstream activities represent an enormous investment base with significant potential for growth.

RDI focused on several sectors to promote the revitalization of the cotton industry, primarily: privatization of the ginning, spinning and weaving companies and of ALCOTEXA; price liberalization of cotton lint, yarn, and seed; the liberalization of trade; production of short season varieties; marketing and competitiveness; and establishing standards and regulations for international trade.

Since this time, the GOE has made enormous progress in liberalizing the industry. Farmers are now free to either grow or not grow cotton as they choose, on as much or as little land as they like. Furthermore, they can sell their output to either the private or public sector. Obligatory and outdated procedures such as farfara mixing are now optional. Gins are largely private. Cotton can be classified by the MSHT's CATGO at any location. Baling at the gins is authorized and direct exports for UHD bales from gins is encouraged. Private investment has driven the GOE out of the manufacture of ready-made garments, and private investment in spinning has increased dramatically in the last few years.

PRIVATIZATION

INITIATING LIBERALIZATION OF THE COTTON SUBSECTOR

RDI's work in privatization first began with a study that aimed to review previous research of the textile industry and activities that had been initiated under APCP. RDI's privatization staff had planned on doing a spinning and weaving industry portfolio review in the first half of 1997 but realized that this would be duplicative of the work of a Dutch consulting group, Textile and Clothing Consultants. In 1996, the consultants had examined spinning and weaving companies under the Cotton and International Trade Holding Company (CIT-HC). TCC produced detailed reports on the financial status, product mix and market prospects of three public spinners under CIT-HC.

To complement TCC's work, RDI commissioned a status review of Tranche I spinning and weaving industry privatization benchmarks to assist the GOE in complying with this and Tranche II benchmarks on privatization. The consultant, a senior textile industry expert, completed the following tasks by June, 1997:

- Reviewed all studies and plans since 1993 covering restructuring and privatization options.
- Discussed these plans with the three holding company chairmen.
- Reviewed the implementation of the privatization plans for individual spinning companies against previous and current plans and identified key impediments to privatization of these companies.
- Carried out an in-depth analysis of the privatization efforts for the five companies and identified the remaining steps to completion of privatizing these companies.
- Provided key financial data for all spinning companies for 1995 and 1996.

This research fulfilled Tranche I Benchmark II.A.1.

COTTON TEXTILE COMPANY PRIVATIZATION

Based on preliminary studies, RDI worked closely with the management teams of the cotton spinning and weaving companies to provide management and marketing assistance as a first step in the privatization process. RDI spoke with the Chairmen and Sales Directors in order to discuss various privatization options and the company's marketing assistance needs.

In December 1996, shares of Uniarab Spinning and Weaving Company were sold for a combined value of LE 103 million. By May of the following year, 63% was privately owned, and Uniarab changed from a Law 203 to a Law 159 company on 5 May 1997. KABO, the El Nasr Clothing and Textiles Co., had been part of the Spinning, Weaving and Ready-Made Clothes (SW & RMC) holding company. By June 1997, 93 percent of KABO's shares had been sold publicly on the stock market; 7 percent of the shares were held as an ESOP by employees. MVE judged that these first two privatizations exceeded Tranche I Benchmark II.A.2.

Inventory Sales for Textile Holding Companies

Beginning in Tranche II, RDI carried out a series of further interviews, published cotton sub-sector studies, and conducted a portfolio analysis for the textile HCs. These data revealed that the privatization of agro-industries was being constrained by a lack of instruments to deal with firm-level excess inventories, debt burdens and their corresponding excess labor situation.

RDI therefore began working with the chairmen of the HCs and the GOE to develop a mechanism to deal with the above issues and to help generate the needed capital for the

rehabilitation of the firms targeted for privatization. Enabling the management of textile ACs to dispose of their excess, obsolete and stagnant inventory at market prices and use the sales proceeds to finance working capital for new operating cycles and for minor capital investments was critical to making these companies viable.

Due to these efforts, the GOE decided that affiliated companies were allowed to sell their inventory at discounts to book value which were widely considered to be highly inflated, with the knowledge and encouragement of the MPE and the three textile holding companies. The volume of inventory of all textile products was reduced through sale by 15% in the aggregate from March 31, 1997 to March 31, 1998 in the three textile holding companies. Inventory also declined 22.5% (stock by selling price) and 15.0% (stock by production cost) in value terms for the textile companies of the Textile Manufacturing and Trade Holding Company (TMT HC) during this same period.

Furthermore, the MPE and the HCs instructed the ACs not to continue producing fabric, knits, and RMGs that were going straight into inventory and contributing to inventory build-ups. The ACs were instead encouraged to design new styles of fabric, knits and RMGs for new production. Tranche II Benchmark B.1 was accomplished.

Debt Reduction

The cotton spinning subsector had also been burdened with heavy debts accumulated over the years as a result of operating inefficiencies, weak marketing in a changing environment, and insufficient internally generated financing for upgrading and maintenance. Under Tranche II, RDI began collaborating with representatives of the textile companies, the government, and public sector banks in order to reduce the debts of the textile companies in preparation for their privatization.

In 1998, the MPE began the process of negotiating partial payment and re-scheduling the debt of spinning and weaving companies, in concert with the three textile holding companies. RDI provided an overall framework and strategy for debt resolution. The HCs began negotiating with the four public sector banks on behalf of the indebted ACs, and debts were partially forgiven for six textile companies: Misr Helwan Spinning and Weaving (S&W), Sharkeya S&W, Arab Carpet Co., Cairo Dyeing and Finishing, and Dakhaleya S&W. In total, the HC and the banks reached an agreement to forgive over fifty-seven percent of the total debt of the six companies (LE 784.5 million of LE 1.383 billion).

By 1998, Tranche II Benchmark B.2 was accomplished. The MPE and HCs were negotiating with the four public sector banks and the National Investment Bank over the accumulated debt of 24 textile affiliated companies. The process of negotiating, forgiving and rescheduling debt was well underway, and the resolution of outstanding debts in the six cotton trading companies was a very positive step forward. Following from these successes, RDI provided technical support to the GOE to privatize the three Affiliated Companies (AC's) of the Textile Holding Companies (HC's) and one ginning company. Benchmark B.3 was met.

Tranche III followed these same lines, continuing the pace of privatization of the textile companies. By the middle of 1999, all of the steps in the privatization process preceding public announcement had taken place for two spinning and weaving companies: STIA and Shebin El Kom Spinning and Weaving Company. Negotiations were also underway between Sharkeya Spinning and Weaving Company (and the Spinning, Weaving and RMC Holding Company) and a prospective lessee over a ten-year lease for its plants at Mina El Kamh. In May 1999, half of the shares of Delta Spinning and Weaving Company, held by the SWRMC-HC, were also offered for sale.

On July 16, 1999 the Ministry of Public Enterprises (MPE) announced in the El Ahram daily newspaper on behalf of the three textile holding companies that it was offering for management contracts eight affiliated companies. These management contracts were to be through the modernization and development program of the MPE to improve the status of these companies from unprofitable to profitable firms as part of the privatization program. This accomplished Benchmark B.2.

Under Tranche III, RDI and GOE therefore made significant progress in privatization. GOE had prepared four spinning and weaving companies for privatization, and MPE had announced an offer to conclude management contracts for three spinning and weaving companies.

By 2002, private spinners were producing a growing percentage of cotton yarns, using significant quantities of imported cotton lint. Private spinners were also handling nearly all yarns made of man-made fibers. Furthermore, spinners were importing the equivalent of 25,000 tons of short staple cotton from Greece, Sudan, and Syria. The cost of imported short staple was roughly half the price of the long-staple cotton varieties (Giza 85 or Giza 89). Most of that was brought in by private spinners because public spinners continued to be forced to use cotton from the accumulated stocks in the hands of the government or public sector trading companies. This gave a clear market advantage to private spinners who expanded their operations despite the gloomy outlook for the spinning industry worldwide.

COTTON GINNING PRIVATIZATION

Beginning in Tranche I, RDI also worked with the government to develop a phased comprehensive plan to liberalize and privatize the cotton ginning subsector. RDI's goal was for the public ginning and trading companies to compete for market shares among themselves and with the private sector. This was a first step to move the previously all public ginning system to a more market-based operation.

RDI provided technical assistance to public ginning and trading company management to guarantee that the companies were offering custom ginning services to all parties on equal terms, and charging fees on a competitive basis. As a result of this collaboration, by 1997 the public and privatized companies were competing for market shares. The holding companies

did not set the amounts of cotton that the public ginning and trading companies handled, and seed cotton was no longer administratively allocated to ginners. This progress accomplished Tranche I Benchmarks I.3.a and I.A.1.

Building on this progress, RDI worked to encourage further private sector participation in cotton ginning by collaborating with the Cotton and International Trade Holding Company, the managing directors of the public cotton ginning companies, and directors of recently privatized ginning firms. RDI aimed to have 25 percent of the publicly owned ginning stands offered for sale or lease to the private sector, based on accepted valuation techniques.

As of 1 April 1997, two of the public ginning companies had been largely privatized, where private ownership was defined as at least 50% of the company shares in private or commercial hands. El Arabia was the first public ginning company offered for sale on the stock market; private investors purchased 63% of the stocks. An initial public offering (IPO) of El Nil followed in early 1997; 61% of the company was then privately owned.

The original five public sector ginning companies owned 4,354 ginning stands. With the privatization of El Arabia and El Nil Ginning Companies, 1,604 of the 4,354 ginning stands, or 37%, were in private sector hands. Following on the success of the privatization of the two public sector ginning companies, two others were in the process of being privatized and were offered for sale in late 1997. In 1998, not only were 25 percent or more of the public sector cotton gins offered for lease or sale, but two of the five public companies were sold to private investors (more than 60% of each firm was privately held). This significant progress in ginning privatization exceeded Tranche I Benchmark I.3.b.

By mid-1999, two government-owned ginning firms had been privatized and several units were being leased, while another was undergoing evaluation for privatization. By 2002, private gins handled over half of the cotton crop, and nearly three-quarters of the exported quantity. The privatization of ginning has been a remarkable achievement that has brought about the introduction and rapid expansion of universal-density bales and improvement of quality through better handling and reduced contamination.

PRIVATIZATION OF ALCOTEXA

The Alexandria Cotton Exporters Association (ALCOTEXA) represents the Egyptian cotton traders and exporters in both the domestic and world economies. For over 30 years, representatives of the nationalized, public-sector cotton trading companies dominated the association. But at the end of 2000, the membership—which included all registered cotton exporters—elected a new Board of Directors. For the first time since nationalization, the private sector exporters dominated the ALCOTEXA Board (10 of 12 members were from private firms), and they elected Amin Abaza, Chairman of Modern Nile, as ALCOTEXA Chairman for the coming three year period. Modern Nile Company is a private firm and the leading cotton exporter from Egypt. Private membership also increased to 18 out of 24 total members.

This election culminated a long process of RDI's work with ALCOTEXA and the related Ministries to achieve private sector dominance of the cotton economy of Egypt. These changes in ALCOTEXA leadership reflected the diminishing fortunes of public trading companies, as the gradual liberalization of cotton marketing opened opportunities for private traders to compete.

PRIVATE SECTOR JOBS

As a complement to privatization efforts, RDI also focused on private sector job creation in the cotton textile sector. RDI technical experts emphasized that in order for private participation—and hence job creation—to grow, the GOE needed to build private investor confidence. This meant that the GOE needed to ensure that the private sector would not face unfair competition from state companies and that market restrictions on cotton and textiles were being relaxed.

RDI research on the cotton subsector listed a number of reforms whereby the cotton industry, and employment, would grow. This included: 1) eliminating restrictions on yarn prices for export or for the domestic market; 2) allowing market forces to determine domestic prices for cotton lint for the various varieties; 3) removing or relaxing restrictions on the importation of shorter staple cotton; 4) increasing the area planted to medium-length staple varieties; 5) disposing of accumulated stocks of cotton lint in an orderly fashion; 6) removing or reducing subsidies to state-owned spinning companies that allow them to operate indefinitely at a loss; and 7) abstaining from announcing cotton floor prices that were above world prices.

As this chapter illustrates, the GOE followed on many of these suggestions, thereby providing for greater private sector participation and making the cotton industry more competitive in the world market. Due to RDI collaboration with the GOE and private sector industry leaders, in 1999 ginning companies increased their fulltime-equivalent jobs by 619. MVE research furthermore found that 874 additional jobs had been created in the new spinning sector, and an additional 972 jobs were created in Fowah, an industrial area in Kafr El-Sheikh. Total new jobs created in the ginning and spinning companies therefore amounted to 2,465. These figures accomplished Tranche III Benchmark B.3.

PRICE LIBERALIZATION OF COTTON YARN, LINT, AND SEED

In the 1990s, the cotton textile industry enjoyed high and unequal import protection among the various stages. Research conducted by Drs. Edgar Ariza-Nino, Ibrahim Siddik, and Ken Swanberg in 1997 (*Impact Simulation of Government Cotton Pricing Decisions in Egypt, RDI Report 12*) laid the initial groundwork for RDI's work in cotton pricing. The study developed a simulation model which used current data to analyze cotton pricing in Egypt. Findings from this model concluded that the practice of setting minimum export prices was counterproductive and highly inimical to the commercial

interests of producers, processors, and the government, and was contributing to the decline of Egypt's share in the international cotton market.

RDI therefore concluded that one of the most important issues in cotton was to open exports to private traders at prices that would make Egypt's cotton competitive in world markets. This was an essential first step toward moving these industries to an outward orientation of production and trade.

COTTON YARN EXPORT PRICING

The Textile Consolidation Fund (TCF) is the agency officially appointed to monitor textile exports from Egypt. TCF issues export licenses for quota markets—the U.S. and the E.U. being the two principal markets for Egyptian yarns. In the past, TCF did not set minimum yarn export prices; this was done informally by an industry committee composed of the principal yarn producers and exporters. Most committee members represented publicly owned spinning companies. Every year a schedule of export prices for each type of cotton yarn was agreed upon, and exporters of cotton yarn were expected to abide by these prices. TCF did not approve export contracts at prices below those agreed upon, leading to a de facto agreement on prices.

RDI technical experts assessed that minimum export prices for yarn constituted the main impediment for the expansion of exports of cotton yarns from Egypt. These price restrictions were especially harmful for exports of lowcount yarns which constituted the bulk of Egyptian cotton yarn exports. Minimum yarn export prices were less of an impediment for exports of fine yarns, but fine yarns constituted only a small percentage of total exports.

With minimum yarn exports prices in place and enforced, and cotton lint export prices reduced, Egyptian spinners were losing exports because foreign yarn buyers preferred to purchase lint and have it spun elsewhere. Dutch companies, for example, were buying Egyptian cotton lint, sending it to Turkey for spinning, and exporting the yarn to Europe.

As noted above, with RDI assistance several private sector spinners had been established, and several spinning mills had been privatized, notably UNIRAB, Alexandria Spinning and Weaving, MIRATEX, KABO, ESCO and Cairo Silk. This had resulted in significant participation by private sector companies in yarn production and export. Over one-third of current yarn exports were now done by private companies.

RDI therefore took the next step in cotton subsector liberalization by working with key stakeholders to enable Egyptian spinners: 1) to purchase cotton lint at freely negotiated prices (further discussed below); and 2) to export yarn at prices set by the market, not TCF. **The GOE needed to ensure that neither Textile Consolidation Fund (TCF) nor any other organization restricted private sector yarn exports of any count on the basis of minimum export prices.**

By May 1999, the system of minimum export prices had broken down and both public and private spinners (including the privatized and joint investment ones) were no longer respecting the minimum export prices. **Beginning in June 1999**, the Commercial Committee of the Textile Consolidation Fund (TCF) no longer enforced minimum export prices for different types of cotton and blended yarn. Tranche III Benchmark 2.A was accomplished.

INDICATIVE EXPORT PRICING FOR LINT COTTON

In a liberalized cotton market, spinning mills pay different amounts for lint cotton to meet the technical requirements of their spinning equipment (and the counts it can produce) and the market requirements of yarn buyers. Mills search out the cheapest source of supply to meet the technical requirements of particular clients, especially the largely private sector-dominated manufacturers of woven fabric and ready made garments. However, in the past Egyptian holding companies had often privately discouraged public sector spinning mills from buying cheaper medium and shorter staple lint cotton imports.

In the 1990s, ALCOTEXA set minimum export prices for lint, which served as de facto fixed prices. These were reviewed weekly and adjusted periodically, but they were not the same as open export market pricing. At the time, ALCOTEXA had both public and private sector members, yet the association's Management Committee was dominated by public trading companies and public officials.

Meetings between RDI and private sector representatives indicated that private exporters generally preferred open market pricing and objected to various ALCOTEXA regulations regarding export bale type/size, disclosure of all contract details, and foreign exchange and contract payment regulations. RDI therefore collaborated with private sector industry leaders and the GOE to allow for greater private sector autonomy and to liberalize cotton lint export prices.

In 1997, the GOE issued Decree No. 931, which was signed by three Ministers in early August, 1997 and set the framework for the 1997/98 cotton marketing season. Among the several important decisions in the decree was a declaration that lint export prices, set by ALCOTEXA, would be *indicative prices* rather than minimum prices that would be legally binding. This was an important step forward for cotton policy.

Under Tranche III, RDI further pursued policy reform of lint cotton pricing in order to improve the competitiveness of the cotton and textile industries. RDI's first goal was to revise the purpose and operation of ALCOTEXA so that it announced indicative export prices according to international market conditions, and that it no longer approved export shipments of lint cotton. Under Benchmark A.1, RDI provided extensive technical support to ALCOTEXA to assist it in its efforts to announce indicative prices in accordance with demand and supply for Egyptian cotton in the international market.

In 1998, ALCOTEXA announced indicative minimum export prices based on international demand and supply for Egyptian cotton. Furthermore, private sector traders were able to export cotton lint without quantity restrictions and at prices below ALCOTEXA minimum prices. These steps forward accomplished Tranche III Benchmark A.1.

ESTABLISHING A VIABLE FLOOR PRICE FOR SEED COTTON

During the 1996/97 and 1997/98 cotton seasons, the GOE announced a floor price for seed cotton, to be paid to producers at the PBDAC Marketing Rings. The purpose of the floor price was to encourage cotton production during the four-year adjustment period planned for cotton after the 1992 Decree, which set forth the plan to liberalize the cotton sub-sector. The floor price was intended to be an incentive related to world market prices. The GOE wanted to avoid merchants exploiting farmers by paying them prices below world market rates.

However, private sector traders' participation in internal trade in cotton during the 1996/97 season was nearly non-existent because the GOE had established a floor price for cotton well above international market prices such that no trader, public or private, could operate at a profit. The GOE bought the entire 1996/97 cotton crop and lost about 100 LE per kantar.

For the 1997/98 crop season it was not possible to remove or reduce the floor price in view of the political commitments made by the highest level government officials to maintain the same floor price that they had for the previous year. Instead, RDI explored ways to reduce the financial burden of the floor price on the Treasury.

The GOE adopted a modified version of the price deficiency payment system suggested by RDI. The basic concept was that private and public cotton traders would buy seed cotton from farmers at market prices, and the GOE would cover the difference between market prices and the floor price. In such a way, the GOE would be responsible only for the price difference, and traders would provide most of the capital to purchase the crop.

The price deficiency payment system was codified in a joint decree issued by three Ministers (Agriculture and Land Reclamation, Trade and Supply, and Public Enterprises). Decree 931 of 1997 (Cotton's Optional Delivery System for the Season 1997/98) was issued on August 6, 1997. Among its main provisions was the establishment of about one thousand collection "*rings*," each assigned to a state-owned buying company. Farmers would deliver seed cotton to the "*rings*" and become eligible for the deficiency payment. Farmers could sell outside the "*rings*" at any price but then would not be eligible for deficiency payments.

The following year, Ministers Wally, Goweli and Ebeid issued joint Ministerial Decree 1048/1998 concerning the optional system of domestic marketing of cotton. This decree established seed cotton sales rings, operated by PBDAC, to serve as points where farmers

could sell to buyers, either public or private trading (or ginning) companies, at prices based on ALCOTEXA export prices. The decree noted that CATGO and the Cotton and International Trade Holding Company (CIT-HC) would prepare detailed price tables based on the ALCOTEXA export prices and announce the seed cotton prices at the sales rings. The decree also stated that producers were allowed to sell their seed cotton freely to the highest bidder (and, by implication, outside the sales rings).

Thus, the GOE had established a mechanism that allowed private traders and cotton farmers to negotiate on a relatively free market basis, while maintaining the political commitment to farmers of a floor price. This enabled several private companies to be involved in the export trade, so that over 25 percent of exports in 1997/98 were attributed to private traders. For the first time since the 1994/95 season, cotton farmers had a choice as to where they delivered their seed cotton (public vs. private ring) or to whom and where they sold their cotton, with the option of being able to sell to a private trader outside any ring.

Following this, RDI worked with the GOE to take another major step forward. In 1999 the GOE declared that there would be no floor price at all. The GOE would act as a buyer of last resort for cotton that was not sold, but it was important that the GOE buy at very low prices, well below world market levels. By removing this constraint, the GOE was able encourage private trade in cotton, freely negotiated farmgate prices, and an increase in the quantity and quality of cotton exported and sold domestically. This significant progress in cotton marketing led to the full accomplishment of Tranche III Benchmark A.3.

TRADE LIBERALIZATION

COTTON MARKETING RINGS

As discussed above, prior to RDI reform efforts, PBDAC had assigned each cotton marketing ring to one of the State-Owned Enterprise (SOE) cotton trading companies. These companies had to buy all the cotton brought in by the local farmers at GOE-determined prices. There were no other outlets for cotton. But by the mid-1990s, some rings had begun to be allocated to private buyers who were managing them successfully. In addition, farmers had begun selling their cotton to private buyers outside the rings. Such buyers included private companies, small-scale local traders, and cooperatives, which established contracts with private gins or traders to collect the cotton from their members at advantageous prices with premiums for high quality goods. However, while such progress was promising, in practice few private rings had been set up because they were not treated on an equal basis with those operated by PBDAC.

RDI research indicated that given the participation of so many actors in the seed-cotton market and the increased efficiency of PBDAC operations, it was no longer necessary for PBDAC to assign each ring to only one trading company. The GOE deficiency payment program was able to cope with multiple buyers at any given ring and PBDAC bank

branches had computers, which could deal with multiple buyers and prices without hindrance.

RDI therefore began working with the GOE to ensure that farmers would be able to get fair market prices for their product. Accordingly, RDI asserted that marketing rings should be opened to all potential buyers on a competitive basis. Trading companies should not be granted a virtual monopoly to purchase cotton from farmers in areas served by rings. Private sector rings should enjoy the same privileges as public sector rings, and multiple buyers should have access to each ring to ensure that traders competed among themselves to purchase cotton from farmers.

Furthermore, RDI emphasized that trading companies at marketing rings should be free to purchase openly, but should not expect to turn unsold stocks over to the government at the end of the season. As discussed above, in the past, transfer of unsold inventories to the government removed all incentives for state-trading companies to sell their cotton on the world market at freely determined prices. Any unsold portions of the crop were delivered to the government by the SOE trading companies. The government paid the prices recommended by ALCOTEXA for the grades and varieties remaining in their inventory.

On May 8, 2001, RDI sponsored a workshop to discuss private sector views on seed cotton buying arrangements and deficiency payments. At this workshop, Eng. Sayed Erfan, Chairman of CATGO, informed private traders and cooperative officials that beginning in August 2001, it intended to serve PBDAC rings, cooperative collection centers, and privately-run sales rings on an equal basis.

Following this, on October 1, 2001 Dr. Youssef Abdel Rahman, Chairman of PBDAC and Chairman of the Supervisory Committee for Cotton Marketing, issued instructions to all cotton marketing organizations stating the following:

- Private traders and cooperatives could set up private seed cotton buying rings or centers, which should be registered with the Supervisory Committee, the Domestic Cotton Trading Committee and CATGO;
- CATGO would provide classing and grading services to these rings;
- Buyers at private rings and cooperative collection centers would be eligible for any GOE deficiency payments; and
- Certified weighers would weigh all cotton presented to PBDAC or private rings.

Preliminary findings from an MVE survey of 100 rings and collection centers indicated that all types of buyers were treated equally with respect to grading and weighing services. According to MVE, "Weighing and grading were done in a timely manner in 2001/02, and no buyers or sellers complained about these services, or the service providers, during the marketing season." RDI accomplished Tranche V Benchmark D.1.

PRODUCTION

SHORT SEASON COTTON VARIETIES

In the past, the MALR had prohibited the production of cotton species other than *Barbadense* cotton. The "one cotton" policy prevented farmers from obtaining the benefits from production of *Hirsutum* cotton (Upland American cotton) and deprived spinners and weavers in the country from obtaining *Hirsutum*, the most widely utilized cotton internationally, at reasonable prices from any source. At the time local spinners utilized expensive Egyptian cotton to make cheap clothing, clothing for which *Hirsutum* would be more appropriate. RDI experts estimated that the current use pattern of LS and ELS cost millions in foregone income. Research indicated that local production of *Hirsutum* would free LS/ELS Egyptian cotton for export, either as highvalue lint or as high-value finished products.

In June, 1997, Dr. Jane Gleason and Dr. Sayed Hussein published their research findings on the feasibility of introducing short-season cotton varieties and presented their recommendations to the GOE. An economic evaluation of *Hirsutum* trials indicated that *Hirsutum* cotton production resulted in greater net revenues than production of *Barbadense* in Upper Egypt. Rotations in Upper Egypt which included *Hirsutum* also produced far higher net revenues than rotations with *Barbadense*.

Based on these findings, RDI began to work with the GOE and the Cotton Research Institute to implement a research program in *Hirsutum* cotton in the New Valley and Upper Egypt with the goal of allowing farmers, large and small, to grow *Hirsutum* cotton. In April, 1998, East Owainat was proposed as a pilot site for planting and testing the *Hirsutum* cotton varieties. The seed underwent phytosanitary and germination testing at ARC in June, and were planted the following month, accomplishing Tranche II Benchmark C.2.

MARKETING AND COMPETITIVENESS

CATGO LOGO

RDI helped establish a logo for Egyptian cotton as part of an effort to turn Egypt's comparative advantage in cotton into a competitive advantage. Use of the logo and the promotional activities by the textile companies licensed to use it were designed to enhance the premium perception of Egyptian cotton and increase exports.

RDI contracted a US consultant to work with GOE and ALCOTEXA to convince them that the logo was essential, helped design and test the logo, oversaw the first licensing agreement with West Point Stevens, and set up an internet-based license application process on the Cotton Egypt website. RDI continued to work with MFT and ALCOTEXA, the body selected by the MFT to manage and administer the logo, to streamline the application and licensing process.

In 2001, RDI and the GTZ-funded Cotton Sector Promotion Project (CSPP) hired a local consulting firm to conduct a European market survey, and developed a market entry plan. Several license applications were received and granted, and MFT assumed responsibility for issuing licenses.

The Egyptian Cotton Logo has stimulated significant interest around the world. In March 2001, the Ministry of Foreign Trade announced that inquiries about using the logo were received from 53 countries.

E-TRADE

International trade in most major commodities operates on the basis of supply and demand, using forward and spot contracts. This permits buyers to purchase at the most advantageous prices while enabling sellers to negotiate the best possible terms for their commodities. Price discovery is critical to this process. Without a medium through which to learn and transmit offers to buy and to sell, neither party can make useful estimations of prices, quantities available and prospective commercial terms.

Price discovery had not been an issue for Egyptian cotton since the trade was nationalized in the 1960's. The GOE set the prices for farmers, traders, and exporters to maximize benefits to the GOE. Cotton was sold to the GOE at arbitrarily low prices resulting in profits for the state-owned sector. These profits also subsidized government investments in cotton manufacturing infrastructure.

However, with liberalization of the cotton sector, the Egyptian cotton industry needed a new system of price discovery to maximize private sector returns to investment in cotton growing, trading, and manufacturing. RDI research concluded that an internet-based 'auction' system would provide such a system, helping maximize exports while establishing a fair, realistic, and free flow of goods and money within Egypt's cotton economy.

An internet-based online marketing facility similar to the USDA system where products of well-known quality and specifications are sold to the highest bidders would offer a much-needed marketing channel for price discovery to state-owned companies within two years of operation. Such an e-trade facility would eventually be open to a variety of products, but RDI's initial aim was to facilitate exports of cotton lint and yarns where the main suppliers remained public sector enterprises.

RDI began to work with the GOE in 2001 to allow cotton and yarn producers, manufacturers, exporters, and traders to use an internet-based facility to sell their products for export at competitive prices obtained through open and transparent international bidding.

On December 5, 2001, HE Dr. Youssef Botros Ghaly wrote a letter to the Chairman of ALCOTEXA informing him of the website that was to be launched to facilitate online trading of cotton lint. Dr. Youssef Botros Ghaly also sent an official letter dated the same day to the Chairman of TCF on setting up a website to facilitate online trading of cotton yarn. Copies of these letters were then distributed to all exporters of lint and yarn. These activities fulfilled Tranche V Benchmark D.7.

ON-LINE MARKET INFORMATION

Great improvements have been made since APRP began in improving accessibility of market information to cotton traders, exporters, and potential buyers of Egyptian cotton. Alcotexa's weekly reports of export sales are now available through its Internet website. CATGO now publishes two weekly reports in Arabic with updated results of both cotton classing and HVI tests on ginned cotton. CATGO recently opened its own website to make those reports available through the Internet. RDI designed and set a website for reporting cotton prices and market performance of Egyptian cotton in comparison with its main competitors in the world market. Other sources of market data-- USDA, ICAC, and CAPMAS -- are also becoming more accessible through the Internet.

Cotton Marketing

In 2001, RDI experts began working with the Ministry of Foreign Trade to build a market information Internet website designed to provide easy access to up-to-date data on market conditions in cotton. These web pages now provide the most recent information on production, stocks, exports, mill deliveries, remaining stocks, and prices for both Egyptian varieties and its principal competitor, American Pima.

In order to guarantee sustainability of the website, RDI held a series of eight trainings over two months for the four individuals who will be responsible for maintaining the site. Upon successful completion of these trainings, the MFT took over responsibility for keeping the website up to date. The website address is www.egyptinc.com.

CATGO

In 2001, an RDI information technology expert developed the CATGO website. CATGO, the Cotton Arbitration and Testing General Organization, takes samples from every lot at ginning mills for testing using new HVI equipment, for such properties as staple length, strength, color and trash content.

CATGO's database of those HVI tests (described below) is now accessible at the website. In September 2001, RDI sponsored a demonstration of the CATGO website with HVI cotton test results for 15 stakeholders in Cairo. In October, RDI presented the website at the CATGO main offices in Alexandria for 15 staff.

Users of CATGO's on-line database can now search for lots that fulfill specific criteria regarding variety and fiber characteristics... Spinners worldwide can identify specific lots of bales of Egyptian cotton that match their needs most closely. CATGO and ALCOTEXA are currently exploring future prospects of building e-trade capability into the website.

In 2001, the RDI consultant trained CATGO employees who will maintain the website. CATGO took over responsibility for the website at the end of last year. The website address is www.egyptcotton-catgo.org/newsite.

COTTON REGULATIONS FOR INTERNATIONAL TRADE

PHYTOSANITARY REGULATIONS FOR COTTON LINT IMPORTS

In 1997, the Central Authority for Plant Quarantine (CAPQ) conducted a study in coordination RDI and with the German Technical Assistance (GTZ) on phytosanitary regulations with respect to cotton lint imports. The result of this study was broad-based agreement between the private sector and the government.

Two priority reforms were identified from this study. The first required the GOE to codify and publish existing phytosanitary regulations with respect to cotton imports. This was needed because all cotton imports required special permission; no single document contained all the rules governing imports. As the number of private importers of cotton had increased, and as more and more exporting countries attempted to market cotton in Egypt, there was a need for transparent and consistently enforced rules for importing. Prior to these reform efforts, Egypt had fairly well-known rules, but no codified measures. Ad hoc import permits were issued instead. With clear regulations, cotton spinning mills would be able to seek out the lowest cost types and sources of lint cotton to produce yarn to meet market specifications.

RDI therefore began working with the GOE in 1997 to codify and publish existing phytosanitary regulations regarding cotton lint imports. The GOE accomplished this reform in Tranche II Benchmark A.9. Furthermore, in 1998, RDI summarized and disseminated GOE regulations in its June *RDI Newsletter* ("Minister Wally Approves Regulations for Importing Cotton Lint," pp. 4-5, Volume 1, No. 2) to inform stakeholders that the formerly scattered regulations had been consolidated and were available from MALR/CAPQ.

The second reform proposed under the RDI/GTZ study was for the GOE to rewrite existing phytosanitary regulations so that cotton, especially short staple cotton, could be imported from any country with low phytosanitary risk. In 1998, cotton could be imported from two places only - California and Sudan. The revised regulations proposed by RDI under Tranche III included a regional risk assessment that specified which cotton growing regions of the world qualified as having acceptable levels of phytosanitary risk.

The RDI/GTZ study had concluded that reformed phytosanitary regulations with respect to cotton lint imports would make it easier for spinners to import cheap raw material for the production of domestic and exported fabric and clothing. Spinners, both private and public, had complained that they were compelled to spin LS and ELS cotton varieties for everyday clothing. This was wasteful and expensive, and contributed to the noncompetitive position of the industry.

RDI therefore began working closely with the CAPQ to establish a system of determining the phytosanitary risk associated with imports of cotton lint from different regions of the world. A joint APRP/CSPP consultancy was carried out in February-March 1999 by the former director of CAPQ, Dr. Taha Sharkawy, and Eric Joseph, a Swiss phytosanitary expert. This consultancy produced a draft APRP/RDI Technical Report, *New Phytosanitary Regulations of Cotton Lint Imports into Egypt*, that was reviewed carefully by the Director of CAPQ and his staff based at the ports of Alexandria, Damietta and Suez. Their comments were summarized and submitted to the Plant Quarantine Commission on 22 April 1999. The consultancy report was finalized in July 1999, outlining a procedure for specifying criteria and principles for elaborating regulations concerning lint imports. RDI furthermore drafted terms of reference for visits to the US, Syria, Turkey, and Greece that were translated and submitted by Dr. Saad Nassar to Minister Wally.

Following this report, the Plant Quarantine Commission addressed the issue of risk assessment in a 1999 meeting. This meeting resulted in rules to permit inputs from the Mediterranean basin. Furthermore, as reported in the Minutes and Resolutions of the Commission, Dr. El-Daoudi stated the following:

Probable countries of origin lint imports shall be visited during the cotton growing season to define pests of quarantine importance, assess pest control programs and take prophylactic (preventive) measures before contracting and before and after shipment, especially for countries from which lint is imported for the first time.

The Commission has approved the conditions and requirements submitted to it for consideration and implementation if and when cotton lint bales are imported into Egypt.

H.E. Yussuf Wally approved of the synthesized and consolidated regulations for importing lint cotton (from Tranche II). He also approved the CAPQ to continue working on specifying criteria for doing risk assessments, particularly through visits to prospective exporters of lint cotton to Egypt during their cotton growing seasons. These activities accomplished Tranche III Benchmark A.5.2.

HIGH VOLUME INSTRUMENT (HVI) TESTING

By 2000, the Egyptian system of lint cotton grading and testing had become outdated. It did not adequately measure characteristics demanded in international markets. As a result, buyers who may have been willing to pay premiums for high quality cotton were reluctant to buy Egyptian cotton because the existing system did not provide adequate quality measurements.

International trade in cotton had become increasingly based on High Volume Instrument (HVI) test data on physical fiber properties. However, Egypt lagged behind the adoption of HVI test measurements as the principal means that modern spinners used to assess the spinning characteristics of cotton fibers. An RDI study concluded that the Egyptian cotton grading system did not accurately describe actual spinning properties as measured in HVI tests. This implied that the present schedule of prices based on grades was not accurately related to actual spinning value. The low correlation between Egyptian grades and HVI data suggested that traders and buyers were undervaluing Egyptian cotton because they could not be certain of the spinning qualities.

CATGO already had the technical know-how, equipment, and personnel to carry out HVI tests on about ten percent of the total number of bales produced in Egypt. Their data processing and dissemination capability required a major expansion to meet the demands of a cotton marketing system based upon HVI measurements for commercial transactions.

Through consultations between RDI and key stakeholders, it became apparent that both CATGO and MFT agreed with the need to expand the system to conduct HVI testing on all exported lint cotton. RDI therefore began to work with the GOE to promote expanded testing, emphasizing that this needed to be combined with dissemination of the measurement results. At the time, CATGO data had been published in the Cotton Gazette at the end of the season, and then only as averages for each variety.

In 2001, Dr. Hussein Soliman sent a letter to HE Dr. Hassan Khedr requesting approval of the CATGO plan of expansion. This letter was signed by the Minister on December 10, 2001, with the notation, "approved."

During the summer of 2001, CATGO purchased a second HVI testing machine for its Semouha (Alexandria) testing site. This doubled the HVI testing capacity of CATGO in Alexandria. Field visits by the MVE team demonstrated that CATGO's Spinning and Fiber Testing Sector were performing the HVI tests promptly, issuing certificates to clients, and downloading the data on test results to diskettes.

CATGO furthermore established two weekly printed publications with technical support from RDI:

- *Weekly Report on the Activities of CATGO*
- *Weekly Report on the International Cotton Market Developments*

In the first weekly bulletin, there was a page of information (in Arabic) about the number of HVI tests performed by variety. In the second weekly bulletin, there was a table (in English) from the Spinning and Fiber Sector that showed HVI test results on the physical properties of Egyptian cotton varieties from the beginning of the season to the date of publication. These results were a summary of the characteristics for each variety.

CATGO began to publish these results regularly in the 2000/2001 season. The bulletin's circulation included eighty recipients made up of public sector trading and ginning companies, ALCOTEXA members, public officials, holding company managers, journalists, and researchers. These activities fulfilled Tranche V Benchmark D.2.

The results of these tests are also now made publicly available through the Internet on the CATGO website (described above), thus enabling foreign and domestic spinners to identify specific lots that satisfy their needs.

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FISH

Fishing has a proven role as a provider of employment and incomes and as an incentive to investment in Egypt. Fishing requires significant post-harvest handling. Cooling, ice manufacture, salting/drying, canning, filleting, packaging and transport all employ large numbers of workers in rural areas. The fishing sector now provides over 800,000 jobs in Egypt. RDI studies have shown that these direct jobs have important multiplier effects in the services and commercial sectors in rural areas. For example, near the Northern Lakes where fisheries are active, many firms have invested in ice-making plants and packing houses for fish. Trucks take the catch or harvest from the farms and boats to cities throughout the Delta.

Egypt produces a great deal of fish and could produce far more. Fish farms and capture operations in marine and inland waters generate significant quantities of commercially desirable species such as tilapia, gray mullet, red snapper, shellfish, bream, sea bass and others. Beginning in 2000, RDI has focused on promoting the establishment of internationally acceptable sanitary and phytosanitary standards for fish exports, and on restocking the Nile to reverse years of declining fish yields in the Upper Nile region. Together these activities have increased available fisheries output.

QUALITY STANDARD REGULATIONS FOR FISH EXPORTS

With the advocacy efforts of the ACC and HEIA and support of RDI, the MFT and MALR have begun negotiating commodity agreements with a number of foreign countries to accept shipments of fresh products from Egypt. Examples include citrus to China and the Philippines, and rice to Kenya and Indonesia. These agreements center on issues of SPS standards and controls critical to the rapid expansion of Egypt's agricultural exports to new markets. The EU represents the single most important export target market for Egypt's agricultural economy.

Currently, EU countries will not accept shipments from Egypt of fish and shellfish. The principal reason for this barrier has been the absence of any Egyptian regulations establishing sanitary and phyto-sanitary standards for fish and shellfish exports. Egypt had a similar situation when exports of peanuts and potatoes met similar bans by the EU. When Egypt officially established SPRS regulations for these products that met EU standards and seriously implemented these standards, the EU lifted the bans.

The EU does not publish its regulations for imports of fish and shellfish in Arabic. In 2000, RDI therefore translated these documents at the request of the Agricultural Commodity Council. RDI and EU technical assistance then worked with the fish subcommittee of the ACC to write draft regulations governing fish and shellfish exports based on EU standards.

These specifications were submitted to the MALR and MFT and resulted in the following Decrees:

- Joint Ministerial Decree for Fish Exports to the EU.
MALR and MFT issued Decree 1762 in 2000 laying out regulations and procedures related to fish and marine product exports to the EU to ensure that fish exported from Egypt meet EU sanitary and phyto-sanitary standards. These regulations were reviewed by the GOE and RDI and EU consultants and updated in Joint Ministerial Decree 1908 in 2001.
- Joint Ministerial Decree for Mollusk Exports to the EU.
Joint Ministerial Decree 1763 described regulations and procedures for mollusk exports to the EU. These regulations were also updated in Decree 1909 in 2001.

In order to send the new regulations to the EU, they had to be translated from Arabic into an EU language. RDI completed the translations on December 4, 2001. On December 10, 2001, Dr. Fadia Noseir, Supervisor of Foreign Agricultural Relations in MALR, signed and sent a letter to the EU, forwarding the new regulations and with a request for agreement that the EU accept imports of fish and shellfish from Egypt. This letter was delivered to the EU representative in Zamalek, Cairo.

These activities fulfilled Tranche V Benchmarks D.11.1 and D.11.2.

ESTABLISHING THE FISH SUBCOMMITTEE

In 1999, RDI responded to requests from the ACC and representatives from the fishery industry to assist them in establishing the fish subcommittee of the ACC. On April 5th, 23 participants from the private sector, ACC, MFT, and MALR met at the Ministry of Foreign Trade to officially inaugurate the ACC fisheries subcommittee. Participants at the meeting discussed key issues facing those within the subsector, and brainstormed on priorities and plans of action for the new subcommittee. On April 22nd, 32 stakeholders attended an RDI-sponsored seminar to assist the subcommittee in initiating its activities.

These initial association-building activities were continued throughout 1999 to consolidate progress. As part of a study on policy barriers to fisheries development, RDI held a workshop in Kafr El Sheikh in July with 90 participants representing the General Authority for Fisheries Research and Development (GAFRD), cooperatives, traders, marine fishermen and fish farmers. On August 3rd, RDI conducted a second workshop in Damietta with 100 participants. These workshops were followed up by a larger policy workshop held in Cairo on August 15th. The Cairo Fisheries Stakeholder Workshop brought together 57 participants representing GAFRD, cooperatives, the GOE enforcement agencies, the Academy for Oceanography, and the universities in order to highlight key reforms to be pursued.

RDI technical and organizational support continued in 2000 and 2001. June 2000, RDI conducted a Port Said Fisheries Stakeholders Workshop, where over 100 representatives from fisheries cooperatives, MALR, GAFRD, governorate officials, FAO, and universities attended. As goals solidified, RDI focused its efforts on assisting the

subcommittee with the key policy issues targeted for reform. April 2001 RDI sponsored a seminar with the ACC fish subcommittee in Cairo to discuss progress in its efforts to establish industry regulations in conformity with EU guidelines. 67 representatives of universities, research institutes, MALR, and the private sector attended.

The fishery subcommittee has made impressive strides in advocating for the fish industry. Institution-building activities sponsored by RDI assisted the subcommittee to clarify its goals and create an action plan. Discussions with stakeholders across the country enabled the subcommittee to further focus on those issues that would make an impact industry- and nation-wide. As discussed above, for example, the fish subcommittee was integral to MFT Ministerial Decrees on fish and mollusk export regulations.

RESTOCKING THE NILE

Since the beginning of the era of liberalization of the Egyptian agricultural economy in the early 1980s, food production has made significant advances. For most crops, yields and quality have risen dramatically, reversing the long-term trends of increasing dependence on external sources of food for Egypt. Fish production in Egypt has also increased in parallel to crop production, and per capita consumption is now twice what it was ten years ago (11.5 kg/annum from 6.5 kg/annum). However, the River Nile, once the major source of Egypt's fish for domestic marketing and consumption, has been producing less than 10% of the national output of this key commodity in recent years. Several factors contributed to this decline, including:

- Urban and industrial pollution
- Run-off of agro-chemicals
- The disappearance of the pre-High Dam basin irrigation system and inorganic suspensions in the Nile waters; and
- Over-fishing

The GOE had been addressing these problems through policy reform and implementation. MALR led Egyptian farmers to reduce the use of pesticides and herbicides by over 80 percent; the new Ministry of the Environment succeeded in forcing industrial firms and urban areas to treat their waste water before dumping it in the Nile; and GAFRD had become more effective at designing and enforcing catch seasons and limits on capture-fishing throughout Egypt.

In light of these changes, GOE began working with RDI to undertake a major effort to restock the Nile with indigenous species. This effort concentrated on the main river in Upper Egypt where the effects of the clean-up had been most apparent and where the GOE could concentrate its priority efforts to generate improved standards of living. Studies commissioned by RDI found that Nile fishing could provide support for the disadvantaged people and communities of Upper Egypt. Increased fish catches could lead to improved nutrition and to improved incomes from local marketing and, eventually, access to export markets. Increased catches in Upper Egypt could also lead to

investments in small and medium scale businesses.

One study published by RDI, "The Project of the Development and Enhancing of River Nile Fisheries" (Arabic), evaluated the potential of enhancing fish production in the Nile through restocking. The study included surveys and visits to areas of Upper Egypt and the Delta. Suitable sites for applying the project were analyzed, and sources of fish seed and hatchery capacity were evaluated. The study recommended restocking the Nile. The study included an action plan and time schedule, and the required investments and expected costs and returns.

On September 25, 2000, GAFRD sent a memo to HE Dr. Wally, explaining the Nile Stocking project. The letter was initialed by HE the Minister with a notation indicating his approval of the study. GAFRD sent a second memo to HE Dr. Wally concerning the Nile Stocking Project on December 6, 2000. The memo explained the objectives of the study and the two phases of implementation, applying for approval of a budget of LE 1.04 million for the first phase of the project from APRP Tranche funds. By initialing this memo, HE approved these funds for the program and the implementation of both phases. HE the Minister had thereby established the Ministry's new policy on restocking by approving the study, funding for the activity, and implementation of both phases of the project.

The first phase of the Nile Stocking project began May 2001. The first phase included releasing 250,000 *Bult* (Tilapia) fingerlings in the river at Esaweia, in Sohag governorate. On the 6th of June, 2001, the second release of 250,000 fingerlings took place in Qena. By 2002, millions of fish have been released into the Nile, causing a 30 percent increase in catch in Upper Egypt. This has resulted in a significant decrease in the price of fish. These activities were judged to have exceeded full accomplishment of Tranche V Benchmark E.2.

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LAND

A formal land market is essential in a liberal and private sector-led economy. However, the land information system used in Egypt has not been able to provide the needed information to manage land and land-related resources in an efficient and timely manner. For that reason, RDI engaged in a series of studies to: understand how current formal and informal land registration processes operate in Egypt; identify constraints to the development of a land information system, including registration and titling; identify key recommendations to address these constraints; and facilitate the process of formalizing land registration and titling. These studies have highlighted key problem areas as well as developed recommendations, and have paved the way for the creation of a thriving and productive land market.

LAW 96/1992

Following full implementation of the New Land Law in October 1997 (Law 96/1992), which addressed the unbalanced relationship between landowners and tenants in Egypt, the RDI Unit began working with an official from the Agricultural Economics Research Institute in 1997 on two studies to monitor implementation of this important law. These studies were designed to monitor the effects of the new law on landlords and tenants, land rents and prices, cropping patterns and investment, and the eventual development of a land market.

Both studies indicated that although the New Land Law was smoothly implemented, a formal land market had yet to develop. Among the chief reasons identified as constraining the development of a formal land market was the prevailing informal registration process. Though easy to use, this process provided little security for landholders compared to the very complicated and lengthy bureaucratic process associated with the current formal registration system. These studies accomplished Tranche I Benchmark III.A.3.

Consequently, RDI conducted a third land tenure study to identify the constraints to a more simple, risk-free and formal land market, and define recommendations to address some of these constraints. During its three-week fieldwork, the study team held extensive interviews with MALR officials in Cairo and in two governorates. The team also met with officials from the Ministry of Justice and the Title Registration Office, as well as lawyers, landowners, academics, legal experts, cooperatives, and farmers. The team consulted legal documents and examined secondary sources of data.

The study concluded with recommendations to speed up both the adjudication and registration processes, including recommendations to implement a pilot project utilizing village cooperative records. This project would assess the potential usefulness in tying cooperative land records to the title registration process to update land data for the title registries.

LAND TITLING

New Lands Policy

The GOE envisages the settlement of hundreds of thousands of feddan of newly developed or to be developed land in Sinai and in the Upper Egypt areas of the New Valley and the New Delta. This is in addition to current settlement activities that continue in other areas, for example Nuberiya. Plans for expansion of cultivation in desert lands could increase cultivable area in Egypt by as much as 20 percent. The developments are large, costly and high-risk.

Land in the reclaimed areas is allocated to graduates, landless farmers or investors. The GOE has, over the years, allocated land in reclaimed areas with varying methods in order to fulfill a number of competing objectives. Lands are distributed for social reasons—to provide landless poor with land and increase employment—and to increase agricultural production, especially high-value horticultural products for export.

Criteria for land allocation in Egypt have not always been applied consistently across settlement region, nor have they been transparent. In some areas there are programs for graduates, while in others the landless poor are selected to receive land that is fully developed with on-farm as well as supporting infrastructure. Sometimes landless government employees opting for early retirement are given reclaimed land. In other areas, an Egyptian is allowed to obtain reclaimed land through membership in a cooperative. Some of these lands are allocated without on-farm infrastructure. And in some areas, investors purchase land from the government, or investors receive land by ministerial decree, without a formal tender process or auction.

The many different and ad hoc procedures for land allocation have resulted in highly uneven development of reclaimed lands. In Nuberiya, for example, an investor's farm could be fully productive while an adjacent farm lies idle. This is partly because the allocation process has not taken into account the investor's financial or managerial capacity, and there have been no market incentives or disincentives (taxes for example) to ensure that the land is productive and that the government investments in development yield their expected return. In graduate areas, the selection process and subsequent limitations on land utilization have often not been consistent with allowing the land to be put to its highest-valued use.

RDI encouraged the GOE to publish a comprehensive policy on allocation and titling of newly developed lands. In 1997, the General Authority for Reclamation Projects and Agricultural Development (GARPAD) and the RDI Unit began to review and revise procedures for distributing reclaimed land to be consistent with the needs of a market oriented economy. The policy developed by the GOE with RDI assistance was designed to take into account the various social and economic agendas important to the Government, while also being consistent with the operation of a market economy. In a study commissioned by RDI, GARPAD and RDI personnel investigated the distribution

and land titling procedures used in East Owainet and in the Salam Canal Project (East Kantara area and South Kantara & Sahl El-Tena section).

RDI found that land titling procedures were insufficient for the needs of a market economy. Land, even that of investors, could not be used as collateral for loans. There was a lack of a consistent policy, and distribution of land was conducted on an ad hoc basis. These issues undermined investment in land.

Regarding East Owainet, originally there was very little interest in this area. For this reason, in 1998 the cabinet invited about 30 of the largest businesses in the country to invest in East Owainet. At the meeting with the cabinet, business representatives and the Government discussed the potential role of the private sector in assisting the Government to develop new areas in the country for the purposes of: 1) increased productivity, 2) national security, and 3) increased employment. The Prime Minister informed the investors that they, in partnership with the Government, were responsible for security and development, two important objectives of the country. Fifteen businesses chose to participate in the development of East Owainet. Each participant was allocated a 10 km by 10 km (24,000 acres) piece of land, of which 10,000 could be cultivated. Once an investor purchased the land, s/he received a lease subject to ownership in three years. Once ownership was received, selling was permitted.

The joint study on the New Lands Policy concluded that improved investment in new lands, particularly in the Graduate Programs, would occur if Graduates were permitted to purchase land on an accelerated schedule (graduates had to pay for a mandatory 30 year period before title is granted). The recommendations in the document were discussed among the GARPAD and RDI teams, and were presented to senior ministry officials. These activities took place under Tranche II Benchmark C.1.

Old Land

The RDI Unit and AERI conducted a study on means to speed up the process of titling of Old Land. The study emphasized that proper titling was needed for the development of a land market, and suggested implementation of a pilot project to consider the use of agricultural unit (village) land records to facilitate proper registration of land. These data are up-dated every three years by mandate of the Ministry of Agriculture. The study concluded that the Ministry of Justice, which oversees land registration, and the Ministry of Water, which houses the Egyptian Survey Authority, would need to cooperate with the MALR to conduct a pilot program to address these key issues.

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INFORMATION

Information forms the basis of the free market economy. Improved quality of public information, and stronger educational outreach efforts to facilitate understanding and use of these data in decision making by the public and private sectors, are critical to agricultural policy formation and development.

Farmers should be informed of expected prices and be able to estimate anticipated production costs. They should be able from the information provided to predict market changes and the impact of international events on the domestic market so that they can utilize their resources profitably—by rationalizing their cost of production, and by choosing the best cropping pattern.

Private businesses, on the other hand, need accurate, timely market information for the products and commodities they produce or trade. Without regular and timely information, Egyptian exporters find themselves uncompetitive in their efforts to capture export markets for their products. This in turn constrains their willingness to invest in productive infrastructure and to hire new workers and managers.

Beginning in 1997, RDI worked with MALR and the Ministry of Foreign Trade (MFT) to develop a market information system, collect and publish cost of production information, and enforce transparency in governmental decision making.

DEVELOPING A MARKET INFORMATION SYSTEM

Provision of timely and accurate market information to end users is an important role of public agencies in market economies. This is particularly true of former command system countries emerging as liberalized market economies, where market information is typically asymmetrically distributed. In such a situation, there is a danger that certain large, well-financed firms will behave monopolistically (within a particular region) or collusively (at the national level) to the detriment of small farmers and traders. Timely and wide distribution of accurate market information to private sector users can offset any information asymmetry.

As Egypt's agricultural market has been liberalized, policy-makers have also needed timely and accurate market information to regulate markets, formulate subsector policies, and create, in some cases, commodity price stabilization schemes. Sound agricultural sector policy formulation and strategic planning require valid facts. A viable, smoothly functioning agricultural commodity market information system is one very important source of required factual information.

By the mid-1990s, no comprehensive assessment of market information needs had been undertaken. In 1997, RDI completed a study assessing the market information needs of

an open and competitive agricultural marketing system and issued recommendations for developing a marketing information system. The study was RDI Report number 23 entitled *Assessment of the Market Information Needs of an Open and Competitive Agricultural Marketing System: Market Information Sources for Selected Agricultural Products and Inputs in Egypt*. The study provided current sources of market information by commodity and made recommendations for sustaining and improving the provision of this information by the Government. This study fulfilled Tranche I Benchmark I.F.1.

Based on these research findings, RDI also began working with the Principal Information Center (PIC/CAP) to develop an information system that included world prices and the trade outlook. The Center had access to the Internet and began to disseminate data and analysis downloaded from the Internet. These included world prices, and situation and outlook (including trade outlook), for major commodities, including cotton, wheat, rice, and fertilizer. With RDI technical assistance, the Center additionally launched an Internet home page for MALR for many types of information, including the Ministry's databases on production, costs of production, etc. These activities led to the full accomplishment of Tranche I Benchmark I.F.2.

In Tranche II, RDI built on these efforts by working with the GOE to ensure that it collected, analyzed and disseminated both domestic and international market information for key commodities in a timely manner to a broader audience. With RDI technical assistance, GOE initiated a market information system for major agricultural inputs and outputs (cotton, rice, wheat, sugar crops, maize, and selected fertilizers as well as for selected horticultural crops). The system was designed to provide accurate, timely data and analysis at least weekly on domestic and international market prices and conditions. Publications were in Arabic, and Internet postings were in Arabic and English.

By 1998, the Under Secretariat of Agricultural Economics (USAE), which belongs to the Economic Affairs Sector (EAS), published Situation and Outlook reports. This series started with the cotton reports which relied on both local and international information. The marketing information system of cotton included for the first time establishing a procedure of collecting field data about quantities and prices of cotton delivered to the marketing rings at the village level in eleven governorates. The cotton situation and outlook reports were issued monthly in both Arabic and English. This series of situation and outlook reports covered cotton, wheat, corn, rice, oilseeds, sugar crops, horticultural crops, and livestock.

USAE also began to issue a monthly report about the international prices for both inputs and major crops based on the information obtained from the Internet. RDI arranged two related training courses, conducted by US expatriates, for the USAE employees who worked in producing these reports in order to increase their capabilities, and to improve their performance and the quality of the reporting. This accomplished Tranche II Benchmark A.8.

COST OF PRODUCTION AND FARM INCOME DATA

As highlighted above, the MALR concentrated on improving the collection and distribution of marketing statistics with RDI assistance. The purpose of this work was to improve decision making of private and public traders, and improve the quality of analytical work that uses marketing data. In Tranche IV, RDI concentrated on production and income data to complement these earlier efforts.

At that time, farmers had little access to production or farm income data to help them make production decisions and their ability to utilize available data is limited. With the liberalization of cropping pattern decisions, farmers needed timely and high quality information so that land, water and other factors of production would be used more optimally.

In 2000, RDI experts conducted a pilot program using a scientific method based on World Bank standards for collecting farm income and cost of production data in two pilot governorates (Gharbeya and Assiut). This evaluation included 90 farmers in six villages selected from three districts each in Gharbeya and Assiut (total sample size, 180 farmers). After being informed of the method and results of the pilot study and the recommendations of the authorities in the pilot governorates, HE the Minister of Agriculture and Land Reclamation approved the collection of farm income data for the entire country. Expansion of the project was supported by the available local resources of the Central Administration for Agricultural Economics (CAAE).

The initial pilot program of farm income data collection was expanded to eight governorates each in Upper and Lower Egypt (including New Lands in North Sinai) plus Luxor city. Questionnaires were designed, and data entry programs created. Samples were selected and the questionnaire pretested. MALR/CAAE allocated LE 150,000 for implementation in the pilot governorates.

RDI experts formulated and implemented several training courses and workshops for the EAS staff and enumerators in the field. The aims of these workshops were to introduce the new method, in addition to conducting discussion sessions regarding sampling frame and design, sample selection, field data collection, enumerator training needs, and introducing a farmer's notebook.

Data for two governorates (Gharbeya and Assiut) were subsequently published, each in a separate statistical report, by EAS/MALR. Each report included two parts: The first had data tabulated at farm, village, and district levels, and the second had data at the governorate level. The EAS established a database for farm budgets and income in the pilot governorates in Upper and Lower Egypt, as indicated above, after the Minister's approval for covering all the districts in Assiut and Gharbeya governorates.

Upon successful implementation in the pilot governorates, RDI experts conducted several training courses and workshops for the EAS headquarters staff, the enumerators and the supervisors in the new governorates. The main objective of these workshops and training

courses was to unify understanding of the fundamental concepts and the applied procedure which had been followed in the pilot governorates.

The publication of the statistical reports for the remaining governorates was then completed. The data were published in separate reports for each governorate using the same format as the first two reports. EAS/MALR continued with these procedures and completed the database for the other seven governorates for the agricultural season 2000/2001. MVE judged that RDI had exceeded Tranche IV Benchmark D.7.

By 2002, the prepared farm budgets covered nineteen governorates in Upper and Lower Egypt at the village, district, and governorate levels. The methodology has become routine work for the EAS staff at headquarters and at statistical offices in the governorates. EAS also established a database that includes the farm budget data available on CD diskettes and easy to update every agricultural season. This information is the foundation for the creation of a national accounting system for the agricultural sector according to UN/NAS guidelines.

In total, RDI held over fifty workshops in nine governorates, solidifying widespread understanding and support of the new procedures. Twenty-eight of these workshops were directed at the most important stakeholders in information collection and dissemination -- farmers. In 2001 alone, 2255 farmers selected through random sampling attended farmer awareness workshops.

Following from this impressive expansion, Minister Wally approved a memo from the Director of EAS in August 2002 to continue expansion of the program to cover new agricultural lands. These data are to be updated, and the Minister has committed to funding data collection procedures from the MALR budget.

UN National Accounts Standards

In 2000, RDI worked with the GOE to meet the government's commitment to adopt the 1993 System of National Accounts standards. The longer-term objective was to meet IMF data dissemination standards, SDDS and GDDS.

With RDI technical assistance, in 2000 the Ministry of Planning established a National Income Accounts Unit that incorporated the former CAPMAS national accounts unit and staff. This represented a consolidation of GOE responsibility for leading and accelerating the GOE effort to improve procedures and processes to estimate and disseminate national income data. The role of this Unit was to improve national income accounts data, including agricultural sector income data. In 2000, members of the new MOP National Income Accounts Unit met with the MALR officials responsible for agricultural income and production statistics. A preliminary outline of the needs for adopting the 1993 System of National Accounts standards was then reviewed.

In the national accounts system of 1993, there are two alternative models for data collection and organization, based on different primary sampling units, namely

agricultural households and agricultural products. The EAS/MALR team, with technical assistance provided by the RDI Unit, designed and conducted a sample survey to collect farm budget data using the farm as the primary sampling unit. The database established based on this survey enabled MALR to construct accounts using either the crop or the farm model.

The RDI Unit designed the technical training of the EAS staff in the agricultural national accounts office. The ultimate objective of this training was to provide the technical assistance needed to help the MALR build its own capacity to carry out the calculation of the national accounts according to the 1993 system. Two technical training courses were provided, sponsored by the RDI Unit and DT2. EAS staff were trained in proper sampling and selection techniques, procedures for collecting farm data, construction of farm budgets, and farm income analysis. Both of the technical training courses were conducted by Mr. Kotb Salem, Regional Advisor on National Accounts for the UN.

Following the training, the EAS staff, under the supervision of the RDI Unit and the UN expert, carried out the following:

- Designed data formats to organize all of the required data according to the 1993 concepts.
- Modified and implemented the farm income questionnaire to include additional required details to meet the 1993 standards.
- Collected additional data from other organizations like CAPMAS.
- Processed certain existing data according to the requirements of the new system
- Combined all required data in the new format.

With the completion of these steps, the required statistics for 1999/2000 were transmitted to the Ministry of Planning.

The Economic Affairs Sector (EAS/MALR) is now applying these new procedures (based on World Bank methodology) for collecting cost of production and farm income data in order to establish farm budgets. These new procedures have been phased into an expanded number of governorates as well as to the new lands.

TRANSPARENCY IN TRADE DATA AND TRADE AGREEMENTS

Beginning in the late 1990s, the GOE entered into dialogue with the private sector through the Commodity Councils and other private sector business associations to discuss how best to promote free, fair and open competition in all import-export activities, with special support for export promotion. One of the topics central to this dialogue was the importance of making international agreements and official trade data available to all those involved in international trade. Such information assists in strategic business planning, realistic investment decisions and in identifying and entering new markets. Private sector interlocutors and RDI emphasized that this information needed to be made available to all on an equal basis – regularly, quickly and reliably to promote fair and well-informed competition.

The second most frequently mentioned issue in private sector - GOE discussions was the negotiation and publication of bilateral and multilateral trade agreements. The most important were those with the EU and its members and Arab states and their organizations. Trade with some destinations such as China and Indonesia had, in the past, been constrained by the lack of bilateral agreements that spelled out policies, sanitary and phytosanitary (SPS) regulations, inspections, normal standards and categories for different goods, transport restrictions and other critical matters.

In response to the private sector's request, and in a spirit of increased transparency in government operations, the Ministry of Foreign Trade (MFT) worked with RDI to establish a policy and system to:

- Publish and make available copies of all of Egypt's recent bilateral and multilateral trade agreements.
- Publish and make available copies of any new trade agreements or amendments to these agreements within one month of their finalization.
- Publish and make available official disaggregated, product-by-product data on Egypt's trade with its major trading partners.

In 2001, these policies were approved by HE the Minister of Foreign Trade.

Following Ministry approval, RDI worked with the staff of the Office of the Minister to develop the required data formats and collect the data. The trade data formats contained disaggregated, product-by-product agricultural trade statistics. The trade data was published in hard copy starting with the monthly statistical bulletin of the Ministry issued December, 2001, and on the internet at the same time. A summary of the Arab free trade agreement was prepared by the Ministry and was also posted on the website. These activities accomplished Tranche V Benchmark D.4.

TRANSPARENCY IN DECISION-MAKING

Good regulations can promote exports by easing bureaucratic barriers, ensuring fair practices and reassuring foreign markets of Egyptian sanitary and phytosanitary controls. Private-public sector dialogue between representatives of trade, industry and crop associations on the one hand, with ministries and other government agencies on the other, represents an effective way to achieve maximum export performance, investment promotion, and consequent job creation.

The MFT issues many regulations through ministerial decrees or letters that are intended to improve the Egyptian business community's ability to export Egyptian products. In the US, such regulations are issued only after consultation with the relevant stakeholders, particularly export companies and the associations that represent them. The US Administrative Procedures Act insists on such consultation before any regulation is enacted.

In 2000, no such Act or policy existed in Egypt to promote consultation with relevant stakeholders. The MFT therefore requested the assistance of RDI to help them officially promote transparency. MFT recognized that without organized consultation, the GOE could not always be sure of what policies to promote to generate improved economic and export performance. Officials had often responded to the initiatives of powerful individuals or cartels and, without meaning to do so, compromised the export-oriented activities of a given economic sector.

In Egypt, this process of consultation improved with the development of the "commodity councils" in the late 1990s. Beginning in 1998, the MFT, MALR, RDI, and the private sector worked together to develop commodity councils as useful fora for the discussion of policy issues. These were councils of businesspersons involved in the export of particular commodities and of several other private agribusiness and agriculture associations such as the Egyptian Seed Association and The Horticultural Exporters Improvement Association (HEIA). The MFT began discussing regulatory initiatives with these councils and responded to their requests for policy dialogue on specific issues.

The process of consultation, however, had not yet been fully institutionalized by 2001. RDI and GOE aimed under Tranche V to institutionalize the consultation process and render more secure and sustainable the rights of stakeholders to comment on draft regulations before they were officially decreed.

Based on joint RDI-private sector advocacy efforts, in 2001, HE the Minister of Foreign Trade issued Ministerial Decree 910/2001, dated December 6, 2001. Article 2 of the Decree required discussion in a public meeting of any draft regulation affecting exports and export business before issuance of new regulations. The decree required the FTS to present any such draft regulations to the Commodity Councils. The Councils were then responsible to hold public meetings for exporters. Written opinions were to be given within one week. The head of FTS then reported these opinions to the Minister.

This process began at a meeting on December 12, 2001, called by the ACC, where there was discussion of proposed reforms to the duty drawback and tax rebate regulations. In the previous meeting, HE the Minister had made it known that he was preparing a decree to remedy outstanding problems with the duty drawback system and that he would provide a draft of this decree for discussion, comment, and feedback by the stakeholders. Participants in the meeting on December 12 discussed the draft decree and comments were to be provided to the Ministry. These activities fulfilled Tranche V Benchmark D.10.

ON-LINE MARKET INFORMATION FOR COTTON, RICE, AND HORTICULTURE

Cotton Marketing

In 2001, RDI experts began working with the Ministry of Foreign Trade to build a market information Internet website designed to provide easy access to up-to-date data on market conditions in cotton. These web pages now provide the most recent information on production, stocks, exports, mill deliveries, remaining stocks, and prices for both Egyptian varieties and its principal competitor, American Pima.

In order to guarantee sustainability of the website, RDI held a series of eight trainings over two months for the four individuals who will be responsible for maintaining the site. Upon successful completion of these trainings, the MFT took over responsibility for keeping the website up to date. The website address is www.egyptinc.com.

Rice Marketing

RDI also developed the rice marketing website at the request of the Ministry of Foreign Trade in 2001. It provides exporters, traders, and decision-makers with the most up-to-date information about rice, including production, exports, and pricing of rice (domestic and international prices).

RDI technical staff prepared a presentation highlighting the key functions of the cotton and rice market information systems for 20 participants in September 2001. Upon successful completion of the eight training sessions of the Ministry IT staff, the rice website was turned over to MFT in 2002. The website address is www.egyptinc.com.

CATGO

In 2001, an RDI information technology expert developed the CATGO website. CATGO, the Cotton Arbitration and Testing General Organization, takes samples from every lot at ginning mills for testing using new HVI equipment, for such properties as staple length, strength, color and trash content.

CATGO's database of those High Volume Instrumentation (HVI) tests is now accessible at the website. In September 2001, RDI sponsored a demonstration of the CATGO website with HVI cotton test results for 15 stakeholders in Cairo. In October, RDI presented the website at the CATGO main offices in Alexandria for 15 staff.

Users of CATGO's on-line database can now search for lots that fulfill specific criteria regarding variety and fiber characteristics. Spinners worldwide can identify specific lots of bales of Egyptian cotton that match their needs most closely. CATGO and ALCOTEXA are currently exploring future prospects of building e-trade capability into the website.

In 2001, the RDI consultant trained CATGO employees who will maintain the website. CATGO took over responsibility for the website at the end of 2001. The website address is www.egyptcotton-catgo.org/newsite.

Horticulture

RDI experts began development of the horticulture website in January 2002. It is designed for producers, Egyptian exporters, and policy makers. It provides the most recent information on export and local prices, production, Egyptian markets, competitors, and tariffs. This site is sponsored by Egyptian Export Promotion Center (EEPC) within the Ministry of Foreign Trade.

This site will soon be turned over to the GOE before September 30 2002. Training of Ministry IT staff is scheduled for the week of 21 September 2002.

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INSTITUTIONS

Helping the GOE and the Egyptian private sector define the nature of their collaboration to promote the growth of the free market economy in Egypt has been a major policy reform theme for RDI. The private sector promotes the interests of individual firms or of economic sub-sectors, such as processed foods, cotton, horticulture or seeds. The public sector promotes the country's national interest and protects the welfare of the nation and the people. While the interests of the public and private sectors are not always identical, both share many of the same objectives. These include increased exports, employment generation, and added value and incomes, to name a few. Policy dialogue between policy-makers in the GOE and representative private sector associations can lead to very effective partnerships to achieve shared goals. RDI therefore began its focus on public-private cooperation by working to institutionalize information exchange and policy dialogue between the GOE and the private sector.

Through studies, seminars, round tables and workshops, RDI emphasized that as the agricultural economy has become dominated more and more by private firms, new associations have been needed to promote the interests of specific sub-sectors. In the past, the GOE had not been ready to support these associations and often had not been ready to include them in the policy process. Through RDI efforts, new associations were created to bring together private sector interests across subsectors of the agricultural economy. These new associations have effectively communicated their needs to the government, and the GOE has been responsive to private sector demands. GOE support has taken the form of approving the establishment of new associations, opening up government decision making processes to private sector groups, and funding association activities. This progress is a promising beginning to long-term, mutually beneficial public-private cooperation in support of a growing market-led economy.

POLICY DIALOGUE IN SUPPORT OF PUBLIC-PRIVATE COOPERATION

All successful U.S. private trade associations receive significant USG financial and informational support in their efforts to promote U.S. exports throughout the world. Much of this support is channeled through the USDA Foreign Agricultural Service (FAS). RDI recognized that if Egyptian associations knew that there was one location in the GOE to which they could address their policy concerns, private-public coordination would benefit immensely.

At that time, the Ministry of Trade and Supply (MTS) was the principal GOE agency promoting the export of Egyptian products, mostly through its Egyptian Export Promotion Center. The Ministry's mandate called on it to work with individual firms. RDI had fostered the creation and support of several private sector business associations which promoted exports in specific sub-sectors and business development generally, including the Egyptian Seed Association, Cotton Egypt, the Egyptian Agribusiness

Association, HEIA, ACC, and others.⁷ Other private trade associations, such as the Egyptian Exporters Association (EEA), the Egyptian Association of Textile Manufacturers, the Alexandria Businessmen's Association and the Alexandria Cotton Exporters Association (ALCOTEXA) had grown up under government auspices. MFTS worked with all of these groups and, as these associations grew and carefully defined their own roles, MFTS also needed to grow and provide the support required to promote Egyptian products throughout the world.

In 1999, RDI began to focus first, on defining public and private sector roles in export promotion, and second, on improving dialogue between the public and private agencies promoting Egyptian products abroad. RDI advocated that the Ministry could help the private associations iron out potential conflicts between the interests of individual firms and an industry or sub-sector. Furthermore, private sector associations needed to participate fully in policy dialogue and MFTS was the most appropriate channel for their communications to the GOE.

RDI organizational studies emphasized that focusing on defining the role of MFTS in support of the export promotion efforts of private business associations, offering public sector support, and coordinating its activities with those of the private associations would overcome a major constraint to economic development. RDI thus worked with the GOE to mandate that MFTS share with private associations the information required to promote the economies of their respective sub-sectors.

In 1999, RDI consultant Dr. Hamdi Salem initiated these reform efforts by writing a letter to H. E. Dr. Ahmed Goweli, Minister of Foreign Trade and Supply, regarding MFTS's need to work with private associations and commodity councils to promote exports, in addition to working with private firms. Minister Goweli approved the letter and policy change.

EEPC then prepared a detailed memorandum to the Minister laying out a work program to support the efforts of six MFTS agencies to generate better information about market opportunities in 15 target countries of COMESA, North America, and the CIS. This memorandum also laid out a plan to stimulate increased exports of a wide range of products, including many agriculturally derived ones. The memorandum included a budget for using APRP tranche funds in the sum of LE 25.5 million. Minister Goweli approved the memorandum and budget and instructed EEPC to take the next steps.

EEPC's implementation program of export development in the target countries included:

- Egypt's supply capabilities to produce exportable products;
- Trade missions to foreign countries;
- Preparation of high-quality promotional brochures and CDs featuring Egyptian companies in selected industries that can produce export-grade products;

⁷ These associations are further discussed below and in the respective chapters on the agricultural subsectors.

- Reproduction and (subsidized) distribution of a brochure to Egyptian exporters on export marketing laws, regulations, rules and processes;
- Participation in regional international conferences; and
- Procurement of market information through subscriptions.

In addition to EEPC, the overseas commercial representation offices received financial support for conducting studies on the 15 target markets, using local marketers to establish business contacts and consummate export deals, subscriptions to international business periodicals, and participation in conferences. In addition, MFTS agreed to provide additional resources to the General Authority for International Markets and Fairs to organize trade fairs and subsidize the participation of Egyptian exporters, particularly small and medium size ones, in these fairs.

MFTS/EEPC and RDI collaborated in organizing a workshop to present its program of export development to representatives of private trade and business associations on June 13, 1999. At the workshop, Dr. Hamdi Salem made a presentation of EEPC's program and what services EEPC and other MFTS agencies now offered to private exporters and associations. Representatives of many associations attended the workshop, and they made useful comments and suggestions to MFTS in the discussion that followed the formal MFTS presentations.

The June workshop represented an important and symbolic shift in GOE policy to work more closely with private trade and business associations. Most of the relevant agribusiness associations sent representatives to the workshop. MVE verified that they were aware that EEPC and other MFTS agencies planned to work in a more collaborative and consultative way with private associations. These activities fulfilled Tranche III Benchmark D.2.

AGRICULTURAL COMMODITY COUNCIL

In 1997, the GOE issued a presidential decree authorizing the establishment of the Supreme Export Council. As the council's technical secretariat head, the Minister of Trade and Supply (later the Minister of Foreign Trade) issued a ministerial decree to establish Commodity Councils that would report to the Supreme Council. Though both decrees were issued in 1997, neither the supreme nor advisory councils had been operative because the ministerial decree was not clear about the role of the councils, their membership, etc.

As underscored above and throughout this *Final Report*, RDI had undertaken many initiatives to enhance the private/public dialogue. The private sector participated in all policy studies and workshops to provide input in the formulation of the agricultural policy reform agenda. RDI worked with individual producers, processors, and traders to identify policy and regulatory constraints that were presented to decision-makers for joint action planning. RDI also assisted trade associations and unions (Egyptian Seed Association and the Rice Union, among them) to develop their policy priorities and

advocacy strategies. These efforts helped new associations redefine their roles within a free market economy and enhance private sector representation on joint government-private committees. In 1999, RDI began to build on this previous work by presenting a unique opportunity to institutionalize the dialogue for the entire agricultural economy.

Discussion of RDI's aim of initializing the ACC started in January 1999 with the MOTS. In May 1999, APRP proposed, through the Egyptian Export Promotion Council (EEPC) Director, a policy framework and a related legal package that included a ministerial decree defining the roles, responsibilities, membership, funding, etc. for the Agricultural Commodity Council. These proposals were developed in a number of meetings with the key private sector producers and exporters in the horticultural subsector, specifically those involved in ornamental and medicinal plants, fresh fruits and vegetables, cut flowers, and potted plants.

In 1999, RDI worked with the ACC to build its organizational structure and mission through several seminars and workshops. In October, RDI held a workshop involving 34 representatives from the ACC, MTS, and MALR to discuss the objectives of the Council. With technical support from RDI, ACC elected a Board of Directors in 1999 following an RDI-led focus group on the roles and responsibilities of ACC leadership in November. The following month, an RDI consultant held a roundtable with 23 ACC members on the models and experiences of other commodity associations in other countries. This was followed by a seminar on the ACC that brought together representatives of MALR and the private sector.

In 2000, RDI turned its attention to assisting the ACC establish its subcommittees. In March, RDI worked with industry leaders in the peanut subsector to launch the peanut subcommittee and establish its program. In July, RDI built on these efforts by sponsoring subcommittee workshops in El Borg for private sector producers and exporters and the ministry of Economy and Foreign Trade. The program included the rice sub-committee workshop held July 15th with 63 participants; the citrus sub-committee workshop on July 16th for 50 participants; the potato, garlic and onion sub-committee workshop held July 17th for 62 participants; and the peanut sub-committee workshop held July 18th for 45 participants. These subcommittee sessions were followed by a joint leadership strategies workshop on the final two days of the week-long program. Details of the many policy reform achievements resulting from the work of these subcommittees is found in RDI Report 69, *Overview and Assessment of the Agricultural Commodity Council*, Heather Dale, July 2002.

In 2001, RDI held ten more organizational development workshops involving over 280 participants assisting industry leaders establish the fish, red meat, dairy, and organics subcommittees, and helping previously established subcommittees focus and strengthen their activities. Through these successes, MVE judged that RDI had exceeded full accomplishment of indicator D.1.2.

GOE FUNDING FOR PRIVATE EXPORT PROMOTION ASSOCIATIONS

In many countries, governments provide grants to associations of businesspersons which represent commodities or economic sub-sectors. In the U.S., this includes such organizations as Cotton Inc., SUPIMA, the Pear Board, and Washington Apples. The European Union and its member state governments also invest heavily in export promotion.

By 2001, associations in Egypt had reached a remarkable point of achievement for young groups. In the agricultural economy, most important firms and entrepreneurs had joined one or more associations such as ACC, ESAS, HEIA, EAGA, and EAAPA. The GOE was listening to their opinions about policy reform and acting on many of their requests and suggestions. However, these associations did not yet have the financial resources to fund promotion activities abroad.

RDI had worked with the GOE for several years to fund private associations for export promotion. The GOE, however, had never provided funding for promotion activities by private export associations. Under Tranche V, RDI therefore aimed to take the private-public policy partnership one step further by promoting the use of GOE funds to support private sector-led export promotion activities.

RDI worked in conjunction with ACC to advocate for this reform. Their efforts led to Article one of Ministerial Decree 910/2001, dated December 6, 2001, committing the Foreign Trade Sector (FTS) of MFT to providing funds to the Commodity Councils for the purpose of export promotion. This accomplished Tranche V Benchmark D.6.1.

FURTHER WORK IN INSTITUTION BUILDING

In addition to RDI's efforts in promoting public-private sector dialogue and carefully defining the roles and responsibilities of each, RDI has also worked in key sectors of the agricultural economy to support a number of other institutions. Details are found elsewhere in the *Final Report*, namely the chapters on Cooperatives, Seeds, Research and Extension, and Pesticides. A brief highlight of RDI activities, however, are also included below.

- **Cooperatives.** The MALR conducted to a pilot program with RDI assistance in Assiut and Mansoura to remove all government-paid technical staff from cooperatives, and to eliminate government-nominated members from Cooperatives boards. In addition, HE Minister of Agriculture approved a new strategy to transform cooperatives into independent, private, profit-oriented institutions that provide inputs, marketing channels, a voice in policy advocacy, and any additional services identified by cooperative members.
- **Egyptian Seed Association.** In the past five years the Egyptian Seed Association (ESAS) has become a powerful association in the area of policy

reform and liberalization of the seed sector. It works with the government to redefine the roles of the government and private sector in the seed industry. The association's goals are to build an internationally competitive and private seed industry, which attracts foreign direct investment, engages in strategic alliances and joint ventures with foreign partners, and provides the most modern seed technologies to the farm community.

- **Pesticide Traders Associations.** Two pesticide traders' associations, Crop Life Egypt and the Egyptian Seed and Pesticide Traders Association (ESPTA) have worked together to implement a pesticide dealers' certification program in cooperation with the MALR, GTZ and RDI. The program was designed to train its members in proper handling and trading of pesticides, and has facilitated its members to pass the expected MALR examination to license pesticide dealers. These associations have also developed codes of ethics, and are working to develop policy advocacy strategies in the area of pesticides.
- **Research and Extension Program.** The MALR extension services are working with HEIA to incorporate private sector concerns into public extension. The program, currently in five governorates, links exporters of horticultural products to small-scale farmers (individuals and groups). HEIA is conducting training in Good Agricultural Practices for extension personnel and farmers. The objective of this program is to increase exports and to spread the benefits of exports to small-scale farmers.
- **Dairy Union.** The dairy industry has been an important generator of employment in Egypt. Policy advocacy for measures to improve the competitiveness of Egyptian dairy producers have therefore proved extremely effective in generating jobs, especially jobs for women, elevating rural incomes, and in helping small-holding farmers throughout the country, including Upper Egypt.

RDI and Ag-Link began working with producers and processors of dairy in order to form the Egyptian Dairy Union in 1999. Through a series of meetings and workshops, stakeholders identified key issues facing the dairy industry, and formally organized in order to present their concerns to the Government.

Their founding law was presented to People's Assembly and approved. This group has become active in advocating for policy changes that will benefit the dairy sector as a whole. In 2001, for example, the Union was key in working with the GOE to incorporate U.S.-style milk labeling regulations in a decree from the concerned ministries.

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CHILD LABOR

Traditionally, the single largest activity in cotton production involving child labor was in pest control, which had been under the management and control of the GOE. With the direct assistance of RDI and GTZ, recent policy reforms and practices have transferred responsibility for cotton pest management in Egypt from the public sector to the private sector. As highlighted in the chapter on pest management, in Tranche III RDI worked with the GOE to lay the foundation for the program by establishing a policy for transferring responsibilities in cotton pest management to the private sector. Under Tranche IV, the MALR successfully developed and implemented an innovative pilot program in many communities of four governorates to give full responsibility for cotton pest management to farmers. Also under Tranche IV, the MALR promulgated a policy which required that all pest management in cotton be turned over to the private sector within three years.

As government intervention was reduced, and eliminated, and as the private sector took over responsibility for cotton pest management, some government policies of the past became irrelevant. The most outstanding example was the decree of 1965, which required that each farm family provide a child to assist with leaf worm control. This decree was moot as the government was no longer responsible for cotton pest management. Private producers and farm families were now able to determine the best means of conducting leaf worm control. Rescinding this decree was important not only because of its irrelevance in the new system for cotton pest management, but also because it contravened Egyptian Child Labor Law (Law 2/1996) and was incompatible with the prohibitions on forced or compulsory labor under article 8 of the International Covenant on Civil and Political Rights.

Due to RDI advocacy efforts, on April 12, 2001 HE Dr. Youssuf Wally issued Ministerial Decree 1459. The decree forbade the hiring in plant protection of children whose ages were below the age limit set by Law 13/1996.

The decree included an introduction referring to different agricultural laws and to the report of the Human Rights Watch Organization (HRW). The decree also included an article generalizing the execution of the decree to all departments of the Ministry of Agriculture and cooperatives, and canceling all contradicting regulations.

The Government of Egypt, through its officials, also mounted a public awareness campaign on this topic. HE Dr. Wally spoke about this issue on TV channel 1 in front of People's Assembly members. Several newspapers, including Al Akhbar and El Wafd reported the new policy of the Government.

Other interviews on the channel 1 program, "Good Morning, Egypt" in August, 2001, included those with the Undersecretary of Agriculture in Beheira Governorate, who

explained the new trends of the Ministry of using biological pest controls and genetic engineering research results instead of using manual labor in cotton pest control. These interviews showed the importance of abolishing child labor in cotton and other agricultural activities for reasons related to both child health and the negative effects on exports.

Other interviews were broadcast with agricultural laborers and with managers and representatives of cooperatives. All these discussions stressed the danger of using child labor in agriculture and the importance of implementing the ministerial decree abolishing child labor in Egypt.

A workshop was shown as part of this series of programs that included a number of farmer leaders discussing the same issue. This program included an interview with one of the officials of the ginning industry, who mentioned that many activities could be done automatically instead of using child labor. There was also an interview with Eng. Reda Ismail, the head of the Extension Sector/MALR, giving some of the reasons behind implementing the ministerial decree.

A radio campaign was also carried out. The first broadcast of this program was on December 8, 2001. These activities accomplished Tranche V Benchmark D.12.1.

PRIVATIZATION

As the Egyptian government has liberalized the economy, RDI has focused much of its efforts on defining clearly the role of the government in agricultural development and moving many public sector industries into private hands to increase their productivity and profit potential. The *Final Report* lays out many examples of RDI's activities in this area, including privatization of rice milling, cotton spinning and weaving, the fertilizer industry, seed production and marketing, and the transfer of responsibility from public to private sectors of pest management and many research and extension services.

In Tranche III, RDI began to work with GOE to privatize the agricultural affiliated companies. RDI studies indicated that the main effect of these privatizations would be to revitalize the companies privatized, while encouraging private investment both in the newly private firms and in the newly competitive agribusiness sub-sectors in which they would work. The long-run benefits would lead to increased employment, increased productivity, and, eventually, improved quality and potential for exports.

PRIVATIZATION OF AGRICULTURAL AFFILIATED COMPANIES

By 1998, the Agricultural Holding Company (HC) had privatized a larger portion of their holdings than any other HC. Privatization and sales strategies had varied. The HC liquidated non-viable businesses and sold others to Employee Stockholder Associations (ESAs). They also floated 80% of Noubareya Seeds in May 1997 and 28% of El Wady for Exporting Agricultural Products in September 1997. In 1997, they concluded several majority ESOPs; like Upper Egypt and South Tahrir Agricultural companies. Five of its affiliates were liquidated, among them were Marriout Agricultural Company and United for Poultry Production.

The remaining affiliated companies in the HC portfolio included a wide range of enterprises and RDI and the HC developed an aggressive privatization program for 1998/99. With RDI assistance, the HC worked toward the evaluation of the companies' overall performance based on a number of valuation techniques: 1) financial and technical; 2) assessment of critical privatization issues and options; 3) agreement to a base price; 4) preparation of the sales documents; and 5) management of the selling process.

RDI's objective was to encourage private investment in sectors once dominated by government-owned companies. Specifically, RDI worked with the HC to privatize three agricultural affiliated companies through one of the accepted forms of privatization — management contract, leasehold, share sales (over 50% of stocks purchased by the private sector), management buy-in/out, employee buy-in/out, or anchor investor sales.

In 1998, RDI sponsored seven participants from MALR to attend the "Intrados Privatization Strategies Viable Alternative Course" in Washington, DC. This two-week training was followed up by a seminar held by RDI in Cairo on the Intrados Privatization

Course for the participants, USAID, and MALR officials. These activities helped clarify to key decision-makers why and how privatization of public companies could be successfully undertaken.

Due to RDI-HC collaborative efforts, on October 25, 1998, the Holding Company for Agricultural Development sold 49.2% of El Wady Company for Agricultural Crops Export shares to The Egyptian Saudi Company for Mills and Food Industries (Egyptian anchor investor company). It sold an additional 27% of the shares to the company's Workers' Joint Stock Union on October 31, 1998. These two transactions resulted in the transfer of 76.2 percent of the shares, valued at LE 91,368,954, to the private sector.

Building on this success, on March 1, 1999 the Holding Company for Agricultural Development sold 95% of its shares in San El Hagggar for Agriculture Company to the Workers' Joint Stock Union. 1,196,050 shares were sold for LE 18 million, or LE 15 per share.

According to the sales contract that was concluded on March 14, 1999, the Holding Company for Agricultural Development also sold 100% of the shares of El Nobaria Company for Seed Production (NOBSEED) to The Egyptian Saudi Company for Industrial & Land Investment (Egyptian Company) and The International Saudi Company for Trade and Marketing Ltd. (Saudi Company). The Holding Company sold 3.5 million shares for LE 103.250 million.

The three purchasing companies were all private companies organized under Law 159. Their ownership was by private individuals and not by any public or quasi-public entity. RDI consolidated these reforms by holding seminars for representatives from MTS (60 in total) on joint-venture privatization in April and June 1999. These activities accomplished Tranche III Benchmark B.7.

PUBLICATION

El-Fekki, Amani, Smith, Paul, El Sharkawi, Israa. *The Application of Standardized Promotion and Sales Process for the Privatization of Joint Venture Companies.* (RDI Report 79), October 1999.