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Ministry of Agriculture & Land Reclamation
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Agriculture Policy Reform Program
Reform Design and Implementation

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Ministry of Agriculture and Land Reclamation

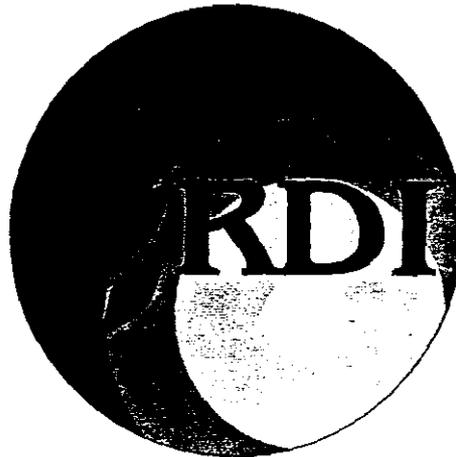
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Report No. 103

A STUDY OF THE FEASIBILITY AND OPTIONS FOR ESTABLISHING AN ENDOWMENT TO SUPPORT GENETIC ENGINEERING RESEARCH & TECHNOLOGY TRANSFER IN EGYPT



APRP

Reform Design and Implementation Unit

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RDI REPORTS

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LIST OF ACRONYMS

ARC	Agricultural Research Center, MALR
ARF	Agricultural Research Fund
AGERI	Agricultural Genetic Engineering Research Institute, ARC
APRP	Agricultural Policy Reform Project, USAID & MALR
Bt	Bacillus thuringiensis
CRI	Cotton Research Institute, ARC
ESF	Economic Support Funds
FCRI	Field Crop Research Institute, ARC
GE	Genetic Engineering
GEBRI	Genetic Engineering and Biotechnology Institute
GESU	Genetic Engineering Services Unit
GMO	Genetically Engineered Organism
HRI	Horticultural Research Institute, ARC
IPR	International Property Rights
IPTCO	Intellectual Property and Technology Commercialization Office, ARC
MALR	Ministry of Agriculture and Land Reclamation
NGO	Non-governmental Organization
OTT	Office of Technology Transfer (AGERI)
PPRI	Plant Protection Research Institute, ARC
PVO	Private Voluntary Organization (US NGO)
RDI	Reform Design and Implementation (Unit), APRP
R&D	Research and Development
USAID	United States Agency for International Development

EXECUTIVE SUMMARY

Introduction and Overview

The development partnership between the United States and Egypt has evolved and gone through many phases over the past 25 years—it is now entering a new and perhaps final one. During the next 10 years USAID will be gradually reducing the size of its bilateral country program with Egypt. A potentially important component of this phase-out or transition strategy is the establishment of “legacy” endowments to address two post-program objectives. The first would maintain and promote – through an endowed *binational foundation* – important relationships between Egyptian and American public, private and voluntary sector organizations working in areas of mutual interest. The second objective would ensure the sustainability – through *targeted endowments* – of selected Egyptian non-profit, non-governmental organizations that USAID/Egypt has supported over the years. It is the latter objective to which this study addressed itself.

The Agricultural Genetic Engineering Research Institute (AGERI), one of the most respected and successful of the Ministry of Agriculture and Land Reclamation’s (MALR) technical institutes, has been the beneficiary of USAID assistance for the better part of the past decade. USAID assistance to AGERI is scheduled to terminate in roughly 18 months. As a result, and consistent with its desire to build a sustainable “legacy” of cooperation with Egypt, USAID requested the Reform Design and Implementation (RDI) Unit of the Agricultural Policy Reform Project (APRP) to conduct a study assessing the “Feasibility and Options for an Endowment to Support AGERI Research.”

The study, conducted by a Team of two external consultants and a member of the RDI, spent three weeks during February and March 2000, interviewing concerned organizations and reviewing relevant documentation. The study findings, conclusions and recommendations found in this report are based on the Team’s review and assessment of six endowment options presented in the study’s Terms of Reference (TOR). When stripped to their essence, the six options were effectively reduced to a choice between:

- 1) “Transforming” AGERI from a public institution into a non-profit, non-governmental organization with the endowment sustaining it and its genetic engineering work; and,
- 2) “Creating” a new non-profit, non-governmental organization that would support, through its endowment, the growth and development of the genetic engineering sector in Egypt with AGERI being one of several endowment beneficiaries—albeit a favored one.

The reason for these options – versus the simple and straightforward award of an endowment to a long-time and respected Egyptian partner – is because USAID is prohibited from providing an endowment to a government institution—AGERI’s current status.

Principal Study Findings

Study findings address the feasibility of the several endowment options for AGERI.

- A. While transforming AGERI into a non-profit, non-governmental entity is feasible under Egyptian law (Option A), there are a number of reasons that constrain this from taking place. Chief among them is the likely refusal of the GOE to agree to AGERI's divestiture from the public sector. Secondly, AGERI would have to be dissolved by presidential decree and then reconstituted as non-governmental entity. Finally, there is an argument for maintaining AGERI as a government institution given a number of "public good" functions it carries out on behalf of MALR and Egyptian society more broadly.
- B. The second option offers two alternatives both requiring the creation of a new non-profit, non-governmental entity under the concerned Egyptian law: 1) Spinning off the commercial arm of AGERI, the Genetic Engineering Services Unit (GESU), into an endowed foundation; and 2) creating a new endowed foundation from scratch. Our findings indicate the following:
 1. One of the positives of the GESU spin-off is that it maintains a more direct link to AGERI than the second alternative, although it would still target and support other organizations involved in genetic engineering research and technology transfer. On the negative side, to create the endowment, GESU would have to first be "disestablished" and then a new non-governmental entity "established." In addition, the new entity would require a significant degree of strengthening before it was ready to manage the endowment—the same holds true for the second alternative.
 2. The advantages of creating a new NGO from scratch include all concerned stakeholders participating in its design; a single focus on its new mandate; and perceived neutrality in terms of potential beneficiaries. Its principal disadvantages are the less direct link to AGERI and the need for capacity building.

Principal Study Conclusions and Recommendations

Unfortunately, given USAID regulations concerning endowments, AGERI cannot be directly endowed, the preference of both USAID and AGERI. As such, the three options discussed above are "second-best" solutions to the preferred option. Our overall conclusion is that there is an overwhelming need to ensure continued support to AGERI. We believe that the best way to do this – remaining consistent to USAID current and future objectives – is through an endowment whose purpose is to *promote and sustain a sector-wide capacity for genetic engineering research and technology transfer for the benefit of Egyptian agriculture*. While AGERI would not be the sole beneficiary of the endowment, because of its key role in Egyptian genetic engineering research, including its mandate to strengthen other GE organizations, it would surely be a principal recipient of the endowment's support.

While either of the two alternatives under Option B offers the means to achieve this purpose, we recommend the second one, as the pros seem to outweigh the cons found in our assessment. We further recommend that the endowment be established as a "grantmaking"

foundation with only a limited number of "operational" functions. As such, it addresses, to a large extent, the principal concerns expressed by USAID, that is, the time and resources required to build sufficient capacity of a new organization to manage the endowment. The skills and expertise required for endowment management (ensuring a steady stream of revenue) and grantmaking (the uses to which the revenue are put) are significant but limited in nature. Our recommendation is to 1) engage an American NGO or university to mentor the new organization; 2) employ an investment manager to ensure the best return possible on the endowment; and 3) provide regular financial oversight by an audit firm. The combination would address major "grant-worthiness" concerns within 18 months to two years. The principal next step is for USAID and the GOE to discuss study recommendations based on the loss each would sustain should an acceptable solution not be found to support AGERI.

A. INTRODUCTION AND OVERVIEW

A. TERMS OF REFERENCE AND METHODOLOGY

A team of two external consultants and one member from the Reform Design and Implementation (RDI) Unit of the Agricultural Policy Reform Project (RDI/APRP) conducted this study over a three-week period in February and March 2000. The purpose of the study laid out in the Terms of Reference (Annex 1) called on the Team to assess the "feasibility and options for an endowment to support AGERI (the Agricultural Genetic Engineering Research Institute)." A set of six options was initially identified by USAID/Egypt and AGERI and formed the basis of the Team's assessment efforts.

Study methodology included the conduct of interviews in both Egypt and the US (Annex 2) and a review of relevant documentation (Annex 3). As discussed in greater detail below, the Team broadened the Study scope from an analysis of AGERI, and its needs and resources, to the larger universe of Egyptian organizations involved in the field of genetic research and technology transfer. In addition to USAID personnel in Egypt and Washington, the Team met with 23 members from some 18 Egyptian public institutions, private sector firms and non-governmental organizations. A total of nine AGERI staff were interviewed during the same period.

The document review targeted the growing body of literature on endowments and the significant number of studies and assessments on both AGERI and the emerging genetic engineering sector in Egypt. The Team was specifically tasked with reviewing USAID experience in the support of endowments which was supplemented by a similar review of other donor programs employing a range of financial instruments (e.g., endowments, funds and trusts) targeting agricultural research and development (Annex 4). Reflecting the growing importance of genetic engineering in Egyptian science and technology, a number of recent studies were reviewed that provided the Team with solid information on AGERI and the sector more broadly. The Team conducted its own assessment of the broader sector (Annex 6), albeit a summary one, given the time available.

Because endowments are a relatively new field of study, the Team prepared a brief overview of key terms and concepts (Annex 5) to ensure the consistent use and understanding of this new terminology. Finally, as several issues of a legal nature arose during the Study, a legal firm was engaged to render an opinion (Annex 7) on two of the more important ones.

Finally, we note that our approach to serving USAID/Egypt and AGERI was an iterative one, ensuring that study progress was conveyed in a timely fashion so that we could gain feedback and guidance from the concerned committee members on the direction we were pursuing. A Consultant Team memorandum (Annex 8) presented the final set options a week before the submission of the draft Study report.

B. BACKGROUND AND CONTEXT

USAID/Egypt is currently in the process of developing a strategy for the eventual closeout of its bilateral country program. The initial timeframe used in planning for this phasing down is

ten years. An important component of the strategy is the exploration and development of opportunities for ensuring a USAID "legacy" after closeout takes place. Over the past two years, the Mission has been looking at a number of legacy options of which two concern the establishment of endowments.¹ The first, an overarching "binational" foundation, has the principal purpose of ensuring the maintenance and growth of Egyptian and US relations – primarily through the promotion of partnerships between like-minded public, private and voluntary sector organizations in each country – in a range of areas of mutual interest.

The second type of endowment that the Mission is exploring – and the one directly relevant to this Study – is designed to provide a continuing source of financial support to Egyptian organizations with whom it has developed a long-term development relationship. In this regard, USAID/Egypt has provided nearly a decade of concrete support to AGERI, which is one reason for its great success. This Study was commissioned as a direct result of the Mission's interest in wanting to continue support to AGERI, thereby, ensuring that considerable investment extends beyond its eventual departure from Egypt.

USAID regulations, however, prohibit the use of endowments to support government institutions. This essentially precluded providing support to AGERI in its current status as one of the Ministry of Agriculture and Land Reclamation's (MALR) several technical research institutes. It was this fact that led USAID and AGERI to develop the six options found in the TORs, which basically try to overcome this fundamental problem.

In the next two sections, Study Findings and Study Conclusions and Recommendations, the Team recounts its review of the six TOR options. When stripped to their essence, the six options are reduced to a choice between:

- 3) "Transforming" AGERI from a public institutions into a non-profit, non-governmental organization with the endowment sustaining it and its genetic engineering work; and,
- 4) "Creating" from scratch a new non-profit, non-governmental organization that would support, through its endowment, the growth and development of the genetic engineering sector in Egypt with AGERI one of several endowment beneficiaries—albeit a favored one.

II. PRINCIPAL STUDY FINDINGS

Principal study findings focus on three areas, that is, An Overview of the Genetic Engineering Sector (Section A); An Overview of AGERI and its Needs (Section B); and USAID Experience with Endowments (Section C).

¹ An endowment consists of two tracks, one financial and the other institutional. The financial track builds a monetary arrangement capable of supplying a steady stream of income for an organization thus permitting it to undertake its chosen mission with a degree of assurance that a fixed portion of its resource needs will always be met. The institutional track builds an organizational structure that can plan and use the income generated by the financial arrangement effectively over an indefinite number of years, with the long-term goals of its mission in mind. In essence then, the financial track is what is commonly referred to as an endowment and the institutional track or arrangement is the organizational entity that uses the income to fulfill its mandate.

I. AN OVERVIEW OF THE SECTOR: ITS INSTITUTIONS & THEIR NEEDS

As noted above, one of the two principal options that the Study Team pursued concerned the creation of a new non-profit, non-governmental entity whose focus would be in strengthening the Egyptian genetic engineering sector. Thus, in addition to AGERI, the Team was asked to focus study efforts – and hence the feasibility and options of an endowment – to include the broader set of institutions involved in genetic engineering in Egypt. In this regard, our investigations found the following:

There is not an overall “strategic plan” for the genetic engineering and biotechnology sector, capable of setting national research priorities and allocating public resources towards achieving them. There are, however, individual strategies for the University System, the ARC institutes and the Egyptian Academy of Science and Technology. Our interviews indicated that the individual strategies are not well known or that they have been used to rationalize GE research or apportion scarce public resources towards established priorities. Respondents noted the need for the development of a national strategy and an institution capable of coordinating it.

The outlines of a coherent genetic engineering “sector” with the institutional infrastructure to achieve national science and technology objectives have been in evidence for the better part of the last decade. The institutions that compose the sector include both public and private sector actors. The public sector component includes:

- 1) 13 large universities supporting science faculties and which incorporate some 18 research centers, many of which are directly involved in some aspect of agriculture-oriented genetic engineering research and technology transfer. Among the best known are Cairo University with its Department of Genetic Engineering and the Genetic Engineering Center; Menoufyia University and its Genetic Engineering & Biotechnology Research Institute; and Ain-Shams University and its Faculty of Agriculture.
- 2) Under the umbrella of the Agricultural Research Center (MALR), roughly half of its 14-affiliated technical institutes (see Annex 6 for further details) either directly or indirectly (through other ARC members) conduct genetic engineering research—largely applied to address specific agricultural problems. The leader among these institutes is AGERI, but a number of others have significant efforts underway including the Horticultural Research Institute, the Field Crops Research Institute, and the Plant Protection Research Institute.
- 3) There are a handful of other public institutions affiliated to the Egyptian Academy of Science and Technology that also have significant genetic engineering research activities underway including the National Research Council, Division of Genetic Engineering and Biotechnology and the Genetic Engineering and Biotechnology Research Institute (GEBRI) which is part of the Mubarak City for Scientific Research & Technology Applications.

Egypt's private sector, including both local and multinational businesses, has only recently begun to undertake genetic engineering research and this largely through collaborative efforts with public sector institutions and/or through contract with individual scientists. Their current efforts at increasing agricultural production and productivity have relied mainly on "traditional" agricultural technologies including the development of plant hybrids and the use of tissue culture technology. In our discussions with two private sector firms, Pioneer Seed and Hytech Seed International, there was clear interest in increased investments in genetic engineering research, but tempered by the need to demonstrate marketable applications.

A closer analysis of this emerging sector and its infrastructure brings to light several of its strengths and weaknesses:

The university system, and particularly the concerned faculties and departments (e.g., agriculture, genetic engineering, plant cell and tissue culture), are rich in trained researchers but poor in the necessary facilities, equipment and materials, to permit all but small-scale research efforts. Our interviews found that not only was this a result of small research budgets, but the unpredictability of their largely publicly-funded budget allocations. Neither of these findings is conducive to either basic or applied research, which require significant physical infrastructure and funding over a period of at least three to five years.

A principal strength of the ARC technical institutes is the rather significant and relatively predictable public funding they receive through the MALR. In addition, they gain access to the country's best scientists through the system of "joint appointments," largely from academia and the NRC, with the added advantage of "salaries following the joint appointee." And because these institutes are often involved in applied research with commercial outcomes, and because they have "special units" that market these outcomes, the income derived provides additional resources for the concerned institute and financial incentives for the concerned researcher.

While funding from all sources – public, private, self-generated, and international – has been able to launch and, to some extent, sustain sector research and development efforts to date, the long-term prognosis is mixed at best. The key to sector financial sustainability ultimately rests with increased investment from the private sector and the ability of the concerned public institutions to generate greater revenues from the commercialization of their products. There is no indication that the former option is currently taking place, or likely will in the amounts necessary, or that commercialization – the principal self-generated option – will ever exceed 10 percent of total institutional needs (Fairheller, 1999) in the best of circumstances. One of the secondary, but no less important, impacts resulting from inadequate resources is the lack of cooperation sometimes evidenced among the concerned institutional actors as they compete for a finite pie.

While we discerned the very real outlines of an emerging genetic engineering sector with both a *raison d'être* and the institutional skeleton to achieve it, it must also be said that it is still only formative and not necessarily perceived as such by those who compose it. At present, there is no focal point or common institution capable of transcending the several identified cleavages that constrain the true development of a coherent sector sharing a sense of collective purpose. Although we saw or heard of numerous instances of

collaboration between the institutional components of the sector, we also noted a reluctance to share information, including research findings, or to forge the kind of joint efforts required to transform these findings into needed practical applications.

B. AN OVERVIEW OF AGERI AND ITS NEEDS

Within this broader sector, AGERI was nearly universally viewed as the leader in genetic engineering research and technology transfer with a specific focus on addressing problems in Egyptian agriculture. The high caliber of its scientific research staff, its well endowed physical facilities including equipment, the relative effectiveness of its management, and the respected status of its distinguished director have all contributed to the assessment of AGERI's central role in national and regional advanced agricultural research and development. AGERI has been able to supplement its significant funding from the MALR with even larger amounts from donor institutions, thus giving it the kind of stability so necessary for productive research in a quickly evolving field of technology.

Having said this, it is these same strengths that also pose potential dangers to AGERI's long-term viability. We note some of the more important ones.

- A number of recent studies of AGERI have indicated that its success may be overly dependent on the dedication and reputation of its current director. Like many organizations, public as well as private, whose continued effectiveness, if not existence, is dependent on a single, charismatic founder-leader, AGERI could be at risk should the current situation change.
- While AGERI receives significant support from the MALR – both financial and in fixed assets – its ability to sustain the high level of performance that it has demonstrated over the past ten years can be attributed to its success in attracting donor funding, and particularly that of USAID. With the bulk of this funding due to end in the next two years, AGERI faces a serious challenge to maintain its current level of activities.
- AGERI undertakes a number of what can be considered “public good” functions, that is, the provision of goods and services, which serve both the interests of the broader agriculture sector as well as societal welfare more generally. For instance, the government has assigned AGERI a testing role when evaluating new crop varieties for registration and distribution of seeds. Similarly, the Bio-Safety Committee utilizes AGERI's expertise in the testing of new biotechnology products—no transgenic material may come into the country without the approval of this Committee. These and other public good functions provide considerable justification for maintaining AGERI's public status, but at the same time limit its ability to benefit from a range of commercial opportunities that could address some of its future resource needs.
- AGERI has developed a wide range of collaborative research relationships both in Egypt and internationally, including sister institutions in the public sector and a number of businesses in the private sector. At the same time, the Team found that some important opportunities for collaboration with other ARC institutes had been missed, perhaps due to

the very success that it has been AGERI's hallmark—and to some extent the result of the competitive atmosphere surrounding Egyptian research in general.

C. USAID EXPERIENCE WITH ENDOWMENTS

Among official as well as non-governmental donors, USAID has been in the forefront of endowment use and has thus contributed significantly to the emerging state-of-the-art and development of best practice in this field. Through mid-1996, some 35 endowments had been funded by USAID worldwide, primarily by individual Missions, with the majority being established since 1990. Since then, an additional 15-20 have either been set up or are in the planning stage in each of the principal geographic regions where the Agency works. In this section we look at the findings derived from this experience as well as from a number of funding arrangements (e.g., funds, endowments, grant programs) that specifically target the support of agricultural research and technology transfer. Some of the latter findings include experience from other international donors.

Endowment Purpose and Objectives

USAID has used endowments for a range of purposes including:

To leave a "legacy" and ensure the continuation of earlier development investments – The Costa Rica-USA Foundation; The Lusophone-American Foundation; and the Korean Institute of Science and Technology – although very few of the earlier endowments studied were deliberately established as either a component of a Mission's transition strategy or graduation from concessional assistance.

Endowments have been established primarily to support long-term partner organizations working in the agricultural (education, research and extension), health and population (family planning, maternal-child health care, AIDS prevention and education), and environmental (maintaining bio-diversity, natural resource management) sectors.

Endowments have been used as an alternative source of funding to traditional forms of Agency support (grants and cooperative agreements). They have been used in particular to ensure smooth funding flows to match the financial needs of targeted organizations over time; and, through the process of setting up an endowment to increase opportunities to build partnerships among and between actors in the state, market and civil society.

Endowment Characteristics

The following discussion provides a number of additional findings related to the scope, scale and nature of USAID-supported endowments:

- Endowments have ranged between \$400,000 and \$120 million, with less than half receiving more than \$5 million; roughly 45 percent with financing between \$5 million and \$50 million; and a very small number of "mega" endowments, i.e., exceeding \$50 million.

This latter category includes Enterprise Funds, which are, in fact, sinking funds (a life expectancy between 10 and 15 years), and several endowments targeting countries with a special tie to the United States (e.g., Israel, Ireland, South Africa).

- Most USAID experience has been in setting up endowments that are intended to last indefinitely ("in perpetuity), rather than establishing sinking or revolving funds, which have a finite life-span.
- Most "Binational Foundations" subscribe to the principle of *mutuality of contribution and benefit*. When USAID has funded such organizations, always through an endowment, they have typically been part of a transition or graduation strategy. While the broader transition (legacy) strategy of USAID/Egypt is largely based around this purpose, the proposed foundation supporting genetic engineering in Egypt does not have such a purpose per se.
- The most successful of the USAID-endowed foundations, particularly with a grant-making component, have had a very targeted focus rather than a very broad set of objectives. This was found to be particularly important for endowments seeking to promote technology transfer in agriculture and which facilitate private sector involvement.
- Earlier local currency endowments (26 of 35 reviewed through mid-1996), accounting for the majority of USAID funding were often used to promote the financial sustainability of an individual organization working in a particular sector. Many of these were in Latin America and involved some aspect of agricultural research, production or technology transfer.
- More recent dollar-funded endowments (9 of 35 through mid-1996) have been used to provide a secure funding base for local grantmaking foundations. This type of funding has increased significantly since 1994 and the publication of Policy Determination (PD) 21 authorizing the use of appropriated dollars for establishing endowments.
- The majority of funding to date (local currency) has gone to existing institutions with a successful track-record in a given sector. Paralleling the growth of dollar-funded endowments for grant-making purposes, new organizations, primarily foundations have been the principal institutional arrangement chosen to manage them.
- In four particular cases – The Zimbabwe American Development Foundation; The Institute for Agricultural Research (Argentina); the Agricultural Technology Fund (Korea); and the US-Thailand Development Partnership – USAID initially conferred the endowment and/or its management to a US PVO, institute or university. This was because the local institution had either just been established or did not have the necessary management capacity (track record) to ensure the proper use of US Government funding.

Funding of Agricultural Research and Technology Transfer

Over the past decade there has been an increasing number of studies targeting the financing and self-financing of agricultural research and development using endowments as well as a number of "draw-down" grant funding arrangements. The experience derived from these studies is particularly germane to this study both in the purposes they promote and the specific activities that they fund. The most important are noted below:

The majority of non-technical assistance help provided by USAID to support agricultural research and technology transfer has been made in the form of competitive grant programs through "draw-down" or fixed-term funding programs—few have been established as endowed foundations. In this regard, many of the earlier "research funds," particularly in Latin America, that created non-profit, private foundations were undertaken between USAID and the concerned host government.

Over the past decade, an increasing number of agricultural funds have been established worldwide that provide grants to researchers on a competitive basis. The great majority of these Funds support the operating costs (e.g., salaries, materials, maintenance) of research projects, seeking to provide them with a dependable source of funding. Such funds are open to universities and technical institutes (primarily public sector) as well as the private sector and NGOs. The importance of these competitive grant funds is that they generate efficiencies and innovation by linking funding to performance.

The vast majority of these Agricultural Research Funds are fully financed by foreign aid, making them vulnerable to donor policy changes. The alternatives to donor assistance include public funding, increased commercialization of products developed through research, and endowments. Depending on endowments alone to fund research however is not recommended as it may have the undesired effect of decreasing innovation. The use of endowments is consistent with the long-term and high-risk nature of high-tech research, particularly in genetic engineering. The ability of organizations to attract endowment financing is largely dependent on demonstrating a long-term, successful track-record in research efforts.

Most Agricultural Research Funds target the broader sector of research, such as genetic engineering or biotechnology, rather than a single institution. This is because the funding of a single institution places too great a risk on its continued success while decreasing incentives for high performance and results. Targeting a broad array of institutions operating in the sector increases competition and hence innovation as well as research responsive to the specific problems facing farmers and particularly smallholders.

Agricultural Research Funds, normally select researchers on a competitive basis using a "request for proposal" approach, and scientific peer review to allocate funding. Competitive Agricultural Funds or Programs can be tailored to accomplish numerous objectives depending on the goals of the financier. Some of the more relevant include:

- Mobilizing the best available scientific expertise for work on specific high-priority projects in accordance with national agricultural development strategies. In this

regard, the proposed endowment could help promote and even refine Egypt's National Genetic Engineering and Biotechnology Strategy.

- Promoting research partnerships and collaboration by researchers from different institutions, disciplines and countries.
- Introducing more demand-driven research that specifically involves clients in setting research priorities, providing funding, and executing and evaluating research.

D. PRINCIPAL STUDY CONCLUSIONS AND RECOMMENDATIONS

During discussion with the team, USAID noted that the "creation" of a new non-profit, non-governmental entity to serve AGERI alone was not an option. This would be viewed as little more than a "pass-through" and the Mission was not prepared to let such a precedent be set in order to fund an organization, as much as it might want to. As a result, the team concluded that any non-governmental foundation to be considered for an endowment would need to serve the best research

I. ENDOWMENT PURPOSE AND OBJECTIVES

It is our overall conclusion that there is a compelling need for a strong genetic engineering sector support Egyptian agriculture. Although Egypt has one of the highest levels of agricultural yields in the world, it is quickly reaching the limits of this productivity in many critical areas using traditional technologies. Further advance likely to come through genetic engineering and its promise of technological innovation. It is our recommendation, therefore, that support for building the infrastructure, institutional and financial, to sustain genetic engineering research and technology transfer is a valid and justifiable purpose for a USAID-financed endowment.

At the same time, the Team recognizes the critical role that AGERI has played in the growth and development of the genetic engineering sector in Egypt and in the region more broadly. We conclude that AGERI would be a logical and perhaps even a "privileged" beneficiary of an endowment that targets support for an entire sector, particularly if viewed as one of the principal "nodes" of scientific discovery and technology transfer in Egypt. It would not, however, be likely to receive all the funding that it might like. Given the above, the Study Team recommends the following purpose for the endowment:

To promote and sustain a sector-wide capacity for genetic engineering research and technology transfer for the benefit of Egyptian agriculture

The focus of this newly proposed purpose thus moves from sustaining the capacity of a single organization to building and sustaining a broader sectoral capacity to undertake and develop genetically engineered agricultural applications. This broadens the potential universe of beneficiaries of the endowment to other institutes in the ARC system, as well as Egyptian universities with genetic engineering and/or biotechnology faculties or centers, and a range of private sector actors.

Programmatic Objectives

From the findings emerging in our review of overall sectoral needs, as well as the experience of USAID in the support of endowments elsewhere, we conclude that a USAID-assisted endowment should have the primary objective of providing financial assistance to address genetic engineering research with a clear objective of product development and technology transfer. Included in this objective, the endowment would address – through competitively awarded grants – a number of institutional needs of key organizations such as AGERI that serve the broader sector and its development. A principal corollary objective of the endowment would be to promote partnerships between research institutions, and both. Finally, we recommend that the endowment assist in the promotion of sectoral coordination, networking and information sharing.

Programmatic Assistance

Flowing from these overall objectives, programmatic assistance, that is, the types of services that would be supported by an endowment would include:

- A grant-making function – based on a competitive system of awards and peer review – that promotes collaborative research and development efforts;
- An information dissemination or clearinghouse function; and
- A coordination and networking function that contributes to the definition of a broader sectoral strategy as well as its achievement.

In summary, the endowment would have a limited, but we believe important, “operational” role in promoting and sustaining genetic engineering research and technology transfer, but relying for the most part on its grantmaking function to accomplish the stated purpose. This is an important facet of our recommendation because a limited operational role means a significantly reduced need for capacity building and the time it would take to certify the new entity as “endowment worthy.” This is discussed in greater detail below.

The grantmaking function would promote three objectives, each of which could be delivered through a distinct funding “window.” These windows would promote the following:

1. Applied GE research grants. These grants would demonstrate the promise of a discrete research project leading to the development of technologies that address identified and concrete problems facing Egyptian agriculture. They would cover indirect as well as direct costs associated with approved research proposal.
2. Partnership Research Grants. These grants would promote intra-sectoral (e.g., between a university and ARC institute); inter-sectoral (e.g., between an ARC institute and an Egyptian private business); and binational (e.g., between US and Egyptian institutes and companies) collaboration related to applied research and technology transfer projects. As in the above grant, direct as well as indirect costs would be covered for the approved research proposal.

3. Technical assistance and training grants. These grants would provide a means for targeting the needs of Egyptian public and private GE organizations to specifically address problems related to production and commercialization of genetic engineering technology. It could include the provision of assistance by one organization to another other such as one Egyptian organization to another (e.g., AGERI to the Cotton Research Institute) or by an international organization to an Egyptian organization (e.g., an American university to an Egyptian University); and,
4. Institutional Support Micro-Grants. In many cases, organizations do not need a long-term and/or comprehensive research grant, but rather funding to address specific short-term needs. Such grants would mainly finance one-time costs, such as the renovation and refurbishing of a laboratory, the purchase of new and normally expensive equipment and equally costly research materials (e.g., chemicals, improved germplasm and cultivars). Such costs and items were repeatedly noted by researchers in all institutions visited as essential to their work.

The clearinghouse function would provide Egyptian genetic engineering organizations with information concerning who is engaged in what type of research, development and commercialization efforts as well as with advances in the field of genetic engineering and biotechnology more broadly. This pertains to information on both Egyptian organizations as well as those in other parts of the world.

The coordination function would support the work of concerned policy making bodies at the national level to formulate a National Strategy on GE and Biotechnology and in conjunction with the grantmaking component ensure that the defined priorities receive adequate funding.

II. INSTITUTIONAL ARRANGEMENTS AND ENDOWMENT OPTIONS

This section lays out the pros and cons of three options that the Team has narrowed down from its investigations and provides our recommendation concerning the most favorable one given USAID development objectives, Egyptian legal regulations and the needs of the genetic engineering sector. Before presenting these three options we briefly note the institutional arrangements that underlie each of the options.

Institutional Arrangements

Given legal requirements of Policy Determination 21, USAID is prohibited from directly endowing a public institution. Therefore, each of the three endowment options that follow is based on the same institutional arrangement, that is, the establishment of a non-profit, non-governmental organization under the recently passed Law 153, more popularly known as *The NGO Law*. The issue, as discussed below, is whether a newly created organization can find a way to overcome the lack of a track-record in a reasonable period of time thereby addressing a principal USAID concern.

In our discussions with the Egyptian firm providing legal advice to the Team on the establishment of an endowment under Egyptian Law, it was clear that each of the three

options was possible, providing that concerned Government of Egypt agencies (e.g., MALR and ARC) were willing to make the corresponding decisions and undertake the necessary actions required to achieve them.

Endowment Options

From the set of six initial options found in the Study Terms of Reference, the Team concluded that only three were feasible given the endowment purpose and objectives, legal considerations, and the requirements of the concerned parties. The following provides our best assessment of strengths and weaknesses of the three options.

Option A: Transforming AGERI into a Law 153 Entity

This option most closely resembles option one, “privatization,” in the study TORs. We prefer to talk about the “transformation” of AGERI into a Law 153 entity rather than its privatization, as the latter term is popularly used to describe the change of status of a public institution into a for-profit private firm, not a non-profit or voluntary sector organization—the required legal status to receive a USAID endowment.

While the focus of this option remains on AGERI rather than the broader genetic engineering sector, AGERI’s recognized role as the preeminent institution promoting the development and application of genetically engineered agricultural products, justifies its special targeting. This is particularly the case as, in addition to its own work in the genetic engineering field, it provides training and technical assistance to each of the other sectoral actors.

1. The Pros of Option A

The option conforms to USAID requirements for use in funding endowments.

There would be direct rather than indirect institutional support for AGERI, the strong preference of USAID.

Under some scenarios, AGERI may show increased effectiveness as an NGO/foundation.

From preliminary findings, the legal (as opposed to political) hurdles to Law 153 transformation are formidable but not impossible. AGERI was created through a presidential decree and while there is no precedent of the GOE transferring assets to an NGO, it is technically (in a legal sense) possible.

2. The Cons of Option A

- It is unclear – although initial findings are not promising – whether the Ministry and/or the ARC are prepared to let AGERI leave the public sector fold. In our discussions with the President of the ARC, he was able to clarify that the Minister of Agriculture and Land Reclamation’s support for “privatization” pertained to increasing AGERI’s commercial prospects, not its spin-off into a private, non-profit organization.
- Requires a Presidential decree to dissolve AGERI and transfer its assets to a new private entity created separately under Law 153. AGERI staff would have to resign their government posts then be re-hired by the new entity. These steps appear risky to most AGERI staff.
- Sets a potential precedent for other public sector agencies that might wish to replicate the same model, including the request for endowment assistance.
- There would be loss of public sector (Ministry of Agriculture) funding, equipment, etc., which currently composes a significant element of AGERI resources.

- AGERI undertakes a number of critical “public good” functions on behalf of the agricultural sector and society more generally that could not, or perhaps should not, be undertaken by a private sector entity or NGO.
- AGERI has demonstrated its capacity for effective management and technical excellence as a public institution. There is no guarantee that the new institution would be equally competent in these areas.

Option B: Transforming the Genetic Engineering Services Unit Into a Law 153 Entity

The Genetic Engineering Services Unit (GESU) is essentially the commercialization arm of AGERI. GESU, like its counterparts in other ARC institutes (and the public university system), was created by ministerial (MALR) decree to have the freedom and legal standing necessary to enter into contractual arrangements with external entities, both public and private, on behalf of AGERI. It was created in 1986. The GESU is a legal entity, not a stand-alone organization. GESU’s staff and board members are MALR/ARC employees.

1. The Pros of Option B

- Conforms to USAID requirements for the establishment of endowments.
- Demonstrates an established track-record in the field of technology development, training and commercialization.
- Has the necessary support from both the ARC and AGERI to be spun-off.
- The option is legally feasible.

2. The Cons of Option B

- Requires the same legal steps as those necessary to establish any new NGO.
- A ministerial decree will be necessary to dissolve or spin-off GESU. In order to ensure AGERI continues to have a commercialization capability, some functions of GESU will need to be transferred to the Technology Transfer Office of AGERI through a new ministerial decree.
- The new Law 153 entity will still require significant institutional strengthening including operational support.
- May lead to the perception of not being impartial in the award of grants.

Option C: Creating a New Law 153 Entity

Option C means establishing a new Law 153 Entity, i.e., NGO or foundation, from scratch.

1. The Pros of Option C

- Conforms to USAID requirements for the establishment of endowments.
- Provides the concerned stakeholders – public and private sector institutions as well as farmers – with an opportunity to participate from the very beginning in the design of the new entity and its establishment, hence building indigenous ownership.
- Allows the new entity to specialize in the grant-making, clearinghouse, and coordination functions described earlier.
- Does not require the “disestablishment” of a public institution as a precondition to the establishment of a non-government organization.
- Its impartiality as a grantmaker will not be questioned.

2. The Cons of Option C

- Does not have a track-record, and thus will need time, and funding, to build its capacity to discharge its mandate, including grantmaking.
- The institutional link to AGERI will be less direct than under options A and B.

Overall Conclusions and Recommendations

Given the above analysis, we conclude that either Option B or C are feasible and appropriate for the establishment of an endowment supporting genetic engineering research and technology transfer in Egypt.

Of these two choices, Option C is, in some ways, the strongest overall, and its strengths outweigh its weaknesses. We note the following:

The principal weakness of Option C, the creation of a new organization (note that all three options would require this step) could be overcome, to an extent, by partnering the new organization with an American PVO, institute or university with experience in endowment creation and management. USAID has employed this measure elsewhere with good success. The American organization selected would serve in a “mentoring” role, with the purpose of building the new Law 153 entity’s capacity for the management of a competitive grantmaking endowment and the provision of the limited set of operational services.

We want to point out that with grantmaking as the principal objective and activity of the endowed foundation, the capacity-building cum track-record issue narrows to two principal areas, that is, governance arrangements and financial management. We believe – based on both USAID’s previous experience as well as that of the American foundation community (Scheerer, 1998) – the new organization would be ready to manage the endowment within 18 months under the following conditions:

The American organization maintains its mentoring relationship with the foundation for an additional six to 18 months.

An investment advisor, directly responsible to the Foundation’s board, is engaged from the endowment’s establishment.

An audit firm maintains regular financial oversight of the Foundations finances, both endowment-generated revenues and foundation-awarded grants and operating costs.

The track-record issue could be further addressed by including on the governing Board of Directors, members from both AGERI and GESU as well as a number of other stakeholder institutions with the necessary background and experience in the areas of genetic engineering and organizational development.

There are a significant number of US organizations (e.g., foundations, universities and NGOs) with experience in the establishment and management of endowments—many of these organizations have previous experience in working with USAID.

IV. SUGGESTED NEXT STEPS

After the Team’s final debriefing with USAID and AGERI, it was clear that the next step requires a final resolution of two fundamental issues:

1. The Option “A” issue – that is, will the Ministry of Agriculture agree to let AGERI leave the public sector fold – must be resolved once and for all. This requires a meeting with the Minister who is the only one capable of making such a decision. The question that must be put to the Minister in this regard is what happens to AGERI if the significant funding that USAID/Egypt has provided each year over the past decade cannot be made up from some other source. If the GOE decides that it does not want to part with AGERI – the impression as of this date – then it leads to the second question, which is:
2. If USAID cannot provide a direct endowment to a “transformed” AGERI, then the issue turns to whether it is prepared to endow a newly created Law 153 entity that would provide grants to AGERI and other public and private institutions engaged in genetic engineering research and technology. Based on responses made at the final debriefing, it was not at all clear that this was viewed as an acceptable option. As with the GOE, before USAID/Egypt makes its decision, it must ask itself what the impact of a negative decision will be on the financial sustainability of AGERI and USAID decade-long investment in this outstanding research institution.

One of the contributing factors to USAID's reluctance to endow a new organization is the investment, both in time and finances, in building its capacity to manage an endowment. We would like to note that a distinction needs to be made between what is an essentially grantmaking foundation and more traditional "operational" or programmatic NGOs. The principal job of a grantmaking foundation is to use the revenue generated by its endowment to make grants. This is not a complex operation; it requires a relatively limited set of skills and there is no reason to believe that they cannot be learned in a reasonable period of time.

ANNEXES

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Annex 1:

Study Terms of Reference

RDI GROUP: Agricultural Sector Support Services TOR
STATUS: Draft Edited Final
ACTIVITY: 2.3.12. Options for an Endowment for AGERI

**Agricultural Policy Reform Project
REFORM DESIGN AND IMPLEMENTATION UNIT**

Proposed Terms of Reference

Feasibility and Options for an Endowment to Support AGERI Research

Justification for these terms of reference:

USAID plans to reduce its assistance levels to Egypt gradually over the next ten years. USAID, therefore, has become increasingly interested in steps that will help create a sustainable "legacy" of cooperation that will last long into the future. One tool being considered to build this legacy is the endowment -- the granting of funds to an institution to invest to generate annual returns that help finance the institution's continued operation. USAID has provided endowments to the American University of Cairo, the American Research Center in Egypt and Cairo House. It is currently designing an endowment for the Egyptian Center for Economic Studies, and it is considering the possibility of providing an endowment to the Agricultural Genetic Engineering Institute (AGERI) in the Agricultural Research Center (ARC).

USAID is considering AGERI for a potential endowment because the institute was developed with a large amount of USAID support over the years allowing it to become a successful institution with an excellent reputation and excellent management. AGERI performs cutting-edge research in the field of bio-technology and uses its findings to improve the productivity of Egyptian agriculture. Researchers at AGERI, for example, recently discovered a new strain of a *bacillus thorengensis* gene that they developed into a biological insecticide in cooperation with an American company for distribution in both the U.S. and Egypt. USAID has stated its interest in supporting institutions involved in "enhancing ties between the private sectors" and "technology transfer," including "biotechnology, agribusiness, and research" (see *Investing in the Future: A Legacy Institution and Endowments*); therefore, it appears that AGERI is a strong candidate institution for an endowment.

The public sector status of AGERI, however, represents an obstacle. USAID rules state that to be considered for an endowment "an organization must demonstrate that it is an NGO, not a government unit, public international organization or a parastatal." Overcoming this obstacle requires the consideration of alternative institutional arrangements and many programmatic options. Six options deserving consideration are outlined below.

1. Privatization of AGERI -- while this deserves consideration, it may not be acceptable or appropriate. AGERI conducts basic as well as commercial research, i.e. true "public goods" that are likely to require continued public funding. AGERI is considered an integrated part of the Government of Egypt's agricultural research efforts and the Director of the ARC is likely to object to any attempt to separate AGERI from the ARC.
2. Creation of some sort of non-governmental trust fund or foundation that could finance

AGERI activities, while AGERI remains in the public sector. This approach would require that a lawyer look closely at the possibility of meeting USAID regulations while still providing funding, perhaps indirectly, to a government research unit. The potential and acceptability of such an approach need exploration.

3. Establishment of a non-governmental organization, with its own board of directors, to fund specific agricultural research projects implemented by AGERI or a variety of research institutions. Such an NGO could, for example, solicit grant applications from AGERI and other research institutions to fund specific research projects that meet selection criteria established by the NGO. In the United States the National Research Initiative Competitive Grants Program (NRICGP) funds research relevant to agriculture, with competition open to individual scientists and academic, public, and private organizations.

4. Establishment of a non-governmental organization, with its own board of directors, to support technology transfer activities, i.e., activities that utilize AGERI research results to develop and market commercial products. Such an organization could be structured in a variety of ways, such as:

- a) A research support program along the lines of the Biotechnology Research and Development Corporation (BRDC) in the United States. The BRDC uses a pool of dollars from government grants and shareholder contributions to seek out and fund research programs with potential market opportunities related to agriculture; or
- b) A venture capital firm that makes investments in companies to help commercialize products developed from AGERI research (or other agricultural research) along the lines of the Alternative Agricultural Research and Commercialization (AARC) Corporation in the United States.

5. Support and modify (complicate?) ongoing efforts in AGERI and the ARC to establish an Intellectual Property and Technology Coordination Office (IPTCO). Currently both AGERI and the ARC are in the process of establishing special offices to assist in protecting (through patents etc.) and marketing inventions resulting from their research. Although ARC plans for these offices to be public sector entities providing services within the ARC, it has been suggested by RDI consultant Dr. Stephen Fairheller that such an office could alternatively be set up as a separate NGO. He writes:

"It occurs to me that this endowment could be used to set up the IPTCO as an independent independent, not-for-profit foundation much like the research foundations at some U.S. universities that handle all of the university's intellectual property, including the protection of the intellectual property, the licensing of intellectual property, and development of technology transfer R&D agreements. Examples that come to mind are the Wisconsin Alumni Research Foundation, the oldest in the U.S. and perhaps the most successful, and the Cornell Research Foundation. There are others. These foundations also serve, in some cases, as venture capital organizations providing startup funding for companies that want to develop university technology but lack the financial ability to do so. In addition to the functions mentioned above, if IPTCO were established as a foundation, it could also include a fund for setting up new businesses based on ARC technology and/or development of a new ARC technology in an existing company.

6. Identification of some sort of hybrid solution involving elements of the above.

Objective of this short term assignment:

1. Analyze the acceptability, legality, and advantages and disadvantages of the six options outlined above. This analysis must be done in close collaboration with USAID and GOE representatives.
2. Describe potential alternative models based on endowment arrangements used by the U.S. Government in other countries (e.g., in Latin America, Israel, South Africa, etc.)
3. Recommend the best and most feasible approach to endowing the work of AGERI.
4. Describe the necessary steps to implement the recommended approach.

Outputs:

1. A report including: an analysis of the options for endowing AGERI's work, description of potential alternative models based on international experience, a recommended approach, and suggested steps for its implementation. A draft of this report must be ready three days before the consultant's departure and two days before an oral presentation.
2. Two oral presentations on the results of the consultancy, one focusing on USAID staff and the other on a broader audience.

Timing:

February-March 2000

Team and resources:

- An expatriate expert in the development of endowments for research institutions in developing countries. RDI proposes Leslie Fox, an institution building expert who authored a 1998 study on recent experience in the creation and support of endowments by USAID and other donors worldwide. Mr. Fox also served as team leader for a pre-feasibility study for the creation of endowments by USAID in South Africa. He comes highly recommended. We propose he work a total of 25 days including travel and 2 days of research in the US to gather the latest information on USAID endowment experiences.
- A local consultant familiar with the research, agricultural investments, and financial issues of concern to AGERI. RDI proposes Dr. Abdel-Aziz Ibrahim Abde-Aziz, an independent local consultant who has completed successfully several assignments for FAO and USAID-funded projects. He is an expert in agricultural investment projects and is knowledgeable about support strategies for agricultural research. We propose a level of effort of 25 days.
- A local lawyer familiar with laws and regulations governing the establishment of non-governmental organizations and the financing of both private and public research organizations. Level of effort: 12 days.

RDI Unit Responsibility:

Agricultural Sector Support Services

Tasks:

1. Collect information on other USAID endowment experiences that are relevant to this assignment.
2. Conduct all of the meetings and consultations with USAID and GOE and NGO representatives necessary to achieve the objectives outlined above.
3. Write a draft report addressing the objectives outlined above.
4. Present results and recommendations to USAID.
5. Present results and recommendations to concerned GOE institutions, including AGERI and ARC.
6. Incorporate feedback in final report to be submitted to RDI before departure.

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Annex 2:

Organizations & Individuals Interviewed

Organizations and Individuals Interviewed

USAID/Washington

1. Mary Alice Kleensdijn, Legal Advisor, Asia and Near East Bureau
2. Michael Williamson, Asia and Near East Bureau
3. Robert Siegl, Office of Policy Planning and Coordination
4. Derrick Brinkerhoff, Abt Associates, lead contractor, Agricultural Policy Analysis Project, AFR/SD/Productive Sector Growth and Environment

USAID/Egypt

1. Toni Christiansen-Wagner, Deputy Mission Director
2. Roberta Mahoney, SO 1 Deputy Director
3. Eng. Ali Kamel, Agriculture Policy Division
4. Mona Kaldas, Project Manager, Office of Economic Growth
5. David Delgado, Agriculture Policy Division
6. David McCloud, SO 1, Agriculture Policy Division
7. Thomas Olson, Chief, Agriculture Policy Division.
8. Cheryl Williams, Legacy Committee

Agriculture Genetic Engineering Research Institute (AGERI)

1. Dr. Magdy Madkour, Director
2. Dr. Hanaiya A. El-Itriby, Deputy Director for Research
3. Dr. Eid M. A. Megeed, Head, Technology Transfer and Intellectual Property Rights
4. Dr. Hassan Hananie, Deputy Director
5. Dr. Taymour Nasr El-Din, Deputy Director, Training & Extension
6. Dr. Bianca Ghazal, Researcher at AGERI from the International Center for Agricultural Research in Dry Areas (ICARDA)
7. Dr. Dina El-Khishin, Molecular Geneticist
8. Dr. Mohammed E. Saad, Research Assistant

9. Dr. Mona Sadek, Microbiologist

Concerned Public Egyptian Genetic Engineering & Biotechnology Institutions

1. Dr. Saad Nassar, President, Agricultural Research Institute, Ministry of Agriculture and Land Reclamation
2. Dr. Mohammed Raafat, Director, Cotton Research Institute, Agriculture Research Center
3. Dr. Hanaa Farid Fahmy, Director, Unit of Genetics and Cytology, Cotton Research Institute, Agriculture Research Center
4. Dr. Mahmoud El-Naggar, Director of Plant Protection, Cotton Research Institute, Agriculture Research Center
5. Dr. Sadek El-Shahat Sadek, Director, National Maize Program, Field Crops Research Institute, Agriculture Research Center
6. Prof. Dr. Hassan Moawad, Director, Mubarak City for Scientific Research & Technology Applications
7. Prof. Dr. M. M. Ali, Director, Genetic Engineering & Biotechnology Research Institute Technology, Nucleic Acid Program, Mubarak City
8. Prof. Dr. El-Halfawy Khalil, Dean Genetic Engineering & Biotechnology Research Institute, Minoufeya University
9. Dr. Mohammed K. El Bahr, Division of Genetic Engineering and Biotechnology, National Research Council
10. Dr. Ahmed El-Sharkawy, Professor and Chariman, Faculty of Agriculture, Department of Genetics and Director, Genetic Engineering Center, Cairo University
11. Dr. Ahmed El-Obeidy, Associate Professor, Faculty of Agriculture, Cairo University

Other Egyptian Public, Private, and Voluntary Organizations

1. Magda Awadallah, Finance Officer, The Egyptian Center for Economic Studies
2. Hisham A. Fahmy, Executive Director, American Chamber of Commerce in Egypt
3. Aboul Foutah Salem, Legal Advisor, Regional Information Technology and Software Engineering Center
4. Rania R. Rizk, International Consultant, Kamel Law Office
5. Mostaffa Mohamed Mostafa, Lawyer, Kamel Law, Office
6. Dr. Mohamad Gomaa, National Seed Association

7. Dr. Mohamed Ali Nasr Mostafa, Research Director, Misr Hytech Seed International
8. Mounir Mehesin, General Chairman, Misr Hytech Seed International
9. Mr. Ahmed Kamel, Executive Director, Misr Pioneer Seed Company

American Programs and Projects

1. Eng. Mahmoud Nour, Project Coordinator, Agriculture Policy Reform Program
2. Dr. Max Goldenson, Chief of Party, Agriculture Policy Reform Program, Research Design and Implementation (Development Alternatives Inc.)
3. Harvey Shartup, Chief of Party, Agricultural Technology Utilization & Transfer Project (RONCO Consulting Corporation)
4. Dr. Atallah Kuttub, Field Office Director, Save the Children-USA
5. Duncan Miller, Chief of Party, NGO Service Center Project

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Annex 3:

Reference Documents

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USAID/AFR/SD, 1996. *Endowments in Africa: A Discussion of Issues for Using Alternative Funding Mechanisms to Support Agriculture and Natural Resource Management Programs*, USAID, Washington, DC

USAID/PPC, 1994. *Policy Determination (PD) 21 Guidelines: Endowments Financed with Appropriated Funds*, USAID, Washington, DC

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USAID, 1990. *Innovative Development Approaches, Volume No. 3*, USAID, Washington, DC

USAID, 1998. *Enterprise Funds: A New Development Tool?* USAID, Washington, DC

The World Bank, 1999. *Competitive Research Grant Programs: Good Practice for Design and Management*, Agricultural Knowledge and Information Systems, The World Bank, Washington.

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Annex 4:

Endowment Terms and Concepts

Defining Key Terms and Concepts

It became clear during the research undertaken for this study, particularly in interviews with concerned individuals and a review of the literature that there exists considerable confusion in the definition and concept of endowments as well as a number of related terms. In this section, a brief review of key terms and concepts is undertaken to provide the reader with a basis for understanding the discussion and findings which follow.

In summary, there are two tracks, one financial and the other institutional, to follow in the creation and sustaining of an endowment. The financial track builds a monetary arrangement capable of supplying a steady stream of income for an organization thus permitting it to undertake its chosen mission with a degree of assurance that a fixed portion of its resource needs will always be met. The institutional track builds an organizational structure that can plan and use the income generated by the financial arrangement effectively over an indefinite number of years, with the long-term goals of its mission in mind. In essence then, the financial track is what is commonly referred to as an endowment and the institutional track is the organizational entity that uses the income to fulfill its mandate. The following two sections provide a more in-depth discussion of these two concepts.

1. Endowments and Other Financial Mechanisms

The definition of an endowment used in this study is taken from *Policy Determination 21 Guidelines: Endowments Financed with Appropriated Funds* (USAID, 1994). An endowment is the capitalization of a fund, independent from USAID, the objective of which is to generate income to maintain activities of a private, non-profit institution that are consistent with the purposes of the Agency's authorizing legislation. Generally, an endowment is a fund that has been set-aside for a specific purpose and designed to disburse only the income from capital assets; the principal or "corpus" of the fund remains intact and is invested (Horkan and Jordan, 1996). An endowment is, in short, a financial mechanism used to generate a steady source of income over an indefinite period of time.

Capital funds, sinking funds, debt swaps and revolving funds describe similar financial arrangements to that of an endowment, although there are differences in the way they are managed. Each will be referred to in the subsequent discussions and are thus defined here as follows:

- A Capital Fund is a form of endowment raised for a specific purpose and managed by the endowed organization. As discussed below, an endowed organization may have one or more capital funds. Like endowments, they are designed for an indefinite period of time, often "in perpetuity."
- A Sinking Fund is designed to disburse the entire principal as well as earned interest over a fixed period. Sinking funds have been designed to last from 10 to 20 years.
- A Revolving Fund describes a financial arrangement in which new resources are added to the principal as existing funds are spent, replenishing or augmenting the original principal amount. In many ways, a revolving fund is a hybrid of capital and sinking funds. Put differently, a *revolving fund* is a fund that is replenished or augmented as existing funds are spent. The replenishment may come from a donor, a government, or a regular source of income such as a cess on production.

- Some endowments are set up as rainy day funds that can distribute much more than the income from the assets in times of great need, but may not distribute anything when their specific purpose is otherwise adequately funded.
- A Debt Swap is another financing mechanism which involves the purchase of developing country debt by a third party (usually an NGO) at a discounted value in the secondary debt market. The proceeds of many debt swaps have been used to endow environmental foundations and trusts.

2. Foundations and Other Institutional Arrangements

A foundation is an organization or institutional arrangement with one or more funds of its own, managed by its own board of directors or trustees, and established to promote social, educational, charitable, religious or other activities serving the common welfare. Most foundations are non-profit and non-governmental. The goal of most foundations is to build an endowment to establish a permanent collection of funds. The concerned laws of a given country govern foundations, including their formation and management. In many countries there is no law governing foundations, or the laws which do exist are so burdensome as to act as a disincentive to their formation. In countries where a favorable enabling environment does exist, foundations are normally accorded a range of benefits including tax-exempt status, including exemptions on the interest earned from endowments.

One of principal misunderstandings that arise in the discussion of endowments concerns the nature and definition of a trust. In fact, a trust is both a financial and institutional arrangement, i.e., a fund (financial) whose assets are managed by a person or group (trustees/institutional) on behalf of another group (beneficiaries). In many instances, a trust is separate from the institution that is intended to benefit from the resources it generates from the funds entrusted to it; it is essentially a "fund manager." In others cases, the trust both manages the funds and is the principal beneficiary of generated proceeds which it uses to finance its own programs. Trusts can manage any of the financial instruments discussed above.

Like foundations, most trusts promote a "public" purpose, are non-governmental and non-profit, and seek to create an endowment to sustain their activities. Again, the laws of the concerned country govern the creation and management of trusts. In reviewing the literature on endowed foundations and trusts, it can be said that in countries with a legal tradition based on English law, trusts are the most common form of non-governmental institutional arrangement advancing the public interest, while those countries influenced by the American legal system normally form foundations. Most endowments funded by USAID are "housed" in the form of a foundation, although there examples of trusts as well.

What can endowments do?

An endowment can provide reliable long-term funding for the activities it supports. Depending on how the endowment is governed and managed, it can either be an assured source of funding for one or more organizations carrying out these activities, or it can selectively provide grants for good performers. Endowments can insulate institutions and programs from instability in government and donor funding, give them independence and enhance their capacity to plan and manage. An endowment that provides grants on a competitive basis can promote institutional pluralism and competition. If beneficiaries play a

decisive role in its governance, an endowment can make the activities more relevant for their needs.

What can go wrong?

Reduced vulnerability to the fads and whims of donors and governments is the main gain from having an endowment, but it is also the principal risk. Not all cutbacks by donors and governments and other sources of funding are mere inconsistencies and bureaucratic accidents. Some of them are reasonable responses to deteriorating organizational performance or to changing needs. Perhaps the beneficiaries are fed up and are asking governments and donors for different things. Or perhaps the officials of funding agencies view that the organization has lost its effectiveness.

Endowed organizations are less (or not at all) vulnerable to budget cuts. Ideally, this shifts their focus from donors and governments to the beneficiaries that presumably are represented in the board of trustees. But what if the board fails to perform? What if it is co-opted by the narrow interests of the insiders of the organization? What if it becomes corrupt? What if a small minority of the beneficiaries with special interests dominates the board?

A poorly designed and managed endowment can both invite deteriorating performance and exacerbate its consequences. Endowment can relieve an organization from the pressures to reach out to stakeholders and continually prove its worth. It can make it self-centered and supply-driven. And, unlike annually funded organizations that often must downsize or close down when they fail to perform, endowed organizations may be able to stay in business indefinitely, eventually wasting the entire endowment.

Summary and Conclusions

As Horkan and Jordan (1996) note, it is important to distinguish between organizational structures, such as binational foundations and commissions, and *funding instruments*, such as endowments and sinking funds. Whereas foundations are typically grant-making organizations supported by endowments or other funds managed by their own directors or a separate board of trustees, endowments may also be established to enhance the financial security of other types of organizations. An endowment usually refers to an invested fund that has been set aside for a specific purpose. The purposes may be supported only from the income generated by invested funds, with endowment principal maintained intact. This arrangement is sometimes called a perpetual endowment. The principal of an endowment may also be disbursed according to an agreed schedule, in which case the invested fund is called a sinking fund.

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Annex 5:

USAID Experience with Endowments

RECENT USAID EXPERIENCE WITH ENDOWMENTS

I. Background and Context

Interest in and the study of endowments as a sustainable source of organizational financing has increased significantly over the past decade. The reasons are numerous, but three stand out for particular consideration. As official development assistance (ODA) has decreased significantly since the early-1990s, donors have sought ways to sustain key partner institutions by ensuring a steady source of revenue to cover operating and program costs—both during their normal country program operations and after their phase-out and final exit. Secondly, as lessons learned from four development decades have shown, addressing sustainable development problems requires long-term strategies and the commitment of capable institutions and the corresponding financial resources to support them. Finally, foundations and trusts, the institutional homes of most endowments, are considered an integral member of the non-profit sector, or what has increasingly been called civil society. In all three cases, endowments have been successfully used to achieve these developmental purposes.

II. Experience and General Findings

Among official as well as non-governmental donors, USAID has been in the forefront of endowment use and has thus contributed significantly to the emerging state-of-the-art and development of best practice in this field. Through mid-1996, some 35 endowments have been funded by USAID worldwide, primarily by individual Missions, with the majority being established since 1990. Since then, an additional 15-20 have either been established or are in the planning stage in each of the principal geographic regions where the Agency works.

In addition to promoting endowment creation to provide a secure source of funding to help an organization move towards financial sustainability or to insulate it from government or donor agency budget fluctuations, USAIDs have established endowments to:

- Support local NGO capacity building (The Ghana Community Enterprise Foundation; The Mexican Fund for the Conservation of Nature; The Foundation for the Philippines Environment; The Zimbabwe American Development Fund);
- Expand and broaden the funding base for organizations working in a specific programmatic sector (PRONATURA/Dominican Republic/environment; the Family Life Foundation/Swaziland/population);
- Support the development of civil society and promote local participation in development (PRIP Trust/Bangladesh; The Arias Foundation/Venezuela; The Baltic-American Partnership Fund);
- Encourage local philanthropy, particularly in countries with weak philanthropic traditions (One of two new Foundations under design in the NIS);
- Leverage additional sources of funding both internally and externally (A number of foundations supported under the Enterprise for the Americas Initiative including the Environmental Foundation of Jamaica and FONAMA/Bolivia);

- To leave a development legacy and ensure the continuation of earlier development investments (The Costa Rica – USA Foundation; The Lusophone-American Foundation/Portugal; and the Korean Development Institute and Korean Institute of Science and Technology). In fact, very few of the 35 endowments studied by USAID in 1996 had a deliberate component of a transition strategy to conclusion or graduation from concessional assistance.
- Most “Binational Foundations” (see immediately above) subscribe to the principle of *mutuality of contribution and benefit*. When USAID has funded such organizations, always through an endowment, they have typically been part of a transition or graduation strategy. While the transition (“legacy”) strategy of USAID/Egypt is largely based around this purpose, the endowed foundation supporting genetic engineering in Egypt does not have such a purpose per se.
- Endowments have also been used as an alternative source of funding to traditional forms of Agency support (grants and cooperative agreements). They have been used in particular to ensure smooth funding flows to match the financial needs of targeted organizations over time; and, through the process of setting up an endowment, to increase opportunities to build partnerships among and between actors in the state, market and civil society.

The Team has made a special review of Endowments and Funds that have an agriculture sector focus, including those promoting technology transfer.

- Over the past decade, an increasing number agricultural funds have been established worldwide that provide grants for researchers on a competitive basis. The great majority of these Funds support the operating costs of research projects, seeking to provide a dependable source of funding for these costs (e.g., salaries, materials, maintenance). Such funds are open to universities and technical institutes (primarily public sector) as well as the private sector and NGOs. The importance of these competitive grant funds is that they generate efficiencies and innovation by linking funding to performance.
- Agricultural Research Funds (or Protrams) also aim to mobilize under-utilized research capacity, particularly in universities and to a lesser extent technical institutes. The problem is that these institutions tend to have a surfeit of trained manpower but inadequate funding for the operating costs associated with research. As a result, University researchers often engage in low-cost research with little relevance to the principal problems facing the agricultural sector.
- The vast majority of these Agricultural Research Funds are fully financed by foreign aid, making them vulnerable to donor policy changes. The alternatives to donor assistance include public funding, increased commercialization of products developed through research, and endowments. Depending on endowments alone to fund research however, is not recommended as it may have the undesired effect of decreasing innovation. The use of endowments is consistent with the long-term and high-risk nature of high-tech research, particularly in genetic engineering. Attracting endowment financing is largely a function of a long-term successful track-record in research.
- Most Agricultural Research Funds target the broader sector of research, such as genetic engineering or biotechnology, rather than a single institution. This is because the funding

of a single institution places too great a risk on its continued success including a decreased incentive for high performance and results. Targeting a broad array of institutions operating in the sector, increases competition and hence innovation and research responsive to the specific problems facing agriculture.

- Agricultural Research Funds, normally select researchers on a competitive basis using a “request for proposal” approach, and scientific peer review to allocate funding. Competitive Agricultural Funds or Programs can be tailored to accomplish numerous objectives, including:
 - Mobilizing the best available scientific expertise for work on specific high-priority projects in accordance with national agricultural development strategies. In this regard, such a Fund would help promote and even refine Egypt’s National Genetic Engineering Strategy.
 - Promoting research partnerships and collaboration by researchers from different institutions, disciplines and countries.
 - Introducing more demand-driven research that specifically involves clients in setting research priorities, providing funding, and executing and evaluating research.
 - Making research more cost-effective by channeling funds to under-utilized scientists or facilities and thereby making them more productive.
 - Increasing total funding for research by mobilizing funding from farmers, industry, and other sources for research topics of interest to the financier.
 - Redirecting research towards high-priority areas in accordance with funding-agency priorities, client needs, and new technological opportunities.
 - Improving research quality and innovation by basing funding for projects on rigorous technical review of scientific merit, workplan soundness, and milestone effectiveness.
 - Drawing a wide range of stakeholders into the research system including NGOs and the private sector.

The following provides a number of additional findings related to the scope, scale and nature of USAID-supported endowments:

- Endowments have ranged between \$400,000 and \$120 million, with less than half receiving more than \$5 million, roughly 45 percent with financing between \$5 million and \$50 million; and a very small number of “mega” endowments, i.e., exceeding \$50 million. This latter category includes Enterprise Funds (see below) which are, in fact, sinking funds (a life expectancy between 10 and 15 years) and several Endowments targeting countries with a special tie to the United States (e.g., Israel, Ireland, South Africa).
- Endowments have been established primarily to support long-term partner organizations working in the agricultural (education, research and extension), health and population

(family planning, maternal-child health care, AIDS prevention and education), and environmental (maintaining bio-diversity, natural resource management) sectors.

- Most USAID experience has been in setting up endowments that are intended to last indefinitely ("in perpetuity), rather than establishing sinking or revolving funds, which have a finite life-span.
- The most successful of the USAID-endowed foundations, particularly with a grant making component, have had a very targeted focus rather than a very broad set of objectives. This is particularly important for those foundations seeking to promote technology transfer in agriculture and facilitate private sector involvement in the process.
- Over the past five years, a number of USAID Missions have looked at the feasibility of setting up endowments to support civil society (Mali, Namibia, Bangladesh), with a number of them (Zimbabwe, Russia) actually having moved from the design to implementation stage.
- Earlier local currency endowments (26 of 35 reviewed through mid-1996), accounting for the majority of USAID funding were often used to promote the financial sustainability of an individual organization working in a particular sector. Many of these were in Latin America and involved some aspect of agricultural research, production or technology transfer.
- More recent dollar-funded endowments (9 of 35 through mid-1996) have been used to provide a secure funding base for local grantmaking foundations. This type of funding has increased significantly since 1994 and the publication of Policy Determination (PD) 21 authorizing the use of appropriated dollars for establishing endowments.
- The majority of funding to date (local currency) has gone to existing institutions with a successful track-record in a given sector. Paralleling the growth of dollar-funded endowments for grantmaking purposes, new organizations, primarily foundations have been the principal institutional arrangement chosen to manage them.
- In three particular cases -- The Zimbabwe American Development Foundation; The Institute for Agricultural Research (ISRA), Agricultural Technology Fund; and the US - Thai Development Partnership - USAID initially conferred the endowment and its management to a US PVO, Institute or University since the local institution had either just been established or did not have the necessary management capacity or track record to ensure the proper use of US funding.
- The sinking fund instrument has been called into question in some quarters of USAID (see Martin, et al, 1999) as it runs counter to the vision of an endowed foundation as a post-assistance mechanism.
- The majority of USAID funding that goes towards agriculture in general and agricultural research and technology transfer in particular is made in the form of competitive grant programs through "draw-down" or fixed term funding—few have been established as endowed foundations. In this regard, many of the earlier "research funds," particularly in

Latin America created non-profit, private foundations between USAID and the concerned host government.

A Summary of Selected Endowments and Funds Reviewed

Baltic-American Partnership Fund

While most programs in East and Central Europe are to be phased out by 2003, the ENI Bureau has initiated a regional fund to nurture and strengthen civil society in the period beyond conclusion of the country assistance programs. The Baltic-American Partnership Fund, authorized in 1998 has been endowed with \$15 million half of which comes from the SEED Act, and half from the SOROS foundation. The USAID contribution is expected to be drawn down over 10 years (as a ten-year sinking fund, but BAPF is to have authorization to seek other funds so it can continue beyond this period.

Competitive Agricultural Technology Funds in Developing Countries

The Agricultural Technology Transfer Fund of the Association for Strengthening Agricultural Research in East and Southern Africa (ASARECA): A USAID-financed competitive draw-down fund for the purpose of transferring on-shelf agricultural technologies. The recipient is ASARECA which serves its members in 10 East and Southern African countries and is open to public and private organizations interested in TT to smallholders. \$300,000 was available for this purpose in Phase one with an increase to \$1,570,000 in Phase two (starting in 1998). The Management board: The Steering Committee composed of six representatives from IARC institutions with one member from USAID and one Member from ASARECA was responsible for making decision. In 1997, ASARECA's strategic plan stated the need "to create a consolidated mechanism for agricultural research," representing a longer-term ambition to create an endowment, perhaps as a final result of this regional research fund.

The Institute for Agricultural Research (ISRA), Agricultural Technology Fund: This is a draw-down (competitive grant) fund financed by USAID/Senegal in 1991. The Fund financed development, validation and dissemination of technology appropriate to low-rainfall agro-ecological zones. This was a six year, \$2 million fund and was the only competitive technology fund in Senegal. Of particular interest, USAID did not fund ISRA because it did not meet "grant-worthiness" criteria, rather it placed a tender for the management of the fund to US universities, with Oregon university selected. The Fund's Board included ISRA, the Senegalese Consortium of NGOs, a federation of Senegalese village organizations, and USAID in observer status.

Fund for the Promotion of Scientific and Technological Development (FONDEF): Is a draw-down fund established under the National Commission for Scientific and Technological Research. The strategy of the fund is to develop the link between R&D institutions on the one hand (e.g., universities and technological institutes) and private sector companies on the other, by financing programs and projects and through other initiatives meant to promote an environment favorable to innovation. The business sector must participate in projects in order to guarantee the transfer of knowledge and results to productive activities. In addition to a number of competitive grant programs, it supports courses, workshops and publications to assist in the formulation and implementation of projects, and studies to identify project opportunities. The fund was financed by an IDB loan in the amount of \$55 million and the Government of Chile in the amount of \$65 million. FONDEF has a board of directors composed entirely of GOC members in charge of its general direction and which is responsible for awarding and selecting projects.

The AP Cess Ad Hoc Research Scheme of the Indian Council of Agricultural Research (ICAR): the apex of a network of research institutions is responsible for the promotion, execution and coordination of agricultural research throughout the country. It is funded by a custom duty of .5% (a Cess) levied on export of articles enumerated in the Cess Act of 1940. In practice the AP Cess Fund has worked as an endowment, as availability of funding is assured by the Act. The Scheme, which is national in coverage, supports basic, strategic and applied research to fill critical gaps or address unforeseen problems addressing farmers. It targets the funding of short-term research project (up to 3 years). The fund is managed by ICAR which is headed by a Director General which is also a high ranking member of the Ministry of Agriculture.

Agricultural Research Fund of the Vidya Bhavan Society: is an NGO established in 1931 with the objective of improving education. In 1984 it established the Agricultural Research Fund with financial support from ICAR with a specific aim of improving technical literacy of farmers on the principle of learning by doing and learning by doing. It is a draw-down fund.

Agricultural Research Fund (ARF): established in 1986 although it did not receive actual funding until 1990; it is a draw-down fund. It was designed to support scientists outside the host institution, the Kenya Agricultural Research Institute (KARI)—that is the University system. It was designed to finance highly applied research which would contribute directly to technology formulation and uptake by farmers and other end-users, or which lent itself to commercial applications. USAID was the principal donor from 1990 to 1994 with DFID (British Aid Agency) and IDA taking over in 1997 and 1998; the GOK provided the majority of funding for both ARF and KARI.

US-Israel Binational Agricultural Research and Development Fund (BARD)

- Established in 1977 to promote and support R&D in agriculture for the benefit of both countries. Funds through competitive grants joint (US – Israel) research proposals that are submitted by at least one cooperating investigator from each country. BARD also supports international workshops and provides post-doctoral fellowships.
- Its present endowment, funded equally by both countries is \$110 million supplemented by \$2.0 million allocations from each government bringing total operating income to \$11 million annually.
- BARD makes appropriate research grants or loans to both public and non-profit private entities – not to the Private Sector – and to encourage the exchange of agricultural scientists, experts, etc.
- BARD-sponsored research has led to new technologies in drip irrigation, pesticides, fish farming, livestock, poultry and farm equipment. It has specifically funded a number of genetic engineering research projects.

US-Israel Binational Industrial Research and Development Foundation (BIRD-F)

- The first arrangement of its kind between the U.S. and another country, BIRD-F was founded in 1977 to stimulate mutual cooperation between high-tech industries by supporting all aspects of R&D through which an innovation becomes a commercial product, including product engineering and test marketing. All projects must be jointly

proposed by firms from both countries and must be of prospective benefit to both countries. Some 200 projects have been proposed to date. It is funded by an endowment to which both countries contributed equally, totaling some \$100 million.

- BIRD often plays a proactive role in bringing potential strategic partners together. Grants are paid back with interest if revenues are shown from the R&D project. Most grant recipients are small businesses involved with software, instrumentation, communications, medical devices and semiconductors. BIRD funds 50 percent of the companies' expenses in developing a product to the stage of commercial readiness.

Enterprise Funds

- Established under SEED Act in 1989, Enterprise funds are non-profit corporations, managed by private individuals that use an U.S. government grant to make equity investments and loans to medium and small enterprises to stimulate the growth of the private sector in a specific country or region. They were designed as sinking funds, that is, with the initial capital endowment along with interested generated to be drawn down over a specific period of time (e.g., 10 – 15 years).
- They all share five characteristics: 1) a U.S. government grant, 2) made to an unpaid, presidentially appointed board of directors; 3) which has substantial independence in choosing an investment strategy; 4) for an expected life of 10 – 15 years; 5) with compensation of employees capped at \$150,000 per year.
- The 11 EFs that received funding were:
 - Polish-American EF – 1990, \$264 million
 - Hungarian-American EF – 1990, \$70 million
 - Czech-Slovak-American EF – 1991, \$65 million
 - Bulgarian-American EF – 1991, \$55 million
 - US-Russian Investment Fund – 1995, \$440 million
 - Baltic-American EF – 1994, \$50 million
 - Romanian-American EF – 1994, \$50 million
 - Central Asian-American Enterprise Fund – 1994, \$150 million
 - Western Newly Independent States EF – 1994, \$150 million
 - Albanian-American EF – 1995, \$30 million
 - Southern African-American EF – 1995, \$108 million
- EF Activities
 - Investment in medium to small enterprises
 - Small and micro loans
 - Technical assistance
 - Raising private capital
 - Promoting joint ventures
 - Promoting privatization
 - Training professionals
 - Involving successful American entrepreneurs

- Four EF's (2 Russian, Poland and Hungary) have been operating for more than five years with a mixed record of success. Seven others are between two and four years old; there is still an inadequate track record to assess their success.
- EFs have been largely used to support the transition of certain countries to a market economy. Thus, it can be said that in addition to an economic purpose, that is, promoting private sector development, they also have a political one, supporting the overall development including political of countries moving towards democratic systems of governance. Former Warsaw Pact countries were the initial focus.

Coalition for Development Initiatives (CINDE), Costa Rica

- CINDE, created in 1982, is a non-profit private foundation designed to promote foreign investment, agricultural exports, industrial reconversion for export, and export oriented training. It was a response to earlier unsuccessful attempts by the government to promote trade and investment through public sector organizations. One of the underlying strengths of the foundation was the freedom and autonomy that it gained as a private foundation, thus allowing decisions to be made without political interference. Its funding was initially supported through ESF local currency grants. A total of roughly \$70 million was made available by the USAID Mission to endow the foundation. The agreement calling for the endowment's establishment stipulated that it be dissolved in 1996 with funds reverting to the Government unless USAID and the GOE make a positive determination for its continuation.

Foundation for Agricultural Development (FUNDAGRO)

- The government of Ecuador established FUNDAGRO in 1986 as a private, non-profit institution. It was designed to revitalize a national research, extension and education system that had failed to foster the innovation and transfer of technologies for improved productivity in agriculture. The government-operated agricultural research institute had been constrained by a range of political and administrative factors, including lack of public sector commitment to a strong research and outreach program, low budgets, political interference, lack of long-term program planning, inability to focus scarce resources on priority research problems, absence of linkages with farmers and the private commercial sector, and an inability to recruit and retain highly qualified agricultural professionals.
- Its principal role is to serve as a catalyst in enhancing the interaction between integrated research, extension, and education and linking them to more directly with farmer clientele. It accomplishes these functions by employing a small highly qualified staff to work with public and private sector institutions in the joint selection, planning and funding of long-term applied commodity research and extension programs. It also provided supplementary grants to support the work of agencies working on these programs (institutional support).
- Funding was started with the proceeds of PL-480 in the form of grants and later used to establish a FUNDAGRO endowment.

Cordillera Development Foundation (CDF), Costa Rica

- Established in 1989 by the Government of Costa Rica to assume responsibility for managing a major forestry reserve. It was recognition that government structures were unable to effectively undertake this function themselves. I was the first of a growing number of foundations established for wildland management. The foundation was set up with the intention for it to be "operational" in the sense that it would actually manage the forestry reserve rather than finance grants to others for this purpose. In addition it was develop and diffuse new agro-forestry practices to concerned farming communities.
- AID and the government agreed to the establishment of an endowment with a grant contribution of \$75 million. The intent of the endowment was to build a financial base for CDF so that at the end of the seven-year project, earnings from the endowment would be sufficient to sustain CDF in perpetuity.

Honduran Agricultural Research Foundation (FHIA), Honduras

- In 1984, FHIA was established as a private, non-profit foundation. Its plant and equipment were inherited as a gift from the United Brands Company in order to provide an initial base for funding. It was matched by a 10-year grant from USAID. Its mandate was to engage in research and extension on agricultural crops. It effectively conducted short- and long-term applied research and rapidly diffused results to farmers. They addressed the declining rate of growth in the agricultural sector.
- GOH, USAID and FHIA agreed to an endowment which was designed to meet FHIA's core operational and program expenses. The endowment was made using ESF locally generated currency in installments and with a FHIA matching contribution in-cash or in-kind.

Institute for Agricultural Strategies (IDEA), Ecuador

- An agricultural policy institute formed within the Science Foundation, a non-profit, private organization with the purpose to conduct studies, and sponsor seminars and workshops on important policy issues. An overall intention to mobilize the private sector to support more market oriented approaches to agricultural growth. Initial IDEA expenses were covered by a USAID grant with a small endowment designed to provide longer-term support.

Pan-American Agricultural School (EAP), Honduras

- A private, post-secondary school to train agriculturists throughout Latin America. A United Fruit Company trust fund provided funding for its first 15 years and thereafter from additional funds generated from student fees, public and private donations and the sale of products grown at the school. It received a \$15 million endowment in ESF local currency funds from USAID in 1987 to address expanded responsibilities in education and research. It required a 25 percent match from the school.

The International Fund for Ireland

- Objectives are to promote economic and social advancement and encourage contact, dialogue, and reconciliation between Nationalists and Unionists. The fund seeks to reach these objectives by promoting economic development with priority given to new investments that create jobs and reconstruct disadvantaged areas. ESF local currency funding with equal tranches of \$19.6 million per year

The US – Thailand Development Partnership

- Purpose is to build on earlier US investments in promoting private sector development, permitting Thailand to “graduate” from a donor-recipient relationship to a partnership based on mutual interests. This would be accomplished by the establishment of an institution capable of continuing this mutually beneficial form of development cooperation without continued USAID funding or direct management oversight. The partnerships targeted local Thai organizations and US companies. While a local Thai counterpart institute was founded, neither the Kenan Institute nor the local partner was endowed. Of interest however, is the fact that USAID funded a well recognized American Institution to partner and build the capacity of a local non-profit, private organization—a mentoring role.

Zimbabwe American Development Foundation

- The endowed foundation is an important mechanism for promoting long-term US and Zimbabwean development efforts as it is a reliable, low-cost, sustainable approach to address longer-term problems which will continue to impact Zimbabwe after the bilateral USAID Mission closes.
- As a local organization, the foundation can tailor its assistance to fill gaps and needs not covered by the GOZ or USAID global and regional programs. Entrusting a local foundation with a development mandate is the ultimate notion of a partnership for development. Leveraging a matching endowment contribution is a fundamental design requirement, including local corporate and private donations as well as other US foundations and organizations.
- The USAID endowment was made to PACT, a US PVO which will serve as Lead organization in a custodial or trust arrangement for the benefit of the ZADF, a similar role that PACT played in Bangladesh with USAID assistance. Making the endowment grant to an US Lead Organization follows a model used by Ford Foundation for Southern Africa, particularly South Africa during the apartheid years. A US PVO served as an intermediary partner between the NGO owners/beneficiaries and Ford Foundation. The use of the US PVO worked technically, the US PVO has demonstrated responsible financial management, and the funds in the US have been shielded from local currency devaluations (not, however, applicable with the use of local currency endowments). In Zimbabwe, Ford Foundation insists on the use of a US PVO intermediary because of the concerns related to GOZ control and interference with local NGOs. It also shelters the ZADF from changing political environments in Zimbabwe.

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Annex 6:

***Sector Assessment & Institutional
Analysis***

AN INSTITUTIONAL ASSESSMENT AND OVERVIEW OF THE GENETIC ENGINEERING AND BIOTECHNOLOGY SECTOR

I. INTRODUCTION

Biotechnology in Egypt has developed rapidly since its introduction in 1990. Areas of successful biotechnology application include tissue culture of crop plants and genetic engineering. Genetic engineering is a top priority at new research centers such as, Mubarak City. Genetic engineering techniques are being applied primarily for agricultural production and reclamation of desert lands. Although Egypt's private capacity in this area is limited, tissue culture labs do exist and work in different crops.

The aim of this assessment is to focus on the different actors participating in the genetic engineering and biotechnology sector including public institutions and private sector. The team gathered its information by direct observation and extensive interviews among the staff of this sector. Information on institutional capacity came from extensive interviews of stakeholders of genetic engineering and biotechnology sector.

The interviews included the staff of five ARC institutes: Agricultural Genetic Engineering Research Institute (AGERI), Cotton Research Institute (CRI), Plant Protection Research Institute (PPRI) and Field Crops Research Institute (FCRI). Also, the interviews included the staff of three universities: Genetic Engineering and Biotechnology Institute (GEBI) of Menoufyia University, the Center for Genetic Engineering Research (CGER) of Faculty of Agriculture, Cairo University and Horticulture Division of Faculty of Agriculture, Cairo University. The interviews included two research institutions belonging to Academy of Scientific Research and Technology: Genetic Engineering and Biotechnology Research Institute (GEBRI) of Mubarak City and Genetic Engineering and Biotec Research Division of the National Research Center. The team extended the interviews to include two private sector companies: Egypt Pioneer Seed Co. and Misr Hytec Seed Int.

The team also drew information from a number of publications including "An Assessment of Biotechnology in Egypt: Opportunities for U.S. Cooperation in Health, Agriculture and Industry". The study was prepared for U.S.-Egypt Cooperation by the Institute for Biotechnology Information in 1997.

II. THE AGRICULTURAL RESEARCH CENTER

The Agricultural Research Center (ARC) represents the principal agency within the Ministry of Agriculture and Land Reclamation (MALR) responsible for technology generation and transfer to Egyptian agriculture. It represents one of the largest and most complex infrastructures in Egypt dedicated to research and development in the agricultural sciences. The ARC has:

- 16 research institutes;
- 5 central labs; and
- 46 experimental research stations.

A board of directors chaired by the Minister of agriculture governs the ARC. It is composed of a director, three deputy directors for research, extension and production, heads of the various ARC research institutes, as well as invited members from the universities, directors of Desert research Center (DRC), Water Research Center (WRC) and National Research Center (NRC) and representatives from the private sector.

Research Institutes

- Agricultural Genetic Engineering Research Institute (AGERI);
- Agricultural Economics Research Institute (AERI);
- Agricultural Engineering Research Institute (AENRI);
- Agricultural Extension and Rural Development Research Institute (AERDRI);
- Animal Health Research Institute (AHRI);
- Animal Production Research Institute (APRI);
- Animal Reproduction Research Institute (ARRI);
- Cotton Research Institute (CRI);
- Field Crops Research Institute (FCRI);
- Food Technology Research Institute (FTRI);
- Horticulture Research Institute (HRI);
- Plant Pathology Research Institute (PPATHRI);
- Plant Protection Research Institute (PPRI);
- Veterinary Serum and Vaccine Research Institute (VSVRI);
- Soil and Water Research Institute (SWRI); and
- Sugar Crops Research Institute (SCRI).

Central Laboratories

- Central lab for Agricultural Expert Systems (CLAES);
- Central Agricultural Pesticides Lab (CAPL);
- Central lab for Aquaculture Research (CLAR);
- Central lab for Food and Feed (CLFF); and
- Central lab for Design and Statistical Analysis Research (CLDSAR).

Experimental Research Stations

The ARC has 46 research stations throughout the country: 10 regional and 36 specialized stations. They represent a huge testing network as outreach facilities for the implementation of ARC research programs under diversified environmental conditions. Experimental research stations run agricultural experiments in a wide range of agricultural activities include field crops, horticultural crops and animal production and livestock.

ARC Research Institutes Dealing with Genetic Engineering and Biotechnology

1. Agricultural Genetic Engineering Research Institute

The Agricultural Genetic Engineering Research Institute (AGERI) is involved in the introduction of new trends in biology to Egypt. It has capacity for advanced molecular biology and genetic engineering. AGERI was established in the mid 1980s as the National Agricultural Genetic Engineering Laboratory (NAGEL) in order to increase Egypt's capacity for technology. In 1988 AGERI attracted funds from the UNDP and the Ministry of

Agriculture. The progress made by 1990 helped to make AGERI as an institute within the Agricultural Research Center (ARC), thus changing the name from NAGEL to AGERI.

AGERI has participation from university staff members, including a diverse multi-disciplinary group of plant pathologists, breeders, microbiologists, and horticulturists who are joint appointees. AGERI is engaged in a wide range of projects from development of bacillus thuringiensis (Bt) strains for use as pesticides to development of transgenic plants. AGERI has lab to field capabilities. It also has pilot fermentation and formulation capacity. Other research at AGERI includes engineering plants for biotec and abiotec stress, including viral, fungal, and bacterial resistance and salinity, heat, and drought tolerance.

The institute adopts recently developed technologies available worldwide and applies them to existing problems in Egyptian agriculture. The activities of AGERI insure sustainable biotechnology in Egypt by training the next generation of high caliber scientists. Their dedication is for the production of a widening array of elite crop cultivars and biotechnology based products. Products, which are tailored to Egyptian agriculture's requirements, are introduced.

So far, AGERI has seen promising results in biotechnology and genetic engineering area and started the process of commercialization of its products in collaboration with private sector. AGERI has developed potatoes resistant to the potato tuber-moth, but most of the varieties are not commercially grown. Because of intellectual property issues, they cannot work on marked germplasms, so they wait until varieties go out of protection and into the public domain to conduct more research on them. Experiments being conducted at the International Potato Center are joint projects between Michigan State University and Egypt to develop a product against potato tuber worms.

AGERI collaborations include a partnership with Pioneer Seeds for Egyptian varieties of corn expressing Bt genes effective for corn root worm. Some scientists in Iowa are currently doing field tests. AGERI is also collaborating with Seminis Vegetable Seeds in a study of multi-resistance genes in Egyptian germplasm of squash, watermelon and cucumber mosaic viruses.

Goals

- Broaden the research and development capabilities and scope of the Agricultural Research Center in the public and private sectors (i.e., initiation of new program areas and application to a wider array of crop species);
- Expand and diversify the pool of highly qualified trained professionals in the area of biotechnology;
- Promote opportunities for private sector development;
- Enhance cooperation with collaborative public and/or private projects with established units;
- Provide opportunities for university trained professionals, the Ministry of Agriculture and private venture companies to cooperate in agricultural genetic engineering research;
- Achieve the desired level of self-reliance and self-financing within AGERI to mobilize the funds necessary for the running costs of laboratories;
- Provide agricultural genetic engineering capabilities to meet Egypt's current problems;

- Advance Egyptian agriculture using available genetic engineering capabilities.

Functional laboratories

- Molecular Plant Pathology;
- Molecular Manipulation and Gene Transfer;
- Plant Molecular Biology;
- Molecular Genetics and Genetic Mapping;
- Micropropagation Technology;
- Plant Cellular and Molecular Genetics;
- Immunology and Diagnosis;
- Protein Nucleic Acid Sequencing and Synthesis;
- Gene Expression;
- Biocomputer and Networks.

Technical Support Units

- Media Preparation Facility;
- Phytotron/Convicon;
- Conventional Greenhouse;
- Containment Greenhouse;
- Dark room & Photography Facility;
- Biocomputing and Networks Unit;
- Library and Databases;
- Seminar and Meeting Room; and
- Experimental Fields.

Genetic Engineering Service Unit

The Genetic Engineering Service Unit (GESU) was created by a ministerial decree No. 58 in 1994. The unit is headed by AGERI director and have four institute staff as members. The ARC is represented in the unit by two members: directors general for legal and financial departments. The head quarter of the Ministry of Agriculture and Land Reclamation is represented by one member: director general for auditing. The secretariat work of the unit is undertaken by an AGERI member.

Services Already Provided by GESU

- Production of elite germplasm via tissue culture;
- Production of diagnostic ELISA kits for detection of major phytopathogenic viruses;
- Production of diagnostic PCR kits for accurate detection of major phytopathogenic viruses;
- Protein fingerprinting using SDS-PAGE and isyme;
- DNA fingerprinting using molecular markers;
- Chemical analyses;
- Custom oligonucleotide synthesis;
- DNA sequencing;
- Molecular imaging and densitometry;
- Regional and National training courses (7 courses) and special training courses (15 courses) in molecular biology techniques and tissue culture;

- Scientific and practical consultation in molecular biology techniques and tissue culture;
- Commercialization of the Egyptian biopesticide "AGERIN" to control lepidopteran and coleoptera insect pests; and
- Production and commercialization of transgenic plants for economic crops.

Clients of GESU

1. Universities

a) Egyptian Universities

- Cairo;
- Ainshamas;
- Alexandria;
- Assuit;
- Zāgāzig;
- Mansoura;
- Suez Canal;
- Al-Azhar; and
- Menoufia;

b) Arab-World Universities

- Bethlehem (Palestine); and
- El-Fateh (Libya).

2. Research Centers

- Agricultural research Center;
- National Research Center;
- Desert Research Center;
- Nuclear Power Research Center;
- National Organization for Drug Control and Research;
- National Institute for Marine Science and Fishery; and
- Central Administration for Seed Testing and Certification.

3. International Organizations

- UNESCO;
- ICARDA;
- ICLARM;
- WHO;
- WB/IDA; and
- General Organization for Seed Production (Syria).

4. Private Sector

- Pioneer Egypt;
- Misr Hytec Seed International Co.;
- Fine Seed International Co.;
- National Seed Co.;
- Ciba-Geigy;
- Tiba Co. (Tissue Culter);
- Shoura Technology;
- Diab Agriculture reclamation Co. (PICO); and
- Arab co. for Pharmaceutical and Medical Plants.

2. Cotton Research Institute

The Cotton Research Institute (CRI) is one of the oldest agricultural research institutions in Egypt and one of the pioneering cotton institutions in the world. Its roots are traced back to a small to a small research station founded in the first decade of the twentieth century. The year 1920 marked the beginning of serious coordinated research on the cotton crop under the umbrella organization known as the Cotton Research Board (CRB). Early research focused on the botany and genetics of Egyptian cotton followed later by the selection of promising varieties.

The CRB has two main sections. The Production Section included breeding, regional evaluation, varietal maintenance, cultural practices and physiology. The technology section included fiber, spinning, grading and ginning. In 1971, the ARC was established to encompass research activities of the MOA, and the Production and Technology sections were joined into what is known as the Cotton Research Institute.

Goals

- Breed new varieties of high yield and quality Egyptian cotton to satisfy the requirements of local and foreign spinners;
- Create new pest resistant varieties of cotton that have a higher tolerance to soil stresses and shorter growing season;
- Maintain the purity of commercially grown varieties;
- Identify optimal varieties, with regard to yield and quality, for each growing location;
- Determine the best agricultural practices to optimize inherent yield potential;
- Improve quality assessment methods and annually evaluate the spinning properties of the commercial yield;
- Define the quality parameters of lint cotton grades for the benefit of cotton marketing; and Refine cotton ginning techniques.

Research Departments

Breeding, maintenance, regional evaluation, agronomy, physiology, fiber, spinning, grading and ginning.

3. Field Crops Research Institute

Activities in field crops were initially included in the Plant Breeding Section (1903-1910), the Agricultural Department (1910-1958), the Crop Research Department (1958-1972) and later in the Field Crops Research Institute (1973 until the present). In the course of the institute's history, more than two hundred cultivars have been released and introduced into Egyptian agriculture. Together with addressing major constraints, the institute significantly contributed to dramatic increases in crop production. The institute includes 16 research departments covering the breeding and agronomy of major field crops.

Goals

The ultimate goals of the institute are to increase productivity of major field crops through breeding for high-yielding varieties, produce basic seed of improved varieties, research major

constraints of field production, provide suitable recommendations for agronomic practices, and undertake extension activities throughout the country.

Research Departments

Rice, maize, wheat, sorghum, barley, legumes, oil crops, forage crops, onion, fiber crops, weed control, crop intensification, crop physiology, seed technology, genetic resources and cell study research.

4. Horticulture Research Institute

As early 1898, the Egyptian Horticulture Society was established as a section of the Department of Plant Breeding. An independent horticulture department was founded in 1911 and early activities concentrated on field studies, as a number of experimental stations were established in various parts of the country. In 1964, more experimental stations were founded in the valley, in the Western Desert and in the North of Sinai. In 1971, the Horticulture Department expanded into the Horticulture Research Institute (HRI), one of the major institutes of the ARC.

Goals

The major goal of the HRI is to promote productivity of horticulture crops. Significant increases in production are targeted to meet local and export demands. Special emphasis is given to crops, which flourish under Egyptian conditions to help Egyptian exports to competitive markets.

Research Departments

Citrus, viticulture, tropical fruits, deciduous fruits, olive and semiarid fruits, fruit handling, cucumbers and cross-pollinated vegetables, tomato and self-pollinated vegetables, potato and vegetatively propagated vegetables, vegetable seed technology and production, protected cultivation, medicinal and aromatic plants and vegetable crop handling.

5. Plant Pathology Research Institute

The Plant Pathology Research Institute (PPATHRI) was originally formed from a branch of mycological research in the Department of Plant Breeding in 1919. As such, it is considered one of the first research organizations established in Egypt. The original research unit expanded to become the Plant Pathology Section and in 1973, the Plant Pathology Research Institute.

Goals

The institute objective is to survey plant diseases attacking the most important field crops. The institute carries out research for the detection of causal organisms, quantifies crop loss assessment and develops management alternatives for control. Among its other activities, the institute supports the country's quarantine service, including examinations of imported and exported materials.

Research Departments

- Mycology and Plant Disease Survey;
- Virology and Mycoplasma;
- Nematology;
- Bacteriology and Biocontrol;
- Best Harvest and Storage Diseases;
- Fungicides and Bioassay;
- Seed Pathology;
- Cereal Diseases;
- Cotton and Fiber Crop Diseases;
- Maize and Sugar Diseases;
- Legume and Forage Diseases;
-

**A STUDY OF THE FEASIBILITY AND OPTIONS
FOR ESTABLISHING AN ENDOWMENT TO SUPPORT
GENETIC ENGINEERING
RESEARCH & TECHNOLOGY TRANSFER
IN EGYPT**

Annex 7:

***Terms of Reference and Preliminary Legal
Opinion***

5 March 2000

Legal Assignment – Terms of Reference

1. Answer these two questions:

a) What are the exact steps necessary to transform the Genetic Engineering Special Unit (GESU) from an economic unit of special nature into a non-governmental institution?

b) What are the exact steps necessary to transform the Agricultural Genetic Engineering Institute of the ARC into a non-governmental institution (Law 153 entity)?

2. Provide additional legal advice to the team as it strategizes about creating a non-governmental institution that is qualified for a USAID endowment.

مذكرة

بالنسبة للمذكرة المرفقة الخاصة ببعض الاستشارات القانونية الخاصة بمركز البحوث الزراعية والوحدات ذات الطابع الخاص التابعة له .

١- بالنسبة للاستشارة رقم (أ + ب):

فانه لا يجوز قانونا تحويل هاتين الوحدتين الي مؤسسة أهلية طبقا للقانون الإداري والقانون ١٥٣ لسنة ١٩٩٩ ولائحته التنفيذية حيث أن كل من الوحدات ذات الطابع الخاص من جانب والمؤسسات الأهلية من الجانب الآخر - يتبع نظاما قانونيا خاصا يختلف عن النظام الآخر .

٢- وبالنسبة للاستشارة رقم ٢

فان القانون ١٥٣ لسنة ١٩٩٩ ولائحته التنفيذية قد أفرد وحدد تفصيليا الإجراءات اللازمة لخلق مؤسسة أهلية من حيث تأسيسها وتنظيمها وممارستها لعملها والضمانات القانونية اللازمة للمحافظة علي أموالها والرقابة عليها .

Annex 7 part 2: Preliminary Legal Opinion

MEMO

With regard to the attached memorandum relating to some legal advises for ARC and its special units, the following is submitted:

Advice (1) (a & b):

It is not legally permissible to transform those two units into private institutions (NGO's) in accordance with the administration law and law 153 of 1999 and it's by laws. The units of special nature (Economic Units) and the NGO's have two separate and different legal systems.

Advice (2):

Law 153 of 1999 and it's by-laws have specified and clearly defined the necessary procedures for establishing an NGO in terms of: foundation, organization, activities and legal safeguards to preserve it's funds and exercise a financial control/audit function over its spending.

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Annex 8:

Consultant Team Memorandum

Consultants' Memorandum

To: Eng. Ali Kamel, Agriculture Policy Division, USAID/Egypt

From: Leslie Fox, Consultant, Team Leader/Endowment Specialist
Dr. Abdel-Aziz Ibrahim, Institutional Analyst
Lawrence Kent, APRP/RDI

Cc: Dr. Magdy Madcour, Director, AGERI

Through: Dr. Max Goldenson, COP, APRP/RDI

Date: March 1, 2000

Subject: A Revised Set of Endowment Options for USAID & AGERI

The purpose of this memorandum is to provide concerned decision-makers in USAID/Egypt and the Agriculture Genetic Research Engineering Institute (AGERI) with a set of revised options for the establishment of an endowment to support genetic engineering research and development in Egypt. The initial set of endowment options was developed by USAID and AGERI and constituted a component of the APRP/RDI Consultant Team's Terms of Reference (TOR).

The revised options presented below are the result of discussions with USAID and AGERI personnel and interviews with a range of concerned stakeholders during the Consultant Team's first week of work. Using the initial set of options as a point of departure and the ensuing discussions around them, the Team has prepared three revised endowment options. This second round of options should help to clarify emerging issues – institutional and programmatic – for the two principal clients of this exercise and by extension, increase the Team's effectiveness in assisting them to arrive at an informed decision.

The remainder of this memorandum addresses the overall purpose of the endowment and the options, both institutional and programmatic, that appear, at this point, to be the most relevant to the needs and interests of the concerned parties.

ENDOWMENT PURPOSE

The study TORs stated that the initial purpose of the endowment¹ was to support AGERI in its role as a key agricultural research institution involved in genetic engineering, following the better part of a decade of USAID assistance. This was consistent with USAID's interest in supporting institutions involved in "enhancing ties between private sectors" and "technology transfer" including "biotechnology, agribusiness and research." After discussions with the concerned parties, and in line with USAID regulations governing endowment support, the Team proposes a slightly modified purpose:

¹ An endowment is one part financial instrument and one part institutional arrangement. The financial track builds a monetary arrangement capable of supplying a steady stream of income for an organization thus permitting it to undertake its chosen mission with a degree of assurance that a fixed portion of its resource needs will be met. The institutional track builds an organizational structure that can plan and use the income generated by the financial arrangement effectively for an indefinite number of years.

To promote the development and transfer of genetically engineered technologies for the benefit of Egyptian agriculture

The focus of this modified purpose thus moves from sustaining the capacity of a single organization to building and sustaining a broader sectoral capacity to undertake and develop genetically engineered agricultural applications. This broadens the potential universe of beneficiaries of the endowment to other institutes in the ARC system, as well as Egyptian universities with genetic engineering and/or biotechnology faculties or centers, and a range of private sector actors. It also permits the endowment to benefit AGERI either directly (option A) or indirectly (options B and C).

ENDOWMENT OPTIONS

This section lays out the pros and cons of three options that the Team has narrowed down from its first round of investigations. Before presenting these three options we briefly note the institutional arrangements and programmatic functions that underlie each of them.

Institutional Arrangements

Each of the three endowment options that follow is based on the same institutional arrangement, that is, the establishment of a non-profit, non-governmental organization under the newly passed Law 153, more popularly known as the NGO Law.

Programmatic Support

Programmatically, that is, the types of services that would be supported by an endowment would include 1) a grantmaking function; and 2) an information dissemination or clearinghouse function.

The grantmaking function would promote three objectives, each of which could be delivered through a distinct funding "window." These windows would promote the following:

1. Intra-sectoral (e.g., between a university and ARC institute) and inter-sectoral (e.g., between an ARC institute and an Egyptian private business) applied research projects;
2. Technical assistance and training related to the production and commercialization of genetic engineering technology. This could be provided by one organization to another other including one Egyptian organization to another (e.g., AGERI to the Cotton Research Institute) or by an international organization to an Egyptian organization (e.g., an American University to an Egyptian University); and,
3. Institutional support to key Egyptian research institutions. This would primarily target core-operating costs.

The latter clearinghouse service would provide Egyptian genetic engineering organizations with information concerning who is engaged in what type of research, development and commercialization efforts as well as with advances in the field of genetic engineering and biotechnology more broadly. This pertains to information on both Egyptian organizations as well as those in other parts of the world.

Option A: Transforming AGERI into a Law 153 Entity

This option most closely resembles option one, "privatization," in the study TORs. We prefer to talk about the "transformation" of AGERI into a Law 153 entity rather than its privatization as the latter term is popularly used to describe the change of status of a public institution into a for-profit or private sector firm, not a non-profit or voluntary sector organization.

While the focus of this option remains on AGERI rather than the broader genetic engineering sector, AGERI's recognized role as the preeminent institution promoting the development and application of genetically engineered agricultural products, merits its special targeting. This is particularly the case as, in addition to its own work in the genetic engineering field, it provides training and technical assistance to each of the other sectoral actors.

1. The Pros of Option A

- The option conforms to USAID requirements for use in funding the establishment of endowments.
- Under some scenarios, AGERI may show increased effectiveness as an NGO/foundation.
- There would be direct institutional support for AGERI.

2. The Cons of Option A

- It is unclear – although initial findings are not promising – whether the Ministry and/or the ARC are prepared to let AGERI leave the public sector fold.
- From preliminary findings, the legal (as opposed to political) hurdles to Law 153 transformation are formidable and perhaps unfeasible. AGERI was created through a presidential decree and there seems to be no precedent of the GOE transferring assets to an NGO.
- Sets a potential precedent for other public sector agencies that might wish to replicate the same model, including the request for endowment assistance.
- There is a potential loss of public sector (Ministry of Agriculture) funding, equipment, etc., which currently composes a significant element of AGERI resources.
- AGERI undertakes a number of critical "public good" functions on behalf of the agricultural sector and society more generally that could not, or perhaps should not, be undertaken by a private sector entity or NGO.
- AGERI has demonstrated its capacity for effective management and technical excellence as a public institution. There is no guarantee that the new institution would be equally competent in these areas.

Option B: Transforming the Genetic Engineering Services Unit into a Law 153 Entity

The Genetic Engineering Services Unit (GESU) is essentially the commercialization arm of the AGERI. GESU, like its counterparts in other ARC institutes, was created by ministerial (MALR) decree to have the freedom and legal standing necessary to enter into contractual arrangements with external entities, both public and private, on behalf of AGERI. It was created in 1986. The GESU is a legal entity, not a stand-alone organization. GESU's staff and board members are ARC employees.

1. The Pros of Option B

- ◆ Conforms to USAID requirements for the establishment of endowments.
- ◆ Demonstrates an established track-record in the field of technology development, training and commercialization.
- ◆ Appears to have the necessary support from both the Ministry of Agriculture and the ARC.

2. The Cons of Option B

- ◆ Requires the same legal steps as those necessary to establish any new NGO.
- ◆ A ministerial decree will be necessary to dissolve or spin-off GESU. In order to ensure AGERI continues to have a commercialization capability, some functions of GESU will need to be transferred to the Technology Transfer Office of AGERI through a new ministerial decree.
- ◆ Still requires significant institutional strengthening including operational support.
- ◆ May lead to the perception of not being impartial in the award of grants.

Option C: Creating a New Law 153 Entity

Option C means establishing a new Law 153 Entity, i.e., NGO or foundation, from scratch.

1. The Pros of Option C

- ◆ Conforms to USAID legal requirements for the establishment of endowments.
- ◆ Provides the concerned stakeholders with an opportunity to participate from the very beginning in the design of the new entity and its establishment, hence building indigenous ownership.
- ◆ Does not require the "disestablishment" of a public institution as a precondition to the establishment of a non-government organization.
- ◆ Its impartiality as a grantmaker will not be questioned

2. The Cons of Option C

- ◆ Does not have a track-record, and thus will need time, and funding, to build its capacity to discharge its mandate, including grantmaking.
- ◆ The institutional link to AGERI will be less direct than under options A and B.