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**Deloitte Touche  
Tohmatsu**

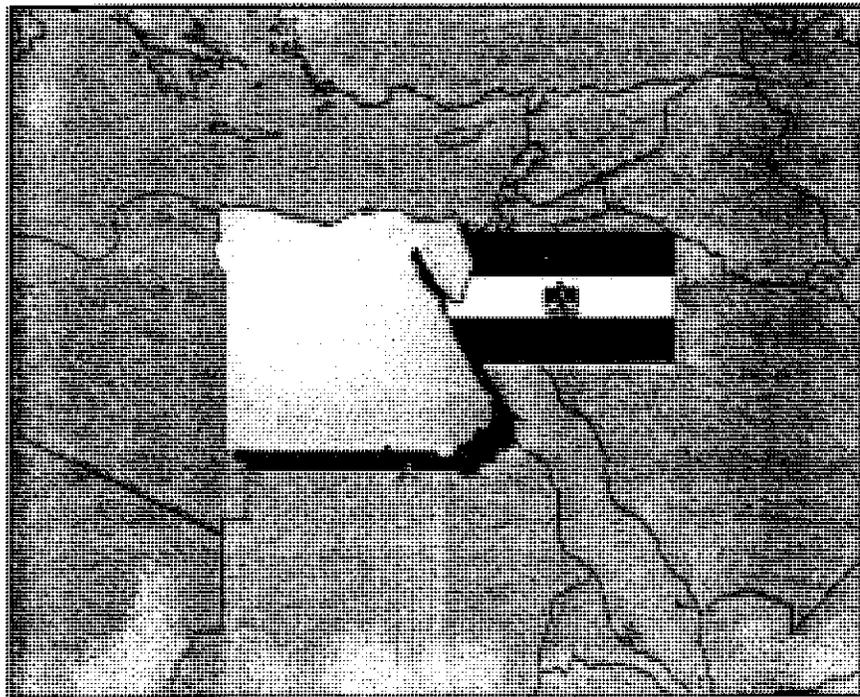


# *Assessment of Feasibility of an Egypt Technology Commercialization Fund*

*Final Report*

Submitted by:  
Deloitte Touche Tohmatsu Emerging Markets

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# USAID/EGYPT COMMERCIAL TECHNOLOGY FUND

## FEASIBILITY STUDY

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## EXECUTIVE SUMMARY

**Background to the Study:** USAID/Egypt contracted Deloitte Emerging Markets to analyze the feasibility of establishing a fund for private sector-led commercial technology development. The objective of the fund would be to promote Egyptian economic growth and export development by strengthening private sector R&D capabilities. The fund would provide incentives for US firms to work on specific technology development projects with Egyptian firms. One model for the fund is the successful Program for Advancement of Commercial Technology (PACT) Project implemented by USAID/India from 1985 to 1996.

Two Deloitte consultants worked intermittently from April 18 until June 1 conducting interviews with 27 private firms, 12 banks and a number of Government of Egypt, multilateral and USAID officers. The purpose of the interviews with private firms was to assess demand for technology development assistance. In addition, the interviews allowed the team to survey constraints to technology development in the private sector, and to examine whether conditions are suitable for a private sector-led commercial R&D development activity.

Interviews with financial institutions enabled the team to assess the interest and capabilities of financial institutions in Egypt to implement the fund.

In addition to gauging interest among private firms and banks, the team described the main activities of the fund, its objectives, organization and an initial implementation plan. The Deloitte team also identified organizations that are suitable to implement the fund and what types of services and support should be provided. This report provides the findings, conclusions and recommendations of the study.

**Demand for the Egypt Technology Fund Assistance:** There were numerous proposals for commercial technology development that could qualify for support from an Egypt Technology Fund. There is interest in the private sector to work with US firms on commercial R&D. Subproject examples included:

- Wastewater treatment using trickle filters and biologically active filtration media
- Reverse osmosis for water purification
- Introduction of insect resistant genes into corn seeds through biotechnology
- Design of microchip-based taxi meters for export
- Development of a vacuum refrigeration system for lettuce and other fresh vegetable exports to Europe
- Tissue culture production of strawberry, banana, potato and date seedlings
- Chemical synthesis of growth hormones and interferon
- Design of bilingual manufacturing resource planning software for small and mid sized businesses in the Middle East.

Our interviews indicate that there is sufficient demand for assistance from Egyptian firms. Firms told us that they have two critical needs: (1) help in managing technology development, and (2) assistance in identifying and attracting qualified US partners. It is important to provide assistance to Egyptian firms to identify and attract qualified US firms.

US firms said that they find the technical and business management capabilities of Egyptian firms attractive for joint technology development, but it is difficult and costly to do business in Egypt. Our interviews confirmed that the Egypt Technology Fund can help identify qualified partners and will lower the cost of doing business in Egypt for qualifying US firms.

**Addressing a Critical Development Constraint:** The Egypt Technology Fund will address a critical constraint in Egypt's economic development. Egypt is in transition from high-cost, import-oriented economy to a liberalized, export-capable economy. Despite its large pool of scientists and technicians, Egypt spends far too little on private R&D, and Egyptian industry has low levels of technology use. The project fits in an environment where the following changes are taking place:

- Economic liberalization through policy reform
- Increased pressure for competition due to the WTO
- Demonopolization of state controlled sectors
- Recognition by the Government of Egypt & donors of the need to shift from public to private technology development

Meeting the competitive pressures of liberalization demands rapid adoption of new technologies in virtually all sectors of Egyptian industry. Experience in other emerging market countries demonstrates that working with technically sophisticated foreign firms is one of the most effective ways that local firms build commercial R&D skills. The ETF will provide financial support to stimulate commercial R&D by Egyptian and US firms that work together to develop new technologies.

**Availability of Qualified Financial Institutions:** Several qualified financial institutions are willing and capable of implementing the fund. These include Commercial International Bank (CIB), MIBank (MIB), and possibly Cairo Capital Group and the Export Development Bank. CIB and MIB are commercial/universal banks. Cairo Capital Group is an asset management company, and Export Development Bank is a public sector bank.

Selection of the bank is a complex issue. Many private firms said that they do not want to deal with a commercial bank because commercial banks' experience is in asset-based lending, and they are slow and bureaucratic. There was strong interest in USAID and among private entrepreneurs in working with a venture capital company. Our interviews with four fund management companies indicates the following:

1. It would be far too expensive to work with most venture capital firms
2. Many are too small to assume the burden of a relatively complex credit program

3. Venture capital firms want an “interest in the up-side” of the technology projects, which may be unacceptable to USAID.

Cairo Capital Group appeared to understand the requirements of the fund and proposed a reasonable management fee.

Another related issue is whether or not it is possible under USAID regulations to contract an Egyptian bank. The answer depends on:

- Whether the Mission wants to request a source and origin waiver
- Whether another contract mechanism such as that used for the Commodity Import Program would be suitable
- Whether there is an American bank willing to implement the Egypt Technology Fund.

**Objective of the Egypt Technology Fund:** The principal objective of the Egypt Technology Fund is to strengthen commercial technology development capabilities by supporting 30 to 40 Egypt-US private sector commercial R&D subprojects.

The fund would have two additional objectives:

- Increase incentives for private R&D
- Demonstrate the benefits of shifting public S&T development resources from public to private technology support

The fund’s success should be judged based on (1) how many joint venture Egypt - US commercial technology subprojects are completed, and (2) how many “new technologies” are created with the fund’s assistance.

**Definition of Technology:** The Egypt Technology Fund does not need a single, simple definition of technology. Neither PACT nor BIRD used a single definition of technology. Both projects used a set of screening criteria that allowed flexibility and sound professional judgment. Criteria for the ETF should include:

- ***New to Egypt:*** The technology should be new to Egypt, in the sense that it is not commonly used for commercial production in the manner proposed.
- ***Results in a New Product or Service:*** The technology should result in a new product or service that meets international market standards, or dramatically improves the productivity for an existing product.
- ***Strong Potential for Profitability.*** The product or service shows a strong probability of commercial profitability.
- ***Proven in the Lab:*** It is proven to work in laboratory situations somewhere in the world.

**Changes in the PACT Model:** The PACT Model cannot be transferred directly to Egypt. There are differences in Egypt's market conditions, capabilities of banks, technological status of Egyptian firms and scientists, and attitudes of US firms toward investment in Egypt. Some changes in the PACT model are necessary for it to work successfully in Egypt:

- ***The Egypt Technology Fund would probably work with a private bank.*** There is no institution similar to ICICI in the public sector. Therefore, it would be best to work through a private bank. Working with a private bank will raise a number of design issues. These are discussed further in the report below.
- ***We recommend that the ETF provide both low interest rate loans and conditional grants.*** This will give the fund the flexibility to meet current market demand. Businesses in Egypt said they prefer low interest rate loans. Yet some subprojects will need reimbursable grants. It would also be possible to use non-reimbursable grants. This would make the fund less commercial in nature, and less sustainable, but it would simplify implementation.
- ***The banks want to be allowed to provide additional loans from their own funds to participating firms.*** This will leverage USAID resources, but also may cause conflict of interest. It is not necessary to allow banks to provide loans from their own funds. A decision should be made on whether to allow banks to leverage USAID funds.
- ***A shorter duration - 8 rather than 11 years - is workable for the ETF.*** PACT required 11 years because of its experimental nature and ICICI's willingness to bear the costs of the "out years." We believe that an 8-year duration would work if the fund is implemented by a private bank. A minimum duration would be 5 years.

Based on our analysis of current market conditions in Egypt, we recommend a design with the following features:

- **The Egypt Technology Fund should be a commercial R&D financial assistance facility, not a credit program.** Private firms require financial incentives to enter into joint venture research projects in Egypt. They also need assistance in identifying and screening partners. The fund's role would be to provide incentives for private firms to carry out commercially oriented R&D. If the fund provides financial support at market rates, firms will not take risks and will not incur the costs associated with collaborative research. Lower effective interest rates offered by the fund are a strong incentive to implement a risky and expensive joint venture.
- **The ETF requires three implementing bodies: a managing financial institution, a technology support organization, and a supervisory board.**
- **\$30 million is sufficient for 40 joint-venture R&D projects.** Calculations supporting this estimate are presented below.
- **The fund should offer both reimbursable grants and low interest rate loans.** Although flexibility is important, grants should be repayable to about 200%, while loans should have interest rate of between 3% and 5%. Full (non-reimbursable) grants are also an option,

depending on whether USAID wants to retain strong market orientation and how simple USAID wants management of the fund to be.

- **Finally, commitment and support from “champions” in both USAID and the financial institution are critical to the success of the fund.** Although “commitment and support” are difficult to gauge, past experience clearly demonstrates that strong commitment by senior levels of the bank is vital to success of the Egypt Technology Fund. In addition, for innovative technology investment projects to succeed, they must be supported by a proactive, committed individual or team within USAID.

There are several issues that should be resolved **before** a team prepares a detailed design.

- **Selection of Financial Institution**

⇒ Should the financial institution be selected on a competitive or non-competitive basis? We recommend awarding management of the fund on a competitive basis.

⇒ Should the fund be implemented by one financial institution or more than one? We recommend either: (1) a single implementing institution, or (2) a managing financial institution plus one venture capital company.

- **Incentives for Financial Institution**

⇒ Should a performance-based contract be used? Yes, it should. In the PACT case, USAID worked with a government-owned bank that did not seek full compensation for its costs. Because the ETF will work with a private bank, it is important to understand its profit motivation. Our report recommends providing a reasonable incentive to the bank.

⇒ What are the performance criteria? We recommend that they be kept simple: how quickly funds are committed, how much reflows are earned, and what percentage of reflows are invested.

⇒ Should the bank be given an interest in reflows? Giving the bank a share of investment reflows would be a “market-based” incentive for the bank. On the other hand, it will reduce the bank’s desire to select risky projects. Risk is important for R&D. Therefore, it may be better to use a performance payment that comes from project funds, not reflows.

- **Pricing of Grants and Loans**

⇒ What should the repayment requirements be? We recommend 200 percent of the original grant amount. Many entrepreneurs said that this is too high. We disagree. First, experience under PACT indicated that it takes several years for significant repayments to be returned to the fund. This makes the effective interest rate on reimbursable grants very low. Second, grantees pay royalties back to the fund only if they generate sales of the new technology. Technology sales generate cash needed to repay the grant. This is not a burden as long as the new product is profitable.

⇒ Should non-reimbursable grants be offered? We think that reimbursable grants are strongly preferable because they allow reflows to be reinvested. Reflows enforce

commercial discipline on grantees. However, non-reimbursable grants are simple to administer.

- ⇒ What should the interest rate be? We recommend 4% with a one-year grace period. This significant reduction in current market rates provides a strong incentive for firms to undertake difficult projects.
- ⇒ Should collateral be required for loans? Yes. There is no sense in providing loans without collateral. It would be impossible for the bank to recover defaulted loans without collateral. If USAID does not want the bank to collect defaulting loans, then the ETF should use only reimbursable grants.

- **Duration of Project**

- ⇒ How long should the fund operate? We recommend 8 years. BIRD was intended to operate indefinitely. PACT operated for 11 years. Subprojects take between 2 and 4 years to develop. The bank will learn from the first round of loans and grants, and the quality of new subprojects will improve over time. It is important to give the bank sufficient time to use the lessons that it learns, and to adjust its marketing and screening approach as it invests reflows. An eight year LOP will allow enough time for the fund to “learn” and improve its performance.
- ⇒ If the fund duration is shorter than eight years, this will change the design substantially.
- ⇒ What happens to ETF funds at PACD? We expect that about 70% of the ETF’s funds will be available at the end of the project. In the PACT Project, the funds were kept by ICICI for future technology grants. It is not possible to do this with a private bank. Options for the ETF would be to (1) transfer the funds to a government bank or the NRC to continue technology loans and grants, (2) transfer to a government S&T program, or (3) transfer to the Government of Egypt for other purposes.
- ⇒ How should reflows be managed after PACD? We recommend that the managing bank continue to manage reflows on a contract basis after PACD.

- **Selection of Technical Support Organization**

- ⇒ How should the Technical Support Organization be selected? We recommend two steps. First, complete research on the capabilities of likely candidates, such as Battelle and National Academy of Sciences. If this research indicates that the candidate institution can do the job, then a negotiated procurement could be conducted. If there is still a question about which organization is best suited to implement the fund after the research is complete, then an RFA should be issued. A cost-plus-fixed-fee contract under a competitive procurement would be unlikely to produce the result required for the ETF.
- ⇒ Which organizations are suitable? We recommend that USAID investigate Battelle Memorial Institute further.

- **Promotion in the US and Egypt**

- ⇒ IESC may play a limited role in promotion of the fund and preparation of proposals in Egypt.

- ⇒ There is also a need for a promotion and technical support activity in the US. For this, an organization such as Battelle would be suitable, but further research is needed on this. The Egypt Technology Fund will not succeed if it doesn't have the capability to promote the program, screen and select partners in the US.
- ⇒ The Law 599 issue related to use of a US Egypt Technology Fund office needs to be resolved.

- **Linkages to Other Programs**

- ⇒ The ETF would clearly have strong links to both current and past USAID projects. It is important to promote the fund among firms that technology-oriented firms that have participated in USAID activities.
- ⇒ We recommend that USAID consider establishing a Technology Policy Council to work on technology policy reform issues. This would support the objectives of Subcommittee 2.
- ⇒ Direct links to the Government of Egypt are not needed, but bilateral considerations may make it necessary to have an active relationship with a GOE agency. There is no obvious “best” candidate for this role, but the Technology Development Program of IDSC may be suitable. We recommend selecting a government counterpart agency using two main criteria: (1) interest in the technical objectives of the ETF, and (2) willingness to allow private leadership of ETF implementation.
- ⇒ No linkages to other donor programs are needed.

**Role of the Government of Egypt:** This issue is a complex one, with no perfect solution. We met with the Director of the Information & Decision Support Center (IDSC) Technology Development Program (TDP). This organization could potentially serve as the counterpart for the ETF. It could also play a future role in establishing a revolving fund for private technology development. Another organization that might have a role is the National Research Council. The NRC has shortcomings as an implementing organization. These are (1) a public sector orientation, (2) unfamiliarity with commercial and market-oriented R&D, and (3) its reputation for low productivity. Working with either IDSC or NRC would require additional research.

**US Government Legal Issues:** We identified three legal issues. (1) Possible violations of Law 599; (2) the US government's interest in intellectual properties resulting from the subprojects; (3) allowability of grants to Egyptian and US companies.

The project will support commercial R&D projects. The purpose of these projects is to produce “technology assets” or intellectual properties. The project does not directly support actual commercial production of a new product. The decision whether to use their new intellectual properties to produce commercial products is made separately from the Egypt Technology Fund grant activity. The ETF therefore provides only indirect support to commercial production.

A second legal consideration is “additionality” of production resulting from technologies produced under the project. The project will help private firms create technologies that could be

used in the future to produce commercial products. In most cases, the products manufactured will be additional to the products that are already produced by participating companies. Generally, these products would not have been produced if the companies had not created a new technology under the project. Therefore, in most cases, Egypt Technology Fund loans and grants lead indirectly to job creation in the US.

There may be cases of US firms that attempt to use the commercialization loans and grants to move US jobs to Egypt. The project should screen proposals to determine whether there is any risk of this occurring. The report contains a set of suggested procedures that will help to ensure compliance with Law 599.

Another legal consideration is that Section 599 prohibits support for investment promotion offices and missions in the US. As stated above, the objective of the project is to promote commercial R&D, not direct investment. However, there is a strong chance that some projects will lead to commercial production investments. In this sense, the activities of the US technology support organization could be considered “investment promotion.” This requires further analysis by USAID.

The US Government may develop a legal interest in intellectual properties produced with ETF grants or loans. On this issue, the fund should have agreements that clearly define the technology that is created, and the agreement should also state the rights of the US Government to these technologies. The fund may or may not directly represent the US Government depending on whether the assets of the fund are transferred to the Government of Egypt. If the assets are not transferred to the GOE but rather are owned by the US Government, then the US Government will have a right to intellectual properties produced using fund resources. The extent and duration of the right should be specified in sub-grant and loan agreements.

Regarding the allowability of grants to private firms, we were told by USAID legal staff in Cairo that it is legal to provide grants to private firms.

**Scope of Work for Design of the Egypt Technology Fund:** The Deloitte team produced a scope of work to prepare a detailed design of the Egypt Technology Fund. Key requirements of the scope of work are:

- 3 Expatriate Consultants and 1 Egyptian Consultant
  - ⇒ Financial Project Design Specialist (40 days)
  - ⇒ Business Development Specialist (35 days)
  - ⇒ IPR Attorney (3 days)
  - ⇒ Egyptian Business Specialist (40 days)
- Some Decisions Need to be Made before Design Begins
  - ⇒ What procurement method will be used for the financial institution, and for the technical support organization?
  - ⇒ Will a US support office be allowed?

⇒ What is the role of the government?

## 1. BACKGROUND

USAID/Egypt is considering establishing a fund to support technology collaboration between US and Egyptian private firms. The fund's objective is to stimulate commercially-oriented R&D in private Egyptian companies. USAID/Egypt SCS Office staff initially thought that the fund could be modeled on the PACT Project carried out by USAID/India from 1985 to 1997. A key objective of our assessment was to examine the feasibility of establishing a similar technology development fund in Egypt.

Due to differences between Egypt's conditions today and India's conditions in 1985, when PACT was designed, it is important to identify (1) whether this model would work in Egypt, and (2) what features of the model should be changed to adapt to Egyptian conditions. In this report we refer to the Egypt technology project as the "Egypt Technology Fund" or "ETF."

USAID has a long history of support for science and technology development in Egypt. The focus has been on three areas:

1. Support for university and post-graduate science and technology education, including participant training at US universities;
2. Sponsored research and institutional strengthening with public universities and government research institutes
3. Technical assistance to public agencies and private firms in technologies directly related to the objectives of the USAID program, particularly health, environment, and agriculture.

The vast majority of USAID's support to S&T development has gone to the public sector.

International experience in countries with conditions similar to Egypt shows that the private sector must play a central role in technology development. Egyptian private industry has been protected by import barriers and extensive regulations, and has invested little in risky technology research and development. Egyptian banks channel their funds toward low risk, fully secured loans. Most technological innovation in the private sector occurs through purchase of off-the-shelf equipment and industrial licenses.

Building the R&D capabilities of local private firms is a critical part of the national technology development effort. One requirement for technology development is continued economic liberalization. However, market liberalization is not sufficient to build a strong technology program in Egypt. A second means of private sector technology development is for local private firms to work closely with foreign firms on market-driven projects. The ETF will provide financial support for Egyptian-US joint ventures aimed at commercial technology development.

Deloitte Touche Tohmatsu Emerging Markets was engaged to assist the USAID/Egypt SCS Office in assessing whether the PACT model used by USAID/India would be applicable in Egypt. In addition, the Mission asked the consultant to assist in:

- Clarifying objectives of the fund
- Assessing the fit of the program with USAID's program
- Identifying key design components and features
- Identifying potential implementation partners
- Verifying demand among Egyptian and US private firms for this type of financial support
- Determining the types of projects that would be likely to apply to the fund

Finally, the consultant was asked to assist the Mission in developing a scope of work for a consultant to prepare a detailed design.

Two consultants from Deloitte Emerging Markets worked intermittently with USAID staff from April 19 to June 2. The principal outputs of this work consists of the following report on the objectives and design conditions of the Egypt Technology Fund, and a scope of work covering further design requirements of the fund.

## 2. RESEARCH METHOD AND SUMMARY OF INTERVIEW RESULTS

### A. Data Collection Methods

To carry out our analysis, we conducted three types of interviews:

- 27 private US and Egyptian companies that are involved in technology development
- 9 financial institutions
- Various public sector and donor officials

#### *Private Company Interviews*

We interviewed senior executives of 27 companies in the following sectors: agribusiness, biotechnology, environmental engineering, software, electronics, textiles, ceramics, and diversified manufacturing.<sup>1</sup> Our sample included 24 Egyptian companies and 3 US firms. Of our total sample, 50% have ongoing joint venture arrangements with foreign firms. Seventy percent are currently involved in technology development activities. The following types of firms were interviewed:

TYPE OF COMPANY	NUMBER OF FIRMS
Agriculture & Irrigation	4
Automotive Assembly	1
Biotechnology	2
Computer Software	3
Chemicals - Adhesives & coatings	1
Construction	1
Electronics & Computer Hardware	4
Environmental Engineering	2
Food processing	2
Jewelry Manufacturing	1
Metal Fabrication	1
Packaging	1
Pharmaceuticals	1
Printing equipment	1
Telecommunications	1
Textiles	1
<b>TOTAL INTERVIEWED</b>	<b>27</b>

<sup>1</sup> Methodology for selection of companies: We identified companies for interviews through three main sources: (1) USAID staff and contractors involved in the main USAID technical focus areas: environment, health, agriculture; (2) business associations, including AMCHAM, the High Tech Business Association, the Egypt Exporters Association; and (3) business leaders, including Mohamed Ozalp (MIBank), Manuel Nunez (IFC), Mustafa Sarhank (Sarhank Group), and others. Although our sample was drawn from multiple sources, it is not a statistically representative sample of Egyptian firms. For the purpose of this report, we did not need a statistically significant sample. Our intent was to determine whether demand from US and Egyptian firms exists, and whether firms are likely to propose the types of projects that would qualify for commercial R&D financing. Because only about 40 projects would be financed by the fund, we wanted to find 10 to 20 firms that would be likely to qualify. This would allow us to verify that demand will be sufficient to use all available ETF resources.

Key findings of the interviews include the following:

- There are enough Egyptian firms with technology ideas that would qualify for the ETF, interest in working with a US partner, and demonstrated capability with technology development. We identified 9 possible qualifying project ideas without having to do any systematic marketing or public relations work. We conclude that there is high interest in the ETF on the Egyptian side.
- Most Egyptian companies have identified a technology and have chosen a product that they want to produce for an existing market. About 50% of the Egyptian companies that we interviewed have identified potential technology suppliers.
- Egyptian companies say that they need help in either adapting their chosen technology to a new market requirement, or in obtaining a specific technology that will enhance the performance of their current product. An example is the Garno Misr company, which has a patented water filtration technology obtained under license from a Canadian firm. Garno Misr wants to use this technology in new applications, including purification of drinking water for small cities and villages, and treatment of agricultural runoff water to eliminate pesticide and agrochemical residues before they flow into the Nile. Garno Misr has an established engineering practice building water treatment plants for industrial firms. They have completed pilot scale tests with both the drinking water and the agrochemical filtration plants and now want to scale up to commercial sized plants. They would like to find an engineering partner with experience in trickle filters using innovative media, such as lignite.
- A significant number of firms said that their two greatest difficulties are (1) finding a US firm willing to seriously discuss collaboration, and then (2) inducing that firm to actually work with them. An example is Aqua Egypt, which is an engineer and a distributor of water treatment equipment and supplies, but wants to go into a joint venture with Osmonics, a US firm that produces reverse osmosis equipment. The US company is interested but reluctant to enter into a production joint venture because they do not trust business conditions in Egypt.
- Egyptian firms often said that they have a strong technological capability but would rely on the US partner to bring specific missing technologies and to assist in managing the technology project. Technology management is a key need for Egyptian firms.
- Finding firms that are qualified and willing to engage in serious discussions is a critical need for Egyptian firms.
- Egyptian firms find that bank terms offered for financing technology projects are not suitable for risky projects and joint ventures. They say that banks are slow and bureaucratic. Most private firms said that a commercial bank will not be capable of managing a technology fund because they are too conservative.
- Egyptian firms said that they expect a collaboration with a US firm to extend beyond just sales and marketing. It should help them develop and use the technology skills of their company.

- Firms were not concerned about regulatory or legal impediments to technology development. Several said that they would carry out the relationship on purely commercial terms, with each party compensated fairly for their technology contribution.

### *Financial Institution Interviews*

We interviewed representatives of 12 financial institutions, including 4 fund management companies, 6 private commercial/universal banks, and 2 government development banks. We selected the banks based on the scope of work, meetings with leading businesspeople, and discussions with donor agency staff, including USAID and the IFC. It was not possible to survey all potential financial institutions in the time available. However, our sample allowed us to assess the feasibility of having a financial institution implement the fund and to refine the selection criteria for the implementing institution.

The most important findings of the financial market interviews include the following:

- All commercial banks were willing to participate. Several, including CIB, MIBank, and Export Development Bank, were strongly interested. Representatives of these banks understand that this is not a standard loan program, it will have complex administrative requirements and will be difficult to implement.
- The commercial banks are flexible about their level of compensation for running the ETF. However, unlike the PACT Project, which was implemented by a government-owned development bank, the private Egyptian banks do not want to subsidize implementation costs of the project. Methods of compensation discussed include:
  - ⇒ A fee per loan or grant made
  - ⇒ An interest margin on loans made to participating companies
  - ⇒ A flat fee based on a reasonable estimate of implementation costs
  - ⇒ A percentage of grant reflows

Any of these approaches are acceptable to the banks as long as they reasonably compensate the bank for its costs. All banks except Bank du Caire recognized the public relations and marketing value of running the fund. In addition, all realized that it will require specialized personnel and management to succeed.

- All fund management companies except Cairo Projects and Finance said that they would need to be paid a large amount to manage the fund. The amounts suggested are likely to be unacceptable to USAID. Several said that they would require a management fee of \$250,000 to \$500,000 per year plus an interest in the “upside” performance of the fund. In practice this would mean that the manager would need to be given a share of reflows, be allowed to invest USAID funds on an equity basis, or be provided a performance fee. All approaches would be acceptable provided they reach a minimum level.

Cairo Projects and Finance thought that a management fee of \$180,000 per year plus an interest in the reflows would be attractive. Because this was initial discussion, it is likely that they would reduce their required fee under competitive or negotiated award.

## *Public and Donor Institution Interviews*

Our interviews included the following public sector interviews:

- USAID staff
- Contractors on USAID-funded activities, including ATUT, EP3, Cairo Air, CIPE and others
- The Social Fund for Development, and the Cabinet Information & Decision Support Center

Two government interviews are noteworthy: IDSC Technology Development Program, and the Social Fund for Development.

IDSC's Technology Development Program (TDP) could play one of two possible roles in the ETF. Any approach that involves IDSC would require further research by USAID.

The first possibility is that IDSC could be the counterpart agency for the project, but its role would be limited to appointing one member of the Supervisory Board. This would result in a very limited involvement of IDSC, while giving the GOE a formal role in the project. We believe that IDSC's TDP could be a better counterpart than most other GOE agencies, such as the National Research Council, because IDSC has a strong private sector development mandate. It is possible that IDSC would be less likely to force the ETF to provide grants to university and government institute researchers.

A second role would be for USAID to grant the project funds to IDSC under an arrangement where IDSC would be required to place the funds under management by a bank for the ETF lending program for a period of, for example, 8 years. In addition, the IDSC would provide the chairman of the board of the ETF, while all other members would still be from the private sector.

This arrangement would solve the problem of what to do with the ETF funds after the end of the 8 years. It would also solve the problem of how to manage reflows after the end of the fund. In this arrangement, the funds would continue to be part of a revolving private sector technology fund as long as the principal lasts. The Government of Egypt could provide additional grant funds to the ETF to replace losses.

We also met with the Executive Director of the Social Fund for Development. This is a large development program established to mitigate the negative effects of policy liberalization and structural adjustment. The ED expressed strong interest in working with the Egypt Technology Fund. However, the focus of the Social Fund is on assisting the poor. This focus would be incompatible with the private sector high technology focus of the ETF.

## **B. Level Of Interest And Expectations From Technology Alliances**

Three important conclusions can be made on the basis of our interviews:

- Private firms are aware that acquiring and adapting new technologies is vitally important for growth in both the domestic and the international market place.
- They are also aware that new technology acquisition often requires a period of adaptation and development. They understand that it is easiest to develop successful new technologies if they work with a foreign partner that plays an active role in developing the new technology.
- Identifying partners and giving them incentives to work in Egypt is difficult. There are many disincentives for US firms to enter the Egyptian market.

Companies expect that the foreign partner can help in three important areas: (1) access to new technologies on commercial terms; (2) assistance in managing innovative, risky or difficult technology development projects; and (3) expertise in marketing new products and services.

Companies stated that they are willing to provide 100% or more matching funds for a technology grant provided through the USAID fund. Unlike the India PACT fund, it may be possible to provide a sliding scale of technology grants, based on the size and financial condition of the partners involved in the project.

Many companies say that it is difficult to identify and attract a US firm to work in Egypt. Company representatives said that they have good new product or service ideas and have experience with marketable technologies, but that they need advice and support from a firm with a stronger track record in commercialization of technology.

We asked firms what participation they want from public sector institutions. Few companies said that they want any involvement from public institutions. Most said that they seek private joint venture partners, and technical support from government research organizations is not needed. Only one organization, Pioneer HiBred, said that they want to collaborate with a public institution in commercial technology development.

Our survey indicated that although there are some truly innovative technology-oriented companies, the ETF should carefully distinguish between firms trying to source high technology equipment and processes on a turn-key basis abroad, and firms that are interested in developing new technologies. For every company that wants to develop new technologies, there are several that simply want to buy the latest technology on a commercial basis.

## **C. Opportunities And Constraints For Alliances Between Foreign And Egyptian Companies**

Our interviews did not provide clear answers about the opportunities and constraints to alliances between foreign and Egyptian companies. This is true for several reasons:

- Companies that have foreign partners do not see major constraints to working together. Although it was acknowledged that Egypt is not a “business-friendly” environment, once a joint venture begins, the partners find ways to deal with weak infrastructure and red tape.
- Many Egyptian firms said that their main constraint for working with a foreign partner is identifying the right partner and attracting them to Egypt. Local firms are enthusiastic about working with US firms but need help in identifying partners and attracting them to work in Egypt.
- Most foreign firms that we identified were more interested in selling to the Egyptian market than producing locally. Finding foreign firms interested in investing in a long term relationship will be a major challenge for the ETF.

US firms are concerned about the difficulty of implementing projects in Egypt due to poor infrastructure and red tape. For example, American Ag-Tec International representatives said that government regulations do not stop them from working in Egypt, but they make it much more costly and slower to start a project.

Two American firms said that they are concerned about the slow progress of their collaborations in Egypt. They expect rapid implementation, but find that things go much slower than they want. American firms also said that Egyptian firms expect the American firm will finance the venture and take most risks. They see this as a problem with working in Egypt. American firms say that they expect a high level of professionalism from the Egyptian partner and so screening Egyptian firms is very important.

Some Egyptian firms mentioned that they are more comfortable dealing with European firms because of their experience in working with foreign cultures and languages. This attitude is a special constraint to bringing US firms into the country.

Fear of risk is a major issue for both US and Egyptian companies. American companies view the country risks as significant, while the Egyptian firms often mentioned the technology development risks as a problem.

Both American and Egyptian firms expressed concern that it takes a long time to develop successful joint ventures. They see the USAID financial support through the ETF as an opportunity to “jumpstart” joint ventures. In addition, both Americans and Egyptians said that joint ventures will take considerable time to resolve cultural and management differences. Although both sides want quick project development, they expect ETF projects to take a minimum of 12 months to show any results.

To supplement our interview data, we reviewed several studies that analyzed constraints to investment in Egypt. We examined reports from Nathan Associates,<sup>2</sup> the World Bank,<sup>3</sup> as well as articles collected by USAID/SCS. It is clear that a firm investing in Egypt faces relatively high

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<sup>2</sup> Egypt: Options for Increasing Market Competition in Maritime Port Services, 1996, study prepared for USAID/Egypt.

<sup>3</sup> Egypt in the Global Economy: Strategic Choices for Savings Investments and Long-Term Growth, March 1998.

costs associated dealing with the Government of Egypt, shipping products through Egypt's ports and airports, and expensive industrial inputs. The World Bank summarizes the economic analysis by saying "... Egypt's growth is held back by its relatively poor ranking on the various components of market efficiency."<sup>4</sup>

This confirms the comments made by Egyptian firms that is difficult to attract potential US technology partners. An incoming investor or joint venture partner must find that high costs are offset by several factors: (1) cheap labor, (2) a large pool of highly qualified scientific personnel, (3) proximity to major European markets, (4) a large internal market. The features that are most attractive to US companies are (1) the large pool of well trained scientists, and (2) access to a new market, including Egypt, the Middle East and the Mediterranean.

#### **D. Technology Development Needs**

Based on our survey, we conclude that the major technology development needs are (1) identifying suppliers and partners, and (2) attracting potential partners to conduct business in Egypt. Access to financing is not a problem. Therefore the reimbursible grants and loans that could be offered under the Egypt Technology Fund are essentially incentives to overcome the barriers to US - Egyptian collaboration in R&D.

Many firms stated that they look to their foreign partner to strengthen their ability to manage technology. Egyptian and US firms agree that the foreign firm's support is needed to adapt and test new technologies. Finding reliable partners and attracting them to work here is critical.

For a few projects, however, financing is a problem. Several firms mentioned that banks in Egypt are risk averse and bureaucratic. They require high levels of security and will not lend if there is any perceived default risk. This is a particularly important disincentive to technology development by small firms, new firms, and for projects that involve large investment for commercialization. Firms with strong balance sheets can finance technology development using existing assets as security.

Many fund management companies and business people said that they believe financial institutions are too conservative to implement a risk-oriented technology program like the ETF. This should not cause USAID to reject commercial banks for this activity.

Concerning whether firms prefer conditional grants or low interest loans, Egyptian firms are split in their opinions. Many firms said that they are so confident in their projects that they want loans rather than conditional grants. They think there is little risk of project failure, and they say they are confident that development time will be only a year or two. Therefore a loan at, for example, 4% would be cheaper than a conditional grant with a 200% repayment requirement. Firms that are smaller or have less current cash flow prefer conditional grants, because a conditional grant will not bankrupt the company if the project fails.

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<sup>4</sup> Egypt in the Global Economy, page 6.

## **E. Role Of Technology In Export Growth**

Over the past 40 years, Egypt became a high cost, inwardly oriented economy. Foreign exchange earning businesses are largely oil and natural resources, labor, and tourism. The impact of the gradual decline in oil earnings and competition under WTO will force Egypt to change this pattern. Given the low technology base of Egyptian exports, and the low levels of R&D in Egyptian private industry, it is clear that there must be a dramatic increase in technology investment for export growth.

Egypt's export growth has been slow. Based on the World Bank's "Constant Market Share Analysis" (CMSA), the major causes of export stagnation include: Egypt's inability to adapt to changes in market demand and inability to maintain cost competitiveness in the global market. Costs of doing business in Egypt are high due to government regulation, weak infrastructure, high trade barriers and lack of domestic competition.

Firms that we interviewed understand that technology plays a key role in export growth. However, in our sample of 27 firms, only 50% suggested project ideas that are related to exports. There is strong interest in using the ETF for both export and domestic production projects. Our interviews showed that most Egyptian firms are fully aware of the importance of technology in their growth. The range of technologies needed is vast.

Technology development plays a key role in many facets of Egypt's export growth. The recommendations from the World Bank's analysis are to solve constraints to exports include:

- Improved trade logistics and transportation
- More efficient customs procedures
- Better quality control and product standards
- Attracting FDI
- Forging buyer-seller links
- Creating an export mentality

Interestingly, technology plays an important role related to these recommendations. But technology is only one of several factors, including trade liberalization, improving infrastructure for trade, and reducing bureaucratic impediments to trade. To state that technology is the key to export growth would exaggerate the importance of technology. But technology development is clearly a critical component of Egypt's export growth program.

Another point relevant to the design of the ETF is that the public sector has dominated scientific research. This is an opportunity and a constraint. It is an opportunity in the sense that there is a large pool of well trained scientists available for technology development. Wage rates for scientists are low by international standards. The constraint is that this pool of scientists does not have commercial skills and orientation, and therefore it not easy for the private sector to absorb these scientists and technicians.

A final point about technology development is that there is a widespread assumption that the public sector has accumulated a wide range of technologies with high commercial potential. This assumption is not correct. It is unlikely that export growth can be fueled by technologies that have been developed by the public sector research programs. With the notable exception of AGERI and the Egyptian Reference Diagnostic Center, we found no evidence that a major source of technologies will be public research institutions and universities. This reflects our sample to some extent, but it is likely that the commercial value of public sector technologies is low. We held discussions with the managers of several USAID S&T development projects and found few private companies that had commercialized technologies developed under these projects. This provides support for a strong private sector orientation of the ETF.

## **F. Regulatory Environment**

We did not find any specific regulatory barriers to technology investment or intellectual property protection that will affect the ETF. The principle regulatory issues facing participants in the projects are related to Egypt's business environment and the larger framework of economic regulations.

According to the World Bank's "Egypt in the Global Economy" report, the main impediments to investment and trade in Egypt are (1) high costs of raw materials, (2) high costs associated with government regulations such as import and export documents, security documents, and others, and (3) risks of macroeconomic instability. In addition, for technology development, additional regulatory issues include relatively high tariffs and NTBs on capital imports. The constraints listed above are general factors that raise the cost of doing business in Egypt and reduce competitive pressures for innovation.

In 1995, the World Bank published a review of technology development in Egypt. They concluded that Egypt has done poorly in private technology applications. The main reasons for this performance were again related to larger economic policies, not specific technology regulations. The World Bank writes:

"The main drive behind technology development is the incentive system in which firms operate. This provides the impetus for investments in improving competitiveness and the signals for resource allocation between activities and technologies. The incentive system is given by macroeconomic and political conditions, competition in product markets at home and overseas, and the flexibility and responsiveness of factor markets...The technological learning process is a cumulative and incremental one, in which firms establish routines and institutional habits. It seems the long legacy in Egypt of centralized planning; public sector domination; high levels of import protection and inward-orientation; restraints to competition; and bureaucratic interventions have led to attitudes and skills that are not geared to dynamic upgrading both to "making do" within existing constraints. This set of attitudes and habits constitutes a barrier to upgrading and they will take time and effort to change."<sup>5</sup>

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<sup>5</sup> Extract from unidentified World Bank document dated 1995, page 64.

### **3. PROJECT OBJECTIVES**

#### **A. Goal Of The Project**

The goal of the project should be to increase the competitiveness of the Egyptian private sector to compete in the global marketplace. The ETF will accomplish this goal by strengthening commercial R&D capabilities of Egyptian firms through increasing US-Egyptian private sector joint ventures in technology development. Exposure to US firms will transfer management approaches and R&D capabilities that are necessary for Egyptian firms to compete. The ETF will accomplish these objectives by providing incentives for private firms to carry out commercial R&D.

One of the most effective means of developing new technologies is for Egyptian firms to collaborate with foreign firms experienced in technology management. The ETF will provide a strong incentive for commercially-based, private sector-led technology collaboration between Egyptian and US firms.

Joint venture is interpreted loosely here. We would consider a joint venture a commercially binding technology development activity carried out by a US and an Egyptian firm. In practice, it will be one of four possible forms of collaboration: (1) a technology license or purchase agreement, (2) a legal joint venture company, (3) a legally binding marketing or buy-back agreement, or (4) a legally binding agreement to jointly carry out a specific technology project.

#### **B. Additional Objectives**

Additional objectives of this project include:

- Stimulating transition from public sector to private sector-led national technology development
- Reducing policy impediments to technology transfer
- Providing an efficient, market based mechanism to finance technology development related to other USAID projects in health, environment, financial markets, agriculture and biotechnology.

These objectives do not need to be formally incorporated in the design of the ETF. They will be achieved by implementing a large number of qualifying joint ventures.

#### **C. Relationship Among Goals**

These goals are strongly related. At the most direct level, the ETF will support joint venture technology development between Egyptian and US firms. It will also provide a basis for policy dialogue and it will provide incentives for private technology development. In addition, over the long term, it is essential to shift resources from public sector leadership toward private sector technology growth. There is an appropriate balance between public incentives and support and

private investment, but Egypt has a long way to go before this balance is reached. In addition to the direct development impacts that this project will have, it will also support larger policy reforms and S&T sector adjustments.

#### **D. Definition of Technology Development**

Providing a simple definition of technology for the purpose of the ETF is difficult and unnecessary. Neither the BIRD nor the PACT projects provided a single statement that defined technology. The reason no they did not have a single simple definition was because (1) they wanted flexibility to use sound professional judgment in selecting projects, and (2) any simple definition is too broad and generic to be of any use in project screening or selection.<sup>6</sup>

In practical terms, the project should concentrate on technologies that are proven in laboratory settings, but are not currently in commercial use in Egypt. Technology development activities qualifying for ETF support should seek to develop or refine a new technology, or should propose to apply an existing technology in an innovative manner to produce a new or improved product or service.

The technologies supported by the ETF should have the following characteristics:

- The technology should be new to Egypt, in the sense that it is not currently used for commercial production or services by any other company on a commercial scale.
- The technology should result in a new product or service that meets a need in international markets.
- It should show strong potential for profitability.
- It should be proven to work in laboratory situations somewhere in the world.

The fund should not support projects that simply seek to acquire and apply off-the-shelf technologies. The fund should finance projects that require technological innovation, adaptation, and a certain degree of uncertainty in the outcome of the project. Technologies supported should include processes or products not commonly used in Egypt which will dramatically improve the marketability of Egyptian products or services.

Some firms may request ETF grants to introduce a new management approach or method. Developing and introducing new management methods should not be eligible for grants because they produce diffuse, difficult to measure impacts, and cannot be easily sold to other firms.

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<sup>6</sup> We do not think a single definition is needed for the purpose of implementing the ETF. However, in case a general definition is needed, we would suggest the following: technology is a product and process that are used in a systematic manner to add value to production inputs.

To qualify for consideration for ETF support, a subproject should:

- Be proposed by an Egyptian and a US firm that have agreed to work together on a technology development project in which each member has a significant role and capability related to the technology development activity
- Involve the development, through commercial R&D, of an innovative product or process which promises direct benefit to the Egyptian economy and Egypt's development objectives
- Demonstrate that the proposing partners have access to technical and financial resources required to implement the project and to benefit from the commercial potential of the product or process developed;
- Be capable of reaching the point of commercialization at a financial cost to the ETF of not more than \$1,250,000
- The project will not qualify if it uses off-the-shelf technology on a "turnkey" basis, without adding additional value to that technology.
- The technology should be used for non-defense purposes, and should not include any areas prohibited by US or Egyptian law.
- The project should be perceived to be risky enough, particularly market demand risk and development risk, that an Egyptian commercial bank would not fund the project on a non-collateralized basis.

### *How This Compares To BIRD And PACT*

These definitions and eligibility criteria are similar to criteria used in the BIRD and PACT projects. Both projects required that projects have clear commercialization plans. Both also required that the technology should be proven in the laboratory. In addition, both required technical collaboration between a US and an Indian or Israeli firm. As mentioned above, neither BIRD nor PACT provided a single definition of "technology." Both projects were designed to give firms wide discretion in selecting subprojects. However, both were also clear in their emphasis on private research and development. These were basically R&D grant programs, not commercial credit programs.

## **E. Description Of High Potential Investments Might Be Supported**

### *Types of Projects*

During our interviews, we identified 8 projects that appear to meet the criteria for support under the EGF. Following is a brief description of these projects.

- **Garno Misr Drinking Water Purification Plants:** The Garno Misr company proposed to develop a new process for purifying drinking water. The method is suitable for small cities

and large villages because it is technologically simple, highly effective, and low cost to operate.

The process involves the combination of two different treatment technologies: trickle filters and a patented filter medium produced from lignite coal. This medium acts as an active biological filter. Garno Misr obtained the lignite coal technology under license from a Canadian company. Garno Misr has developed a highly effective potable water treatment system combining trickle filtration and the lignite medium on pilot scales. They now want to collaborate with an American firm that has expertise in trickle filtration systems to produce a nearly full scale pilot plant. The flow would need to be at least 8,000 m<sup>3</sup> per day under real operating conditions. This will allow Garno Misr to (1) optimize the operation of the system, and (2) determine the technical and operating specifications for a full scale commercial plant. The estimated cost of the project is \$2.5 million to \$3 million.

- Aqua Egypt/Osmonics Reverse Osmosis Waste Treatment and Water Purification  
Equipment: Aqua Egypt is a small Egyptian engineering firm that designs industrial water treatment plants. They also import and sell equipment and supplies for industrial water and wastewater treatment. They were approached some time ago by Osmonics, a US company that produces reverse osmosis equipment. The two firms are considering a joint venture with several other Egyptian partners to produce equipment and supplies for the Middle East market. They are interested in financial support to develop several turnkey plant and process designs that fit current industry needs. They do not have an estimated budget.
- Alpha Electronics proposed to use an ETF grant to develop a taxi meter incorporating microchips that allow the taxi operator to calculate multiple fares. This meter would be designed for selected European markets.
- El Maghraby Company proposes to develop vacuum refrigeration shipping containers for the fresh produce export market. This technology dramatically increases the shelf life of fresh produce. They also would like to develop a tissue culture production company that specializes in disease resistant strains of plants that are popular for export.
- Carlen Middle East proposes to develop a tissue culture production factory for bananas, strawberries, dates and potatoes. They need to develop production methods for some of the products locally, while other products have off-the-shelf methods available.
- T3A Pharma Group intends to develop chemical production facilities for interferon, erthropoetin and growth hormones. They are seeking a US partner to develop the synthesis procedures.
- Integrated Systems Group proposed developing Manufacturing Resource Planning (MRP) software specifically targeted for mid-sized companies in the Arabic language region.
- SEMC/NTG proposes to carry out a joint venture R&D program to develop touch tone telephone applications software. Their target market is banks and other Egyptian service companies.
- Pioneer HiBred wishes to propose two projects. One would develop a laboratory unit that identifies male sterility in plant genetic material, and the other would introduce a BT gene into corn seeds to create pest resistant varieties.

## 4. FINANCING

### A. Level Of USAID Financing Required

We prepared quick estimates of the financial requirements for project implementation: These are based on rough time and materials estimates, and are benchmarked against the PACT project. The estimate is not intended to constrain the design budget, but will help validate an initial estimate of budgetary requirements.

A minimum of \$30 million is required for this activity. This amount is sufficient for approximately 35 loans or grants, and for payment of technical assistance and implementation costs. Our analysis indicates that the average grant or loan would be \$1,000,000. This would make the average subproject, including private matching contribution, \$2,000,000. Several firms suggested that this is a reasonable project budget. Of course, software and electronics firms tended to propose smaller projects, while the biotechnology, agriculture and the engineering firms said they would need budgets over \$2 million.

Assuming that the management and administrative costs of implementing the fund are about \$5 million, \$25 million would be available for the Egypt Technology Fund. A \$25 million fund would allow 25 initial grants and loans, and then an estimated 10 additional grants and loans from reflows.

Our estimate of the total technical assistance and bank implementation costs would be \$4.6 million over an 8 year period of implementation. We estimate that costs would be high in the first four years, and would drop to a "maintenance" level during the latter 4 years.

We estimate that the implementation costs for the bank are approximately \$350,000 per year for the first 4 years, and then \$250,000 per year for the next 4 years. An additional \$500,000 would be required for technical assistance in promotion, partner identification and technology evaluation for the first 3 years, and then \$300,000 per year for years 4 and 5.

We believe that it will cost more to implement the ETF than it did for PACT. Reasons include:

- PACT was implemented by ICICI, a government-owned industrial development bank.<sup>7</sup> ICICI did not want to charge the full cost of implementation. They subsidized implementation costs because they are a public development finance institution. We expect that a private bank will require more compensation than a government bank, even if the private bank has a developmental motivation.
- It is difficult to determine exactly how much ICICI received for PACT implementation. However, it appears to be between \$160,000 and \$200,000 per year. In inflation adjusted

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<sup>7</sup> In 1985, the year the PACT PROAG was signed, 79% of ICICI's equity was owned by the Government of India or GOI-owned companies.

terms, if we assume that the compensation for ICICI was \$180,000 in 1985 dollars (the initial FY of PACT), this amount would be \$356,000 in 1999 dollars at an annual 5% inflation rate.

It is interesting to benchmark the proposed management fee for the bank against the fees paid to Wall Street fund managers. A common standard for compensation for Wall Street fund managers is 1% to 2.5% depending on the size and objectives of the fund. Equity capital investment funds that target emerging markets usually pay the manager 1.5% to 2.5% per year on funds that are actually managed.

We are proposing that the Egyptian bank receive about 1.4%. This is on the low side for professionally managed funds. This could be too little incentive for the bank. However, as we stated above, we believe that the bank will be motivated in part by non-financial factors and will therefore require less compensation than a typical fund manager. Non financial incentives include publicity, public relations, an opportunity to market aggressively among technology-oriented "mid caps," and visibility in the donor community.

The standard compensation for a Wall Street asset management firm would include substantial profits for fund managers. A common formula for compensation of managers would give the managers (who generally participate as a "general partner") about 20% of the net profit of the investment fund. It is unnecessary to offer the implementing bank for ETF these levels of profits.

## **B. Financial Support To Be Provided To Companies: Type, Terms, Conditions**

The facility should offer two types of financing: (1) conditional grants, and (2) low interest rate loans. The reason that we recommend two types of financing is worth some explanation.

The BIRD and PACT projects used reimbursable grants because they wanted to lower the risk of technology development. Reimbursable grants do this by providing no "downside" risk, and requiring repayment out of the "upside" gain. If the technology is successful, the companies repay between 100% and 200% of the original grant amount. The payments are charged as a percentage of gross sales of the product. PACT required repayment charges between 4% and 5% of gross sales. If the technology fails to commercialize, then the grant is written off.

Conditional grants are similar to venture capital equity investment. With a venture capital investment, the venture investor write off the equity investment if the project fails, but participates in the profits and equity appreciation if the project succeeds. This arrangement benefits the entrepreneur if the technology is truly risky, or if the company is new and has limited assets. It may be unattractive if the firm is simply applying an existing technology in a new market. Because PACT and BIRD focused on projects that have some degree of technology development risk, the conditional grant was the best financial product to accomplish the development objectives.

When we began the ETF study, we assumed that entrepreneurs would also be interested in receiving conditional grants rather than loans. Loans are not as attractive for projects that have significant levels of risk for two reasons: (1) loans must be repaid even if the project fails; and

(2) loans require repayment of interest regardless of whether the technology is being sold commercially.

About one half of the Egyptian business owners said they would prefer loans to reimbursable grants. They said that they are very confident that their projects will succeed, and therefore they don't believe there is much "development" risk. In addition, many said that they think that the 200% repayment obligation is too high.<sup>8</sup>

We recommend that the EGF offer both reimbursable grants and low interest rate loans. Companies can be given the choice of either one. This will allow the firms that have less debt service capability or riskier projects to use reimbursable grants, while firms with less risky projects and stronger balance sheets can use loans.

We recommend that the project should not provide equity investment. There are three reasons not to provide equity:

1. An equity investment is more expensive and complicated to make than a grant or loan. In addition, equity involves a complicated interest in the net income and to a lesser extent, in the liabilities of the company.
2. An equity investment is an investment in more than just a specific technology project. Equity investment in a new company supports all activities of the company. A grant or loan can more easily be directed at a specific technology project.
3. A reimbursable grant has approximately the same developmental impact on the companies that receive the grant. It provides low cost financial support to risky, innovative projects, while receiving a reasonable share of the "profits" of the project if it succeeds.

It would also be possible for the ETF to provide non-reimbursable, or outright, grants to private firms. This was suggested in a meeting with USAID staff. Use of non-reimbursable grants would make the ETF slightly easier to implement. They would also make closing the fund at PACD cheaper and simpler. However, they would not provide the fund with a strong commercial orientation. In addition, they would cause rapid decapitalization of the fund.

We should also explain why we do not think that loan guarantees are appropriate for the Egypt Technology Fund. The reasons include:

- Banks would be very reluctant to assume credit risk for risky technology projects. This means that USAID would have to provide very high levels of guarantees to induce banks to lend to the desired subprojects.
- Banks would require collateral for loans, whether guaranteed or not. In fact, without collateral, it would be difficult for banks (and USAID) to collect non-performing loans. If

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<sup>8</sup> We think that this may be in part due to a misunderstanding of the effective interest rate on conditional grants. Many grants take a long time - 6 to 10 years - to repay. If we calculate interest on an annual basis during life of grant, the effective rate would be very low, particularly if the heaviest repayments are in the latter years.

loans are not going to be collected, then it makes more sense from an administrative point of view to provide grants, either reimbursible or non-reimbursible. The collateral requirement would make it impossible for many software and engineering firms, as well as start-up companies, to obtain ETF support.

- The guarantee would “buy down” the risk premium on loans, resulting in a reduction on market rates of only 2% to 3%. This is not enough borrowing costs reduction to induce private firms to work on risky joint venture technology development projects. If firms are charged commercial rates, smaller and newer firms will be excluded. In addition, higher interest rates would not provide enough incentives for US private firms to work in Egypt.
- The Egypt Technology Fund is not intended to have an impact on the banking community. It is intended to strengthen commercial technology development. Guarantees are more suitable to situations where USAID wants to induce the banking community to expand lending to a new group of borrowers. Guarantee programs induce banks to change their behavior “on the margin.” They are not suitable to situations where the banks are being asked to perform a role that is radically different from the bank’s standard business model. The ETF is asking for a radical change in behavior. The assistance provided by the ETF is more similar to venture capital or R&D grants than to commercial loans.

### *Financial Conditions for ETF Support*

We recommend the following conditions for the ETF’s “financial products.” Loans should carry an interest rate of 3% to 5%, and should allow a grace period of one year. USAID would bear the credit risk. If the technology does not succeed, the borrower is still obligated to repay the loan. If the borrower defaults, the loan is written off by the fund.

The rationale for designing the loan product is that it should be priced low enough to reduce the risk associated with new technology development and joint ventures. In addition, loans are priced at a level that provide a strong financial incentive for a US firm to work in Egypt.

We recommend that the fund provide conditional grants with a 200% payback. This rate of payback is not excessive for risky technology projects because (1) it relieves the grantee of repayment obligations if the project fails, and (2) it requires repayment from the gross profits earned when the technology succeeds. Judging from the experience of PACT in India, repayments do not usually begin for about 3 years, and then do not reach significant levels until sales reach high levels. This is often in the 4th, 5th and 6th year of the project. Therefore the effective rate of interest rate on the grant is very low.

Finally, we agree with the PACT Project’s initial recommendation that financing terms should be flexible. At the beginning of the PACT Project, it was difficult to determine exactly what terms would be acceptable to private firms. To ensure that the funds are used, the ETF should start with an initial set of terms, and these should be modified if necessary.

### **C. Basic Financial Objectives of the Egypt Technology Fund**

The Egypt Technology Fund is not intended to be a self sustaining financial fund. It is also not expected to be copied by other Egyptian financial institutions because its financial rate of return will be too low. The purpose of the EGF is to provide market-based incentives for private firms to carry out commercial R&D. In addition, its secondary objective is to stimulate collaboration between private US and Egyptian firms. The fund's financial objectives should match these larger developmental goals.

The fund should be operated by a bank because banks have the staff and systems required to manage a portfolio of 40 accounts. Banks are well equipped to meet the requirements for due diligence, financial evaluation of proposals, and management of disbursements and reflows.

The financial objectives of the fund should include the following:

1. Provide loans and grants to well-designed projects. The fund should support projects that have sound business plans and good prospects for commercial success. The fund should disburse quickly and remain fully invested in technology development projects.
2. For loans, the fund should lend to companies that have the capability to repay loans whether or not the technology development project succeeds. The expected loan loss rate should be no more than for the bank's standard term loans. Whether collateral should be required should be determined later.
3. The fund should seek projects that are innovative and risky. It is reasonable to expect that the fund will have loan loss rate of 3%. Based on PACT experience, the loss rate on grants should be approximately 50%.
4. These loss rates mean that the fund would have reflows in the later 5 years of \$5 million per year. The fund would be expected to decapitalize over a period of 10 years due to loan losses and project failures.

It is important to state here that this gradual decapitalization is acceptable because of the developmental objectives of the fund. The ETF is basically a commercial R&D support program run on sound business principles. It is not intended to be a self-sustaining, profit making venture capital fund.

### **D. Performance Compensation For The Implementing Financial Institution**

We recommend that USAID consider a performance-based contract for the financial institution. This will give the bank an incentive to maximize fund performance. A reasonable structure to consider would be a base fee to compensate for 70% of the estimated time and materials costs of managing the fund, with performance bonuses based on achievement of performance targets. We recommend the following performance targets:

1. Annual commitment targets of \$8 million for each of the first three years.

2. Percentage of cash from reflows that is uninvested. The higher the percentage, the lower the performance bonus.
3. A "reflow" rate of return. This would be the measure of the percentage of reflows that are being returned by borrowers and grantees.

We recommend consideration of the following compensation plan for the implementing bank:

YEAR	BASE FEE	INCENTIVE FEE	MAXIMUM POSSIBLE COMPENSATION
Year 1	\$150,000	\$200,000	\$350,000
Year 2	\$150,000	\$200,000	\$350,000
Year 3	\$150,000	\$200,000	\$350,000
Year 4	\$150,000	\$200,000	\$350,000
Year 5	\$100,000	\$150,000	\$250,000
Year 6	\$100,000	\$150,000	\$250,000
Year 7	\$100,000	\$150,000	\$250,000
Year 8	\$100,000	\$150,000	\$250,000

#### E. Expected Financial Performance

We have not prepared a detailed financial analysis of the fund at this stage. However, we can make some estimates based on reasonable assumptions. These can provide indications of how long the fund's capital would last, and what the pattern of disbursements and reflows would be.

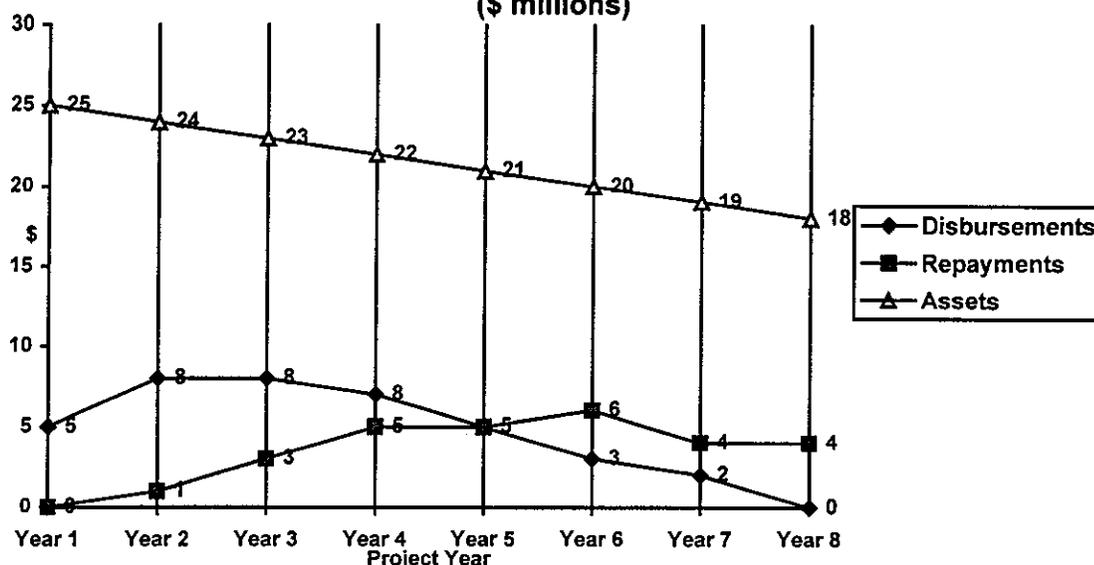
In PACT, reflows of less than 50% of the fund's initial principal have been received. Repayments were very small in the first five years, and significant levels started only during year six. We have the impression that the Egyptian private entrepreneurs may have higher repayment rates. This statement is based on the confidence that most entrepreneurs we met expressed about their projects.

If the ETF provides loans and conditional grants, the rate of repayment will be significantly higher. This would be particularly true if the loans are collateralized. (If the loans are not collateralized, then it would be better to provide only reimbursible grants. This is because it will be very difficult to collect non-performing uncollateralized loans.)

Assuming that the fund provides 50% conditional grants and 50% collateralized low interest loans, we expect that the fund would decline slowly in value at a rate of 7% per year. This decline would be a result of both the slow reflows from conditional grants, and grant and loan failures. At this rate, the fund would decline to about \$18,000,000 in value over 10 years.

It is also important to look at the pattern of cash flows of the fund, because these have implications for the management burden of the fund. The following chart provides an approximation of the cash flows:

**EGYPT TECHNOLOGY FUND  
CASH INFLOWS AND OUTFLOWS  
(\$ millions)**



This chart indicates that the fund will go through two phases. In the first four years, the main financial management activity of the fund will be disbursements for approved projects. In the latter four years, the main activity will be collection of reflows.

This raises the issue of how the ETF's funds will be disposed of once USAID support stops. This issue has two dimensions: (1) where the funds go, and (2) what happens to outstanding grants and loans. Although it is impossible to deal fully with these issues in the feasibility stage, we suggest that the mission has several options. USAID may consider setting up a fund in an NGO with the remaining principal, or the funds could be transferred to the Egyptian treasury, or another Egyptian government agency for continuation of technology support activities. This issue needs to be resolved during the design.

***Administrative Cost of Reimbursible versus Non-Reimbursible Grants***

During our review meeting on May 31, USAID requested estimates of the administrative costs of providing reimbursible versus non-reimbursible grants. It is difficult to estimate the cost differential. We are confident that non-reimbursible grants are cheaper to administer. An estimated 5% of a single grant amount would be incurred for collection and accounting of grant reflows. Using this as a general estimate, we might expect that the bank may save between \$1 million and \$2 million less in total management costs if non-reimbursible grants are used.

This should be compared with the benefits lost due to the use of non-reimbursible grants. The benefit loss would be two fold when compared to reimbursible grants. First, the bank and the board would have less incentive to select subprojects with strong commercial potential. Second, the fund will not generate grant reflows, less grant activity is possible given the same resources.

## **F. Effect On Capital Markets**

The technology fund does not have capital market objectives. It is a mechanism for transferring resources efficiently to qualifying businesses. It is designed to use commercial principles in selection of subprojects, and it requires reasonable rates of payback for successful subprojects.

The limited financial market impact that the fund is likely to have is to demonstrate the performance of technology investment to private firms and banks. In India, this demonstration effect contributed to decisions by several financial institutions to establish technology-oriented venture capital funds. This encourages cashflow-based lending and equity investment.

## **G. Risk Allocation**

There are several risks associated with the project. A brief review of these risks along with their recommended allocation follows:

- **Credit risk:** this is allocated to USAID. When loans are not repaid, the bank may be instructed to foreclose on collateral and to pursue repayment through legal action. A decision on foreclosure and treatment of collateral needs to be made. When grants are not repaid, the grant balance is written off.
- **Development risk:** this is borne jointly by USAID and the collaborating firms.
- **Market risk:** this is shared between USAID and the collaborating firms.
- **Legal liabilities associated with the new technologies:** USAID will not take an equity position. All agreements will clearly allocate all legal risks associated with the technologies to the collaborating firms.
- **Risk associated with IPR:** this is allocated to the collaborating firms. All applicants will be advised to make their own legal arrangements to protect IPR.

There are several possible causes of failure of the fund. Specific causes and their mitigation are listed below:

- The bank does not actively seek to identify, screen and select subprojects. This has happened in many donor funded venture capital and small business finance programs. Solutions include (1) select a bank that has corporate commitment to success, (2) provide the bank sufficient performance incentives, and (3) maintain flexibility in the pricing and eligibility criteria for subprojects.
- Suitable US partners cannot be found. This could be one of the project's greatest difficulties. Firms that have the right capabilities and sufficient motivation to work in Egypt are not common. The solution is to engage a qualified US technical support organization with experience in high-technology transfer programs in emerging markets.

- Suitable Egyptian partners cannot be found. We identified several subprojects that appear to qualify for support and we are confident that demand from the Egyptian side is adequate. There may be a need to adjust pricing and financing terms to meet current expectations of companies interesting in submitting proposals.
- The Government of Egypt insists that it should play a major role in subproject selection or approval. This is a serious risk. If the government insists that a Government of Egypt institution is directly involved in implementation, there is a strong possibility that implementation would be difficult. Private sector firms do not want to deal with government agencies. The solution is to keep the Government of Egypt's role in the ETF to a minimum.

## 5. STRATEGIC FIT

### A. Fit with mission portfolio

#### *Fit with Current Mission Program*

There is a clear fit between the objectives of the ETF and many activities in the USAID/Egypt program. The fit is both direct and general. The direct fit will come from ETF's financial and joint venture development support for technology development projects. The ETF will also provide financial support to subprojects that contribute directly to:

- SO1: Accelerated Private Sector Led Export Oriented Economic Growth
- SO6: Increased Access to Sustainable Water and Wastewater Services
- SPOA: Increased Use of Egyptian Universities in Quality, Demand Driven Applied Research
- SPOE: Improved Human Capacity Development Systems Linked to Strategic Priority Areas

It may also provide financial support relevant to SO 4 and 5, the fertility and health objectives. In addition, the Egypt Technology Fund is clearly consistent with the general direction of USAID's new emphasis on moving from aid to trade.

We conducted interviews with several project officers and contractors and confirmed that there are numerous technology development opportunities related specific USAID projects. Examples include:

- Pioneer HiBred/AGERI proposed to work on BT gene introduction and sterility screening for corn
- Two water treatment companies - Aqua Egypt and Garno Misr - were referred by EP3
- MTC referred several projects that are interested in technology development

There are also possible opportunities in the health sector that were not explored due to lack of time. These may include single use syringes, oral rehydration fluids, low cost medical diagnostic equipment and testing supplies.

#### *Consistency With USAID's Preference For Broad-Based Support*

There is a danger that the fund will be criticized because it provides resources to profitable, mid- and larger-sized businesses. The counter-argument to this has two parts: First, Egypt urgently needs to reform economic policies that have stifled growth for decades, and the ETF will help Egypt move toward improved technology investment policies. The World Bank, IMF and other donors argue that the highest priority for national development is to build a policy framework

that supports investment, increased production, exports and technical innovation. It is clear that the technology fund would play a small but important role in supporting this transition.

Second, the ETF will help Egyptian firms produce goods that are able to compete in the global market place. This is likely to stimulate investment in R&D and to increase the role of technology in Egypt's economic growth.

The fund contributes to the sustainable long-term economic growth of Egypt. It encourages the establishment of industries that are globally competitive in sectors that have strong medium- and long-term growth prospects. The types of activities supported by the fund encourage employment growth of both highly skilled and production jobs. The fund also supports the GOE's liberalization program and transition to a strong, private-sector led economy. In these ways, the fund supports broad-based, sustainable economic growth.

It is notable that the technology fund is the only donor or GOE supported project that provides financial support on a significant scale to private technology development. However, the ETF project does not transfer resources directly to poor families or workers. It relies on commercial success to generate jobs and investment. There is also a danger that the fund's resources will be directed to large firms, or firms that are well connected to banks. It is important to put restrictions in the management agreement with the bank to prevent excessive support for large firms. Suggested restrictions would include:

- No more than 40% of the fund's resources can go to firms that rank in the top 100 Egyptian firms in terms of annual gross income.
- No more than two grants or loans should be outstanding at any given time to a single firm or holding company.
- Selection criteria should emphasize projects that contribute toward national development goals. Although this is a vague restriction, it is useful in cases where the proposed technology will result in what all agree is an insignificant improvement in a product or production of a product that is widely perceived as unimportant to national development.

One final point that is important to ensure broad access to project resources is that the promotion and marketing of the fund should "get off the beaten path." There is a strong tendency in donor-funded projects to work with clients who are familiar with donor programs. The way to mitigate this problem is to market the fund broadly, using informal business networks, formal associations and existing customers of USAID programs.

### *Achieving Systematic Impacts*

The fund clearly plays a role in the larger technology development "system" in Egypt. Although the fund's operational objective is to "book" 40 good commercial R&D subprojects, it will also affect this larger system. The fund achieves its systematic impacts by (1) demonstrating that private R&D is profitable; and (2) highlighting the policy constraints that inhibit private technical innovation.

The way to achieve the first impact is to support a relatively large (at least 20) number of successful joint venture R&D projects. To achieve the second, USAID may consider establishing a technology policy council that will commission empirical studies and provide technology policy advice to senior levels of the GOE.

## **B. Fit with US Embassy Program**

The ETF supports several objectives of the US - Egypt Partnership for Economic Growth and Development. First, the ETF is closely related to the Subcommittee on Technology's current activities related to:

- Management of commercialization
- Developing an enabling environment for technology development
- Technology transfer models

Specifically, the project could help accomplish several results:

- It will provide significant amounts of investment support for Egyptian - US joint ventures in the private sector that are working on high technology applications and development
- It provides 30 - 40 technology collaboration projects that can be used by USAID or the US - Egypt Partnership Subcommittee 2 for empirically assessing constraints to private commercial technology development.

The ETF would also support the US - Egypt Partnership's policy reform objectives, including:

- Policy Objective 1: Enhance Participation in Global Markets. The ETF will help 30 - 40 Egyptian companies to create and obtain the technologies needed to compete in world markets. It will also support development of joint ventures with US firms that are already active in exports.
- Policy Objective 2: Create a Business Friendly Environment. The ETF provides an opportunity to use real business experiences to identify policy constraints to technology collaboration.
- Policy Objective 3: Enhance Competitive Markets. As stated above, the fund will enhance competition by encouraging technology development and by providing Egyptian banks with technology finance experience.
- Policy Objective 4: Enhance Utilization of Technology. The ETF will be one of the few (if any) donor funded S&T development projects that supports private sector technology development. This approach recognizes the unique and critical role of the private sector in Egypt's technology program.

### C. Fit With Other Donor Programs

A number of other donor programs provide assistance to investment promotion and technology development. The following table, although not complete up to date, indicates the range of programs available. This table shows that there are a wide range of programs available to support private enterprise development. However, there are no current US Government or other donor programs that provide financial assistance to private firms specifically for commercial R&D.

SUMMARY OF DONOR & GOE PROGRAMS THAT PROVIDE SUPPORT TO PRIVATE FIRMS IN AREAS RELATED TO TECHNOLOGY DEVELOPMENT							
PROGRAM	Information	TA	Technology	Finance	Training	Market Res.	Partner Identif.
<b>EGYPTIAN GOVERNMENT</b>							
Social Fund for Dev		X	X	X	X		
Academy of Scientific Research	X				X		
INTIB	X						X
IDDC	X	X					
Egypt Organization for Standardization							
NIS	X	X					
Various Research Institutes	X	X			X		
<b>EGYPTIAN PRIVATE</b>							
MEAG	X				X		
SACib	X		X				X
<b>INTERNATIONAL</b>							
OUDA	X				X		
Italian Trade Center	X		X			X	X
TIPS (UNDP)	X		X	X	X		X
TDC (USAID)	X	X	X	X		X	X
MTC (USAID)	X	X			X		X
IESC (USAID)		X			X		X
CQA (USAID)	X				X		
Mubarak Professional Dev. Initiative					X		
GTN/Business Link	X						X
ATUT	X				X		X
Export Enterprise Dev	X						X
AgLink	X	X	X		X		X
SES (German)	X	X	X	X	X	X	X
Various EU loans				X			
Egyptian/European Association for Econ	X				X		
German/Arab Cm	X	X	X		X	X	X
SMEC (German)	X	X			X		X
AMCHAM	X				X	X	X
DT II (USAID)							
Univ. Linkages							

## D. Fit with GOE Program

The ETF is consistent with the objectives of GOE policies related to export development, investment, and technology acquisition. The fund would not, however, provide direct financial support to any GOE activities in these areas. The fund also assists in an objective that may or may not be of interest to the GOE: transitioning from a public sector-led to a private sector-led technology development strategy.

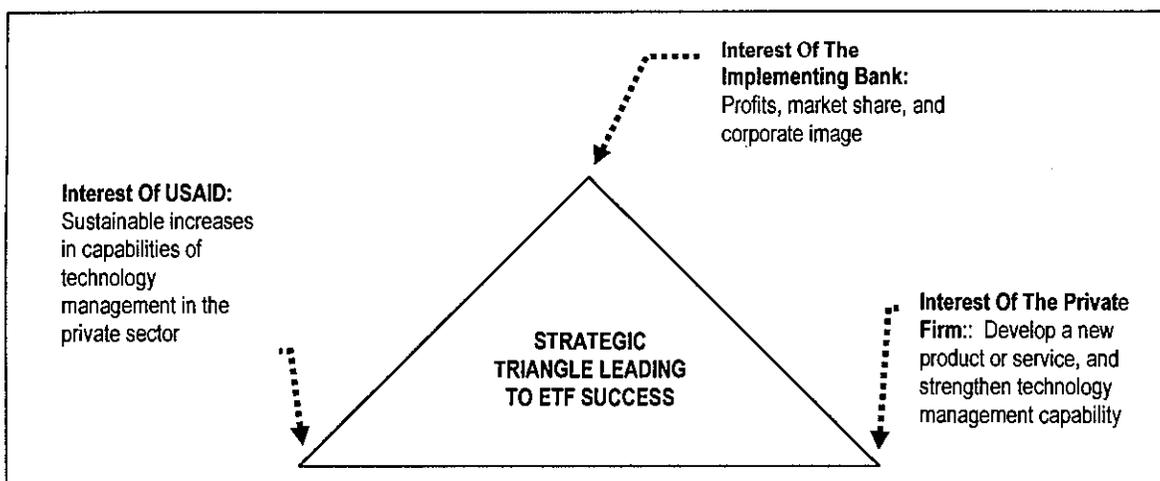
## E. Strategic Triangle

We wanted to highlight one important implementation feature of the ETF design: the motivations of the major participants in the project. Each party has a different motivation to participate. For the private firm, the principle motivation is to make profits by producing a new product. The technology development is a means to increasing sales. In addition, the private firms often view their technology development program as an investment in their capability to innovate.

USAID seeks to stimulate Egyptian - US joint ventures and to build commercial technology development capabilities as a means of economic development. Another objective is to foster the transition from public sector-driven technology development to a private sector process. A project like the ETF stimulates demand among private firms to hire government scientists, and to train scientists in commercial management approaches that are weak or absent in public institutions.

Finally, for the bank, motivations include (1) increased market recognition and goodwill, (2) identification of new, high-growth customers, (3) increased market share, and (4) earning reasonable returns on bank assets.

We call this the strategic triangle, a graphic that represents the divergent but complementary interests of the main parties to this project.



## 6. MANAGEMENT

### A. Key Components Of The Project

The project has four key organizational components:

- A board of directors
- An implementing financial institution
- A technology advisory organization
- Technology development joint ventures, including one Egyptian and one US firm

The role of each is briefly explained below.

**Board of Directors:** The functions of the board of director would be (1) assist the fund in identifying prospective subprojects; (2) review and report on the performance of the fund on a semiannual basis; (3) review subproject proposal and provide final approval.

The board could consist of the following members: (1) the president of AMCHAM or designee; (2) the president of the Federation of Egyptian Industries or designee; (3) a financial sector executive with experience in technology projects; (4) a “high tech” industries association representative; (5) a representative of NRC.

**Implementing financial institution:** The financial institution would be responsible for

- Marketing the fund, with assistance from the board and the technology advisory organization
- Receipt and screening of proposals
- Evaluation and selection of proposals
- Disbursement of funds
- Monitoring subprojects
- Reporting on performance of the portfolio
- Collection of reflows
- Negotiations related to non-performing accounts
- Commitment of reflows to new subprojects
- Regular reporting to the board and USAID on performance of the portfolio.

**Technology advisory organization:** The technology advisory organization will have three functions: (1) evaluating technologies contained in proposals, (2) identification of potential joint venture partners, and (3) promotion of the fund in the US.

This organization should have a strong capability in technology evaluation and established offices in the US.

**Technology development joint ventures, including one Egyptian and one US firm:** The joint venture firms should be established private companies with ongoing technology activities, adequate financial resources to continue the development subproject if it is successful, and a “good” business reputation.

## **B. Implementation Institutions**

In this report, we outline a design for the Egypt Technology Fund that would be responsive to private sector needs, effective and efficient, consistent with all partners interests, able to operate independently, and private sector led. We note that neither PACT nor BIRD were implemented by a private bank. Therefore, we have had to “retool” the design used in these two projects. We changed design features of both of these to adapt to Egyptian market conditions, and to allow for implementation by a private financial institution.

The ETF would be established under a management contract with a bank.<sup>9</sup> Assets of the fund would be owned by USAID but managed by the bank.<sup>10</sup> The source of financing would be USAID. The bank would not match USAID’s funds with its resources. Matching USAID’s resources by the bank would not work because: (1) return on assets in the fund are too low to justify a bank using its own funds, and (2) allowing the bank to invest its own funds alongside USAID’s funds may create conflicts of interest.

A qualified technology advisory organization would be awarded a grant or a contract, depending on the type of organization selected. We strongly recommend that this organization should not be a for-profit consulting organization engaged through a competitive procurement. In the PACT case, Battelle Memorial Institute was given a grant to assist in US promotion, but proposals were intended to be sent to US National Bureau of Standards for technical evaluation and non-binding recommendations on feasibility. We do not know if the NBS was used for this function or not.

In the BIRD case, proposals were evaluated by the US National Bureau of Standards and the Office of the Chief Scientist, Ministry of Industry and Commerce, Government of Israel. We recommend engaging an organization similar to Battelle.

A Supervisory Board would be appointed from among business leaders and government technology experts. The functions of the board would include modification of initial operating policies, final approval of proposals, and regular reporting to USAID and the GOE on the performance of the fund. It is important that the board consist mainly of private sector personnel.

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<sup>9</sup> If it is impossible to contract an Egyptian institution, it would be possible to implement the ETF through an NGO such as IESC or a government agency such as IDSC. These are not the preferred options because (1) neither has the capability to manage loan and grant portfolios, and (2) neither has an existing staff of investment officers to analyze the feasibility of proposals. On the other hand, both would probably be capable of implementing the fund if the design is changed to fit their capabilities.

<sup>10</sup> From a technical point of view, it would be feasible for USAID to transfer the ETF investment funds to the Government of Egypt under a grant agreement that would specify that the funds would be managed by a bank. This would solve the problem associated with ownership of the funds at the end of the project.

A technology policy advisory panel is an additional institution that USAID may choose to establish. This body would review projects to identify policy impediments to technology development, and would propose policy improvements to the GOE.

### **C. Preliminary Qualification Criteria For Alliances And Projects**

To qualify for ETF support, a subproject should:

- Be proposed by an Egyptian and a US firm that have agreed to work together on a technology development project in which each member has a significant role and capability related to the technology development activity;
- Involve the development, through commercial R&D, of an innovative product or process which promises direct benefit to the Egyptian economy and its development objectives;
- Demonstrate that the proposing partners have access to technical and financial resources required to implement the project and to benefit from the commercial potential of the product or process developed;
- Be capable of reaching the point of commercialization at a financial cost to the ETF of not more than \$1,250,000.
  
- The project will not qualify if it uses off the shelf technology that is obtained on a “turnkey” basis, without conducting commercial R&D to modify or change that technology.
- The technology should be use for non-defense purposes, and should not include any areas prohibited by US or Egyptian law.
- The project should involve risks, particularly market demand risk and development risk, that would prevent an Egyptian commercial bank from funding the project on a non-recourse basis.

### **D. Proposal Contents**

Proposals should have the following contents:

1. An abstract of the proposal
2. Description of the innovation
3. Description of the R&D program
4. A program implementation plan
5. Market analysis that demonstrates demand for the technology or product
6. Commercialization plan
7. Description of the companies and personnel
8. Project budget

Further details of proposal content and process should be developed by a detailed design team.

## **E. Recommended Partners: Financial Institution, Technical Advisory Group, Board**

### *Recommendations for Financial Institution Partner*

We reviewed 13 financial institutions, including 4 commercial or universal banks, 3 fund management companies, and 2 government-owned banks. Deciding which financial institution would be best for ETF implementation is difficult because there are several good candidates, and different banks will use different approaches to implementation.. There is no single institution that is “best” suited to implement the fund. In fact, as we mentioned above, it would also be possible to implement the ETF through IESC or IDSC. Implementing through an NGO is not the approach that we would recommend, but it would be feasible.

The financial institutions that we believe would be the best candidates include:

- Commercial International Bank
- MIBank
- Cairo Capital Group
- Export Development Bank of Egypt

Although we did not interview officials of Cairo Barclays Bank, Misr Interior Bank, or Egypt British Bank, we understand that these banks may also be interesting candidates. If we had to select on bank with no further review, we would select CIB because of its familiarity with donor programs, its interest in innovative and experimental lending programs, and the apparent motivation of the officer whom we met, Ms. Maha Ragab. This should not be considered a strong recommendation that CIB should be selected, but rather an indication that good banks are available and interested.

At the beginning of the assignment we were told that the two American banks operating in Cairo - Citibank and American Express Bank - would not be suitable for this type of project because neither focuses on lending to technology firms, and neither targets the middle market. Therefore, we did not visit these two banks. Unless these American banks have a strong commitment to successful implementation of the ETF, it is highly unlikely that they would be suitable fund managers.

It is important to note our concerns about both venture capital companies and commercial banks. Many business people said that they do not think Egyptian commercial banks are suitable to implement a commercial R&D fund. Reasons why commercial banks may be unsuitable include:

- Commercial banks do not have experience in technology development lending. They lend on an “asset basis,” requiring high levels of collateral.

- Commercial banks are bureaucratic and have slow, complex procedures.
- Commercial banks tend to lend to their existing customers.

Venture capital is not common in Egypt currently. Most “venture capital” companies are actually asset management companies that may have a portion of their funds available for risky investments. We did not find any companies specializing in technology investment. Even if we had identified a specialized technology venture fund, venture capital firms may not be suitable to implement the ETF.

With one exception, asset management companies that we interviewed wanted excessively high levels of compensation to manage the fund. Several said that they would want \$400,000 to \$500,000 as a base fee, plus a reasonable share of “profits” of the ETF. All asset management companies wanted a share of the “upside” of the fund through a share of subproject reflows, an equity share, or the right to match ETF resources with their own equity investment.

One company, Cairo Capital Group may be a viable candidate if compensation issues can be resolved. Cairo Capital Group is an asset management company that says they have \$100 million under management. The CEO of Cairo Capital Group reportedly holds a Ph.D. in science management from MIT’s Sloan School.<sup>11</sup> The company would be willing to charge a management fee that is at about the same level as we think should be paid to a commercial bank. In addition, they have several investment staff who hold both engineering and MBA degrees. They expressed a strong interest in managing the ETF. However, they requested additional compensation through a share in the “upside” of the fund. The possible options discussed include:

- A share of interest and grant reflows
- Opportunity to invest their own funds in equity of companies that are carrying out subprojects. This would be negotiated directly with the companies on a case by case basis, and would be at the discretion of the private parties.

It is possible that Cairo Capital Group would accept the same terms as commercial banks, and would drop their requirement for participation in the “upside” of the fund.

We recommend that USAID consider an RFP or RFQ approach to selecting the implementing institution. This allows banks to explain their capabilities and propose compensation to implement the fund. If possible, the quickest method would be an RFQ. This would be unlikely to affect implementation costs because USAID could negotiate this once a shortlist is created.

We also reviewed the possibility of IESC implementing the fund. We recommend against this option for the following reasons:

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<sup>11</sup> We did not verify this degree.

- They do not have existing financial management systems capable of managing 40 loan or grant accounts
- They do not have existing staff capable of financial evaluation of business plans
- They may not have the financial resources to implement the fund on a “performance basis”

Another reason to use a private bank is that the ETF would benefit from the existing Egyptian business networks and knowledge of the financial market that an Egyptian financial institution would bring to the fund.

Even if they do not implement the fund, IESC could play an important role in supporting the fund. Specifically, they could be involved in marketing the fund through their MTC and CQA activities. They may require additional compensation to play this role.

#### *Recommendations for Technology Development Partner*

We collected information on two possible candidates: IESC and Battelle Memorial Institute. We recommend that an organization like Battelle be engaged for the following reasons. They have strong corporate capability to carry out technology evaluations, they have implemented similar commercial R&D programs in the past, and they are currently involved in technology development programs in Egypt and other emerging markets.

#### *Recommendations for Members of the Supervisory Board*

The board plays several critical functions in the project. It is important that its members understand and agree with ETF’s development objectives, have a business network that can be used for partner identification, and be able to avoid conflicts of interest.

It is not appropriate for us to recommend specific people because of the short period that we had to conduct our analysis. We recommend that the board include 4 business executives, a senior government official representing the technology sector, and a senior officer of the managing bank.

#### **F. Criteria For Selecting And Method Of Contracting The Financial Institution**

As mentioned above, we recommend that USAID consider contracting the bank on a competitive basis through an RFQ type procurement. Criteria for qualification should include:

- Financial strength to implement the fund
- Commitment of senior executives to compliance and successful implementation
- Experience of selected staff in lending to technology based firms
- Percentage of lending that is term loans
- Availability of suitability office facilities

## **G. Criteria For Selecting And Method Of Contracting The Technical Advisory Group**

As mentioned above, we have not done extensive research on any of the possible technical support organizations mentioned in this report. Our understanding is that Battelle performed well supporting the PACT project. This should be verified with USAID/India (Ram Berry). Battelle also has an ongoing activity related to Egypt technology development, and has a strong interest in expanding activities here.

IESC has capacity to support partnering and technology transfer in several industries. They do not have an established capability to perform technology evaluations, and are not known for capabilities in technology research, evaluation or application.

Two alternative approaches for selecting a partner exist. First would be to engage Battelle on a negotiated basis. If this negotiation does not succeed, then another party could be engaged. The second approach would be to issue an RFA to non-profit organizations to supply technology matching, evaluation and advisory services. If the evaluation criteria are properly set, it is likely that this method would produce an acceptable result for USAID.

Criteria for selecting the technology organization include:

- Experience supporting similar technology commercialization programs in emerging markets
- A minimum level of experience with Egyptian scientists, business persons and technology programs
- Established offices in the US that could be used to support the ETF
- A large network of professional contacts in the S&T community
- Demonstrated ability to make linkages between business needs and scientific programs

## **H. Criteria for Selecting Board**

Criteria for selecting board members include:

- Demonstrated understanding and support for the objectives of the ETF
- An established reputation for community leadership in business or scientific research
- Willingness to commit a minimum of 4 hours per quarter to ETF activities
- A reputation for sound business practices

## **I. Role of Business Associations**

Business NGOs will play an important role in promoting the fund. We expect the fund manager and promotion contractor to make extensive use of business association networks to advertise the

fund. No institutional contract of compensation for business associations is needed because associations will participate as a service to their members.

## **J. Role of Government of Egypt Agencies**

We see two potential roles for the Government of Egypt. First, they will provide one person for the Supervisory Board. This person should be a senior officer from the technology research community. In addition, this person would be subject to the same confidentiality restrictions as all other board members.<sup>12</sup> The person will have only one vote and will not have any special powers on the board.

The second role for the GOE would be to examine the policy impediments that subprojects encounter during implementation, and to address these constraints with appropriate policy reforms.

One other design option is to work with the Cabinet Information & Decision Support Center Technology Development Program. This arrangement would help resolve two issues: (1) which government agency to work with, and (2) what to do with the funds at the end of the project.

The two options are (1) transfer the investment funds to the Government of Egypt under an agreement that requires that funds be used for a private-sector led R&D investment fund, or (2) involve IDSC at the beginning of the project as a board member, and later consider transferring program direction and ownership to IDSC if they are capable. Both options are likely to be attractive from certain points of view, but neither is perfect. Further analysis of options is necessary by USAID.

## **K. Eligibility of Government Owned Corporations and Government Research Institutions**

The intent of the ETF is to support private sector technology development. Both BIRD and PACT provide grants only to private firms. In Egypt's case, we recommend that government institutions and companies are eligible when they present a proposal jointly with a US company. These joint ventures would be eligible if the intent of the proposed activity is to commercialize technology. Public entities should be held to the same requirements for a commercialization, cofinancing and market analysis as private firms.

## **L. Grant And Loan Management Requirements**

The ETF, assuming it operates somewhat like PACT, requires a large amount of management effort by the implementing bank, but relatively little by USAID. The fund has basically only one "product:" reimbursible grants and low interest loans to qualified subprojects. It does not have any other training, policy dialogue, institutional development or commodity procurement requirements.

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<sup>12</sup> A point that should be checked during the design process is whether the government can accept and sign a standard confidentiality agreement. If it cannot, then no GOE official should be included on the board.

Managing the grants involves several fairly routine processes, including:

- Proposal marketing
- Partner matching
- Proposal screening and selection
- Funds disbursement
- Grant or loan monitoring
- Portfolio reporting
- Problem workouts on non-performing grants and loans
- Reflow financial administration

All of these functions are the responsibility of the managing financial institution.

It is notable that the management responsibilities will change during the life of the fund. In the beginning, there are heavy marketing, proposal screening, selection, and disbursement requirements. During the middle years, the fund will be involved in development of new proposals and receipt of reflows. In the last two years, the fund will be occupied with collection of reflows. This change over time will require changes in personnel in the bank.

### *Concerns about Grant Monitoring*

There is a concern that USAID may have an interest in perpetuity in the technology that is created under the ETF. This is a potential problem. The grant agreements for BIRD and PACT were written such that the interest of the fund continues until the grant is completely repaid, and is retained if the technology is sold or transferred to a third party. We recommend that the ETF include specific grant termination features in the grant agreement. The grants should be terminated and written off if the technology is not commercialized after a specified number of years, for example six.

## **M. Promotion Requirements**

### *Promotion in Egypt*

In Egypt, the fund should be “marketed” to business associations, high-tech firms known for export-oriented technology development, and firms affiliated with USAID programs. Selected government research institutes should also be informed about the fund.

Promotion could be carried out by three possible entities: the implementing bank, the technology advisory organization, and IESC.

## *Promotion in the US*

Promotion in the US would be carried out by the US technology support organization. Their promotional role would be to send announcements and make presentations to business associations, and to provide media “feeds” that will give US industry basic information about the ETF and Egypt’s technology potential.

## **N. IPR Issues**

Experience from PACT indicates that there are two IPR related issues that should be carefully addressed during the design phase. On both of these points, the designers should seek the advice of professional intellectual property attorneys.

The first issue is that the grant agreements between the financial institution and grant recipients must identify the technology as specifically as possible. Although this sounds simplistic, it took several years under PACT to refine descriptions of technology in grant agreements to the point where it was possible to determine on what basis the reflows would be paid.

In addition, the technology identification should also allow the project to receive repayment even if the technology resulting from the project is modified after it is created.

The second issue is that the agreements should include clear guidance on the ETF’s rights (1) if the technology is sold or otherwise transferred to a third party, and (2) if the technology is incorporated in a new application that was not originally envisioned by the grant proposal.

## **O. Implementation Risks**

Four implementation risks that we are concerned about are:

- The bank that is selected to implement the grants is incapable of developing the necessary “dealflow” to use project funds. The slow disbursement of the PACT fund indicated that it is not easy to find desirable grant recipients. India had an internal market that was almost ten times the size of Egypt’s market, and yet it was difficult to identify good projects. In addition, India also had a stronger tradition of commercial R&D by large companies. The focus of Egypt’s economy on services, natural resource exports, and domestic consumption will narrow the field of companies that are interested and qualified for this type program.

Our study indicates that there are numerous projects that might qualify. Whether the bank can successfully identify these and provide support will depend heavily on the competence and motivation of the bank. The financial product that is proposed under the ETF is attractive to businesses because it is priced at about 50% of the cost of other commercial sources of capital, and there is no “downside” risk to grants. Even so, the project will work only if a motivated and competent financial institution implements the activity.

- A second implementation risk is that many firms will try to obtain support for projects that are importing off-the-shelf technology on a turn-key basis. There is a large demand among

innovative companies for off-the-shelf technologies. There will undoubtedly be proposals that request assistance in obtaining new off-the-shelf technologies. This risk can be mitigated by (1) a careful project screening and appraisal process that includes high-level independent technology advice, and (2) determination that there is real risk that the technology will not succeed. The trick is to set the screening criteria high enough that there is reasonable scientific risk, and yet not so high that there will be little probability of failure. This can be done by ensuring that at least one of the firms in the joint venture has a successful track record of technology development and commercialization.

- A third implementation risk is that few US firms will want to come to Egypt to carry out collaborative projects. We found several that are interested, but once the pool of the firms already active in Egypt is exhausted, the project will need to find US firms with little experience in Egypt. The means of reducing this risk is to ensure that there is a competent promotion contractor or grantee in the US.
- A fourth risk relates to the development stage of the ETF. Given the dominant role that the public sector has had in S&T, there is a serious risk that one or more GOE agencies will insist that they control implementation or management of the fund. This would drive away many qualified private firms, and would result in political factors affecting implementation. The means of dealing with this risk is to carefully plan a limited involvement for GOE agencies while the project is in the design stage.

## 7. USAID LEGAL ISSUES

### A. Law 599

Section 599 of P. L. 102-391, among other things, prohibits the use of appropriated funds that support relocation of US enterprises abroad. PD-20 (Policy Determination number 20) provides guidelines to ensure section 599 is not violated.

#### *Compliance Issues*

The law specifies two broad types of activities where compliance is required: (a) Prohibited activities are activities that are strictly prohibited no matter what the outcome or impact to US employment, and (b) Permitted activities are activities that may be undertaken provided they do not cause relocation of US jobs.

With proper analysis and screening, it will be possible to ensure that ETF activities will not cause the relocation of US jobs. More problematic are two specifically prohibited activities:

- Support for investment missions to the US.
- Support for a US office that promotes investment in the host country (Egypt).

#### *Ensuring Compliance with Legal Requirements*

In both cases above, the problem needs to be viewed from two angles: a) What is the operational definition of “investment mission” and “investment promotion?” (b) What types of activities are likely to be carried out in the US?

The first question requires further analysis by USAID legal specialists. The second question addressing the types of activities to be carried out in the US should be examined during the design phase. An interim description of activities likely to occur in the US is stated below.

A US implementation contractor will be sought to promote the ETF and to identify suitable US companies. The US partner will be involved in promoting the ETF through associations and media advertising, as well as selectively identifying and contacting suitable US firms. The US implementation partner will meet with representatives of potential joint venture partners to determine suitability for ETF participation. If the US firm is committed to further action, ETF may fund travel to get prospective partners together. When an ETF proposal is received, the implementation contractor will provide a technical evaluation of the proposal.

There are two important considerations relevant to the application of section 599 to the Egypt Technology Fund. We refer to these as

- the indirect causality of ETF on US investment decisions, and

- the additionality of production that results from the ETF.

The first consideration is that the fund does not directly cause relocation of US jobs to Egypt. The fund provides support for Egyptian and US firms to work together on a commercial R&D project. The project is specifically designed to result in the creation of a new technology or process. This new technology or process is an intellectual property that one or both of the companies will own. Once the technology or process is created, the firms then will make a decision about whether to use the technology or process for commercial production. This decision is taken wholly independently of the ETF project. If the firms decide to produce commercially using the technology or process, they will need to raise their own resources. The ETF will not provide any support for the actual commercialization investment. ETF resources are not allowed to be used for investment in the actual commercial production facilities.

The second consideration is that in almost all cases, the new technology will result in production that is additional to what the two firms were previously producing. The purpose of the ETF is to stimulate private firms to create new technologies. The new technologies help the private firms to produce something that could not be produced before. Therefore, in most cases, the ETF will stimulate private firms to produce new products. It is likely that these products will require the addition of workers in Egypt, and increased utilization of existing workers in the US.

USAID programs support economic growth in the host country. In the case of the ETF, the fund will help US firms to participate in Egyptian economic growth. Most successful ETF projects will require US firms to add staff in the US as well as in Egypt. A successful project will also provide a US firm with an important foothold in the Egyptian market. This may actually also increase employment in the US. For these two reasons, the activities envisioned under this program are extremely unlikely to directly result in the loss of any US jobs.

### *Designing Compliance Measures During the Design Phase*

- There should be a mechanism for screening of each project with respect to Section 599 compliance. This could be in the form of a checklist of pass/fail criteria. Examples of criteria include: Degree of newness / innovative use of IPR and market, relocation trends in that specific industry subsector, stated intent of the parties, labor intensity for the technology.
- There must be a certification by each participating US firm that it will not use program funds to relocate jobs abroad.
- All sub-agreements must contain required PD-20 clauses.
- A full set of rules and screening criteria should be developed during the design phase. The detailed design should analyze several possible projects to determine the risk of violating Section 599 requirements. An example may be as follows:

*Egyptian software developer has an alliance with an American producer of Manufacturing Resource Planning (MRP) software. She proposes to use the USAID ETF grant to attract the American company to enter into a joint venture to develop new*

*software modules tailored to the Middle Eastern market. The technology is new to Egypt, results in new products, and will be produced both in Egypt and the US. If the project succeeds, the production will not replace US production. Moreover, the funded activity will involve only the development phase. If it succeeds, the US firm will invest in new production facilities in both countries. This case of assistance is unlikely to result in USAID funding an activity which will result in the relocation of US jobs, and in fact, will more likely generate US based employment.*

## **B. Use of Mixed Credits**

It is not lawful for USAID to engage in investment or loan activities using multiple credit types for an individual program beneficiary. While the ETF may develop several loan or grant "products" to suit the needs of target technology businesses of various sizes and levels of sophistication, no more than one type of financing may be provided to an individual recipient.

## **C. Money Disbursements to Egyptian Private Firms**

The USAID Mission legal department determined it is not prohibited for the ETF to provide financing to Egyptian private firms.

## **D. Duration of USAID Fiduciary and Program Responsibility**

The Investment Fund is expected to be in operation for approximately eight years. At the end of this period, USAID needs to free itself from any outstanding fiduciary responsibilities or liabilities. All agreements and sub-agreements must clearly indicate a program termination date and procedure. Moreover, loans and grants must be structured to prevent costly and difficult default proceedings. This can be accomplished through the use of write-off procedures in the event that non-repayment occurs.

## **E. Egyptian Central Bank Approval**

Representatives of Egyptian banks did not think that Central Bank approval is required to implement the ETF. This would require more detailed investigation during the detailed design.

## **8. RETURN ON RESOURCES**

### **A. Financial Return**

As stated above, the expected financial return of the fund would be negative. We expect it would be in the range of - 3% to - 6% per year. This reflects the fact that the fund is essentially a grant program intended to provide strong incentives for private R&D.

### **B. Development Impacts**

The development impacts will include the following:

- 30 to 40 technology development joint ventures
- Potential policy changes related to technology transfer and commercial R&D
- Demonstration of the viability of private sector-led technology development. This provides a model to shift public R& resources from public to private research
- Increased exports
- New jobs created in both Egypt and the US

### **C. Opportunity Costs**

It is impossible to estimate the opportunity cost of carrying out the technology fund rather than another project that promotes exports, direct foreign investment and technology development. However, two points can be made that support proceeding with the ETF.

First, USAID already has a large program supporting public sector R&D, and numerous activities related to partner and supplier matching, export-related policy reform, quality improvement, and other relevant areas. Given the innovative nature and demonstration effect of the ETF activity, it is likely that at this phase in USAID's program, the ETF is as good or better than alternative export and technology program investments. The ETF is an innovative activity that represents an appropriate next step in USAID's efforts to stimulate both export growth and commercial technology development.

## **9. PUBLIC PRIVATE COMPATIBILITY**

### **A. Role of GOE**

We recommend a very limited role for the Government of Egypt in this project. We also recommend a very limited role for parastatal corporations, GOE research agencies and universities. We would recommend two specific but limited roles for GOE and its agencies.

(1) The project could provide financial support to government research agencies and parastatal corporations if they submit an application jointly with a US firm. This would cover cases like AGERI submitting applications with a firm such as Pioneer HiBred. The intent of the project is to support private commercial R&D. However, there are situations where private firms have identified valuable capabilities in the public sector. It makes sense to support these, and it will not distort the intent of the project to allow public agencies to participate when they have "something to sell."

(2) We recommend consideration of a technology policy council that would work under the auspices of both the ETF and Subcommittee 2. This body would consist of high level public and private sector representatives, and would be responsible for providing the GOE with recommendations on policy actions that will provide incentives for private technology development, or remove barriers to technology development. The council would be given a budget sufficient to pay meeting expenses and two empirical studies per year on private technology development. It would have absolutely no control over ETF projects and would not participate in board meetings.

## **ANNEX 1: INTERVIEW DESCRIPTIONS**

These notes were collected using a standard data collection guide during interviews. The interviews were intended to serve as inputs to the feasibility analysis. Therefore they are written in a manner that allowed us to easily analyze the data, not to write a full case study about the firm. Contact information for all interviewees is included in a separate annex.

### **PRIVATE FIRMS**

#### **SARHANK GROUP - MOSTAFA SARHANK - SOFTWARE DEVELOPMENT & INVESTMENT**

- He believes strongly that a venture capital facility is needed for technology commercialization. He is concerned that VC firms in Egypt don't have the technical expertise to implement.
- The grant is needed because there is nothing like it available from the private sector for small firms.
- He thinks a good model for implementation is a JV between a US venture capital firm and an Egyptian one. This way the Egyptian firm can benefit from the VC experience of the US firm. The US firm must have experience in the sectors common here.
- Egyptian software exports are very small; this indicates that this sector needs assistance.

#### **STANDARDATA - ADEL DANISH - SOFTWARE DEVELOPMENT**

- Has collaboration agreement with US financial software firm (Platinum).
- Thinks both venture capital and conditional grants would be in demand. Though he says there is almost no R&D in Egypt, the link to foreign firms is necessary.
- Thinks two markets will be active: Start up companies for VC and specific tech projects with established firms.
- Says Middle East market is too small, only 5% of world market. Thinks help should be provided for Egyptian firms export to Europe.
- Thinks grants are more attractive than equity because equity is complicated and many firms won't want to sell shares.
- Banks are far too conservative and entrepreneurs would rather use their own money to finance projects.
- ETF must have a board that has a strong technical support. Most Egyptian financial institutions here don't have technical capabilities.

#### **GENERAL LITHOGRAPH - HANDY EL KOBAISY - MANUFACTURES PRINTING PLATES**

- Only litho printer in Egypt actually producing the plates here.
- Tried to license technology 8 years ago but too expensive, so they developed it in Egypt.
- Now has US equip and arrangement to sell back to American market through US firm.
- Tried to get USAID financing but needed more than 25% offered. Raised 50% through shareholders and 50% through bank loans.
- Got a grant from EU to put in ISO 9000 quality system.
- Has some projects for which USAID program money could help - - \$200,000 to upgrade machines that analyze and continuously correct chemical developer mix.

- Likes venture capital best because it comes with technology expertise.
- Money 1, Finding JV partners - 2, Access to market data - 3, ST expertise - 4

#### **NASETCO - ASHRAF EL DAH - CHEMICALS & TEXTILES**

- Has some JV experience with EU firms, also has participated in AID programs, e.g., MTC.
- Has had trouble trying to get interest from Egyptian financial community. Tried Hermes, now talking with CIIC.
- New chemical process (new for Egypt), usable in variety of industries - -textiles, coatings, if money available, would probably apply.
- Favors joint venture accompanied by a reimbursible grant due to technology access but thinks if grant pay back is over say 8 years then 200% repayment is fair. No problem giving up equity.
- Thinks NGOs are not technically qualified to deliver expertise on a program like this - - especially in high technology. He says it won't work if the NGO "throws a lot of retired execs on the job."
- Main problem is lack of access to foreign partners. Must have a foreign brand name to sell technology in Egypt.
- Money 1, Finding JV partners - 2, Access to market data - 3, ST expertise - 4

#### **ALPHA ELECTRONICS - ADEL ADIB - MICROCHIP DESIGN AND PRODUCTION**

- They already have agency and tech transfer agreements with foreign firms. They are seeking more from Europe and North America
- Started first Applied Special Integrated Circuits process in Egypt.
- Everything internally financed so far but getting more difficult as they grow.
- Banks don't finance new ventures because they don't have enough collateral at start.
- NGOs will be weak on technical side but useful for contacts. Egyptian High Tech Assoc might make a good partner in this.
- As we discussed this we came to the conclusion that the Deal Making and TA group should probably be multidisciplinary - - a body comprised of several organizations.
- Has some projects of the right size for assistance - - patented multi-occupant taxi meter and expansion of the ASIC process.
- Obstacles for him are Egyptian bureaucracy, which in the case of taxi meters, must be approved by the transport office. Also hard to find foreign market expertise.
- Feels strongly that USAID must finance projects underway - - this is a critical time often when money is most needed.
- Money - 3, Finding JV partners - 2, Access to market data - 1, Short term expertise - 4

**Prospective Projects:**

- Has patent on a taximeter that calculates multiple passenger fares. Cannot get through local bureaucracy for approval in Egypt. Wants to JV with foreign firms to develop concept for overseas markets.
- Wants to develop in house capacity for Applied Special Integrated Circuits (ASIC). First in Egypt to have this. It is the process of designing functions onto a chip for a custom application that replaces printed circuit boards. Used for all electronic applications and micro controllers for smoke detectors, diagnostic machinery and toys. Now working with Italian firm, wishes to work with US firm and to license development software, process, machinery. Huge demand worldwide, they would subcontract to other design houses initially.

**Law 599 Issues:**

- Industry problem: No, high skill and not labor intensive.
- Geographic market: Middle East
- Sectoral or project activities restrictions: No
- US firm relocation desirability: Egypt is nascent and lacking resources, Asia better suited for relocation.

**TECHNOPACK - BAKR ZEITOUN - PACKAGING & PLASTIC FILMS**

- Only one experience with foreign firms, one Italian JV didn't work. None since; all development and financing has been handled internally since then.
- They need management and technical assistance, would like to buy special machinery and licensing from US companies for flexible packaging and maybe artificial paper. This is a big hi tech market.
- USAID needs to focus to specific industries to achieve any impact - - not scatter resources across all sectors..
- A reimbursible grant with 200% pay back is too high, too unattractive unless venture is very high risk which makes the conditional nature attractive. If terms were better, they would be interested in using funds as seed money.
- VC is a much better idea but not in such a small amount. Needs to be \$100 mil to make any impact - - or less if other investors can be added. Must have US VC management.
- Money - 1, Finding foreign partners - 3, Access to market data - 4, ST expertise - 2

**EL MAGHRABY - SHERIF EL MAGHRABY - AGRICULTURE**

- Sophisticated agricultural products trading firm. They are working on deal with Israel for strawberry production rights. Also has deal where vacuum refrigeration would allow export of iceberg lettuce.
- Made attempt to line up deals with US firms, the US firms lost interest once Mr. Maghraby left the US.
- Uses a program for no cost loans (for 18 months) to purchase American equipment but most financing done internally.
- Reimbursible grant is not very appealing - - money is not the problem and 200% payback is too stringent.
- Venture capital at about \$700,000 per investment is a drop in the bucket for equity. If number gets much bigger, this would be right approach for ETF.
- Feels AID typically hates programs that have a return on investment and that USAID only wants to offer TA. He says in this case, TA also happens to be very important.

- Has lots of technology deals in of the right size for program if the terms are better.

#### **Prospective Projects:**

- Would like to increase the ability of his firm to compete in Mediterranean markets for iceberg lettuce sales. Needs to acquire the process and means to build (in Egypt) sophisticated vacuum refrigeration shipping containers. Enables temperature drop to 2 degrees in 16 minutes rather than the conventional 3 hours, which allows product to be sea shipped for extended periods without degradation.
- Has idea to set up a nursery to produce foundation plants for a variety of disease resistant strains. Needs the assistance of JV for entire process design.

#### **Law 599 Issues:**

- Industry problem: To improve agricultural export but specifically for Mediterranean Europe.
- Geographic market: Europe
- Sectoral or project activities restrictions: Refrigeration of agricultural product but not for US sale.
- US firm relocation desirability: Re-import of finished containers is cost prohibitive.

#### **CONSUKORRA - AYMAN KORRA - AGRICULTURAL CONSULTING & TRADING**

- In addition to consulting for companies, just worked with National Bank and 70 others to set up new VC firm to invest up to 25% of companies for growth. Make investments \$100k to \$5 million but the fund is not very speculative.
- For larger concerns, capital market is more popular to raise funds, commercial banks are less flexible. Money is available for good projects but collateral is needed.
- Needs to be convinced banks will be able to run such a program without reverting to their old policies, using standard commercial terms and rates for candidates which otherwise could have qualified under AID scheme.
- Very difficult to get marketing expertise or how to make/package to international standards. This is more important than money.
- Would like to see split between reimbursible grant and equity but equity amount needs to be larger than planned. He is working from the premium end of the market.
- Best thing program could do is find American companies with the commitment, technology and means to work in Egypt.
- Must deal with companies of a minimum level of sophistication otherwise everyone is wasting their time.

#### **BELCO - SHERIF EL BELTAGY - AGRICULTURE EXPORT**

- Deals with small & mid sized agricultural firms wishing to export vegetables.
- Clients prefer internal financing but will use banks upon occasion.
- Will provide a list of firms that may have good proposals.
- Biggest problem is firms don't know where to begin a search for foreign partners or distribution channels.
- Not familiar with venture capital or equity financing mechanisms.

#### **HEIA - HUSSEIN AL AGUZY - PRODUCE, PACKAGING, TOURISM**

- Seems sophisticated and prosperous. Has own farms, vertically integrated packaging and printing operations (including chemicals, dyes) for export and domestic food market.
- Has been looking for JV with foreign producer of offset dyes, a printing process that is relatively new to Egypt.
- His deals are much too large for half million investments. He believes \$3-5 mil per transaction is necessary. He is in the market elite.
- Has same suspicions of banks as everyone else, too conservative but if our program can direct their loan behavior that may work.
- Money not the issue, though, technology transfer is the most important thing. Assistance in making a successful deal with a foreign firm is also needed.
- Would like to have a firm available to specialize in domestic and foreign market research. This is a needed service in Egypt..
- Interesting point - - why not have the \$700,000 as a possible 10% seed money on a big project to help get the other investors moving and to cover initial costs? Why must cost sharing be 50%?
- Can USAID get around the 32% tax applied to foreign loans?
- Very important to screen companies that have technology value added capability and willingness to work in Egypt. This service alone would be worth the USAID project.

#### **ARLEN MIDDLE EAST - PIERRE MILLE - CONSULTING TO THE AGRICULTURE INDUSTRY**

- They act as representative and middleman for agribusiness companies.
- Has agreement with California nursery, also marketing products in Europe under joint venture.
- Company very healthy financially, mostly finances internally.
- Has some good projects which might fit. One is to set up a plant for agricultural tissue production. The labs in Egypt doing this now are ineffective. Would require \$5 million to start. Also, working on soil improvement technologies with French and Swiss.
- He has five people in their group just to handle Egyptian gov't bureaucracy. Dealing with the government is a major cost. On positive side, creditability of Egypt as producer for world market is improving.
- He finds USAID bureaucracy and restrictions difficult.
- Would consider reimbursible grant program but only in dollars and with a long pay back period.
- Wouldn't consider equity for main company but could set up separate joint venture for project using equity.
- Money - NA, Finding foreign partners - 1, Access to market data - 2, ST expertise - NA

#### **Prospective Project:**

- Agricultural tissue production laboratories in Egypt are ineffective. Would like to set up mother plant production system and facilities for potatoes, bananas, dates and strawberries, among others. There is a great demand for plants with disease and insect resistance.

**Law 599 Issues:**

- Industry problem: To improve agricultural resistance to disease for local farmers.
- Geographic market: Egypt
- Sectoral or project activities restrictions: Agricultural improvement but not for US sale, must ensure agricultural restrictions are not breached through US imports..
- US firm relocation desirability: Industry much further advanced in US.

**SIRGANY JEWELRY - SHERIF SIRGANY - JEWELRY MANUFACTURER**

- Has medium sized jewelry factory and several retail outlets.
- He is president of Egyptian Jewelers Assoc.
- Until recently jewelry industry was highly regulated. There are still some anomalies - - in Egypt, unlike the rest of the world, jewelers must borrow from banks to buy gold stock. In other countries, jewelers merely borrow the gold itself without needing to raise cash.
- Has project idea which was proposed UNIDO to set up an institute (and production facility) equipped with latest machine technology. The institute would revitalize the industry in Egypt through training and high-quality production in all facets of the art (there is no longer a single qualified gem cutter in Egypt, for instance). Tech comes in as new machines needed for high volume production of chain, etc.
- Would be interested in reimbursible grant program but would finance only a very small piece - - \$8 million is needed to implement his project. JV also of interest for the institute - - government has offered an institute building.
- This is clearly more of a training idea than a technology development idea.

**DIAMOND TEXTILE - HASSAN ABOU EL SOUD - TEXTILES / GARMENTS**

- Medium / large textile firm and also owns retail outlets. Employs 800 people.
- Would like to upgrade finishing machinery (stentor which is the key machine in finishing fabrics). The more modern of these machines greatly increase quality. They are not widely available in Egypt. More widespread use of these machines would greatly improve competitiveness.
- In the past has always internally financed large purchases but this has led to less than optimal machinery, sometimes used equipment.
- Very interested in reimbursible grant program but feels 200% payback may not be better than what banks offer. Not ideal for projects which are very likely to succeed.
- Also made a good point that if the US supplier of a machine is much more costly than say a German supplier then the grant program makes no sense for him.
- In his case, equity is not attractive because he would not be setting up a separate operation to utilize the technology and would not want to give up ownership. Feels venture capital concept is too new in Egypt for many business people to adopt.
- Money - 1, Finding foreign partners - NA, Access to market data - 3, ST expertise - 2

**ACHMED BAGHAD GROUP - DR. AMIN NASSER - CONSUMER ELECTRONICS & REFRIGERATION**

- Large and sophisticated firm with lots of money - one of most successful in Egypt with many different industries served.

- Producing televisions, refrigerators, air conditioners - - all under license, also furniture, real estate development, injection molded plastic parts. Uses very best machinery of European make, very new and clean facilities. Vertically integrated with R&D.
- They have access to plenty of money and outside resources.

**CITRO MISR - DR. IBRAHIM EZZAT - BIO-TECH, FOOD PROCESSING, AGRICULTURE**

- Principal takes his bio-tech and food industry ideas and promotes them to Egyptian and Arab investors, now has a regular group he works with.
- Usually raises 50% equity and 50% bank financing (formula he claims keeps IRR rate within limits), many in much larger denominations than our program would support. Does have some bio-tech ideas which might fit.
- Biggest problem with banks is they don't have the technical expertise to analyze cash flow potential of projects.
- U.S. firms are risk averse, only want to sell their products, afraid of gov't regulations.
- \$25 mil is too small an amount to be of much use except maybe as seed capital in bio-tech, maybe 10% of a big project. 200% pay back is onerous unless to finance only the most risky of projects.
- Any program implemented by the banks will be corrupted by their usual lending practices. We would have little ability to prevent them from denying program funds to worthy technology clients because the client firms would not accept other bank conditions or perhaps the other 50% from that bank at high rates.
- We discussed a model in which technical reviews would be done by the TA arm and the client is then passed onto any of several participating and competing financial institutions for best arrangement on the program funds.
- Likes equity idea better, pay back period could be much quicker and it is a better transfer of tech instrument.
- Money - 4, Finding foreign partners - 1, Access to market data - 2, ST expertise - 3

**INTERNATIONAL ELECTRONICS - ESSAM SHETA - TELECOMMUNICATIONS**

- Another arm of the Baghdad Group, this one in teleconferencing, satellite links.
- They are working now on an AID program to link 6 Egyptian hospitals together with overseas expertise. Also want to get further into Integrated Service Digital Networking. This is new to Egypt but these are very big projects.
- Interesting group, but they have their own R&D funds available.

**EASTERN ELECTRONICS - KARIM EL SABE - NAVIGATION AND COMMUNICATIONS EQUIP.**

- Sells and services shipboard instruments, mostly thorough agency agreements with large U.S. firms - Magnavox, Raytheon, Hughes.
- They are eager to get into a JV and get more technology to sell to the Egyptian market. They have some excess production space in a free trade zone.
- Small firm, finances internally. Best idea is to create an electronic supermarket of products here in Egypt. Also would like to assemble hand held computing devices.

- Has not been able to convince U.S. firm it has the quality control to set up manufacturing. Therefore, the company concentrates on sales now.
- Thinks 200% repayment rate is high, and that firms could probably get better terms from a bank, but would consider reimbursible grants.
- Not convinced that equity would work, but if clear exit strategy and if they can avoid loss of control, they may consider it.
- Money - 3, Finding foreign partners - 1, Access to market data - 4, ST expertise - 2

**AL RIYADH GROUP - LOTFY AL RIYADH - ALUMINUM PRODUCTS AND STAMPINGS**

- Small company specializing in aluminum windows and extruded aluminum channel. Very interested in improving their capacity through a joint venture with a foreign firm.
- Wants to buy machine to make aluminum screen. They now buy \$2-\$3 million per year in screening from outside. The machine to make alum screen is very expensive.
- Better project may be to help him acquire the coating and oven technology to color coat aluminum, also anodizing process is needed.
- Another idea to buy machine to make galvanized sheet metal screws, not done in Egypt now, all bought from places like Taiwan.
- This is all off the shelf technology acquisition. It would probably not qualify for an ETF grant.
- They finance most projects internally, but this constrains business growth.
- Had much difficulty in getting U.S. firms interested in JV.
- Would take advantage of the reimbursible grant program if can pay back in quarterly or semi-annual installments - - otherwise cash flow strain is too great.
- Would consider equity only for new subsidiary such as firm to produce the sheet metal screws.
- Money - 2, Finding foreign partners - 1, Access to market data - 4, ST expertise - 3

**SOIL TEC VIBRA - EHAB NADA - FOOTINGS AND PILINGS FOR BUILDINGS AND BRIDGES**

- Very small company: \$400,000 annual sales. Has two machines, cranes with devices to make footing holes for large structures.
- Acquired the machines from German company through joint venture, he has now bought them out. He is seeking updated technology (drilling instead of hammering the holes).
- The grant program sounds interesting but could get similar rates at banks and he is not venturing into anything very risky. Hates dealing with banks, nearly impossible to live with their terms when a small business.
- He is looking for off the shelf technology.
- Would consider equity but only with a very clear exit strategy and not too much management interference.
- Money - 2, Finding foreign partners - 1, Access to market data - N/A, ST expert - N/A

**EL FAYOUMI - HAZEM EL FAYOUMI - STEEL PATIO FURNITURE, COMMERCIAL DISPLAY RACKS**

- Family owned business, they produce fairly high quality steel products - - bending metal, in-house galvanizing, fully automated German color coating machine.

- For growth and efficiency, they need CNC machinery that will greatly improve ability to consistently turn out a quality product and reduce expense.
- They have a good understanding of the market and what they must do to satisfy it. Want to greatly improve their sophistication with customer quality surveys, etc. -- especially want to build up a brand image.
- Do some bank financing but like most small/medium companies, they try to avoid banks and generally finance internally by buying used machinery. They generally cannot buy "state of the art" machinery.
- They think they can find their own partners, but they need money to upgrade.
- Reimbursible grants would be compared against the terms of a bank. Not interested in giving up any control and the upgrading is intended for the main company not an offshoot.
- This is an off the shelf technology need.

### **T3A PHARMA GROUP - DR. TAREK EL HADY - PHARMACEUTICALS**

- Three year old, fast growing pharmaceutical company - \$11 mil US sales already. Have been importing US products on their own.
- Tried some donor program assistance, experience with USAID has been very disappointing, particularly with MTC - "nothing happened except meetings." Prefer to do it on their own. Felt the CQA program was an exception -- very good.
- Would be interested in this program if we can make it simple and efficient.
- Have ideas to take on bio-technology production in Egypt and raw materials production for pharmaceuticals. Good prospect for technology transfer assistance and US companies favored.
- Now discussing with German and Gulf firms for JV at 24% equity for two years but only financial - no tech transfer or expertise is included in these deals. The technology is what they really need.
- We got into the composition of the TA component of the program -- younger dynamic group of say 7 people from tech industries without big business heavy hitters. Involve Egyptian nationals returning from US. Keep sector focus narrow.
- Money - 4, Finding foreign partners - 3, Access to market data - 2, ST expert - 1

#### **Prospective Project:**

- Would like to set up a chemical synthesis production facility to make cephalosporines for local and international markets. Searching for a partner for design, engineering and setting up the process and physical plant. Will produce interferon, erythropoietin, growth hormones.

#### **Law 599 Issues:**

- Industry problem: No. Pharmaceuticals industry is world-wide, Egypt has no capacity to be a key player.
- Geographic market: Egypt & Middle East
- Sectoral or project activities restrictions: No.
- US firm relocation desirability: Production capacities too small, not enough available expertise.

### **INTEGRATED SYSTEMS GROUP - DR. ADEL GHANNAM - SOFTWARE DEVELOPMENT**

- Dr. Ghannam leads this company and is on board of two tech associations. Very tuned into industry needs.

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- Has been working with a US software supplier of an MRP type product. They not only market this here (called Fourth Shift) but have designed many modules for use with it, some Arabization as well. Considers his company a solutions integrator.
- Says Egyptian manufacturing industry needs a paradigm shift, until this happens products like MRP will have a limited market. Has idea to start up JV to combine training and upgrading of customer sophistication with sales of his products - - a pretty sound strategy on the surface.
- Also like to work with US company for training, service, product support and manuals.
- Very difficult to work with banks, they don't understand the software industry and cannot collateralize in a reasonable manner. Prefers venture capital option because he needs a good firm to help him and he prefers partnerships, also better for cash flow.
- An advantage to his training idea is the leverage which AID would get for its money, many firms being affected in addition to his more intensively.
- Feels TA component should be no more than 8-9 people. Reps from technical and marketing sides of two high tech associations, one from financial community to provide financial community "packaging" angle, one from trade chamber one from industrial union and one management consultant type. But, no GOE people on this one.
- Money - 1, Finding foreign partners - 2, Access to market data - 4, ST expert - 3

**Prospective Project:**

- Has begun initial contacts to work with a US software company to develop a manufacturing resource planning program (software) targeted specifically to Egyptian small manufacturing businesses (under \$10 million revenue, of which there are about \$10,000). This is to be a bi-lingual, integrated product that pulls all functions of a company together in its materials planning and production processes. It is a necessary for well managed business growth. ISG needs to partner with a firm to adapt their software into a suitable product. They will need a platform, training, design exchanges between the two companies and the communications infrastructure to work over the Internet. This project will have a great leveraging effect on Egyptian industry.

**Law 599 Issues:**

- Industry problem: No. Software development is not a problematic industry.
- Geographic market: Egypt & Middle East
- Sectoral or project activities restrictions: No.
- US firm relocation desirability: Nature of project is development for Middle East market, no need nor advantage in relocation, this is add on business for US firm.

**FIRST EGYPTIAN ENGINEERING - HISHAM FOUAD - SOFTWARE DEVELOPMENT**

- Small/medium sized software company (6-7 mil LE and 75 people) with specialized niche. Mostly sell to oil industry and some utilities - - capital equipment maintenance software, fleet management software.
- Have sales agreement with IBM and NCR but nothing really in terms of a joint venture. They seem to be very strong technically but by their own admission don't know how to market.
- Doing much product development now but their markets are limited, could have broad appeal to rest of Middle East or as additional lines for US companies. Also interested in modifying foreign products for local market, had some discussions with German firm.

- Likes idea of JV to gain marketing assistance and expertise.

**MANTRAC GROUP (MONSOUR) - WAGDY EL ITRIBY - TRADING, AUTOMOTIVE, CONST EQUIP**

- Professes to be largest privately held firm in Egypt. Has sales/service agreements with GM, Caterpillar, IBM, Philip Morris, McDonalds (need I go on).
- Interest in our program is certainly not money but they do have an internal IT group, which until now has only serviced the group. Now they would like to turn it into a business unit in its own right and the largest such services firm in Egypt.
- Interested in expanding relationship with IBM but not sure they will be a tech transfer partner, only wants to use them for sales/service at present. Looking for a partner to help them market software/hardware system solutions to Egyptian, African and Middle Eastern companies.
- Not aware of any GOE policies which would hinder any JV or penalize and American firm doing JV business here. In fact, there are 10 year tax holidays for investing in certain geographic areas.
- They do work within Free Trade Zones which we would need to avoid.
- They obviously could have a number of possible proposals, but they didn't have anything specific ready to discuss.

**SEMC/NTG - MARWAN AASAR - SATELLITE TECHNOLOGY AND TELE-COMPUTER SYSTEMS**

- They are a group of four companies, two of which have interesting technology projects. They are 20% owned by the National Bank of Egypt, the remainder appears to be in private hands.
- They have experience setting up agreements with American firms but they have not been able to do anything more than sales, servicing arrangements.
- Very eager to get more into the development end.
- Their best programs now are one to set up touch tone telephone to computer interface applications and another to set up POS credit card verification systems. The banks are ready customers for both technologies.
- They would be interested in a reimbursible grant and in identifying suitable partners.

**Prospective Project**

They have negotiated a sales agreement with a company which makes software to link computers with touch tone telephone use. Banks and other Egyptian service industries are in need of this technology to keep up with international standards. Another similar technology in which they wish to expand is point of sale (POS) credit card verification systems. At present the company is involved in selling such systems and servicing them but this is extremely limited because the real need involves integrating the customers specific needs with the available hardware and the software. This must be done in Egypt for Egyptian customers. NTG requires the very definition of technology transfer to develop their skills to properly design integrative systems.

**Law 599 Issues:**

- Industry problem: No. Software integration is not a problematic industry.
- Geographic market: Egypt
- Sectoral or project activities restrictions: No.
- US firm relocation desirability: Nature of project is development for Egyptian market, no need nor advantage in relocation, this is add on business for US firm.

**PIONEER HIBRED - ACHMED KAMEL - BIOTECHNOLOGY**

- They are closely allied with the Agricultural Research Institute.
- They are working on a number of biotechnology projects but are most enthusiastic about a corn gene which produces natural pest repellents and another which involves setting up a laboratory to identify seeds that have male sterility.

**Prospective Projects**

- Develop a laboratory unit for commercial sale which identifies male sterility in seed stock. This is a technology relatively new to Egypt and its demand should be great to engineer biologically altered plants for breeding operations.
- Develop corn with a BT gene for commercial sale which will be much more resistant to insect damage. This would require some technical assistance and expertise in the set up of such a project for commercialization

**Law 599 Issues:**

- Industry problem: To improve agricultural resistance to disease for local farmers.
- Geographic market: Egypt
- Sectoral or project activities restrictions: Agricultural improvement but not for US sale, must ensure agricultural restrictions are not breached through US imports..
- US firm relocation desirability: Industry much further advanced in US.

**GARNO MISR - GAMAL EL DIN YOUSSEF - ENVIRONMENTAL AND WATER ENGINEERING**

- Now primarily in industrial waste treatment.
- He would like to work with a US company but has trouble getting responses from them.
- He believes US companies have little interest in dealing with unknown Egyptian companies.
- He has a patent for a trickle water filtration system using biologically active substances but would like to set up a full scale plant to test the technology under real conditions.
- Would like to work with a US firm to set up a small plant, to be followed by larger plants for sale.

**FINANCIAL COMPANIES & BANKS****MIBANK - MOHAMED OZALP - BANK**

- One of the largest private banks in Egypt.
- Believes there is demand for venture capital in Egypt but it is very new and not yet common.

- Thinks the program is best administered by 2-3 banks to foster competition. He would be comfortable working as a managing bank or as one of the others.
- Banks will not take the FX risk, should be able to borrow in dollars and repay in pounds.
- Likes the idea of identifying opportunities. Would be willing to work on a fixed fee to cover costs and with a bonus of some kind to provide incentive to book the loans/grants.
- Thinks the facility should be restricted to small and midcaps.
- Eager to participate in the program.

#### **COMMERCIAL INTERNATIONAL BANK (CIB) - MAHA RAGAB - BANK**

- They are implementing a number of donor funded programs, including FSDP (agricultural), EU tourism, USAID antiquities, among others.
- They are very comfortable with implementation of these and their reputation is good.
- They are lending EU loans at 7-9% taking a spread of 2.5-3.5%. Prime rate is 11%.
- They would be very interested in managing the tech fund, either the loan or grant. If the grant, they would require a fee to manage it. On loans they would take a spread.
- View the program as very important for Egypt's development. They have industry experts (organized by industry) who could evaluate technical merit of a proposal.

#### **EGYPTIAN AMERICAN BANK (EAB) - AMR FAWZI - BANK**

- A large private bank they do not have much experience with this type of product.
- Thinks it is needed because there are a lot of clients which are just too small and risky to deal with. Would like to be able to have a product for them.
- Not overly enthusiastic, a wait and see how the design turns out response.
- They might work on a spread for the loan option or a fee for the grant but he would need to take it up with his management.

#### **ARAB INVESTMENT COMPANY - ABDUL MONEM OMRAN - INVESTMENTS**

- Very excited about the concept. Would like to participate in some way, maybe even to commit some money and/or get others involved,
- Running two other investment funds now (\$55 mil & 250 mil LE).
- Likes VC alternative best. Doesn't think banks have the expertise to do this and money would go to favorite bank clients. True VC also not available in Egypt now.
- Prejudiced against donor programs, thinks too administratively complex, especially for small firms.
- Narrow the target sectors and have a good idea in mind of the client profile.
- High tech better here, e.g., software development better than leather products - - there are already programs for the lower tech industries.
- Has some good deal flow prospects (dairy, packaging, others).
- US partner would be very helpful in finding deals.
- Would need small management fee and transaction fee - - much time and money spent to research say 5 companies, if lucky 1 works out.

#### **CAPEX CORPORATION - AHMED ABOUZIED - FINANCIAL CONSULTING TO MID SIZED FIRMS**

- Fairly new firm but gaining good reputation. One of Managers spent 20+ years in the U.S., understands the market.
- They line up financing and use debt, equity and bond issues - clients can't do this.
- Feels their role is to bridge the gap between Egyptian firms and need for technology exposure. Now running fund management, portfolio management and other services.
- Have minimal experience with joint ventures (at Capex) but now working with an industrial gases firm looking for foreign technology. Also clients in food industry, automotive.
- Avoid public banks at all cost.
- Connections are everything here and some companies without merit can borrow as they like, other with good ideas cannot get funds.
- Thinks 200% pay back on a CG is usurious and too difficult for a smaller firm.
- Prefers the equity approach because it gets all parties working in the same direction while providing a higher chance of return for the investors - - also avoids high debt service for company. Better chance to leverage for more financing, preserves capital.
- We must very clearly define the target company profile.
- Money - 1, Finding foreign partners - 2, Access to market data - 4, ST expertise - 3

#### **INTERNATIONAL FINANCE CORPORATION - MANUEL NUNEZ - DEVELOPMENT BANK**

- They are conducting equity investing in a variety of sectors - - including for example the banks.
- Believe that a bank will not be motivated to set up good deals which are in keeping with the program objectives.
- Thinks the amount proposed \$500K-\$1 mil is too little to be of much interest to but that there is a market for its use.
- Suggested we talk to Concorde Investments and Cairo Capital Group.

#### **BANK DU CAIRE - MOHAMED EL HADIE - PUBLIC SECTOR BANK**

- They are getting involved in some credits programs.
- They are also implementing the CIP program but seem to have little interest in expanding their effort to something of a more complex nature.
- The bank itself appears to be suffering from its own lack of technology.

#### **INDUSTRIAL DEVELOPMENT BANK - MOHAMED EL WASIFY - PUBLIC SECTOR BANK**

- Their reputation is one of slowness and inactivity. The impression while meeting with them tended to support this.
- They do believe they have the type of technology client base which we are looking for.
- They have become involved with USAID programs in the past but they were dropped. When asked why, they claimed to have no understanding of the reasons.

#### **CAIRO CAPITAL GROUP - KHALIL NOUGAIM - FUND MANAGEMENT & INVESTMENTS**

- Referred by the IFC. They are an aggressive fund management company which is enthusiastic to become involved with the program.
- Have some technical staff already who understand technology development.
- Principal is MIT trained and appears to have decent contacts with the US.
- They have investments in India and have worked with the WB and other donor agencies.
- Would prefer to work on an annual fee to cover operating expenses, approx 200-300K and perhaps another 100-200K in reflows per year (in lieu of equity position) would make them content.
- They would prefer to see an equity investment arrangement but remain flexible.
- They consider one of their strengths to be management assistance to growing companies.

#### **CONCORDE INTERNATIONAL INVESTMENTS - MOHAMED YOUNES - INVESTMENTS**

- Another referred by the IFC, one of the largest investment companies in Egypt. Believes the amount we have per project is too small. Deals in investments of at least \$2-3 mil.
- Despite this, he is interested and would like to discuss further. They could manage the program at a high advisory level and turn day to day operations over to a private bank which they could also select.

#### **EXPORT DEVELOPMENT BANK - ASHRAF ABOU ALAM - PUBLIC SECTOR BANK**

- They are involved in a variety of high tech industries and would be interesting in implementing a part of the fund.
- They perform similar programs now for others (European Investment Bank) and would be very comfortable on a 2% margin for loans.
- They have a USAID marketing department already.
- Believe a pool of banks would get the job done better than one.

#### **INSTITUTIONS, NGOs, MISCELLANEOUS**

##### **AGRICULTURAL RESEARCH INSTITUTE - MAGDY MADKOR - RESEARCH INSTITUTE**

- Believes tech commercialization fund is needed now. Especially to transform from public sector driven research to private sector.
- Grants or VC would work but depends upon the stage of the company (grants may be better for small cos.).
- Does not think the fund should be limited to private companies. Cover JVs between US and Egyptian organizations one of which could be a public one.
- Believes private banks best choice to administer the fund.
- Opportunities in seed production, natural predators, natural toxins, enzymes production, among others.
- Examples exist now in JVs where firm here gets 15% of sales under license from foreign firm.

##### **GOE CIVIL SERVICE REFORM PROGRAM - HAMED MOBARAK - GOE TRAINING INSTITUTE**

- Was former head of the Social Fund For Development, assumed he would have some good insights and contacts, neither seem to be the case.

- Did say there are plenty of money sources out there, why not set up a guarantee fund instead? Thinks this is best way to make use of limited funds. Too small for VC.
- Suggest the technical partner be the Union of Industry and that the sectoral focus be narrow.

**SOCIAL FUND FOR DEVELOPMENT - HUSSEIN GAMAL - GOE SOCIAL INSTITUTION**

- Believes venture capital and grants are needed, particularly in the small and medium segments.
- Focuses on very non technical industries as cheese producers and micro enterprises in his thinking and the current threat of opening borders.
- Training and organizational assistance are desperately needed.
- Believes there might be a collaborative effort between them and the investment fund and would like to stay informed.
- Venture capital companies don't act like US VC firms in Egypt, much more conservative.

\* **Note:** Other Institution meetings were held but notes were not made for each meeting.

# EGYPT PACT PROGRAM CONTACTS

Codes: F = Financial/Bank (13), I = Institution/Misc. (6), P = Private Company (27)

MEETING DATE	COMPANY	INDUSTRY	INDUS CODE	CONTACT / PHONE	ADDRESS	REFERRED BY	NOTES
Sun 4/26 11:30	MIBank	Bank	F	Mohamed Ozalp 349-4424/7091	54 El Batal Ahmed Adel Azziz Mohandessin	USAID	Large sophisticated bank. eager to work as partner.
Tue 4/28 1:00	Egyptian Finance	Investments Corporate Finance Consul	F	Dr. Farid Saad 341-3105	4 Hassan Sabry St 4 Corners Building Zamalek	USAID	Interested but not clear fit. May be good deal flow generator and money agent.
Tue 4/28 2:30	CIB	Bank	F	Maha Ragab 570-2679	Nile Tower 6 <sup>th</sup> Flr 23 Morad St Giza	Yasser Mellawane	Good partner prospect, experienced with fund management.
Wed 4/29 8:30	EAB	Bank	F	Amr Fawzi 391-5374	48 Abdel Khaled Sarwat St downtown	USAID	Not overly enthusiastic, likely need 2 <sup>nd</sup> meeting with another.
Wed 4/29 11:00	Egyptian Financial Group - Hermes	Investments Financing	F	Dr. Mohamed Taymour 336-1606/1299	3 Ahmed Nisseen St Giza Near University Bridge	USAID	Good fund management experience, could participate as partner, thinks fund is small.
Thu 4/30 2:00	Arab Investment Co.	Investments/ Financing	F	Dr. Abdel Monem Omran 304-0051/2	50 Geziret El Arab St Mohandessin	Mohamed Taymour EFG	Works w/ 2 other funds wants to participate. Has good deals in packaging dairy, others.
Sun 5/10 3:30	Capex Group	VC Funds	F	Mohamed Mostafa	9 Abdel Moneim St 4 <sup>th</sup> flr Mohandessin, Nat Bank for Develop Bldg	Tarek Albaz Embassy FCS	Relatively new but pretty strong and enthusiastic as a financing partner.
Wed 5/20 2:00	International Finance Corp.	Development Bank	F	Manuel Nunez 579-6565	1191 Cornische World Trade Center 12 <sup>th</sup> Flr downtown	USAID	Believe program is welcome by the market and that we should consider a good fund management group to run it.
Thu 5/21 10:00	Bank Du Caire	Public Sector Bank	F	Mohamed El Hadie 393-1435	47 Kasr El Nil St downtown near opera	USAID	Not a likely partner prospect. Program not appealing to them.
Thu 5/21 11:30	Industrial Development Bank	Public Sector Bank	F	Mohamed El Wasify 574-6028	110 El Galaa St. Ramesses Cairo	USAID	Not a likely partner prospect. Past experience on development progs has not been good.
Thu 5/21 1:30	Cairo Capital Group	Investments Financing	F	Khalil Nougaim 354-8018/2049	4 Latin America St Garden City across from Embassy	Manuel Nunez IFC	Very interested in participating. has tech experience & fund management experience.
Thu 5/21 1:00	Concorde Investments	Investments Financing	F	Mohamed Younes 340-9325, 341-1293	5 Mohamed Anis St Flr 2 Apt 6 Zamalek	Manuel Nunez IFC	Would like to manage fund high level and find bank to administer. Thinks \$2-3 mil per transaction is best.

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MEETING DATE	COMPANY	INDUSTRY	INDUS CODE	CONTACT / PHONE	ADDRESS	REFERRED BY	NOTES
Tue 5/5 11:30	TechnoPack	Packaging	P	Bakr El Zeitoun 340-9289	31 Ahmed Heishmed, 3 <sup>rd</sup> flr Zamalek Near Hotel Safir	Karen Muir MTC	Feels money is small but has some projects in flexible packaging development which is direction of industry.
Tue 5/5 1:00	El Maghraby	Agricultural	P	Sherif El Maghraby 578-1151	13 Abd El Kalek Tharwat, Downtown	Magdy Madkor AGGRI	Sophisticated, interested in transfer of vacuum refrigeration tech. to export iceberg lettuce.
Wed 5/6 12:30	Belco	Agricultural Export	P	Sherif El Beltagy	19 Abo El Feda St. Zamalek, Cairo	Ayman Korra Consukorra	Maybe supplier of a few client firms.
Wed 5/6 2:00	Consukorra	Agricultural	P	Ayman Korra 593-0001	14 El Alfi St El Thawra Bldg 6 <sup>th</sup> Flr 605 Downtown Mibank downstairs, near Ramsses Sta	Magdy Madkor AGGRI	Good industry contacts, could help run as partner or get investors.
Wed 5/6 3:30	Aleghesi Industries	Food Processing	P	Hussein Aleghesi 570-2645	21 Morad St. Nile Tower 9 flr Giza	Kelly Harrison ATUT	Sophisticated, not perfect match as his deals are too big, good as advisor.
Thu 5/7 12:00	Carlen Middle East	Agriculture / Irrigation	P	Pierre Mille 355-4799	1103 Cornische El Nil near Shippered Hotel downtown	Kelly Harrison ATUT	Has idea to set up venture for ag tissue production.
Thu 5/7 1:30	Diamond Textile	Textiles	P	Hassan Abou El Seoud 012/214-8508	46 Gomhorria St. Opera Sq. Downtown Cairo	Hassan Kasseba	Finishing machine project needs favorable terms.
Thu 5/7 2:30	Sirgany Jewellery	Jewellery Production	P	Sherif Sirgany 391-3044	37 Abdel Khalek Sarwat Cairo, downtown	Hassan Kasseba	Has institute project to revitalize industry & production methods.
Sun 5/10 11:00	Baghat Group Goldstar	Consumer Electronics	P	Dr. Hany Hanyassal 011-333-510	6 <sup>th</sup> October City	USAID	Very impressive facilities Don't need us.
Mon 5/11 10:00	Citro MISR	Bio- tech, Agriculture	P	Dr. Ibrahim Ezzat 291-3327	17 Ibn Sina St Heliopolis Beyond Meridian Hotel	Karen Muir MTC	Excellent knowledge of industry. "Must be led by tech. not bank decis." Has some bio tech projects might fit.
Mon 5/11 11:30	International Electronics	Telecom, video conferencing	P	Essam Sheta 261-8333	1 El Obour Bldg 1sr Flr Salah Salem St Heliopolis		Heavily underway with their niche, owned by Baghat, don't need us.
Mon 5/11 12:30	Eastern Electronics	Ship navigation & communication	P	Karim El Sabe 403-0749	8 ElObour Bldg 6 <sup>th</sup> Flr Nasr City	Hassan Kasseba	Small firm, decent candidate for help, has sales agreements now.
Mon 5/11 3:30	Al Riyadh Group	Aluminum Extusions and Products	P	Lotfy Al Riyadh 252-5965	12 El Safa St 1 <sup>st</sup> Flr Maadi	Hassan Kasseba	Small/med, good candidate for assist, good tech ideas. Transfer aluminium anodizing process to Egypt.

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MEETING DATE	COMPANY	INDUSTRY	INDUS CODE	CONTACT / PHONE	ADDRESS	REFERRED BY	NOTES
Tue 5/12 10:00	El Fayouni	Light Steel Furniture/Racks	P	Hazem El Fayoumi 352-0403	Industrial Zone Bassateen 5 minutes from Maadi	Karen Muir MTC	Candidate for improved tech. - very focused management. Has ideas to expand market share. Needs QA process and CNC machinery.
Tue 5/12 12:30	Soil Tec Vibra	Construction	P	Ehab Nada 303-3581	44 El Ryad St Mohandessin	Hassan Kasseba	Very small - puts in construction footings for buildings, needs better machinery to grow.
Wed 5/13 10:00	T3A Pharma Group	Pharmaceutical	P	Dr. Tarek El Hady 571-9302	6A Giza St Giza	Tarek Albaz Embassy FCS	Excellent candidate for assistance. Has focus on pharma production here for chemical synthesis, rapidly growing company.
Wed 5/13 2:00	Integrated Systems Group	Consulting & Software Development	P	Dr. Adel Ghanam 360-1565	3 Degla St Mohandessin 1 <sup>st</sup> Flr Apt 4	Mostaffa Sarhank Sarhank Group	Excellent candidate, very involved with US software cos. Wants to produce new software for small mfrg cos. with US firm.
Wed 5/13 3:30	First Egyptian Engineering	Software Development	P	Hisham Fouad 346-0220	5 Gameat Dowal Arabia St 9 <sup>th</sup> Flr Mohandessin	Mostaffa Sarhank Sarhank Group	Another v good prospect, has good capability and niche in maintenance software & Arabization, eager to expand.
Thu 5/14 11:00	Monsour Motor Group	Automotive	P	Wagdy El Itriby 301-5629	30 Lebanon St corner of Shehad St Mohnadessin	Mona Talaat	Very large private firm, doesn't need our money but wants venture partners.
Mon 5/18 2:30	Megacom	Computers	P	Mohamed Hamemsy 361-7772/3	Telephone discussion but able to meet when ready	Adel Adib	Head of EHITA Assoc and his own firm. Interested for his firm & will find others.
Mon 5/25 10:00	SEMC/NTG	Satellite Dishes Tele-Computer Integration	P	Ashraf Barada Marwan Aasar 305-4547/8	14 Abu Mohassen Shazli St 4 <sup>th</sup> Flr Apt 18 Mohandessin near Hotel Atlas	USAID	Doing sales arrangements with US technology. Wants to develop capacity in design/integration of POS credit card systems and telephone - computer technology.
Mon 5/25 2:00	Pioneer Hibred	Biotech Engineering Agriculture	P	Dr. Achmed Kamel		Magdy Madkor AGRI	Has two good projects, one in seed stock development the other in genetic corn work.

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MEETING DATE	COMPANY	INDUSTRY	INDUS CODE	CONTACT / PHONE	ADDRESS	REFERRED BY	NOTES
Mon 5/25 3:00	Export Development Bank	Public Sector Bank	F	Ashraf Abou Alam 578-2584	10 Talaat Harb St Evergreen Bldg Downtown	USAID	Interested in program, working with other similar donor programs. Most likely of public sector, though reportedly slow.
Wed 4/22 12:00	MTC - IESC	Tech Assist Contractor	I	Karen Muir 390-2209	Al Boustan St. 10 <sup>th</sup> Flr Suite 18 Cairo	USAID	Eager for partner involvement.
Sun 4/26 12:30	Social Fund for Development	GOE Social Fund	I	Hussein Gamal 354-0077	Hussein Hegazy St. off Kasr El Aini downtown	USAID	Interested to cooperate, probably best as collaborator finding cos.
Sun 4/26 3:30	AGRI	Agricultural Research Institute	I	Magdy Madcor	9 Gamaa St Near pyramids road Giza	USAID	Believes fund is needed now for private and public institutions. Has project to implant BT gene into corn.
Tue 4/28 10:00	AMCHAM	Chamber of Commerce	I	El Motoz Sonbol 340-8888 ext 1541	Mariott Hotel Zamalek Tower Zamalek Room 1541	AMCHAM Directory	Good contact base, no insightful link for cooperation.
Sun 5/10 10:00	Hagler Bailly - EP3	Environmental Program	I	Mostaffa Eissa 342-4735	19 Ahmed Heshmed St., 1 <sup>st</sup> Flr Zamalek near Safir Hotel	USAID	Reschedule or fax only.
Mon 5/11 2:00	Civil Service Reform	Gov't Training	I	Hamed Mobarak 403-0410	Salah Salem St 1 <sup>st</sup> Flr Nasr City	Hassan Kasseba	Former Social Fund Head, nothing constructive here.
Sun 4/26 2:00	Sarhank Group	Software Sales / Development	P	Mostaffa Sarhank 574-8952/3	World Trade Center 13 <sup>th</sup> Flr Cornische downtown	USAID	Heads AMCHAM tech committee, knowledgeable, help find deals.
Wed 4/29 12:30	StandardData	Software Development & Sales	P	Adel Danish 302-8313	13 Ahmed Orabi St Mohandessin	USAID	Believes demand is strong for tech fund. Project for US software collaborator- to set up Egyptian operation.
Mon 5/4 10:00	General Lithograph	Printing	P	Hamdy El Kobaisy 378-6930	Bldg 17, Road 100, Maadi Near Carpet City, off square	Karen Muir MTC	Excellent technology co. prospect. Needs new process & equipment to grow. US cooper needed.
Mon 5/4 2:00	NSD-Nasetco	Chemicals/ Textiles	P	Ashraf El Dah 361-6256	14 Adey St., #8, Dokki near NBEgypt	Karen Muir MTC	JV experience interested in CGs or VCs. Has new chemical process usable in textiles and coatings, would probably apply.
Tue 5/5 10:00	Alpha Electronics	Electronics	P	Adil Adib 266-0184	Airport Rd., 5 MISR Development Bldg, 3 <sup>rd</sup> flr In Golden Tire Bldg	Adel Danish StandardData	Good firm, size right, technology ideas. Taxi meters patent, microchips development, needs assistance.

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U. S. Agency for International Development

**MAGDY S. KHALIL**  
SME BRANCH CHIEF  
OFFICE OF PRIVITIZATION & FINANCE

Cairo Center  
106, Kasr El Aini Street  
Garden City, Cairo

Tel. : 357-3336 (9)  
Fax : 355-4395

AGRICULTURAL TECHNOLOGY UTILIZATION & TRANSFER PROJECT  
(ATUT/USAID Project # 263-0240)



**Kelly M. Harrison, Ph. D.**  
Chief of Party  
RONCO Consulting Corporation



ATUT/Agricultural Research Center - 9, Gamaa St., Giza, Egypt  
Tel. : (20-2) 569 - 3234/5/6/7  
Fax : (20-2) 569 - 3238  
E Mail: ronco@internetegypt.com

**NSD** NATIONAL SYNTHETIC DETERGENT & CHEMICAL INDUSTRIES CO.

**Ashraf El Dah**  
G. M. Production & Marketing

Cairo Office : 14 Adey St., Dokki, Guiza, Egypt  
Tel. : 3615041 - 3499592 Fax. : 3614680  
Plant : P. O. Box 34 Sadat City, Egypt  
e-mail: nsd@link.com.eg



General Lithograph Egypt

**Hamdy Kobaisy**  
Managing Director  
& General Manager

Office : 17, Road No. 100 Maadi, Cairo, Egypt  
Tel.: 3786930 Fax :3504083 Mobile : 0122104069  
Factory : 6 th October City Tel : 011 / 331936



**Sarhank Group For Investment - LTD.**

**MOUSTAPHA L. SARHANK**

1191 Corniche El Nile - W.T.C-Boulaq - Cairo - Egypt.  
Tel: (202) 5748955 - Fax: (202) 5748956

**American Chamber  
Of Commerce In Egypt**

**El Motaz Sonbol**  
General Manager

CAIRO MARRIOTT HOTEL Suite 1541  
P.O Box 33, Zamalek, Cairo  
TELEPHONE : 3408888 Ext. 1541  
Fax : 3409482

Diamond Textile  
Textiles & Garments Establishments  
Retailers - Wholesalers



حسن محمد أبو السعود  
HASSAN MOHAMED ABOU EL SEOUD

46 . Gomhoria St.,  
Opera Square - Cairo  
Tel : 02 / 3912202 - 3918652  
Mob : 012 / 2148508  
Fax : 02 / 3918571

Factory :  
Tenth of Ramadan City .  
Tel. : 015 / 364566 - 364728  
Fax : 015 / 368644 .

**KAZA INTERNATIONAL**



Mexican Embassy

**George Nakhle**  
Managing Director



4th. Zone # 93 / 1, 5th of October Ind. City  
6th of October, Egypt

Tel. : 011/331-401  
011-333-750  
Fax : 011-331-756

37, rue Abdel Wahab El Ghazal, Giza  
3913044 - 3917780

*Handwritten signature*



عبد الحليم زوت - القاهرة  
٣٩١٣٠٤٤ - ٣٩١٧٧٨

*Handwritten signature*



Eng. **M. Ayman Korra**  
President

Consukorra For Trade Agencies & Tech. Consultations (L. L. C.)

14 Alf St., El Thawra Bldg. - P. O Box : 1524 - Cairo - Egypt  
Tel. : 5910903 - 5881110 - 5930001 Fax : 5933889

**M. Ayman Korra**  
Business Unit Manager



**Van Leer Egypt L. L. C.**  
Sadat city second industrial area plot 34  
P.O. Box 91 Sadat city  
Tel : (049) 601363 - (049) 603090  
Fax: (049) 601364  
Branch Office : 14, El-Alfy St. Cairo  
P.O. Box 1524 Cairo  
Tel: (02) 5910903 - 5881110 - 5930001  
Fax: (02) 5933889



**TECHNOPACK**  
MODERN PACKAGING PRODUCTS CO.

**Abu Bakr K. Zeitoun**  
Deputy Chairman  
Managing Director

Head Office and Plants : 6th Of October City Industrial Zone 4  
Tel. : 011 / 331613 - 011 / 331792 - 011 / 331793 - 011 / 331743 - Fax : 011 / 331790  
Liaison Office : 31- 33 Ahmed Heshmat - Zamalek - Cairo - Egypt  
Tel : 3412652 - 3412715 - 3407016 - 3422658 - 3422659 - 3407014  
Fax : 3412606 - Telex : 20535 TECPK



EGYPTIAN HIGH TECH ASSOCIATION  
الجمعية المصرية للتكنولوجيا المتقدمة

**Adel R. Adib**  
Secretary

35 Elobour buildings, Salah Salem Road, Cairo, Egypt  
Tel & Fax : (202) 4332500  
e-mail: info@ehita.com.eg



**Mohamed Z. Mohyeldin**  
Managing Director

Cairo Office : 14 Adey St., Dokki, Guiza, Egypt  
Tel. : 3615041 - 3499592 Fax. : 3614680  
Plant : P.O. Box 34 Sadat City, Egypt



Government of Egypt  
SOCIAL FUND FOR DEVELOPMENT

**Dr. Hussein M. El Gammal**  
Managing Director

Hussein Hegazi Street, off Kasr El-Aini Street, Cairo, EGYPT.  
Tel. : 3540077-3559877 Fax : 3550628  
E-mail: sfdmis@powermail.intouch.com  
E-mail: hussein\_elgammal@sfdegypt.org



**Dr. Adel Danish**  
Managing Director

**STANDARDATA**



13, Ahmed Orabi St.,  
Mohandessin - Cairo  
Tel.: 3028313 - 3445394  
Fax.: 3460652  
E-Mail: ADanish@nts1.sdata.egnet.net  
URL : WWW.SDATA.EGNET.NET

INDUSTRIAL DEVELOPMENT BANK OF EGYPT



**MAHMOUD. F. EL WASSIEFY**  
Vice Chairman

110, El-Galaa St., Cairo

Tel.: 5785464  
779174  
776803  
Fax : 765470



**Bassel Kelada**  
Senior Projects Coordinator

10th Floor, Suite 18, Al Boustan Commercial Center, Al Boustan Street,  
Cairo, Egypt. Tel. : + (202) 390-2209 - Fax. : + (202) 390-9115  
e-mail: Bassel\_Kelada@iesc@inpn.ihost.com



بنك مصر الأمريكية  
Egyptian American Bank

**Amr S. Fawzi**  
Deputy General Manager  
Capital Markets & Investment Banking

EGYPTIAN AMERICAN BANK S.A.E.  
48,50 Abdel Khalek Sarwat  
Cairo, Egypt

Tel. : 3906431 / 3905744  
3912168 / 3915374  
Fax :  
Mobile : 012 / 2156958



The Arab Investment Company

شركة العربي للاستثمار

**Dr. Abdel- Monem Omran**  
Managing Director

ARAB INVESTMENT COMPANY  
50, Geziret El Arab St., Mohandiseen  
Tel.: (202) 3040051/2/3 Fax:(202)3040054  
Mobile: 0122146716



**Dr. Abdel-Monem Omran**  
Managing Director  
Private Equity

65 Gamat El Dowal El Arabia St., Mohandessin  
Tel.: (202) 3040051/2/3 - 3360101/2/3  
Fax: (202) 3040054 Mobil: 0122146716

الشركة المالية المصرية ش.م.م.

**Dr. Farid W. Saad** Egyptian Finance Company S.A.E.  
Director 4, Hassan Sabri Street, Zamalek, Cairo  
Tel. 3407510 - Fax 3401116 - Tlx. 92672 EFC



**Karen Muir**  
Managing Director

10th Floor, Suite 18, Al Boustan Commercial Center, Al Boustan Street,  
Cairo, Egypt. Tel.: + (202) 390-2209 - Fax.: + (202) 390-9115  
email: Karen\_Muir%iesc@inpn.ihost.com

**Reda Gargour** الشركة المالية المصرية ش.م.م.  
Egyptian Finance Company S.A.E.  
4, Hassan Sabri Street, Zamalek, Cairo - Egypt  
Tel. 3407510 - 3414163 - Fax. 3401116



**AHMAD ABOUZEID**  
MANAGING DIRECTOR

CAPEXCORP FINANCIAL SERVICES  
9 ABDEL MONEIM RIAD STR.  
MOHANDESEEN  
CAIRO 12311, EGYPT  
Tel. : (202)338 1061  
Fax. : (202)338 1069



**MOHAMED MOSTAFA GAD**  
MANAGING DIRECTOR

CAPEXCORP PORTFOLIO MANAGEMENT  
9 ABDEL MONEIM RIAD STR.  
MOHANDESEEN  
CAIRO 12311, EGYPT  
TEL.:(202)336-3649  
FAX.:(202)336-3653



EGYPTIAN CO. FOR INT. TRADE

IMPORT - EXPORT  
DEALERS

**Sherif El-Beltagy**  
President

19, Abo El Feda St., Zamalek, Cairo - Egypt  
Email : belco @ infinity. com. eg.  
Tel. : 3407213/4 ■ 3408491 - Farm : 040 233531 - Fax : 3420037  
Mobile : 012-2118279

**MAHA M. RAGAB**  
Assistant General Manager  
Marketing Support Group

Commercial International Bank (Egypt) S.A.E.  
Nite Tower Building 21/23 Giza St., Giza  
P.O.Box : 2430 Cairo Fax : 5703172 - 5702691  
Tel. : 5703043 ( 6 Lines ) Direct : 5702679  
Telex : 20201 - 92394 CNBCA UN



**MOHAMED OZALP**  
SENIOR GENERAL MANAGER  
Member of the Management Committee

MISR INTERNATIONAL BANK  
54, El Setal Ahmed Abdel Aziz St.  
El Mohandessine - Giza

Tel. 3494424 - 3497091  
Dir. 3490184  
Fax 3810130 - 3498072  
Tlx. 21842 - 21841 MIBCA UN

**HORTICULTURAL EXPORT  
IMPROVEMENT ASSOCIATION**



**Hussein Abdel-Moneim Al-Aguizy**  
Board Member

22 Syria St., Mohandseen, Giza - Egypt. Tel.: (202) 337- 8148  
e.mail : heia@internetegypt.com . Fax: (202) 337- 8148



**MANTRA**



**Wagdy Hamed El Itriby**  
Information System General Manager



Cairo: 30, Lebanon St., Mohandessin  
Tel. : 3039640 - Fax : 3039648  
P.O.Box : 182 El Gazira, Cairo  
Dir. : (202) 3015629  
E-mail:wagdy\_elitriby@mansour.com.eg

Alexandria: Amreya,  
Km 28 Alex.- Cairo Desert Road  
Tel. : 4481043 - Fax : 4481042  
P.O.Box : 1054 Alex, Egypt

**Karim El Sabe**  
Vice President

**Cairo :**  
8 El - Oboor Buildings  
Salah Salem, Nasr City  
Tel : + (20) 2 - 4030749  
Fax: + (20) 2 - 2624848  
Port - Said :  
48, El - Nahda St., Port - Said  
Tel : (066) 221950 - 324393  
Fax: (066) 236159  
Telex : 63000 RONIC UN

<b>BAHGAT GROUP</b>	
<i>Dr.</i>	
<b>Amin Mohamed Nassar</b>	
<b>R &amp; D Manager</b>	
H.Q. 1, El Oboor Buildings 3 rd. Fl., Apt. 15,16, Salah Salem road P.O.Box: 217 Heliopolis - Cairo	Factory: 6, October City-Block 240 2 nd IND. ZONE Tel.: (011) 333414/15/16 Fax: (011) 333420 - (011) 335612

**Eng. El Fayoumy**  
Marketing Manager

HEAD OFFICE: LOT 258-6th, OCTOBER CITY, EGYPT  
Tel.: 011/333414 Fax: 011/333420  
ADMINISTRATION OFFICE:  
1. EL OBOUR BLD. - 1st FL. - SALAH SALEM  
Tel.: 202-2618333/4018542(3) - Fax: 202-2618913  
P.O.B. : 217 HELIOPOLIS, CAIRO, EGYPT  
E-Mail: www.elfayoumy.net

**BAHGAT GROUP**  
مجموعة شركات باهجات

**جولستار GoldStar**

**جرونديج GRUNDIG**

**DREAMLAND**

**EURO-AIR**

**Essam N. Sheta**  
Marketing Director,  
Telecommunication Department

**HEAD OFFICE AND FACTORY :**  
LOT 258-6th, OCTOBER CITY, EGYPT  
Tel. : 011/333414 Fax : 011/333420  
**ADMINISTRATION OFFICE :**  
1. EL OBOUR BLD. - 1st FL. - SALAH SALEM  
Tel.: 202-2618333/4018542(3) - Fax: 202-2618913  
P.O.B. : 217 HELIOPOLIS, CAIRO, EGYPT  
E- Mail: ESheta@brainy1.e-eg.com



*Soil Tec Uibra*

**Eng**  
**Ehab Nada**  
Director of Supervision

Addr. 44 El Ryad St. Mohandesen Tel. Home 8451120  
Office 3335301

Ministry of Administrative Development  
Civil Service Reform Secretariat  
(C S R)



**Hamed Mobarak**  
Director

**مجموعة الرياض للألومنيوم**  
**AL RIYADH GROUP**

**لطفي رياض عبد الكريم**

Training Center for Government Executives  
(Markaz Edad El Kada)  
Salah Salem Street, Nasr City, Egypt  
Postal Code: 11763

Tel: (202) 403 0410 / 403 1076  
Fax: (202) 262 5404  
E-mail: csr@idsc.gov.eg

١٢ شارع الصفا - خلف مدرسة العروية - ٢٤ ل الشطر السادس - المعادي الجديدة  
مكتب : ٢٥٢٥١٦٥ سيارة : ٠١/٢١٤٨٠٦ - ٠١/٢١٤٨٠٦ فاكس : ٥١٢٤٤٤  
E.M: riyadal@madeinegypt.com.

Ahmed Abdel Kouddous  
Managing Director

5 Gameat Dowal Arabia Street, Mohandessin, Cairo, Egypt  
Telephone : 346-0220 Fax : 346-2474 Telex : 23169 FRST UN

HISHAM A. FOUAD  
Head of Sales & Marketing

5 Gameat Dowal Arabia Street, Mohandessin, Cairo, Egypt  
Telephone: 346-0220 - 346-9711 Fax: 346-2474

**CAIRO  
CAPITAL  
GROUP**

**Khalil Nougaim**  
Chief Executive Officer

4 Latin America Street  
Garden City  
Cairo, Egypt

Tel: (202) 3548018  
3542049  
Fax: (202) 3557479



Agricultural Research Center  
Agricultural Genetic Engineering  
Research Institute

Prof. Dr. **Magdy A. Madkour**  
Director

Phone : (202) 5734424 / 5727831  
Fax : (202) 5689519 / 5731574  
E-Mail : nagel @ frcu .eun . eg  
madkour @ ageri. sci. eg

9 Gamaa Street  
Giza 12619 - Egypt.



**INTERNATIONAL FINANCE  
CORPORATION**

A Member of the World Bank Group

**LAURA O. MECAGNI**  
Projects Officer  
Regional Mission, Middle East

World Trade Center - 12<sup>th</sup> floor  
1191 Corniche El Nil,  
Boulac, Cairo, Egypt  
Tel. : (20 - 2) 5796565 / 5799900  
Fax. : (20 - 2) 5792211

Misr-Biotechnology Company (BPE)



**Dr. IBRAHIM A. EZZAT**  
Chairman & Managing Director

41 Misr Develop. Co. Bld. Beside Sheraton Heliopolis, Cairo - EGYPT.

Tel. & Fax : 2672992



**INTERNATIONAL FINANCE  
CORPORATION**

A Member of the World Bank Group

**MANUEL E. NUÑEZ**  
Regional Representative,  
Middle East

World Trade Center - 12<sup>th</sup> floor  
1191 Corniche El Nil,  
Boulac, Cairo, Egypt  
Tel. : (20 - 2) 5796565 / 5799900  
Fax. : (20 - 2) 5792211



Engineer

**Adel R. ADIB**

General Manager

5 Misr Dev. Co. Blds. - 2nd stage - Airport Road  
Heliopolis 11511 - Cairo - Egypt  
Tel. & Fax.: (20) - 2 - 2660184 - 2672816 - 2669881  
E-mail : alfaelec@brainy1.ie-eg.com

**CARLIN MIDDLE EAST**



**PIERRE MILLE**  
Consultant

1103 CORNICHE EL NIL ST.  
APT. 2-GARDEN CITY 11519  
CAIRO, EGYPT

TEL: 354-7451 / 354-7452  
FAX : 355-2257  
CABLE : COCARLIN CAIRO  
cme@ritsec3.com.eg

**SEMC**

Satellite Equipment Manufacturing Corp.

**ASHRAF BARRADA**  
Vice General Manager14. Abou El Mahassen El-Shazly  
Mohandeseen, GizaTel.: 3054547 - 3054548  
Fax: 3035064**National Technology Group (S.A.)****Ashraf Barrada**  
General Manager14, Abul Mahassen El-Shazly  
Mohandessin, Giza, Egypt.  
Tel. : (202) 302-6687 (3 lines)  
303-4905  
Fax : (202) 303-5064Home: (202)  
e-mail: ntg@intouch.com**EXPORT DEVELOPMENT BANK OF EGYPT**  
(E.D.B.E.)**Ashraf AbouAlam**  
Manager  
Foreign Relations, Corr. Banking  
& Trade Finance10 Talaat Harb St. Evergreen bldg. Cairo Dir : 5782584 Tel : 761289  
Telex : 20850 / 20872 EDBE UN Fax : 774553 - P.O.B. 2096 Ataba**CAIRO  
CAPITAL  
GROUP****CAIRO PORTFOLIO  
MANAGEMENT**4 Latin America Street  
Garden City, Cairo, Egypt  
Tel : (202) 3553972  
3542049  
3548018  
3559561  
Fax: (202) 3557479**Hatim E. El Gammal**  
Marketing Manager**CAIRO  
CAPITAL  
GROUP****CAIRO Projects  
& Finance**4 Latin America Street  
Garden City, Cairo, EgyptTel : (202) 3559561  
3542049  
Fax : (202) 3557479**Rafik A. Dalala, Eng. M.B.A.**  
Director  
Corporate Finance**National Technology Group (S.A.)****Marwan A. Aasar**  
Sales Manager14 Abul Mahassen El Shazly  
Mohandessin, Giza, Egypt  
Tel: (202) 302-6687 (3 lines)  
303-4905  
Fax: (202) 303-5064Home: (202)  
e-mail: ntg@intouch.com**FOURTH SHIFT****Dr. Adel Ghannam**  
General Manager3. Degia St., El Mohandessin - Cairo - Egypt  
Tel. : 3601565 - 3353224 Fax : 3601565  
e-mail : isg@ritsec2.com.eg**Citro - Misr Co.**  
(S. A. E.)**Dr. Ibrahim A. Ezzat**  
Chairman & Managing DirectorCairo Office :  
17 Ibn Sina St. - Heliopolis  
Tel. : 2913327 - 4145698  
Fax : 4186341  
Email : citromsr@link.com.egFactory :  
Tenth of Ramadan  
A6Home: (202)  
Pager: 905546  
Mobile: (010) 215539  
e-mail: ntg@intouch.com14 Abul Mahassen El Shazly  
Mohandessin, Giza, Egypt  
Tel: (202) 302-6687 (3 lines)  
303-4905  
Fax: (202) 303-5064**National Technology Group (S.A.)****Ezzeldin A. Ahmad**  
Architect  
Chief Executive Officer

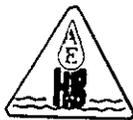
**QUA - EGYPT**  
S.A.E.  
Water Treatment



**Moustafa Hedayah**  
General Manager

2 Taha Hussein St. Zamalek Nile Towers, Cairo - Egypt.  
Off. : (02) 3412034 - 3413319 - 3410772 - Fax. : (02) 3413319  
Res. : (02) 3509622 - Mobile : 012/ 2139781

**QUA - EGYPT**  
S.A.E.  
Water Treatment



*Mohamed Bayoumi*  
Chairman

Taha Hussein St. Zamalek Nile Towers, Cairo - Egypt.  
Tel.: Off. : (02) 3412034 - 3413319 - 3410772  
Mobile : 012/2144626 - Fax. : (02) 3413319

**CAIRO  
CAPITAL  
GROUP**

CAIRO PORTFOLIO  
MANAGEMENT

**Hatim E. El Gammal**  
Marketing Manager

4 Latin America Street  
Garden City, Cairo, Egypt  
Tel : (202) 3553972  
3542049  
3548018  
3559561  
Fax: (202) 3557479

**CAIRO  
CAPITAL  
GROUP**

CAIRO Projects  
& Finance

**fik A. Dalala, Eng. M.B.A.**  
Director  
Corporate Finance

4 Latin America Street  
Garden City, Cairo, Egypt  
Tel: (202) 3559561  
3542049  
Fax : (202) 3557479



**OSMONICS**

**Ken E. Jondahl**  
Vice President International

5951 Clearwater Drive, Minnetonka, MN 55343-8995  
Phone (612) 933-2277, Fax (612) 933-0141

**ALI EL SHALAKANY**  
Attorney at Law

**HALAKANY LAW OFFICE**  
2, Marashly St.,  
Amalek - Cairo

Tel: 3420662 - 3420663  
Tlx: SHALA UN 21101  
Fax: 3420661

**AMERICAN UNIVERSITY IN CAIRO**



**E. W. MOHAMED**  
ACTUAL PROGRAM MANAGER

for Middle East Management Studies  
assef El Guindi St., Bab El Louk, Cairo Egypt  
76709 Tlx: 92224 AUCAI UN Fax: 3557565

**R. A. MOHANNA**

Assistant General Manager  
Corporate Finance &  
Investment Operations

**MISR IRAN DEVELOPMENT BANK**

17, P. O. Box 219 Orman Giza, Egypt - Cable: MIRBANK  
17, 20474 MIOB UN Tel: 727311 - 727004 - 727890 Fax: 735042

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President

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Suite 200 Tel: (540) 349-0185 (h)  
Washington, DC 20036 Fax: (540) 349-9874 (h)  
E-mail: novecon@access.digex.net



**IFC**

**INTERNATIONAL FINANCE  
CORPORATION**

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**LAURA O. MECAGNI**  
Projects Officer  
Regional Mission, Middle East

World Trade Center - 12<sup>th</sup> floor  
1191 Corniche El Nil,  
Boulac, Cairo, Egypt  
Tel.: (20 - 2) 5796565 / 5799900  
Fax.: (20 - 2) 5792211



**IFC**

**INTERNATIONAL FINANCE  
CORPORATION**

A Member of the World Bank Group

**MANUEL E. NÚÑEZ**  
Regional Representative,  
Middle East

World Trade Center - 12<sup>th</sup> floor  
1191 Corniche El Nil,  
Boulac, Cairo, Egypt  
Tel.: (20 - 2) 5796565 / 5799900  
Fax.: (20 - 2) 5792211

**CAIRO  
CAPITAL  
GROUP**

**Khalil Nougaim**  
Chief Executive Officer

4 Latin America Street  
Garden City  
Cairo, Egypt

Tel: (202) 3548018  
3542049  
Fax: (202) 3557479

Center for  
International  
Private  
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phen A. Klaus

15 Fifteenth Street, N.W.  
Suite 700  
Washington, D.C. 20005  
Tel: (202) 462-0000  
(202) 731-9250 (fax)

**ELIE J. BAROUDI**  
Managing Director

**EGYPTIAN AMERICAN BANK S.A.E.**  
100 Hassan Sabri Street, Zamalek, Cairo  
92683 EGAMB UN

Tel. 3417330  
3420265



**GILES CUTAYAR**  
JOINT MANAGING DIRECTOR

**EGYPTIAN DU CAIRE BARCLAYS INTERNATIONAL S. A. E.**  
100 Hassan El Sheikh Youssef - Garden City - Cairo  
40886 - 3657447



**MONA ZULFCAR**  
Attorney at Law

NI  
East

**SHALAKANY LAW OFFICE**  
12, Marashly St.,  
Zamalek - Cairo

Tel: 3420662 - 3420663  
Tlx: SHALA UN 21101 floor  
Fax: 3420661

A Member of the World Bank Group

Tel: (20 - 2) 3790305 / 5799900  
Fax: (20 - 2) 5792211

**SAMIR SAMY**  
Chairman and Managing Director  
Misr Financial Investments Company

Tel. 3492556 - 3498537 - Telex 22241 EIFC UN

INDUSTRIAL DEVELOPMENT BANK OF EGYPT



**MAHMOUD. F. EL WASSIEFY**  
Vice Chairman

110, El-Galaa St., Cairo

Tel.: 5785464  
779174  
776803  
Fax: 765470



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Business & Financial /  
Regulatory Specialist

3 Hussein Wasel St.  
Dokki - Giza

Tel. / Fax : 348-6247  
Email : lir@gega.net

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**Ricardo Frohmader**  
Marketing Advisor  
RONCO Consulting Corporation



ATUT/Agricultural Research Center - 9, Camaa St., Giza Egypt  
Tel. : (20-2) 569 - 3234/5167  
Fax : (20-2) 569 - 3238  
e-mail: ricardof@internetegypt.com

**H.F.SABBOUR**  
Chairman



Main Office : 20 Lotfi Hassouna St., Dokki, Giza. Tlx. : 94266 SASOC UN  
Tel. : 716656 - 701959 - 710854 Fax. : 3494963

**USAID**



*Adel Halim*  
Consultant Engineer

Cairo Center  
106, Kasr El Aini St., Cairo

Tel. : 357-3620  
Fax.: 357-2233

**TAHER SAMIR HELMY**  
ATTORNEY AT LAW

**HELMY & HAMZA**  
MEMBERS OF THE  
INTERNATIONAL LAW FIRM OF  
**BAKER & MCKENZIE**

56 GAMYAT EL DOWAL EL-ARABEYA ST.  
MOHANDESSIN, CAIRO, EGYPT  
TELEPHONE: (20-2) 360-0071  
TELEX: 21847 ABOGA UN  
FAX: (20-2) 360-0073



**GARNO MISR**  
Environmental & Water  
Engineering Technology

Engineer  
**Gamal El Deen Youssef**  
General Manager

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SEWAGE WATER  
DRINKING WATER  
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6 El Shaheed Abd El Moneim Esmacit St.,  
Heliopolis Tel. : 4179185 / 4179186 /  
4190737 / 4190743 - Fax : 2918075  
Email : Garno@mailers.datum.Com.eg

**HAZEM HASSAN & CO.**  
ACCOUNTANTS AND CONSULTANTS

Mohamed Yehia FESAA  
PARTNER

72, Mohi Eldin Abul Ezz Street  
Mohandeseen Cairo  
Telephone : 3499588 / 3499677  
Telex : 20457 & 93796 (HHCO) UN  
Telefax : (20-2) 3487224



**EXPORT DEVELOPMENT BANK OF EGYPT**  
(E.D.B.E.)

**Ashraf AbouAlam**  
Manager  
Foreign Relations, Corr. Banking  
& Trade Finance

10 Talaat Harb St. Evergreen bldg. Cairo Dir. : 5782584 Tel. : 761289  
Telex : 20850 / 20872 EDDB UN Fax: 774553 - P.O.B. 2096 Ataba

**Carlson  
Wagonlit**

**Zeinab Hamza**  
Site Manager

U.SAID  
106, Kasr El Eini St. Garden City - Cairo - Egypt  
Tel. 3573450  
Fax 3564929



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H: 341-1196

Dr. James T. Riordan, Ph.D

Chemomics International, Inc.  
Chief of Party

9 Abdel Kader Hamza Street  
5th Floor, Apt. 501  
Garden City, Cairo, Egypt

Tel.: (202) 594-2712/13/14/15  
Fax: (202) 594-2689  
E-mail: TAPR@intouch.com  
E-mail: JTRTAPR@intouch.com



U.S. Agency For International Development  
American Embassy, Cairo

Timothy Alexander  
Project Development Officer

CAIRO CENTER,  
106, KASR EL AINI ST.  
CAIRO, EGYPT

Tel.: (20-2) 357-3612  
Fax : (20-2) 357-2233  
e-mail: talexander@usaid.gov



U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT  
EGYPT

Thomas M. Olson, Ph. D.  
Chief, Agriculture Policy Division  
Economic Growth Office

Cairo Center  
106, Kasr El Aini Str.  
Cairo, Egypt

Tel. : 357-3207/357-2137  
Fax : 356-2932  
Internet : tolson@usaid.gov