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NEW LANDS CONCEPTS PAPER II

Rethinking an AID Assistance

Strategy for the New Lands of Egypt

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NEW LANDS CONCEPTS PAPER II

Rethinking an AID Assistance Strategy for the New Lands

I. Summary and Recommendations

The first New Lands Concepts Paper was drafted in the Fall of 1978. Now, over two years later, AID's understanding of New Lands development has progressed but the agency has barely moved closer to funding a project. AID has become, if anything, even more concerned over the profitability of New Lands as a result of the PCI study and the disappointing outcome of American joint venture investments. Despite these concerns, the possibility of a New Lands project has remained alive. Continuing GOE pressure only partly explains the persistence of AID's interest. There is also a stubborn suspicion shared by many AID officials and others that the GOE is right, that some type of New Lands investment does make sense, despite the evidence of poor past performance.

AID therefore decided to draft a second Concepts Paper for the New Lands. This paper is the result. As requested in the scope of work, it reviews recent New Lands developments, articulates possible goals for AID involvement, identifies the issues and presents options for AID action. It recommends an approach and outlines possible courses of action. Following is a summary of the argument presented in each area, together with the conclusions and recommendation.

A. Recent Developments

The first Concepts Paper helped to focus attention on the so-called Old New Lands (ONL) as a separate problem from the "New New Lands" (NNL). Initially, discussion focussed on the management issue as the main constraint to efficient land use in the New Lands. The PCI report altered the focus to a renewed concern over agronomic aspects. They found that even well-managed farms could not meet the high energy and other costs at many sites, casting serious doubt on the viability of most New Lands investments. The MOLR's reaction to this proposition was predictably hostile and discussion of an AID activity ground to a halt.

The request for a new Concepts Paper testifies to the continued pressure for a New Lands activity of some sort. AID is even more hesitant to commit itself than it was before the first Concepts Paper, but the motivation for the second paper is essentially the same as for the first one: AID cannot fail to respond to a top GOE priority. The agency must have a positive strategy, not simply one of reacting to GOE initiatives. This does not mean that AID should have a bad project. Possibilities exist for projects that have an acceptable return on their own or that would help the GOE to increase the return on its investments or both.

Conclusion and Recommendation:

AID should make another attempt to develop a project that both makes sense and supports the GOE's policy. A project consisting only of further study of New Lands viability meets neither criteria. In developing this Concept Paper a sincere attempt has been made to present options that would move New Lands development itself forward, rather than merely adding to the understanding of the problem. If AID determines that it does not want to develop one of these options or another option that directly supports production, the agency should make the decision not to have a project at all.

B. Objectives for AID Involvement

AID's involvement in New Lands will almost inevitably be marginal compared to total investment in the area. AID should therefore direct its efforts toward assisting the GOE to develop and carry out a reasonable strategy. AID's specific goal depends on where the weaknesses in the GOE's approach lie, whether the problems are strategic or only tactical or whether the overall policy of New Lands development is wrong.

Conclusion and Recommendation

Following considerable quiet redirection over the last three years, the GOE has now developed an overall policy and a strategy for the New Lands that makes sense by and large. The remaining problems are tactical only, although their severity should not be downplayed. AID's objective should be to help the GOE to develop effective tactics for New Lands development, in support of the overall objective of removing the constraints to efficient use of Egypt's land resources.

C. Issues

The paper takes a somewhat broader view of what constitutes an issue than did the earlier concepts paper. In addition to the question of AID's objective, which is still an issue for all practical purposes, the nature of the constraints to New Lands development, the problems impeding effective AID action in New Lands, and the use of the IRR for New Lands investments are all issues. These topics are discussed at length in this section of the report. More familiar issues such as site selection are also addressed briefly.

Conclusion and Recommendations

1. The experience to date suggests that AID should consider alternative approaches to the standard TA model used in most of the agriculture projects, if only to spread the risk in the portfolio.

2. The economic analysis of New Lands projects should focus more clearly on identifying the secondary benefits to New Lands investment and should use a discount rate that reflects social time preference, rather than an arbitrary cut-off.

3. Since AID's investment will be small relative to total sector investment, the agency should be somewhat more willing to take risks in designing its New Lands project if this will pay off in increased understanding of the total problem.

D. Options

The discussion draft of this paper presented five options. As requested by the Mission, New New Lands activities were not considered, with the exception of a research option. Following discussions, the Mission requested that three options be further developed, rather than one as requested in the Scope of Work. Section IV discusses these options. For each, an expanded description is provided, together with a possible project development strategy, and a discussion of important design issues. The three options selected respond to the need for AID involvement to be more than simply research. They respond as well to MOLR priorities, including improvement of the technology used on New Lands, increase in the value-added from New Lands production, and better living standards for the people of the New Lands. The three options are as follows:

1. Agribusiness Services (AS)

Description. The project would assist a newly-formed Egyptian private sector company to establish a processing plant in the New Lands near Alexandria. The plant would purchase output of the settlers and graduates under contract and would provide in turn extension and other inputs. AID would provide debt financing to the firm to cover the cost of starting operations, including a full management contract with an American agribusiness firm.

Project Development. The establishment of the company and the development of the project design would be the responsibility of the Egyptian parent agribusiness firm, although AID would fund the feasibility study and would have to monitor the process closely. The funds could be channeled through an existing AID private sector project.

Issues. Issues to be resolved include identification of an Egyptian firm, the depth of AID's involvement during the planning stage, the handling of any major repairs necessary to the off-farm infrastructure, and the desirability of including a company-run nucleus farm in the project design.

2. Irrigation Technology (IT)

Description. The project would assist the MOLR's Mariut Center to conduct a program demonstrating non-traditional irrigation technology and training technicians and farmers in its use. The Center would also increase its ability to assist the private sector by monitoring investment in the New Lands and organizing available information. The Center would initiate a "contract research" program, whereby universities, private farmers and others would be funded to conduct research and demonstration on-farm, to establish relationships with American universities, or to increase their technological capacity.

Project Development. Given the on-going FAO/UNDP assistance to Mariut, project design and implementation would be expected to pose few problems. The PID could be drafted in-house following discussions with the GOE and final design could be carried out by a small team. Technical assistance would be minimal, with the necessary inputs provided perhaps by an American university and an irrigation equipment supplier in joint venture.

Issues. The primary issues are the potential for unfair advantage of larger Egyptian New Lands farmers and to the American irrigation supplier, the involvement of other institutions in monitoring investment, and the concentration of Mariut activities in a particular geographic area.

3. Basic Desert Services Plus Credit (BDS)

Description. The project would provide Village Councils with funds for local infrastructure, on the same model as BVS in the Old Lands, and would capitalize Village Banks serving the agricultural and other production-oriented needs of the ONL farmers.

Project Development. The project would follow the route laid down by the BVS and SFP projects, with training but a much smaller TA component than the latter, since extension would not be included. Given the experience with these projects, design would be straightforward. The project could be implemented as an amendment to one or both projects.

Issues. The main issue is GOE commitment to the establishment of Village Councils and Banks in the ONL, which are still governed under the system that prevailed before the reforms of the mid-seventies. Other issues include how many villages should be included, whether there should be a geographic focus, the capacity of the new institutions to handle the funds and the availability of goods and services in the New Lands.

Conclusion and Recommendation

The AS option offers the best opportunity to introduce a new approach to raising ONL productivity. It is therefore the preferred option. The other two options are also attractive and should not be excluded from further consideration until the viability of the recommended option is tested further. If the latter is not feasible, then either of the others could be brought forward. The Mission should consider combining the options to the degree possible within the funding and implementation constraints. The options are not mutually exclusive and a combination of IT with AS or with BDS would serve several aims.

II. Review of Developments Since 1978

In view of the fact that AID has yet to obligate a penny for New Lands, the history of AID's involvement is remarkably tangled. Beginning at the time of the resumption of AID activities in Egypt, the Government of Egypt (GOE) made a series of overtures to AID to finance a New Lands project. These approaches did not lead to a project being funded, in part because most of the proposals were for the New Valley, which AID believed was not the best area. Gradually the conviction grew within AID that the agency should formulate a positive strategy for assistance to the New Lands, rather than continue to react to GOE overtures with delaying tactics and polite demur. A Concepts Paper was drafted, with the hope of refocussing attention on the Old New Lands (ONL), that is the lands already reclaimed but still below the productivity of the Old Lands of the Nile Valley and Delta.

This approach tied in well with growing GOE doubts about the New Valley. Two projects were tentatively planned, one on ONL and one on New New Lands (NNL). A review of ONL experience was commissioned (Voll, 1979), a preliminary survey of areas was carried out (Corey and Richardson, 1979) and a PID was drafted. The Mission contracted with Pacific Consultants (PCI) to undertake a feasibility study of an ONL area, the "A" and "B" areas of the first paper, with possible extension to an NNL or "C" area. The Ministry of Land Reclamation (MOLR) identified Tahaddi in the South Tahrir area as the study site.

Much to the surprise of even the PCI team, the study concluded that the project was not feasible. The combination of low yields and rising lift costs led to very low or negative net cash flows. Results of studies in superficially similar areas by other groups were much less dampening. The Tahal study, conducted at about the same time, found a much more attractive, if still low, IRR of about 9% for the E. Delta, for example, and other studies of the W. Delta projected returns in this range.

The MOLR was extremely displeased with the PCI report, and was further angered by PCI's failure to incorporate or even acknowledge their objections in the final report, particularly those dealing with the extremely sensitive assumptions on crop yields. Communication between AID and the MOLR effectively ended.

The PCI report left AID involvement in New Lands unsettled. The overall conclusions of the report, at least as applied to Tahaddi, were generally accepted by AID, but the commitment to "do something" in New Lands remained, fuelled by the need to respond to GOE priorities. Doubts about the generalizability of PCI's findings remained.

The final impact of the PCI report has been an increased awareness of the sensitivity of New Lands Project viability to site-specific considerations. Comparatively slight differences in lift distances, water use, yields, prices or crop mix can easily tip a New Lands project over into the red. Subsequent experience with the Coca-Cola and Pepsi projects, where U.S. involvement did not survive changes in project conditions, tend to confirm this result. The technological considerations, which had been overshadowed by the management issue, have returned to the center of the debate.

From the GOE perspective, involvement with AID has doubtless been extremely frustrating. Because AID is one of the largest donors, the MOLR tended to earmark large projects for AID's consideration. Large projects tended to be problem projects, to which AID responded with alarm, not financing.

Despite the setbacks, GOE interest in land reclamation has continued to grow and it is now approaching levels not seen since the completion of the High Dam spawned an outpouring of funds into the deserts. The government perceives the New Lands as a territorial imperative, given Egypt's population growth and food needs. The facts that New Lands agriculture cannot provide jobs or food in the amounts needed does not shake their determination to go as far as possible with the strategy. As discussed below, this may be a very rational response to an extremely difficult situation.

For reasons that remain obscure, even to MOLR personnel, the Ministry of Land Reclamation has received more than its share of reorganizations and reshufflings. It is now attached to the Ministry of Reconstruction, which probably gives it greater status than it enjoyed as a separate ministry or in various past associations with the Ministries of Agriculture, Land Reform, and Irrigation. Nonetheless, the organizational changes and the accompanying policy shifts have made it difficult to conduct a program that is consistent internally and appropriate to the long-term nature of the task.

There is a growing recognition that the total area that can be reclaimed is limited by the availability of water. Public pronouncements still feature the 2.8 million feddan target for 1990, and higher figures make brief appearances, but privately and informally, a figure around 1.5 million feddans is given as the limit with current water supplies, including drainage water. High level officials express a need to show real production gains as rapidly as possible. This translates to greater interest in ONL productivity and to a preference for NNL that are comparatively easy to reclaim, that is, that do not require massive and time-consuming infrastructural investments.

The desire to ration water and investment resources with a sharper eye to maximum return has convinced the MOLR to undertake development of a Master Plan for land reclamation. Prequalification of national and international firms for such a study is now underway, although officials admit they do not have the estimated LE 10 million required to complete the full range of studies required.

Also reflecting concern over the scarcity of GOF resources, the decision has been made to turn all public sector farms over to the private sector, by sale or long-term lease. 40% is to be distributed to settlers and graduates and the remainder to go to larger private sector firms. International proposals are now being solicited for thirteen farms totalling 75,000 feddans, mostly in the W. Delta. 35 responses have been received (none American, although time remains before the closing date of May 15).

By and large, the other donors seem to be falling into line, if somewhat regretfully. The World Bank and IFAD have approved large projects in the Western Delta, the French have the sugar beet scheme in the N. Delta, the Dutch may fund a project on the shores of Lake Manzala, and the Germans and the African Development Bank are looking seriously (with FAO help) at a \$20-30 million project in the New Valley. FAO and the German aid program have small but continuing activities in the W. Delta, in association with the MOLR's Mariut International Center. AID is in effect the last hold-out among the major donors.

More by chance than by design, AID is thus in a good position to do something sensible in land reclamation. The PCI report temporarily soured relations with the MOLR, but it has also made the Ministry more receptive to AID's proposals. AID's threat not to do a project at all has acquired credibility with the MOLR, a novelty in the Egypt program. This opportunity, however fleeting, seems too good to waste, always assuming a good project can be identified.

III. Project Design Issues

The controversy surrounding the New Lands has given rise to a much broader set of issues than are generally involved in project design. To the usual set, including such issues as site selection and technology choice, must be added these more general areas of concern that are rarely classified as issues: (1) what is the objective of New Lands development and of AID's involvement in it?, (2) what is the problem or constraint limiting New Lands development? and (3) are the usual economic measures applicable to New Lands?

A. Objectives

In the GOE view, land reclamation contributes to several major national goals: increasing total production, creating employment opportunities, especially for the restive college graduates, raising food production to displace imports and generate new exports, saving foreign exchange, and so on. The contribution of the New Lands to date toward meeting these goals has been disappointing. Simple calculations indicate that the New Lands cannot realistically be expected to solve these problems. The Universities churn out roughly 100,000 graduates annually, for example. Settling all of them on 10-feddan plots would require a million feddans every year. Similarly, Egypt imports roughly 6 million tons of wheat annually. Double cropping grain on all the New Lands reclaimed to date and achieving an average yield of 1.5 MT/feddan would produce 2.7 million tons (if such an achievement were economically or agronomically sustainable, which it probably is not).

Publicly, if not privately, the GOE remains adamant that land reclamation will solve the food and employment problems, or at least make a major contribution. The New Lands could make some contribution to meeting these goals, of course, but this simplistic assertion begs the question of how much and at what cost. Unpleasant though the reality may be, land reclamation simply cannot solve the major problems that confront the government in the short term. Over the long term, a New Lands strategy may still make sound economic sense. We will return to this question in section C below.

The objective of AID assistance to New Lands is related to the objectives of land reclamation in Egypt, but the two are by no means the same. The distinction is vital to selecting an AID strategy. Failure to make this distinction has clouded the already murky topic of why AID should have a New Lands program. As a basic principle, a project should be evaluated in comparison to the situation that would prevail if there were no project. The debate on an AID New Lands project has all-too-frequently proceeded as

though the "without" alternative were no investment in New Lands. In reality, the no-project alternative is likely to be a substantial investment in New Lands, compared to the with-project situation of an AID-funded project and a perhaps somewhat different investment from other sources. The internal debate on whether New Lands is a good idea and why is academically interesting but of little practical help in deciding what AID should do.

An appropriate overall objective for AID involvement in New Lands may therefore be formulated as follows: to remove the constraints to the economic development of Egypt's land resources. This leads logically to the question: what are the constraints? Broadly speaking, the constraints to optimal land development fall into two categories.

First, there is the familiar legion of problems plaguing Egyptian agriculture: water access and management, inputs, prices, credit, technology, and so on. Most of these are especially troublesome on the New Lands. To them are added the extra difficulties of living away from the homely comforts and discomforts of the Old Lands. These are discussed in Section B below.

The second type of constraint to development is the government's land reclamation policy. If any further investment in the New Lands is a mistake, given its payoff or that of alternative investments, then the continuation of New Lands investment is itself a constraint to the optimal use of Egypt's land resource. For reasons discussed at some length in Section C below, I feel that this is not the case: the overall objective of expanding Egypt's usable land base is sound policy, even if traditional project analysis seems to indicate otherwise.

If the objective is sound, however, the strategy and tactics may still be sufficiently off-base to subvert the goal of optimal resource use. The objective of AID's New Lands activity should be to help the GOE to put its New Lands policy back on a reasonable track and to push it or at least nudge it in a more rewarding direction. The specific objective (the size and direction of the requisite push) depends on just how far off-base AID believes the policy to be.

The appropriate goal for AID activity therefore depends on what the reality is behind the government's statements. AID cannot change the rhetoric, and probably should not try, but the actual activities have only a tenuous connection to the rhetoric and are more subject to change. Five alternative objectives for AID activities can be identified:

1. Increase Production and Employment: At the simplest level, an AID project could be designed to contribute directly to

production and employment in the short range, and be justified principally in these terms, leaving aside considerations of replicability, institution-building, or policy guidance. Selection of this objective does not necessarily imply endorsement of the GOE's New Lands policy, although it would be probably be interpreted as such.

2. Increase Egyptian capacity to design and execute New Lands activities: In order for this objective to make sense, one must accept the idea that the overall New Lands policy is reasonable, despite some weaknesses, and would be beneficial if properly executed. This objective results from the following chain of reasoning: New Lands project selection is hampered by a lack of information on the most productive sites, crop mixes and technologies. Investors and government are unable to identify the most productive investments. Therefore, investment and return are below the potential. The MOLR and other ministries do not have adequate staff or facilities to evaluate alternatives and carry out the project selected. The overall strategy is basically sound, but the tactics used to carry it out are faulty. Filling these gaps would result in socially profitable New Lands investments.

3. Redirect GOE New Lands investment: This objective implies that the investment strategy chosen for the New Lands is itself inappropriate regardless of how well or how poorly individual projects are selected. The objective of AID activity would be to identify and demonstrate an alternative strategy that has a greater chance of success. The AID project would affect the investment mix directly, by increasing investment in the preferred strategy, and indirectly, by demonstrating the wisdom of this strategy and directing attention to it. Even if the government does not change its policy, the AID investment would redress the balance somewhat in the direction of greater returns.

4. Change GOE policy: If AID is absolutely convinced that money invested in New Lands is wasted, the Agency may still wish to have a project. A project may be seen as a way to "buy into" the debate and may still be justifiable theoretically, if it leads to an improved national investment policy.. If, for example New Lands investments lose 5%, while alternative investments yield 15%, a \$5 million project that led to a reduction of New Lands investment by \$100 million would generate \$20 million for the Egyptian economy. Congress might be expected to balk at this argument, however.

5. Meet political objectives. Given the GOE's high priority on New Lands AID might decide to have a project or at least an activity of some sort simply to be responsive to GOE desires. Such a project would obviously be as small as possible.

Which of these objectives makes the most sense at present? Even three years ago, the weight of the arguments would probably have fallen on (3) above; the GOE's policy emphasized the New Valley and large public sector farms to the exclusion of more feasible approaches. Now, however, the GOE has adopted a strategy that in its broad outlines, at least, is quite reasonable. They plan to divest themselves of the companies, encourage private development, stress the use of water-efficient technologies, and limit the role of government to finance and basic infrastructure. Despite occasional feints in the direction of Middle Eastern proyectismo, such as the El-Salaam Canal, the program is on track toward a sound strategy. The situation therefore fits in better with (2) above, which directs AID's efforts toward improving the GOE's tactics in selecting and carrying out its projects.

This argument points up the importance of assessing AID's input relative to the total investment in New Lands, the size of the "push." If the GOE goes ahead with development of 3 million feddans, as planned, an AID project on 10,000 feddans is so marginal as to be insignificant. In this case, the impact of the project on total investment, if any, is much more important than the project itself. If, as seems more likely, total NNL does not top 500,000 feddans over the next ten years, an AID program totalling 50,000 feddans would represent a major contribution to the total effort. Moreover, if NNL is on the order of 500,000 feddans, the 900,000 feddans of ONL become relatively much more important.

B. Constraints to New Lands Development

The first concepts paper identified management as the main constraint to effective use of the desert lands. The PCI study demonstrated that lifting the management constraint would not be sufficient to raise returns to acceptable levels. They identified agronomic factors as the main constraints, in effect, given the cost of power, water, and the other inputs. Under a broad range of assumptions, yields are too low to cover profitably the high costs of inputs in desert agriculture and, in particular, the greatly-increased cost of energy.

The GOE does not accept this analysis. They argue that technology is the constraint. In their view, the correct choice of water-delivery and crop production technologies would raise yields and lower costs sufficiently to give an economic return.

If such technologies exist, why are they not used? Is the problem that information as to which technologies are best is not available or not in the hands of the farmers? Or is the problem that the farmers are unable to apply the technologies because of poor delivery of water and other inputs or insufficient credit? In effect, the technology constraint is in reality an informational or organizational constraint -- the management problem in another guise.

Ultimately, of course, access to water is the main constraint on cultivation of the desert lands. In many parts of the ONL, insufficient access continues to be a limiting factor, constraining the crop and technology choices open to farmers. Some farmers, particularly the graduates, are also limited by labor and capital shortages.

The search for a single factor that limits development throughout the New Lands is essentially a fruitless one. Just as in the Old Lands, management, water use, and technology interact to form a complex, knotty constraint. In general, loosening a single thread will not suffice, but no one seems to have a knife sharp enough to slice through all the knot at once. Nonetheless, in particular cases, it is possible to identify a single constraint as binding. Releasing it creates an opportunity to explore the system and gain enough understanding to tackle more complex cases. Thus it makes sense to select an area that does not suffer from the complete set of problems. An area that is somewhere in the middle range of the ONL may enable AID and the COE to find a strategy that works rather than add to the list of approaches that fail.

The options described in Section IV below are each directed at a different constraint or set of constraints. Choice of a particular project site therefore depends on which option is chosen.

Constraints on AID

AID's selection of a project strategy must take into consideration not only the nature of the problem and the COE's capacity, but also AID's own capacity to design and implement a project in the New Lands. The projects proposed are all fairly large and at this point it appears that AID management capacity should not be treated as an unlimited resource. Consequently, the options outlined have been developed with a view to limiting the demands on AID during project implementation.

Most of the projects in the AID agriculture portfolio are built around what might be called the technical assistance model. Even where large levels of commodities, credit and other inputs are provided, the TA team is central to the project's strategy and hence to its success. While it is clearly too early to judge whether these projects will achieve their aims, there is some evidence that TA teams in Egypt do not perform as planned. The difficulty seems to lie in the division of responsibility between the Americans and their counterparts. Both parties are uncomfortable with the role of advisor outlined for the Americans. Simplifying the problem, one could say that the Americans want to "do the job" rather than advise and the Egyptians want to "do the job," (defined somewhat

differently) rather than be advised. These difficulties may well resolve themselves as experience on both sides grows. For the moment, however, AID is in a somewhat risky position, with most of the eggs in a single conceptual basket. A conscious attempt, therefore, has been made to devise options that do not rely on the TA model. Such an approach would spread the risk and, hopefully, reduce the management load, both of which make good sense for handling a large portfolio.

A related issue is the distinction between "what must be done" and "what can be done". There is a natural tendency to try to draw the project concept broadly enough so that all the factors affecting project success are inside the project. If a "complete" New Lands community should include parks and schools, then a project to build a new village must have a social services "component." If maintenance of newly-replaced equipment is a concern, then the project must have a maintenance "component." And so on with extension components, health components, management training components, ad infinitum, all components that "must" be included. The final result may be a project so complex that it cannot be implemented.

The existence of a problem does not mean that AID or even the GOE can solve it. (The extension problem in the Old Lands may be an example of this situation). Trying to include all aspects of a problem in a single project may lead to none of the components being carried out adequately or at all. There is an argument for redefining "what must be done" to deal with a problem to include only those aspects that AID and the GOE can handle. If, after the project concept is pared down to the minimum, parts of the problem remain that cannot be left outside the project for the private sector or the GOE to handle on its own (without raising the risk of failure to unacceptable levels), then AID should probably not do the project at all. The options described below have been devised with this somewhat different concept of AID's management constraint in mind.

A third issue is the role of AID vis-a-vis the other major donors. As described in the previous section, IFAD and the World Bank have major projects in the W. Delta region. Should AID pick another area or move in next door to them? To what extent should AID adopt a purposely different strategy from theirs in order to gain information? Given the limited amount of leverage any of the donors enjoy in Egypt, can AID increase its impact or support the other donors better by joining forces with them?

There is no single answer to these questions, but on balance an argument can be made for concentrating financial and political resources in a single area, particularly since the area in question has considerable sunk costs, non-sandy soils and locational

advantages. AID should probably not duplicate the IFAD design, however, in order to explore some simpler alternatives with a lower cost/feddan. There appear to be good opportunities to complement the infrastructure and other investments planned for the area.

A final issue is AID's justifiable fear of backing into a project from which there is no backing out. If it took the Jews forty years to get out of the Sinai, how long would it take AID? Can AID have a project in the Salhia without getting sucked into the Charybdis of the el Salaam canal or foundering on the Scylla of Osman Ahmed Osman?

C. Profitability and the IRR

Regardless of whether one accepts the specific figures of the PCI report, the fact remains that New Lands investments have IRRs that are consistently below those calculated for alternative agricultural investments. The rate of return rarely tops 15%, even when quite generous assumptions are used. Despite these calculations, the belief is often expressed that New Lands investments make sense for Egypt. The Egyptian government clearly is committed to this view, but many qualified non-Egyptian observers also express the view that expansion of Egypt's usable land space is an economic imperative. Is this a case where human intuition breaks down or is it the IRR that fails to capture the true benefits of New Lands investments?

Traditional economic analysis leads inexorably to the conclusion that the former interpretation is the correct one, as long as the costs and benefits used to calculate the IRR are correct. Logically, there are three possibilities: (1) the low IRRs do indeed mean that New Lands are uneconomic, (2) the IRRs calculated are lower than they should be because traditional project analysis does not do a good job of estimating the benefit of large, complex projects, and (3) traditional project analysis is inappropriate for certain classes of projects, and New Lands may be in this class.

The first possibility needs little discussion. The implication is that New Lands investments should wait until alternative uses for capital are less attractive or the production is worth more than it is now.

The second argument can be made on two grounds. First, complex, long-term projects, if successful, have substantial secondary benefits. An estimate for Indian agriculture found, for example, that for each additional dollar of agricultural production, total production increased by another eighty cents. In the New Lands, where whole communities are being created, agriculture represents only part of the benefit (and, of course, only part of

the cost). Secondary benefits are likely to be quite high, always assuming there are primary benefits on which growth can be based (the lack of such benefits on state farms explains the absence of secondary benefits to date). The secondary benefits, however, are very difficult to predict. It is relatively easy to assume a level of such benefits that will make almost any project look attractive, so they are rarely included in the quantitative estimates. This puts New Lands investments in an unfairly poor light.

Second, the argument can be made that the usual assumption of constant relative prices breaks down for long-term projects. The present availability of investment capital for New Lands investment is fundamentally unrelated to its productivity in the economy. In the future, capital may well be less available to Egypt, rather than cheaper. At the same time, there exists a distinct possibility that the price of food ten or fifteen years hence will be much greater than it is now. If new technologies are discovered, food may become cheaper or stay at the same price, but should a responsible, risk-averse government take a chance? Why not use today's cheap capital to buy tomorrow's expensive food, rather than waiting to buy it tomorrow, when the capital may not be available? Translated into the economic analysis, this argument implies that output in year 10, say, should be priced at a higher level, that the opportunity price of capital is lower than that used, or both. Making either one of these changes would do wonders for the IRR.

The argument made thus far fits in nicely with currently accepted economic practice. From here on in, we will be skating on increasingly thin theoretical ice. I do not pretend that the following is "good economics", as now defined, but it may be correct nonetheless.

The use of the IRR to rank projects is a distortion of the theoretically desirable approach. The rate of discount should in theory be selected to reflect the society's so-called "time preference," that is, the relative value of resources now compared to resources in the future. Governments are supposed to take the long view and therefore to have a low discount rate, i.e., one that ranks future benefits relatively high compared to present investment costs. In practice no one can sit down with Sadat and make him specify his time preference, so the shadow-price of capital or an arbitrary figure, usually 15%, is used. This does not create a problem when projects of approximately the same size and time-frame are being compared, since any project that has an IRR of 15% will have a high net present value if evaluated with a discount rate below 15%.

The problem arises when different types of projects are compared. Projects that have a long gestation period tend not to have an IRR over 15%, because the benefits accruing far down-stream

are very heavily discounted. Let us consider, as an example, three projects with the same investment cost, assumed to occur entirely in year zero. Project S generates a benefit of X in year 5, project M generates a benefit of 2X in year 10 and project L produces 4X in year 20. Which is the better project? With a discount rate of 15%, projects S and M are virtually interchangeable, but project L finishes a distant third. It would have to produce 8X to compete successfully with S or M. At a discount rate of 20%, S wins hands down. M would have to provide 2.5X and L would have to generate 20X to stay in the running. With a discount rate of 10%, however, M is the preferred project by a large margin, but L is almost tied with S for second place. At 5%, L edges out M, while S would have to generate almost 1.5X to become competitive.

Thus the national investment portfolio tends to be weighted toward short-term projects. Again, economic theory says this is good and proper: it maximizes the society's net benefit. But does an investment program based mainly on short-term projects lead to sound development?

The distortion of the investment pattern that results from using an IRR cut-off that is above the true social discount rate may be particularly damaging to the economy's long-term development because projects with a long-term payoff are frequently of a different type from short-term projects. They may be essential to achieving necessary changes in the overall structure of the economy, and yet they will be excluded from the investment portfolio if an IRR cut-off of 15% or higher is used. Projects of this type are in the areas of education, infrastructure and other basic investments, including perhaps land development.

This is a case of a generally unrecognized type of market failure. Investors, including the government, are in a poor position to recognize the benefits of long-term investments relative to those that have a short pay-off but do not contribute to the development of the economy in the true sense of the word. A similar phenomenon may be at work in the developed-country economies. Investment is being channelled by the market into speculation and short-term projects, while basic investments that are needed to sustain the productivity of the economy are not being made.

The investment market, buttressed by accepted economic analysis, fails to capture the true benefit of these activities. Individuals (usually non-economists) can see the benefits, but perhaps cannot explain them. They are considered to be "forward-looking" or to take the "long view." These statements, usually regarded as approbations, are equivalent to the economists' opprobrious "low IRR."

The failure to capture the benefit to the economy arises from the long-term project's dual role in development. Most projects combine the familiar factors of production (land, labor, capital) to produce a good. Long-term projects combine the factors to produce a good and additional quantities of the production factors themselves.

In an economy such as Egypt's, land may be the scarce factor. Its scarcity leads to the other factors' being less productive than their potential or even in surplus supply. If this is the case or will be in ten to twenty years, then a project that produces land itself will have a high payoff. It will enable the economy to bring surplus productive factors into use, that is, to develop. The agricultural production is thus only part of the output of the project, an output potentially less important than the change in relative factor availability.

This argument may be considered an extension of the discussion of changing prices above, because the value of land may well rise just as the prices of agricultural products may. In effect, the decision-maker is willing to pay \$10 now to make available in the future land worth \$5 at today's prices, because he feels that land will be worth \$50 by the time it is "delivered."

The argument also related to the secondary benefits argument, because the land created enables the economy to increase its total production on and off the farm. These secondary benefits are not fully capitalized into the value of the land (market failure, again) because the link is too drawn out for the market to trace. Therefore, adding in the change in land value will still not capture the full benefit of the project to the economy.

The bottom line to these quasi-theoretical, quasi-economic ruminations is that standard IRR analysis is an imperfect measure of project benefits. It functions fairly well for most projects, but it does not do a good job with long-term projects, particularly those that add to the nation's resource base because we do not know how to measure or value what these projects produce. The widespread "gut feeling" that New Lands investments make sense for Egypt, low IRR or no, is probably right on target.

Having said this, and incurred the sneers of all right-thinking economists, I hasten to add that there are many New Lands investments that make no sense whatsoever. There are proposals that feature soils so poor they will never produce a decent crop, sites so remote only a hermit would move there, and technologies without a prayer of succeeding. If we accept that the IRR procedure as generally used may not be a good guide to selecting among New Lands investments, we are left without a simple measuring stick.

The above discussion suggests two ways in which the IRR procedure might be brought more closely into line with the theoretical requirements. First, a discount rate should be chosen that approximates the social time preference. In view of the increasing population pressures facing Egypt, this rate is arguably below 15%. Projects should be compared and ranked on this basis.

Second, a more determined effort should be made to estimate and include secondary benefits and costs. Hard estimates for these items will not be obtainable but the current procedure, which assumes secondary benefits are zero, is not appropriate where such benefits are believed to be major.

D. Project-Specific Issues

The preceding sections discussed project objectives, the nature of the problem and project profitability, all matters that are not usually classified as issues. This section will very briefly examine some of the "common or garden variety" issues that will have to be resolved in project design, assuming a project is undertaken, regardless of the theoretical considerations discussed above.

1. Site Selection: The PCI report underlined the importance of selecting a site where high yields are agronomically possible and, preferably, lifts are low. Access to markets to support a high-value crop mix is also highly desirable. The discussion of secondary benefits above reinforces the argument against remote areas. These considerations virtually rule out the New Valley and probably the Sinai and Upper Egypt (though perhaps not the Aswan area). They may also lead consideration away from the remote areas of the NE Delta, given their distance from likely growth centers and difficult-to-manage, very heavy soils, although this is a technical question that I would not be prepared to answer. The top contenders seem to be the NW Delta shoulder (i.e., the projects along the Desert Road) and the Salhia, with the former considerably more promising. Except for the edges of Mariut, these areas are all below 20 meters elevation, have heavier soils than the Ismailia area, and are surface-irrigated.

2. Information vs. Production (the risk issue): There is a trade-off between the information generated by the project about alternative strategies and the production of the project lands per se. At various points in the project design, choices will have to be made between picking the "best" alternative and selecting an approach that will lead to lower agricultural production or higher cost but a better understanding of how to handle the New Lands. Since the AID project will be small relative to the GOE's total

effort, AID should generally be willing to trade off production to gain such information. A critical exception is any project component that involves present settlers and graduates: alternatives with a real chance of leaving them worse off should be excluded. In other cases, however, AID should be willing to try a broad range of approaches, with the expectation that some will fail utterly. Knowledge of what won't work, assuming we also find out why, is more valuable at this point than an extra ton of horsebeans.

3. Public vs. Private: The GOE is more willing to turn New Lands activities over to the private sector than at any time since the late sixties. This is an opportunity that should not be allowed to slip. At the same time, AID is in its usual disadvantageous position relative to reaching the private sector with meaningful assistance. Other than through loan funds, the private sector is out of AID's reach. Should AID make the effort to overcome its structural inabilities or instead direct assistance to those activities that are "naturally" in the public sector, such as infrastructure and social services? Until a project strategy is selected, this question cannot be answered sensibly, but it should be recognized that this is an important issue for New Lands development. In particular, there are some types of infrastructure development where the principal beneficiary may well be a large private firm. If AID assists the GOE to provide irrigation infrastructure but leaves the allocation of land to market forces, AID loses any control over who benefits.

4. Welfare vs. Production: New Lands projects must strike a balance between activities to improve the life of the people (schools, clinics, housing) and activities to raise their incomes (water delivery, marketing, credit). The distinction between these two types of activity is more blurred in the New Lands than elsewhere because community viability is an essential condition for agricultural viability and, unlike in the Old Lands, it cannot be assumed. There is some minimum level of social services below which people cannot or will not live in the New Lands. The difficulty arises in determining what this level is and in resisting the humanitarian impulse to provide services beyond this level, using a spurious argument that this will promote production.

5. Irrigation Technology: The basic question to be answered in choosing an irrigation technology for the New Lands is, will it use less water than surface irrigation methods (traditional or sophisticated) on the soils of the project area? If the answer is yes, then a whole range of technical questions relating to investment, operation, yields, and maintenance must be answered. If the answer is no, surface is probably still the best solution. It is significant in this regard that both the IFAD and the World Bank projects will use surface methods, despite considerable GOE interest in sprinklers.

6. Settlers, Graduates, and Larger Farms: The PCI report documents convincingly that the settlers do better than the graduates, but that the large private farms have the highest yields. A glance at the graduate, with his neatly pressed slacks, tells part of the story: a 20-feddan New Lands farm will not support a full-time manager. Graduates who have done well (and there are some) indicate that willingness to work and knowledge of agriculture are not enough -- the graduate needs large amounts of capital to overcome his built-in labor shortage, perhaps as much as LE 2000/feddan, compared to the current LE 600 (approximately). (Another graduate estimated LE 1100/feddan, including the original investment.) The government is committed to increasing the proportion of graduates and plans to reduce their land to ten feddans each from 20-30. They argue that landless fellaheen able to farm the New Lands no longer exist.

The argument for AID involvement in large-scale private farms is difficult to make. Such ventures have a very high cost per job and probably have fewer secondary benefits for the surrounding community. AID might assist with major off-farm infrastructure, but otherwise the large private farmers should make or break it on their own.

IV. Project Options

The discussion draft of this paper presented five options for consideration by AID:

- A. Settlement Strategies (SS): a project to explore alternative approaches to distributing company lands among private farmers, comparing the current "integrated development" approach with simpler, cheaper strategies.
- B. Infrastructure Rehabilitation (IR): the repair and replacement of irrigation pumps and canals and other infrastructure to make possible distribution of public sector company lands to the private sector and effective use of already-distributed lands.
- C. Basic Desert Services (BDS): extension of the local government structure to the New Lands villages and funding of village infrastructure through a mechanism similar to BVS in the Old Lands.
- D. Agribusiness Services (AS): Financing of an Egyptian-owned facility with American management to process the output of the settled ONL areas near Alexandria, providing extension and other services to the farmers.
- E. Irrigation Technology (IT): establishment of a program at the Mariut Center to test and demonstrate modern irrigation

technology and to train technicians and farmers in its use, together with support for certain other research and monitoring activities.

The original scope of work for this study called for selection of one of the options identified for further development in the final report. Following discussion of the options, the Mission determined that additional development of three options would be desirable before coming down definitely on a single choice. These options were:

- Agribusiness services, as described above.
- Irrigation technology, with the addition of a program in "contract research" with private farmers and others.
- Basic Desert Services and Infrastructure Rehabilitation, with the addition of agricultural credit.

Further consideration of the third option suggests that BDS and IR do not add up to a good project in combination. Particularly with the addition of credit, the total number of components reaches the critical mass where implementation becomes unwieldy and the rationale for excluding other components loses force. If the Mission starts with a project concept combining IR, BDS and credit, it will in all likelihood end up with an "integrated agricultural development" project of appalling proportions.

It is therefore recommended that the third option be redefined as BDS plus credit. The three options, as modified, are discussed in some detail below.

The descriptions presented should be regarded as indicative rather than definitive. In many places, specific suggestions are made as to how a problem would be handled. This is done in order to give an idea of the project concept, and is not meant to suggest that the design is in any way final. Because the projects are still at a very early stage in concept development, it was agreed that a specific funding level would not be given.

Before turning to the three options that have survived the choice process to date, we should take a brief look at the two options that were eliminated by the Mission and why this decision was made. The first option, Settlement Strategies, was eliminated because it was felt that the settlement issue is too complicated for AID to make a meaningful contribution at this time. The second option eliminated, Infrastructure Rehabilitation, however, attracted considerable interest and was eliminated somewhat later. Should IR remain on the list of options? This question could be rephrased as follows: do the implementation advantages of excluding activities

beyond water system rehabilitation outweigh the risks of leaving training, maintenance or farm management outside the project? The sense of the discussions on this issue is that they do not. Therefore IR alone is not an attractive option for AID at this time.

Consideration should be given to combining IR with AS or with IT, if one of these options is selected. Depending on the site selected, a modest IR input may be needed in the AS project. Replication of AS would almost surely require rehabilitation of the power, water and road networks in other ONL areas. A second phase project to support processing in the ONL could therefore include IR.

The IT project would improve Egyptian ability to design and operate efficient on-farm water delivery systems in the New Lands. Actual implementation of these systems will require more than on-farm technology; it will require reliable water delivery to the farm gate and functioning regional drainage systems. An IR project could therefore be a logical follow-on to the research and training devoted to on-farm technology, phased to come on-stream as plans now being developed for the use of the ONL areas become firm.

The remainder of the paper is divided into three sections. The first discusses the options chosen for development, providing an expanded description, a discussion of major design issues and a suggested approach to project development for each option. The second discusses the strategy underlying each of these options and the advantages and disadvantages of each. The third section describes the "rejected" options, including both those initially classified as non-starters and those later removed from consideration by AID.

A. Project Options: Description and Issues

1. Agribusiness Services

Description

The project would establish a plant near Alexandria processing fruits and vegetables produced in the ONL and providing supporting services to farmers. The plant would be owned by an Egyptian private sector company, as described below, and managed through a contract with an established American agribusiness firm. The American firm would provide its services for a fixed fee plus profit bonus and would provide a complete upper management team as well as overseas procurement and marketing services.

The plant would buy the production of settlers and graduates on a pre-season contract basis and provide inputs such as seed and fertilizer to the farmers directly and/or assist them to obtain them through local channels. Company employees would provide extension services to the farmers, disseminating the results of research on the company's limited research plots. The latter would focus attention on developing profitable, yield-increasing practices for crops processed or marketed by the company.

The firm would assist farmers to obtain adequate support from the Ministry of Irrigation and other government agencies. Depending on specific site characteristics, the firm could assume direct control of part of the irrigation system.

Prior to AID funding, a private sector company would be established under Law 43/32. Such a company could use the Ameriya Free Zone, if desired, and would be eligible for the tax and other advantages provided under Law 43. Equity would be drawn from three sources:

-- an established Egyptian agribusiness firm (Kaha and Edfina are the likely candidates) The company would be the major shareholder in the new company, but would not hold a majority interest.

-- an investment bank, preferably a joint-venture bank to meet the requirements of Law 32.

-- private Egyptian shareholders. A portion of the shares would be reserved for later purchase by farmers in the project area. Public sector companies in the area could also participate in theory, although they probably do not have any funds available for investment.

AID would provide debt financing. If possible, AID funds would be channeled through an existing AID investment program. It appears that there is no provision for "cooperative" ventures in the industrial sector under Egyptian law, so further consideration of such an approach is not recommended.

The company would engage in some combination of the following, as determined during the feasibility study:

- processing for export (canning, drying, freezing)
- processing for the domestic market
- export of fresh produce
- domestic sale of fresh produce

Based on current official figures (which may overstate actual production somewhat) the W. Delta graduate and settler ONL areas currently produce the following:

<u>Crop</u>	<u>Area</u> (Fed.)	<u>Yield</u> (MT/fed.)	<u>Production</u> (MF '000)
Tomato (sum. & win.)	9500	8	76
Potato (sum. & win.)	5600	10	56
Horsebeans	4900	.8	3.8
Onion	690	8	5.5
Oranges	1900	5 (est.)	9.5
Watermelon (fruit)	19000	8	152
Peanuts	8600	.75	6.5
Peas	7300	3	22

As more lands are distributed in the area, total production available for processing will naturally increase. Additional raw material could be obtained at present from public sector companies, nearby Old Lands, and, over time, from production increases in the project area. Although the company would initially utilize crops now grown in the area, new crops could be introduced as knowledge of agronomic and marketing conditions improves.

With the exception of the upper management team (numbering 10 - 15 expatriates) all staff would be employees of the Egyptian firm. The training of staff at all levels by the American management team would be an explicit contractual requirement. Depending on the characteristics and product mix of the site selected, the firm may operate a "nucleus farm" of approximately 1000 feddans to ensure supply of raw material.

Project Development

1. Preliminary steps. The first steps would be further discussions with Kaha and/or Edfina leading to their approval of the project concept in principal. The identification of the basic product mix would follow.

2. Development. The Egyptian parent company would take the lead at this point, carrying out the feasibility study with AID financing. A large U.S. firm active in the product area (Heinz, Del Monte, Green Giant, etc.) would conduct the study. Assuming positive results, the Egyptian parent company would go forward with formal establishment of the new company. Simultaneously, AID would complete its internal approval process.

3. Start-up. Preparation of final plans and capitalization of the company would proceed together when the capital was 80% subscribed (say), disbursements of the AID loan funds for construction would begin and the management contract would be negotiated.

4. Operation. The plant would start to contract with farmers as construction neared completion, beginning with domestic marketing and building up toward the planned levels of processing and sale. AID would fund a small direct contract for outside evaluation at suitable intervals.

Issues

1. Identification of lead Egyptian firm. The project will require the participation of an Egyptian agribusiness firm able to provide some equity resources as well as experienced staff and overall management supervision. The range of such companies in Egypt is very limited (essentially to Kaha and Edfina). If neither company is sufficiently interested to devote the resources necessary, it would be possible to put together the investment capital from other sources, but the project would rest on a much shakier foundation. The proposed project has not been discussed with officials of the two companies, but others familiar with the companies' current operations indicate that they would be very interested in such a proposal and are currently beginning work on some joint ventures in other areas.

2. AID role. A related issue is AID's desire to, in effect, serve as midwife without touching the baby. A single agency must take the lead in developing the project concept and in putting together the total financial package (though not necessarily the same agency for both). AID cannot stand aside completely from the development of the project and still have a say in the type of venture financed, the ownership of the company, prices and other issues of concern to the agency. AID's ability to distance itself from the process depends on how much leadership the Egyptian and the American private sector can be expected to provide and whether AID would accept what they propose.

3. Off-farm infrastructure. The main constraint not addressed by the agribusiness approach is the need for major investment in off-farm infrastructure, particularly that related to the irrigation system. The need for such repairs varies considerably over the W. Delta area, and other donors are making investments that will correct some of the most serious system defects. A project area can almost certainly be selected where water supply and drainage problems do not present an insuperable problem, but this will have to be verified during the feasibility study. If necessary, AID could possibly fund local repairs under the project or through another mechanism.

4. The nucleus farm. Contract farming operations may or may not include a nucleus farm under the direct control of the processing company to provide a share of the raw material supply. The advantages of ensured supply to the factory and demonstration to the farmers must be balanced against the added cost and management load. The final decision will depend on the particular crops, the reliability of the supply from the ONL, and possible alternative sources of raw material.

2. Research and Training in Irrigation Technology

Description

The project would establish an irrigation technology program at the MOLR's Mariut Center near Alexandria. The program would have three main components:

a. Irrigation Technology. Part of the Center's land would be used to establish a testing and training facility for non-traditional irrigation technologies. Test plots would be set up to demonstrate the use of sprinkler, drip, and other new technologies as well as to compare more sophisticated forms of surface irrigation with the traditional basin technology. The facility would also be used to train technicians and future settlers in irrigation methods for farming the sandy soils.

b. Monitoring and information. A small unit would be created at the Center to monitor public and private investments in the New Lands and provide information to the public, particularly investors. The unit would:

-- identify private and public investments in the New Lands and gather basic information about the operation (area, investment, crops, yields, etc.). Investors would not be required to report to the unit; rather the unit would assemble in one place information that is currently available only by word-of-mouth. This activity

would build on the activities of the document center and the evaluation unit recently established at Mariut with FAO/UNDP assistance.

-- serve as a library for feasibility studies, reports and other published information on the New Lands.

As the unit develops additional functions could be added, such as coordination with other government organizations, etc. The Mariut Center already does work in economic feasibility studies of the New Lands and these could be assisted as they develop. FAO assistance supports the improvement of the Center's Documentation Center, which would probably house the library of feasibility studies.

c. Contract research. A grants committee staffed by Center personnel but headed by a board of senior-level individuals would be set up to fund research by universities, private farmers and other institutions. The grant funds would include dollars as well as local currency to permit grantees to import equipment or cooperate with American institutions. Examples of hypothetical grants are as follows:

-- a grant to Alexandria University's Soil and Water Institute to strengthen its program in desert soils classification in cooperation with an American university selected by Alexandria.

-- a grant to a private farmer to determine the optimal level for various fertilizers on citrus grown with drip irrigation.

-- a grant to enable the N. Delta Company to get technical assistance from American sources on strategies to arrest alkalinization in the Hamoul area.

Mariut has recently established a relationship with Alexandria University whereby 12 professors will work half-time with Mariut. Other universities are involved to a lesser degree.

AID may wish to fund certain larger research activities outside of the grant program. The most important of these is the soil and water mapping activity to be carried out as part of the MOLR's Master Plan. Despite major investment activities in the East Delta, knowledge of the soil and water resources in this area is too spotty to permit reasonable site selection and water use planning. The MOLR estimates that soil surveys of 1 million feddans in the Salhia-El Salaam area would cost LE 2-6 million, depending on the level of detail.

Project Development

This option is the closest to the traditional research project. This simplifies the design process but also implies continued reliance on the technical assistance model. In this case, the TA team at Mariut could be kept quite small, given the various advisors already provided by the FAO and others, the absence of an on-farm or extension component and the provision for additional technical assistance through the grant program.

1. Initial steps. Further discussions with the Mariut Center, the MOLR, the universities and others would be required to enable the Mission to draft a PID. A two- or three-person team would be sufficient to prepare the final design and draft the PP. No construction would be required since Mariut already has an excellent physical plant. Some off-shore training would be necessary, as well as substantial commodities for the irrigation testing program.

2. Start-up. Following the necessary organizational and staffing changes at Mariut, which should be minor, contracting would begin for the irrigation equipment and technical assistance. One possibility would be to require an irrigation equipment supplier to joint-venture with a university to provide the complete package of equipment, technical assistance in Egypt and off-shore training.

3. Operation. Project implementation would proceed more or less along the well-trod path of the other agricultural projects, with perhaps some added alacrity provided by the private sector. Once the physical set-up for the irrigation technology test sites is complete, Mariut Center may wish to host a trade fair to whet the private sector's interest in the Center.

Issues

1. Commercial advantage to the Egyptian private sector. The project will in general demonstrate technologies and train technicians in skills that will be used primarily by large private farmers, particularly during the next few years when the technologies are not well proven. This raises a beneficiary issue, but it also creates several practical problems: should private farmers pay for training at the Center? When research grants are given to private farmers, who owns the equipment bought, if any, and the output of the research plots? What safeguards will be required to prevent misuse of the money for "production" instead of "research," given that the dividing line is theoretical at best?

2. Commercial advantage to American producers. There are obvious advantages to involving an irrigation equipment supplier in setting up the testing program, based on the firm's superiority to a university in moving and setting up equipment and in training

technicians. On the other hand, such a set-up provides an ideal opportunity for excluding one's competitors and operating the Center as a government-financed show-room. The idea of a joint venture with a university has been introduced to short-circuit this tendency, but it may be insufficient.

3. Other institutions. The Mariut Center is the logical site for the research and training activities. It is much more active than the universities and the MOA's Desert Research Institute and it is establishing links to area farmers and other institutions. It could be argued, however, that the research grant and investment monitoring activities belong in the "core" Ministry or perhaps in an organization such as GOFI. This is a question that should be examined more closely during design.

4. Area-specific limits. Mariut is located in the NW Delta, with light-to-moderate soils. Conditions are representative of large parts of the W. Delta and probably some of the E. Delta, but are quite different from either the very sandy soils or the heavy saline soils of other areas. Both types present quite different problems from those at Mariut. The Center makes an effort to be even-handed toward all New Lands areas in training and research, but inevitably the areas close to Mariut are served best. Contract research alone may not be sufficient to tackle major problems impeding efficient use of the resources in the other areas.

This option is the only "New New Land" activity suggested. The total funding would be comparatively low. As such, it could be incorporated into a larger ONL package or it could stand alone as a minimal AID involvement.

3. Basic Desert Services Plus Credit

Description

The project would assist the GOE to extend the local governmental reforms of the mid-seventies to the villages of the ONL. The purpose of the project would be to assist the villagers to meet their needs through local initiative and private sector activity. The project would provide funds to Village Councils for upgrading village infrastructure and loan funds to Village Banks for agricultural and other productive purposes, such as starting a taxi service, a store, or a repair shop.

In most of Egypt, the villages have been grouped into administrative units of five or six hamlets, each governed by an elected Village Council (assisted by an Executive Council made up of the local representatives of the bureaucracy) and each with a Village Bank. This system has not yet been extended to the ONL villages. These villages, which now number around 600, are still

governed by the smaller Community Development Councils attached to the Ministry of Social Affairs and still receive agricultural credit and inputs through the cooperatives. These institutions are more effective in bringing inputs and services to the villagers than in representing their interests outside the village. In many important respects, the New Lands villagers, including the graduates, do not have a local government or a local bank.

The official policy calls for those villages over five years old (in effect, almost all of them) to be integrated into the new national system. Implementation has lagged, apparently because the MOLR's desire to hold onto their villages exceeded the interest of the other ministries in taking them over. Now, however, the MOLR scents fresh resources on the way to finance expanded activities. Officials see the need to turn the existing villages over to the regular governmental agencies if they are to establish the 1500 new villages planned.

The project would push this process forward by giving the GOE a financial incentive for the formation of village councils and the establishment of Village Banks. Funds for construction of the Banks might also be provided. MOLR officials estimate that it will take about two years to implement the new policy. Realistically, AID project money is unlikely to become available before this time.

Project Development

1. Initial Steps. The first step would be broader dialogue with the MOLR and discussion with the Bank, the MOA, the Ministry of Local Government and the relevant governorates to assess how committed the various parties are to implementing the policy. Assuming positive results, a PID would be drafted.

2. Project Design. The project design would combine the funding elements of BVS and the Small Farmer Development project (SFP). It would probably not include much additional TA or other resources. Design would therefore be straightforward: both AID and the GOE have been through it all before. It may be possible to design the project as an amendment to BVS and/or SFP, in which case the PP could be prepared essentially in-house. This would also make it easier to redirect some of the training and TA provided under these projects to the New Lands area.

Alternatively, the governorates of Beheira and Sharkia (and perhaps others) could serve as the grantee. This might help to focus political pressure on the ministries to establish the Village Banks and Councils.

3. Implementation. The existing councils and cooperatives would continue essentially unchanged, much as they have in the Old Lands.

The specifics of the changeover to the new system would be left entirely to the GOE. In discussions during the project design and through the existing BVS and SFP projects, AID would actively encourage the GOE to set up the new organizations. The project would not begin disbursement until the Councils and Banks were operational (see Issues below). It may be noted that Beheira and Sharkia, both important New Lands governorates, are BVS areas and Sharkia is an SFP area as well.

Once disbursement began, implementation would proceed along the lines of BVS and SFP governorate activities, although the training activities of the former would probably be used as a model rather than the more complete revision of Bank practices planned as part of the latter.

Issues

1. GOE commitment to establish Village Councils and Banks. On paper, the government's commitment is clear. In the MOA and the Agricultural Bank, the willingness to act is there if the authority is granted. The governors are said to want the change to happen. The upper levels of the MOLR are willing, if not eager, to see the change, but the operational levels will almost surely resist. AID, by throwing its weight into the balance, might tip the scale toward action, but delay is hardly inconceivable. If further discussions suggest the commitment is not really there, AID has three options: a) drop the project idea, b) work with the existing quasi-governmental cooperatives and councils, or c) push for an "interim" council to be created for the purpose of implementing the project (as AID has good cause to know, it is easier to establish a temporary agency than to get rid of one).

2. Extent of project coverage. Inclusion of all 600 villages would cost about \$30 million for the BVS grant component alone, based on the current BVS pattern. The GOE would have to create about 100 Councils and an equal number of Banks. If AID wishes to attempt a more modest effort the scale could be reduced by limiting activity to a given geographic area, such as the W. Delta (parts of Beheira, Alexandria and Mersa Matruh governorates). Moreover, about one-third of the villages (roughly 200) are in lands distributed to farmers and graduates, while the remainder are on company lands (all 400 may not really exist). Since only the former have cooperatives, or any real need for a Bank, activity could be limited to these villages and their 230,000 farmers, or to some subset of them.

3. Capacity of new institutions. The Councils would be even newer than those on the Old Lands. Their capacity to carry out BVS activities may be less than that of the older councils, although not necessarily. The Banks would also be new and here the capacity problem becomes somewhat more worrisome. The Bank staff would be

asked to start lending operations at a higher level than the existing Old Lands Banks, which make only very limited medium-term loans for either agricultural or other purposes. Moreover, the Village Bank procedures for evaluating medium-term loans, especially in non-agricultural areas, are not what they should be. Looked at optimistically, the project could give the Bank the chance to start the new branches out right, with an improved lending policy, justifying larger lending activities by the special needs of the New Lands. Looked at another way, the Banks may not be able to move the level of funds desired. This issue needs to be resolved during design.

4. Availability of inputs. Both BVS and SFP provide financial resources and leave the supply of goods and services to the private sector. In the case of BVS, the Council contracts for construction services. In the case of SFP, farmers receive loan funds with which to purchase fertilizer and other inputs. The project includes an extension component, but essentially the farmers are expected to know what to buy and where to buy it. This is a reasonable procedure for the Old Lands, where private contractors abound, farmers know their business and additional supplies can be obtained, at least with some effort. Whether this procedure would work in the ONL needs further examination.

B. Project Options: Strategies

1. Agribusiness Services

a. Constraints: The project addresses constraints in the area of marketing, technology, inputs and organization. The assumption is that the settlers and graduates are unable to reach the necessary proportion of high value crops because of inadequate access to markets for outputs and inputs, and insufficient technical knowledge to deal with the New Lands agricultural environment. Their problems are further complicated by their lack of bargaining power vis-a-vis the authorities.

b. Strategy to Overcome Constraints: The project is designed to incorporate the advantages of a large firm into the settler/graduate model, while leaving land ownership in the hands of the individual. A large firm dependent for its profits on the output of the area will have both the incentive and the power to coordinate the farmers' needs. The strategy proposed will also test a private sector alternative to the standard research and extension model used in AID/AGR projects to date. The management model similarly provides an alternative to the technical assistance counterpart approach generally used. While it is certainly too early to condemn either of these models, it would be advantageous to spread the risk by using different approaches for the reasons discussed above.

c. Advantage: The proposed approach ties in well with the GOE's strategy of emphasizing high-value crops and processing. It has the potential to create substantial employment. Because of the high value-added this approach will probably produce an acceptable IRR. Much of the return is due to the profitability of the processing, of course, and is not strictly related to the New Lands. However, a New Lands location is attractive for a processing project because of the location (if a NW Delta site is chosen) and the lack of strong existing market channels in the area. If the approach is successful, it will have high replicability on Old Lands as well as New, and may provide an alternative model for extension. The proposed approach makes relatively modest demands on AID supervisory time. A final advantage is the direct, and highly visible, nature of the activity.

d. Disadvantages: The primary difficulty is likely to be the identification of an appropriate Egyptian firm willing to undertake the project, to devote sufficient attention to it and to enter into a management contract of the type desired. An additional problem arises from the lack of direct involvement for the MOLR, although this is probably not a serious difficulty. A potentially more difficult problem is the need to incorporate capital improvements to the irrigation system, which the firm would presumably be unwilling to undertake since it would not own the land.

2. Irrigation Technology

a. Constraint: A critical constraint to a more rational development of New Lands is the lack of information on soil and water resources available and economically feasible technologies to utilize them. Trained technicians are not available to operate the equipment. This leads to poor investments, inefficient use of the water-delivery technology chosen, and disappointing results. There is not enough information to enable potential investors to identify profitable opportunities, or to prevent the MOLR from making bad investments.

b. Strategy to Overcome Constraint: The proposal project would establish a program to develop the information needed by private investors and the government to make initial decisions on New Land reclamation activities. The project would not include the design of specific projects nor would extension services to individual farmers be provided. The research would concentrate on the technology of water application, and would not produce yield or cost data for specific crops. The omitted components are attractive from a theoretical perspective. There is, however, little reason to believe that the GOE can carry out extension or meaningful agronomic field trails on the New Lands, given their failure to execute either type of program on the Old Lands. Research results that under- or overestimate yields attainable by farmers are worse than useless as a guide to investors, public or private.

The Mariut Center has received substantial assistance from the FAO and other donors and more is planned. As a result, it is the best-equipped and most active center working in the New Lands, and perhaps in Egyptian agriculture. The practical field operations, as distinct from the classroom and theoretical research operations, remain somewhat weak. The Center is thus hampered in effectively carrying out its new role of training future settlers and graduates. It is not equipped to provide technical information to settlers, graduates, or larger farmers or to train the technical personnel needed for New Lands farming operations.

c. Advantages: The principal advantage of the proposed project is the high return expected from redirecting investments into more profitable channels and assisting private sector investment in Egypt. The total cost of the program would be quite modest relative to the huge investments planned for the next ten years. By improving site selection and technology choice, the project could increase the rate of return to public and private investments by several points (if only from a negative rate to 3-4% or from 3-4% to 6-8%). The proposed activity ties in very well with the GOE's announced plans, particularly the new strategy of limiting government intervention to site selection and infrastructure. The principal institution involved is probably the strongest in the field in Egypt.

The activity is highly visible and meets the Egyptian desire for a "high-technology" emphasis. At the same time it is not likely to commit AID to large future investments.

d. Disadvantages: The main disadvantages is that the project operates several steps removed from actual production. (Critics of the New Lands may see this as an advantage). The effectiveness of the project depends on the level of New Lands investment, which is outside the control of the project. If significant new investment does not materialize, the information generated will have a low payoff. A further disadvantage is the exclusion of agronomic research from the project (except to the extent that it is an essential part of irrigation technology testing). Thus the project does not provide the GOE or investors with all the information necessary for complete project design. Providing such information is probably not possible given the physical and institutional constraints, however, and should not be attempted.

3. Basic Desert Services Plus Credit

a. Constraint: Settler areas are unable to achieve full productivity because government services are inadequate. The settler villages are in greater need of such services than Old Lands villagers because their own social organizations are relatively weak. At the same time, their lack of a true political organization places an insuperable barrier in the way of obtaining better

service. The constrained access to credit limits the settler's abilities to meet their needs for themselves.

b. Strategy to Overcome Constraint: Extension of the local government and village bank system to the settler villages will give the settlers the means to bring pressure to bear on the local officials charged with meeting their needs and the capital to carry out local projects of their own. The irrigation system, for example, could function much better than it does, despite its technical flaws, if the local officials took an interest in bringing service up to an adequate level. No amount of training will arouse their interest as effectively as a little political pressure. Some problems, such as the repair of roads within the village, could be solved entirely through local initiative if funds were available.

c. Advantages: Given the experience with BVS, the Small Farmer Production Project, and the LDF, the proposed project would be comparatively simple to implement. It would not require cumbersome, top-down coordination of the many agencies providing services to the settlers and graduates. The project would have high visibility and direct impact on the welfare of the settlers. It would be responsive to their perceived needs and, to the extent these are real needs, it would increase the viability of the entire settler program. The project fosters the integration of the New Lands areas into the Old Lands, which is the government's long-term goal.

d. Disadvantages. The BDS component has a somewhat tenuous connection to agriculture and the New Lands. Although the long-term and indirect effect on agricultural production may be substantial, the short-term immediate effect on output will be very limited. Moreover, to the extent that changes needed to achieve real productivity gains require substantial investment such as replacing pumping stations, local action will be insufficient. This problem could be overcome by implementing the Infrastructure Rehabilitation option in a second phase.

The proposed approach has potentially serious political weakness. At the macro level, the MOLR has an established bureaucracy built around the community development approach, which substitutes for local government in the New Lands. Some of the functions of this program, such as the activities for women, would continue, but the introduction of the local government system would nonetheless challenge this bureaucracy. Credit is provided through the cooperative system, which also has a vested interest in keeping control of this activity. At the micro level, many of the New Lands villages are ethnically much more diverse than the Old Lands villages. Political activity could sharpen the divisions between bedouin and fellahien, Menoufi and Damanhouris, with potentially violent results.

A final disadvantage is the low level of information generated of use in planning or executing New Lands projects elsewhere.

C. Concepts Not Recommended for Further Consideration

The following two concepts were initially presented to AID along with the three options discussed in greater detail above. The Mission determined that further consideration of these options was not desirable at this time.

1. Settlement Strategies:

Brief Description: The project would test alternative strategies for distributing ONL to graduates and settlers. The project purpose would be to identify a less expensive approach than that now used. The GOE has recently set a target of distributing all arable company lands to the private sector, including 40% to settlers and graduates. The current approach is prohibitively costly, however. For example, a project in the final stages of approval for IFAD funding will distribute the lands of the Mechanized Farm to settlers in 5-feddan blocks. The project, designed by the World Bank, is based on an "integrated agricultural development" approach and provides everything from rebuilding of major irrigation structures to housing, extension, credit and bilharzia control. The total cost is \$4,300 per feddan or \$21,500 per settler family. Distributing all the land targeted for settlement using this model would cost in the neighbourhood of a billion dollars, and therefore may not be possible. The proposed project would experiment with less expensive settlement strategies to identify which elements of the complete social and agricultural system must be provided prior to settlement, which can be delayed, and which can be left entirely to private initiative.

Three approaches would be tried on sites in a single general area: (1) complete infrastructure, including social services, (2) rehabilitation of the irrigation and other infrastructure with "site-and-service" housing but no social services, and (3) rehabilitation of agricultural infrastructure only.

In all cases, the land would be sold to private individuals and credit would be provided. The price per feddan and total credit provided would vary across the models to reflect the relative contribution of government and farmer.

The first approach duplicates the IFAD project and could be eliminated or streamlined to provide, in effect, a fourth option. The third model would probably not be suitable for small-holder settlers and land would be sold to graduates or larger farmers, in blocks of up to 50 feddans (say). The apparent success of Bedouin squatters along the Nasr canal and elsewhere may indicate that the third option is feasible even for small-holders.

Strategy:

a. Constraint: This option addresses constraints to effective utilization on the ONL in the areas of the water delivery and drainage system and the lack of private management. The off-farm water problem has a relatively straight-forward technical solution, but the re-creation of the complete village social support system from the ground up is difficult, costly and an organizational nightmare. The government's capacity to carry out such social engineering limits the spread of the most effective land-use model.

b. Strategy to Overcome Constraint: The project would explore ways of reducing the cost of settlement by identifying which elements of the complete system must be provided by government, which can be delayed until the settlement is several years old, and which can be left entirely to the private sector. Services now provided by the government may not be necessary to settler viability.

c. Advantages: This option has several advantages, not least its direct tie to production. The focus on identifying inexpensive approaches reduces the cost of the project and thus raises the beneficiary/dollar ratios, as well as making replicability more than an empty promise. Since phasing of project inputs is part of project strategy and input-intensive project elements (such as development of extension) are limited to part of the total area, the implementation load is probably less than for an integrated development project covering a similar area.

d. Disadvantages: The main disadvantage is the virtual certainty that some of the options tried will fail, at least in the sense that another option outperforms them. The fact that this difficulty is tautological may not prevent embarrassment.

The yields in the low-cost alternative would presumably take somewhat longer to reach target levels, but this would be balanced by the lower investment cost and delayed social expenditures. The IRR of the IFAD project is calculated at 13-20%, depending on the treatment of current farm losses and social infrastructure costs.

Two potential problems in implementation arise from pursuing different strategies in parallel. First, there will be a tendency to move away from the simpler models in the interests of farmers, "good planning" or political expediency. Settlers receiving only a site-and-service farm may object if their neighbors receive completed dwellings, conveniently forgetting that they are paying less for their land, while someone in AID/W is sure to object to the exclusion of whichever components are omitted in the low-cost options.

The second problem arises from the fixed cost of providing the services in the high cost option. If extension services are provided on part of the area for example, there will be a tendency to extend the service to the whole area, as a cost-cutting device. Again, the argument is spurious since doing so would run counter to the project's strategy, but logic may not be enough to carry the day.

e. Inputs: AID would provide construction and some technical assistance, depending on the models selected. The GOE would provide the land and existing infrastructure as well as other services, again depending on the models.

2. Infrastructure Rehabilitation:

Brief Description: The project would identify two or three ONL areas and replace or repair the major elements of the drainage, irrigation and other infrastructure systems as needed. The areas selected should represent a range of conditions, including both desert and lake-bed soils, covering a total area of perhaps 50,000 feddans. The project would work with the Ministries of Irrigation, Electricity and others responsible for the infrastructure, although the funds could be channeled through the Rehabilitation Agency of the MOLR.

The project would clarify the responsibility of the line ministries for the structures repaired, and there would be minor levels of training for maintenance personnel. By and large, however, the project would not be directed at operations and maintenance (the rationale for this is discussed below).

Pumps and canals would be redesigned to the extent necessary and feasible. Control over water flow could be decentralized in a smaller pilot area to give farmers direct control over the water.

Strategy:

a. Constraint: This project addresses the critical water delivery and drainage issue. In some areas, replacement of infrastructure is a prerequisite to further development, whatever the approach on-farm. In these areas, maintenance of the current structures is effectively impossible due to their advanced deterioration.

b. Strategy to Overcome Constraint: There is broad agreement that many of the New Lands irrigation structures have deteriorated beyond the point where repair is feasible. Explanations differ markedly, however. In some case, bad design has in effect built in failure. In other cases disuse has led to deterioration. Poor maintenance and misuse have doubtless been contributing factors.

Distributing the land to the private sector, as the GOE is now doing, and replacing the structures, will take care of the first two problems. The central assumption of the strategy proposed is that these steps will also solve the third problem, to an acceptable degree, if the current division of responsibility between the Ministries is clarified. The Hunting review of New Lands irrigation operations concludes that when the responsibility rests clearly with the MOI the system functions adequately, on a par with Old Lands operating standards. Pressure from the farmers is sufficient to keep the water flowing, albeit imperfectly. It can be argued that the remaining weaknesses in the New Lands system are part of the nation-wide problems of low salaries, insufficient maintenance funds, and so on--in short, that large amounts of training and technical assistance would provide only a marginal improvement.

Several activities are now focussed on the lands west of the Delta and the flow of water to this region. The World Bank Fruit and Vegetable Project is financing a main drain parallel to the Nubaria Canal; the W. Nubaria Project will extend the Nasr Canal and make repairs on the existing structures; the IFAD W. Beheira (Mechanized Farm) Project will also finance work on the Nasr and Nubaria Canals. The planned distribution of roughly 20,000 feddans to large agribusiness firms will, at the same time, depend on additional repairs to this system, as will the intended distribution to settlers and graduates. The project would provide the repairs needed to complement those already planned and support the full development of this region.

c. Advantages: The principal advantage of the proposed approach is its simplicity and reliance on construction activities where U.S. expertise has a clear advantage. The project would have high visibility and its impact would be immediately felt in the areas served by the canals. It would support the GOE's proposed private sector strategy as well as other AID activities in irrigation and other donor activities in the New Lands. The virtual absence of a TA component should make the project comparatively easy to manage from AID's perspective.

d. Disadvantages: The project strategy relies on the assumption that the private sector water users will be more successful than their public sector predecessors in making the MOI and other line ministries respond to their needs and in using the water. If this assumption is false, the rebuilt structures will deteriorate rapidly and the project will fail and quite visibly. The profitability of the proposed activity is thus highly dependent on the actions of firms and individuals outside the project and, in consequence, risky. An on-farm water management component and/or a training component could be added at a later date if necessary, once AID has more experience in the Old Lands.

A further disadvantage of the approach is that it provides little new information on how to raise yields in the New Lands, the levels of yields attainable, or the economics of New Lands, at least directly. If the project assumption is correct and the provision of reliable water will enable private farmers to achieve viability, the farmers themselves will generate considerable information of this nature. This information will not be systematic, however, and may be difficult to interpret.

e. Inputs: This is a bricks-and-mortar project with, perhaps, a minor training component. AID's main inputs would be A&E services and construction. The GOE would provide the land and structures currently in place, as well staff salaries and maintenance costs.

3. Nonstarters

The following concepts were initially considered but do not appear to represent viable options for AID assistance:

1. Farm Management Research and Extension: The general TA model that underlies several of AID's Old Lands projects does not look promising at all for the New Lands. Effective extension requires both something to extend and someone to extend it. Both are lacking in the New Lands, even compared to the situation in the Old Lands. The New Lands do not appear to be a logical proving ground for solving the national extension problem. Research without close contact with the farmers is not viable. I have no confidence that a farm management research station would be able to sustain itself anywhere near the "breaking edge" of technology or produce results of practical or theoretical use to the farmers. Moreover, FAO and the German aid program are supporting, respectively, a research farm and extension program at Mariut/Nahda. AID should wish them luck, and stand prepared to add financial support if expansion seems appropriate.

2. Desert Soil and Water Management: The EWUMP model, even with the addition of infrastructure rehabilitation capital, looks like a non-starter on the New Lands. The pieces essential to an on-farm water management program are not in place. Some of the elements are scattered about here and there and the problem is certainly large enough, but a super-human effort by the TA team would be required to pull them together, even with the attraction of a big capital budget. Based on past experience, the team would probably be more "human" than "super." This is a case where a need exists that AID probably cannot fill.

3. Integrated Desert Development: Since the New Lands need everything, there is a temptation to design a project that has everything. The coordination effort implied by this approach is

mind-boggling. Moreover, once again IFAD and the World Bank have thoughtfully volunteered to try this approach, on ONL and NNL, respectively. AID should wish them luck, too, but dig (conceptually) for treasure in another part of the desert.