PROJECT EVALUATION SUMMARY (PES) — PART I

Symbol U-447

1. PROJECT TITLE	2. PROJECT NUMBER	3. MISSION/AID/W OFFICE
A.T. International	931-1071	ST/MD

4. EVALUATION NUMBER (Enter the number maintained by the reporting unit e.g., Country or AID/W Administrative Code, Fiscal Year, Serial No. beginning with No. 1 each FY) 82-19 (8/20/82)

☐ REGULAR EVALUATION ☐ SPECIAL EVALUATION

5. KEY PROJECT IMPLEMENTATION DATES			6. ESTIMATED PROJECT FUNDING	7. PERIOD COVERED BY EVALUATION
A. First PRO-AG or Equivalent FY 77	B. Final Obligation Expected FY Cont.	C. Final Input Delivery FY Cont.	A. Total $ Cont.	From (month/yr.) June 1977
			B. U.S. $ Cont.	To (month/yr.) December 1981
				Date of Evaluation Review April 1982

8. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues; cite those items needing further study. (NOTE: Mission decisions which anticipate AID/W or regional office action should specify type of document, e.g., airgram, SPAR, PIO, which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
Attached are the summary, conclusions, recommendations and annexes 1, 2, and 3 of the A.T. International Evaluation Report dated May 5, 1982. This report contains seven general recommendations. These recommendations, and their several parts, fall into three categories: (1) recommendations concerned with the A.T.I. program and management; (2) recommendations concerned with A.I.D.'s organization and implementing procedures; and (3) recommendations concerned with A.T.I. relationships, most particularly with A.I.D.		
1. Recommendations concerned with A.T.I. programs and management -- action by amending grant.	M. Farbman	12/31/82
2. Recommendations concerned with A.I.D.'s organization and implementing procedures A.I.D. actions.	J. French R. Zagorin M. Farbman	12/31/82
3. Recommendations concerned with A.T. International external relations, most particularly with A.I.D. -- action by grant amendment and internal A.I.D.	M. Farbman J. French	3/1/82

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS

- ☐ Project Paper
- ☐ Financial Plan
- ☐ Logical Framework
- ☐ Project Agreement
- ☐ Implementation Plan e.g., CPI Network
- ☐ PIO/T
- ☐ PIO/C
- ☐ PIO/P
- ☒ Other (Specify) Grant Document
- ☐ Other (Specify)

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

- A. ☐ Continue Project Without Change
- B. ☒ Change Project Design and/or ☒ Change Implementation Plan
- C. ☐ Discontinue Project

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles)

Roger D. Moeller, ST/MD, Project Officer
Clarence J. Mann, Executive Director, A.T. International

12. Mission/AID/W Office Director Approval

Signature

Typed Name Jerome T. French

Date August 20, 1982

AID 1330-17 (3-78)

EVALUATION

A. T. INTERNATIONAL

An Expanded and Coordinated Private Effort
to Promote the Development and Dissemination of
Technologies Appropriate for Developing Countries

VOLUME I -- Summary, Conclusions, Recommendations and Annexes 1-3

May 5, 1982

John Daly
Wayne Dunlap
Molly Hageboeck
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6. Evaluation Methodology*

7. Profile of A.T.I. Subgrants*

8. A Partnership in Appropriate Technology (Management Report)* (Robert Emrey).

9. An Evaluation of AT International (Arthur D. Little team)*

   a. Implementation of AT International's Planned Evaluation System (A.D. Little team)*

   b. AT International in Africa: An Evaluation of Selected Projects in Lesotho, Swaziland, Malawi, and Kenya. (by Dennis Wood)*

   c. AT International in Asia: An Evaluation of Selected Projects in Indonesia, Sri Lanka, and India (by Byron Battle)*

   d. AT International in Latin America: An Evaluation of Selected Projects in the Dominican Republic, Colombia Barbados, and Honduras. (by Rafael Samper and Julene Sorensson Beck)*

10. Africa Trip Report: A.T.I. Evaluation (Wayne Dunlap)*

11. Asia Trip Report: A.T.I. Evaluation (Jan van der Veen)*

12. Latin America Trip Report: A.T.I. Evaluation (John Daly)*

13. Survey of Recipients of A.T.I. Publications.*

14. ATI Response to April 20 Draft Evaluation on A.T. International*

+ included in Volume I

* included in Volume II

EXECUTIVE SUMMARY

EVALUATION OF A.T. INTERNATIONAL

The Foreign Assistance Act, in 1975, authorized funds for "activities in the field of intermediate technology, through grants in support of an expanded and coordinated private effort to promote the development and dissemination of technologies appropriate for developing countries." A.I.D.'s "Proposal for a Program in Appropriate Technology," implementing this mandate, was accepted; A.T. International chartered; and grant agreements of $1,000,000 and $20,000,000 were made with A.T.I. in June 1977 and August 1978, respectively.

A.T.I. is now a small, Washington-based private organization that works with various constituencies (LDC and US private sectors, the appropriate technology community, LDC governments and donor agencies) to promote the development and dissemination of technologies appropriate to developing countries. It enters into cooperative relationships with selected individuals and organizations on the basis of A.T.I.'s perception of their importance to A.T.I.'s overall charter. It provides information, small amounts of financing and technical and managerial assistance, and brokers contacts responsive to the articulated needs of these cooperating organizations when the benefits from such activities appear sufficient.

FINDINGS AND CONCLUSIONS

Institution Building. Eighty percent of A.T.I.'s overseas activities appear to include objectives of strengthening client organizations. A.T.I. has demonstrated success in strengthening many client organizations. In other cases, A.T.I. has not strengthened the client, and in several cases A.T.I. projects have failed due to uncorrected weaknesses of the client. In one or two cases reviewed A.T.I. inputs may themselves, in unfortunate juxtaposition with other factors, have weakened counterpart organizations. It is probable that A.T.I. can improve the benefits from its efforts to strengthen organizations.

A.T.I. has also demonstrated the potential for networks of grass-roots development organizations to be important institutions for the stimulation of technological innovation in its target populations. Further, A.T.I. has experimented with a variety of alternative institutional mechanisms which hold promise, such as franchising, development of training networks, and market development. It is obvious that by forcefully following up efforts in this area, by searching more actively and innovatively for such institutional experiments, and by developing better channels to distill and disseminate the relevant experience, additional benefits can be achieved from these institution building efforts in the future.

Technology Development and Diffusion. The large majority of A.T.I.'s sub-grants explicitly involve technology development and/or diffusion. The term technology is used to connote a wide range of innovations, including techniques as well as hardware. Frequently technology efforts focus on technologies that are directly usable by the target population, but some focus on technology for intermediaries. The efforts to develop and disseminate technology supported by A.T.I. are sometimes successful. There were a number of projects visited however, which were unsuccessful in developing and introducing new technology. It is suggested from the data that it may be more effective to create conditions conducive to "demand pull" than to try to disseminate technology through "technology push". There are a number of ways A.T.I. could improve technology aspects of its program. It could improve use of technical consultants, incorporate more technically trained staff in appropriate areas, use ad hoc multidisciplinary teams according to the needs of specific activities, provide technical training opportunities for its staff, limit the technological diversity of its portfolio, and carry out in-depth studies on technology themes in its portfolio.

Other Impacts of the Program. It is our impression that the lessons learned from A.T.I.'s experience are not widely shared, and that benefits are not accruing widely from projects modelled after A.T.I.'s successes or from avoiding A.T.I.'s failures. If AID were to implement its original proposal to Congress (in terms of its internal organization and its relations with A.T.I.) it seems

likely that these benefits could become the most economically important results of the program, i.e., by facilitating the application of lessons in AID and elsewhere from other "seed" grant experiments. Further application of these lessons could also be achieved by improving A.T.I.'s management.

Few benefits are resulting from A.T.I.'s publication program, partly as a function of choices made concerning distribution. Clearly these benefits can be improved.

A.T.I.'s new Business and Technology Services (which were not evaluated) a priori appear to fill a need and be worthy of support.

A.T.I.'s program in technology policy produces modest benefits. It appears that A.T.I. could increase benefits from technology policy efforts. It should be encouraged to compete for additional resources to do so. A.I.D. should fund technology policy studies, using competitive bidding.

There have been no foreign policy costs of the A.T.I. program and some benefits. There is a modest potential to improve foreign policy aspects of the A.T.I. program, by A.I.D.'s moving earlier to resolve potential concerns in particularly sensitive country programs or by diversifying A.T.I. funding.

Program Beneficiaries. A.T.I.'s program is properly targeted in the sense of the A.I.D. proposal to Congress. We could not ascertain the degree to which benefits were actually reaching the poor; it was, in fact, too early to do so adequately. However, A.T.I.'s success in reaching the poor in the more forceful sense used in its publications is naturally mixed and probably low. We see no need to make major improvement in A.T.I.'s focus on the poor. Continued attention to assure this focus is, of course, necessary.

A.T.I. focuses on LDC private sector efforts, but has done less with the US private sector than intended by Congress. A.T.I. is taking action designed to improve relations with the US private sector.

Costs and Financing. The unit costs of A.T.I.'s program functions were higher than originally envisioned. We judge that they have been higher than necessary. More collaborative budget planning by A.I.D. would help prevent short term inefficiencies such as characterized A.T.I.'s 1981 program. A.T.I. could help to cut costs if unforeseen budget cuts do occur in the future. A.T.I. appears to be a reasonably well managed organization and is commended for its efforts at cost containment; continuation of these efforts may permit modest reductions in program costs.

Neither A.I.D. nor A.T.I. should seek to continue a relationship in which A.I.D. is the only supporter of A.T.I.'s work. A.T.I. should seek additional sources of financing to supplement and complement its assistance from A.I.D..

Management. A.T.I.: The overriding finding is that A.T.I. has succeeded over its history in creating a viable organizaton and in carrying out a reasonable program within the resources allocated to it. It appears that A.T.I.'s program can be improved by A.T.I. itself. The evaluation team prefers a conservative approach to organizational change. However, in addition to the points already covered, the program could be improved if A.T.I. were to better articulate its charter, and strive more actively to sell itself to its various constitutencies (and thereby raise additional revenues for appropriate functions). We stress the need for A.T.I. to keep its roots in developing countries and to maintain a low center of gravity so that decisions are made as close to these roots as possible.

A.I.D./A.T.I. Relationship: A.I.D. initiated the relationship by a conscious decision to minimize A.I.D. responsibility for A.T.I.'s activities. Each organization appears to have underestimated the difficulties of communicating with the other. Improvement in the A.I.D./A.T.I. relationship would improve the program. Changes in both organizations will be required.

A.I.D.: A.I.D. has been developing a significant bilateral program in appropriate technology, and has carried out the basic functions required by the A.T.I. grant. In 1977, the Administrator attempted to have the mandate for the A.T.I. program removed by the Congress. He established a hands-off

policy. Withdrawal of A.I.D.'s interest thus left A.T.I. as an experiment without an extension mechanism. A.I.D. can significantly improve the A.T.I. program by restoring backing to A.T.I., by devoting policymakers' attention to A.T.I.'s experiments in development, by transferring reponsibility for A.T.I. to the Office of Multisectoral Development (or to an appropriate technology unit if one is formed), by creating an interbureau committee to relate to A.T.I., and by improving financial planning for the A.T.I. program.

OVERALL CONCLUSIONS

1. While the program was reasonably successful in LDC's in strengthening institutions, developing and disseminating appropriate technologies and influencing policy, it was less successful in drawing on this experience and influencing its US and international constituencies. Costs were also higher than expected, and it is judged that a lower cost vehicle could have been found to achieve these effects. The responsibility is shared by A.I.D. and A.T.I.

2. If A.I.D. and A.T.I. are seriously willing to attempt the improvements required, modest success should assure that the flow of benefits from the A.T.I. program will be more than commensurate with costs in the future.

RECOMMENDATIONS

It is the judgement of the evaluation team that the value of A.T.I.'s program will best be judged over time by A.T.I.'s own ability to demonstrate to its constituencies that it is worthy of their financial and other support. In this context we recommend that A.T.I. begin a process of seeking broader support for its program. Properly understood, the recommendation to increase its base of support is a management recommendation as well as a funding recommendation.

A.T.I.'s funding in the past has come almost entirely from a centrally-funded A.I.D. grant. It is recommended that the A.I.D. central funding mechanism for the future be a grant that provides a floor level of funding for A.T.I. field programs. Under such an arrangement A.T.I.'s growth will come

from funds provided by other sources (including A.I.D. missions, regional bureaus, other donors, US and LDC foundations and private enterprises, and other client groups) or by its increasing ability to catalyze or leverage efforts by others. The funding mechanism should encourage A.T.I. to compete in commercial markets to recover the costs of certain activities.

A.T.I.'s program depends on practical experience with grass-roots development efforts and it is essential that overseas efforts continue as the focus of all A.T.I.'s program activities.

It is the judgement of the evaluation team that A.I.D. policy level management attention will have to be directed to the A.T.I. program if the full potential of the program is to be realized, and that such attention will be substantially rewarded.

It is recommended that A.I.D. strengthen its management of the implementation of its entire program in response to the Agency's 1976 proposal to Congress, including as a central element in its overall program its grant to A.T.I.

A.I.D. currently assigns management responsibilities for this grant to the S&T Bureau's Office of Agriculture. Several alternative locations were considered by the evaluation team. It is recommended that responsibility for the A.T.I. grant management in A.I.D. be given to the S&T Bureau's Office of Multisectoral Development.

In developing the new grant scope of work it is recommended that A.I.D.'s "Proposal for a Program in Appropriate Technology" generally be used for guidance rather than the previous grant agreement in areas where the two differ.

ACKNOWLEDGEMENTS

We would like to acknowledge the cooperation and assistance of the many people who helped us in the evaluation.

The A.T.I. staff organized a team to work with us consisting of Clancy Mann, Jim Finucane, George Woodring, Laurel Druben, and Ton de Wilde. These people responded quickly and openly to every request we made, and showed great professionalism in the quality of the responses to our questions and comments on our drafts. We also traveled with ten A.T.I. operations representatives in our field reviews of projects. These people were not only helpful and informative in the field, but they also reviewed the A.D. Little reports and our trip reports and made many valuable suggestions. Almost the whole of A.T.I.'s staff was involved in one way or another, including interviews by our management consultant, assistance on file reviews, and interviews with the evaluation staff; their uniform and universal courtesy and helpfulness was greatly appreciated.

We are particularly grateful to Roger Moeller, the A.I.D. Project Manager for the A.T.I. program. Roger not only provided detailed information on A.I.D. project management and excellent comments on our work, but also managed the complex and burdensome administrative aspects of the work -- contracting, travel arrangements, secretarial support, meetings, liaison. Without his extraordinary cooperation and effort, this evaluation would have been much less ambitious and our work enormously more difficult.

Many other A.I.D. employees helped a great deal in our work, particularly Jerry French, who orchestrated the management and review of the evaluation in A.I.D.; Art Silver and Tom O'Keefe, who worked with us as program officers; and Mike Delletre and Peter Thormann who at times participated as members of the evaluation team. We are particularly greatful to Sharon Yow and the other secretaries who worked so hard (often on overtime) in typing the several drafts of this report. We would also like to acknowledge the assistance of A.I.D. personnel in eleven missions and eight bureaus who were interviewed, or who helped review our work.

The assistance of contractors is also gratefully acknowledged. Bob Emrey did what we belive to be an outstanding job on the management review, as did Rafael Samper, Byron Battle, Julene Sorenson Beck and Dennis Wood on review of the field projects. We were also assisted by Bill Krebs and Bob Terry from A.D. Little in planning, managing and reviewing the A.D. Little inputs. The assistance of Nancy Berge and Lou Stancari who spent many days in gathering data from A.T.I. files and similar unglamorous but necessary efforts is also gratefully acknowledged. Gailen Mitchell and Marianne Wall carried out the telephone survey of recipients of A.T.I. publications.

Finally we would like to thank the many A.T.I. clients in developing countries, other donor organizations and elsewhere who shared their informatinn and views with us.

While all of these people helped us in carrying out the evaluation, we alone bear the responsibility for its contents and the views expressed.

I. INTRODUCTION

A. HISTORICAL SETTING

In 1975, Section 107 was added to the Foreign Assistance Act, providing $20 million which might be used over the 1976-78 period "through grants in support of an expanded and coordinated private effort to promote the development and dissemination of technologies appropriate for developing countries." A.I.D. organized and held a series of public meetings to consider this legislative mandate. Based on the advice received, an A.I.D. task force proposed the creation of a private, non-profit corporation to carry out the mandate (in coordination with a small appropriate technology unit in A.I.D.). Congress ratified the proposal in 1976. A.T. International (A.T.I.) was chartered in December. An initial one million dollar grant was made by A.I.D. to A.T.I. in June of 1977. Based on the planning done and experience gained with the first grant, a second three-year grant was made in August 1978. (A detailed timeline of ATI's history is given in Annex B.)

The creation of A.T.I. must be understood in terms of the larger context of development since A.T.I. represents an experiment in alternative modes of development assistance. E.F. Schumacher, the most effective spokesman of the Appropriate Technology movement, had pointed out that technological progress in developed countries had long focused on substitution of machines for manual labor. Historically, this required very large investments. There had been a tendency to assume newly developing countries would, to some extent, recapitulate this western experience. In developing countries, however, investment capital was scarce and there was an enormous need for employment. Moreover, western development had been characterized [illegible]rbanization and by the destruction of many traditional cultural and social structures. Schumacher asked if there was not a better development path available through the widespread application of simple, low-cost, labor-intensive technologies for productive enterprises to be located in the villages of the developing world. Ideally, these technologies and enterprises would be locally produced and owned.

The appropriate technology (A.T.) movement struck a responsive note in many parts of the development assistance community, partially due to its face validity and partially as a potential solution to perceived problems of development assistance. Presumably the cost of encouraging a self-sustaining process of technological improvement would be lower and more time-limited than had been true of earlier development assistance strategies. Presumably the A.T. approach would be more effective in specifically targeting social and economic development for the poor. Presumably an appropriate technology approach would be more consonant with U.S. private enterprise experience than existing government-to-government strategies, by focusing on small enterprises in the host country, and perhaps by tapping private enterprises in the U.S. more effectively. Various constituencies assigned different priorities to these alternative possibilities.

The movement, of course, also had enemies. Some developing countries felt that the A.T. movement was promoted by the developed countries to prevent the growth of competition from newly industrializing countries. Some A.I.D. officials felt the A.T. movement was nothing but a new name for programs that were already well-established.

The consensus that formed around the creation of A.T.I. was, in part, based on the hope that A.T.I. could help resolve the disparate concerns of different constituencies. There was no grand synthesis that simultaneously addressed all the concerns of these groups. More to the point, the lack of programmatic specificity in the A.T.I. proposal may have been needed to obtain a consensus for its approval. The end result was the creation of a new organization with a vaguely defined function, responsive to various constituencies with disparate and perhaps contradictory aims. Not surprisingly, A.T.I.'s history has been marked by continuing concern on the part of its Board, staff, clientele, and colleagues on just what A.T.I. is to do.

This situation was recognized. A.T.I. was explicitly created in order to experiment, as A.I.D.'s Proposal to Congress states (page 3):

> "The program is intended to serve, not just as a funder of privately-run projects, but as a source of experimentation, evaluation, and ideas in appropriate technology which can be

> picked up by LDC governments and aid donors or be spread by private enterprise. This is a basic reason for using A.I.D. funds. . . . The Section 107 program is seen as a forum for innovation -- a provider of yeast to leaven the larger efforts of aid donors and LDC governments."

The lack of specificity in A.T.I.'s charter should not be overstated. It has always been clear that A.T.I. was directed to focus on the higher order goals of assisting "the poor to participate in development. . . from the aid legislation itself." The goal of "(assisting) developing countries (to) strengthen their capacities to develop, adapt, and utilize appropriate technologies" was explicit in A.I.D.'s proposal to Congress and quoted in the Background of the A.T.I. Program Description. There was agreement that the majority of A.T.I.'s budget would go to "Development Assistance Projects," which were to include: 1) Development and Testing of Appropriate Technologies, 2) Adaptation and Testing of Appropriate Technologies and 3) Strengthening of Common Services Organizations. All agreed upon the importance of information and communications activities in A.T.I. programs, and the desirability of using the A.T.I. program selectively to involve U. S. business in A.T. activities overseas.

B. EVALUATION OBJECTIVES

This evaluation focuses on past performance. As a result of A.T.I.'s and A.I.D.'s efforts, certain streams of benefits have been created. Technologies have been developed and disseminated, institutions strengthened, policies changed, experience developed and shared, etc. According to the program mandate, benefits are to be targeted to the poor and programs focused on the private sector. Costs have been incurred. The central question is: are the benefits to the target groups consonant with the costs? Clearly, this requires a judgment based on the professional experience of the evaluation team. The evaluation is forward-looking, however, in that it is to provide a basis for judgment on future U.S. government support for A.T.I. The evaluation, therefore, considers whether appropriate steps can improve the relationship of benefit flows to costs.

The evaluation is based on documents which specify the original agreements among organizations. A.I.D.'s Proposal to Congress, freely defined by A.I.D.

and accepted by the Congress, is used to document A.I.D.'s responsibility to the Congress. The A.T.I. Grant Agreement is used to document A.I.D. and A.T.I.'s responsibilities to each other.

C. DESCRIPTION OF A.T.I.

It has been difficult to communicate the nature of A.T.I. Since A.T.I. is a small organization with a limited budget, this difficulty tends to be unexpected and disconcerting. A.T.I., however, is an experimental organization and functions unconventionally. Therefore, the difficulty in communicating the nature of A.T.I. may be in the cognitive dissonance between A.T.I. processes and conventional expectations of organizational processes. Conventional organizational expectations, after all, developed in the context of hierarchical organizations such as A.I.D. -- A.T.I. has specifically rejected that hierarchical model and its implied organizational processes.

Conventional organizations usually are described as having goals and objectives. Organization members are seen as implementing programs to carry out these goals and objectives. The goals and objectives of the organization usually can be inferred from patterns obvious in its activities. One cannot similarly infer A.T.I.'s "goals and objectives" from the pattern of its sub-grants and consultancies, at least not when those activities are described conventionally according to the characteristics of organizational and technological content.1/ Certain questions quite rational in usual discussion of organizations -- e.g., why does A.T.I. management emphasize energy sector activities and deemphasize health? do A.T.I.'s dissemination efforts rapidly transfer its research findings to the field? -- are meaningless or misleading in the context of A.T.I.'s systems.

On the other hand, accepting an alternative viewpoint allows A.T.I. to be described very simply. A.T.I. is a small, Washington-based private organization that works with various constituencies (LDC and U.S. private sectors, AT community, LDC governments and donor agencies) to promote the development and dissemination of technologies appropriate to developing countries. It enters into cooperative relationships with selected individuals and organizations on the basis of A.T.I.'s perception of their importance to A.T.I.'s overall charter. It provides information, small amounts of financing

and technical and managerial assistance, and brokers contacts responsive to the articulated needs of these cooperating organizations when the benefits from such activities appear sufficient.

Historically, A.T.I.'s program began with what are now called its "AT Extension Services." Operations representatives made country probes, contacting a large number of people and organizations working at the grass-roots level. The operations representatives sought to identify what these colleagues believed needed to be done and what inputs these colleagues believed they needed to make stronger efforts on their priority programs. Projects were developed from the best and most innovative and relevant ideas. A.T.I.'s portfolio of field projects grew as the aggregation of these activities. To some degree, policy efforts similarly grew in response to articulated demands of specific constituencies. Communications and evaluation efforts were necessarily based on the portfolio of activities. (ATI's division of Business and Technology Services was formed, based upon efforts that had been started in 1980 and 1981, after the evaluation started. The functions of this division were not evaluated.)

One key to understanding A.T.I.'s program is found in the process of selection of organizations with which it maintains relations. The strategy for the country probe has been articulated by the A.T.I. Asia/Middle East team in an approach called "the puzzle." The strategy is not a cookbook approach, but calls upon the creative, analytic talents of the operations representatives. The process of technology development and diffusion is studied, key organizations and linkages identified, and potential cooperative approaches determined. We believe the approaches of the Africa/South Pacific and Latin America/Caribbean teams differ from each other and from the Asia/South Pacific team's in substantive ways. Thus, while all three teams seek to develop innovative programs responsive to the expressed needs of client groups, they face different organizational systems, approach their efforts in somewhat different ways, and are influenced by the approach of individual operations representatives seeking to creatively carry out their work. The result of the process and idiosyncrasies in its implementation is a wide variety of relationships between A.T.I. and other organizations.

Individual activities proposed by cooperating organizations are supported by A.T.I. if they pass management screening.

Generally, A.T.I. activities are very small, and the decision to accept or reject an activity for funding is made very quickly. In the screening of activity proposals, A.T.I. considers a number of aspects of the activity: Does it relate ultimately to the needs of A.T.I. target population? Does it strengthen the counterpart organization? Is it feasible and practical? Does it provide A.T.I. useful experience? Does it approach an important development problem? Does it serve a useful demonstration purpose in the national or regional context? Is the technological content good? Activities are funded if the overall balance is judged right for A.T.I. The result of the process is a very wide diversity of activities when viewed from a sectoral perspective.

Some of the advantages of A.T.I.'s way of doing things are: 1) it is not viewed as paternalistic nor domineering by grass-roots organizations in LDCs; 2) it can quickly move to support innovative ideas it discovers in LDCs; 3) it funds many innovative ideas by responding to initiatives from a wide variety of cooperating organizations. Of course, in not using a more structured and programmatic approach to development and dissemination of technology, A.T.I. also foregoes some potential benefits.

ATI has expended $14.6 million from its creation to December 31, 1981. Almost half of that expenditure was in the form of (some 150) subgrants made in 33 countries. A.T.I.'s staff currently consists of 49 persons located in Washington, D. C. While A.T.I. does not have any staff permanently assigned overseas, it does have a few individuals and organizations which are, in effect, on retainer and which identify potential activities and help to monitor current subgrants and advise subgrantees.

The Tables in Annex 1 illustrate the nature of A.T.I.'s grants program. These data are based on our research assistants' interpretations of A.T.I.'s file data, and are based on some subjective judgements. Table 1-A shows that 90 of 147 subgrants were for $50,000 or less, and only six exceeded $100,000 (the largest was $250,000). Of these subgrants, at the time the file review was done, approximately half were completed. The proportion of completed

subgrants was highest in the Latin America/Caribbean region. Similarly, the total of activities in Latin America is higher. The portfolios of ongoing subgrants are similar in the three regions.

Table 1-C suggests that there are significant differences in the types of organizations A.T.I. deals with in different regions. For example, they have made eleven subgrants to commercial organizations in Latin America, one in Africa/South Pacific and none in Asia. Similarly, while Africa/South Pacific had made seven of its 31 subgrants to governmental organizations, Asia has no subgrants to governmental organizations. Overall, A.T.I. has made the vast majority of its grants to private, non-profit organizations and cooperatives.

It appears that significant numbers of A.T.I.'s subgrants relate to small enterprise development, energy and agriculture. However, while almost 40 percent of the Asia program focuses on small business enterprises, less than 20 percent of the Africa/South Pacific Program does. Similarly, eight of A.T.I.'s nine housing and construction projects are in Latin America. More details on the A.T.I. portfolio are given in Annex 7.

The foregoing paragraphs have concentrated on the program of A.T.I.'s Appropriate Technology Extension Services. There are two other operational units in A.T.I. The Policy and Communications unit, formally established in December 1981, partly by combining staff and functions of preexisting units, is A.T.I.'s "assessment, learning and disseminating arm. It is in this department that the work in the field is aggregated, evaluated, judged, packaged, and disseminated to the variety of constituency groups with which A.T.I. interacts. A priority client group is, of course, A.T.I.'s own field programs." (Quoted from A.T.I.-supplied description.)

The Business and Technology Services Department was also formally established in December 1981. "It takes initiatives related to support of A.T.I.'s constituency involvement, technology transfer, business involvement, and small enterprise development efforts. The focus of all BTS activity is on brokering and leveraging the capacities developed by its own staff and the capacities of other organizations. A.T.I.'s own field program is a major client." (Quoted from A.T.I.-supplied description.) Activities include identifying technical, financial, managerial and experimental resources from U.S. and LDC individuals

and organizations, providing of a range of information services on these resources, and promoting increased participation of U.S. private sector agencies and businesses in specific AT diffusion efforts. (This department was formed during the evaluation and was not evaluated by the team.)

A.T.I. is, therefore, composed of three operating departments -- AT Extension Services, Policy and Communication Services, and Business and Technology Services. These are complemented by the Office of the Executive Director and the Department of Finance and Administration. Policy is defined by the Board of Directors.

II. EVALUATION METHODOLOGY

An evaluation team consisting of five A.I.D. employees was selected to represent different professional backgrounds and organizational perspectives. (One of these, Michael deMetre, was forced to resign from the team by the press of other duties and was replaced by Wayne Dunlap of USDA.) The team helped prepare the scope of work for the evaluation (which was formally approved by the Acting Assistant Administrator for the Bureau for Science and Technology), defined the specific operational methods to be used, selected subcontractors for portions of the evaluation, participated personally in the collection and analysis of study data, and developed the final conclusions and recommendations of the evaluation.

A.I.D.'s Logical Framework approach 2/ had not been used in preparing A.T.I.'s grant or related documents. The team decided it would not be appropriate to attempt to reconstruct the original logic -- some five years later -- using this technique. Such a post facto imposition of A.I.D.'s methodology on the evaluation might be prejudicial to our understanding of A.T.I. and to a fair portrayal of the advantages and disadvantages of its approach. In lieu of this approach, the evaluation team employed an approach for structuring the evaluation that emphasized key questions relevant to current and future managers. (See Annex 5.) A detailed evaluation methodology was developed around these questions. (See Annex 6)

The evaluation was based on the scope-of-work in the grant agreement, A.I.D.'s proposal to Congress on implementation of Section 107 of the Foreign Assistance Act, and background documents. The evaluation team also took into

account the "Report on the Current Status and Operations of AT International" prepared by a five-person committee in 1979.

The fundamental question for the evaluation was: "Is A.T.I. a cost-effective venicle for development assistance?" Through their activities related to this program, A.T.I. and A.I.D. trigger a number of processes that result in eventual impact on A.T.I. and A.I.D. goals. Indirect impacts are more common than direct, and long-term processes more common than short-term. These processes have been grouped for the purpose of the evaluation study into:

1) institution building;
2) technology development and diffusion; and,
3) other.

The evaluation has been concerned with conceptualizing and categorizing the net benefits resulting from the impacts of these pro esses. The program also incurs direct costs which have been studied. In these terms, the fundamental question can be rephrased: "Are the benefits resulting from the A.T.I. program commensurate with the costs of the program?" Clearly, although the question is phrased in economic terms, the response must be judgmental, based on the professional judgment of the evaluation team.

Since A.T.I.'s program was specifically targeted towards the private sector and the poor, sections of this report discuss the effectiveness in reaching these targets.

Since the evaluation was specifically to be prospective in its focus on the desirability and terms for follow-on financing for A.T.I., an attempt was made to identify actions that could improve future cost-effectiveness and thus influence the final recommendation.

The evaluation was, as has been stated, structured around a set of predefined evaluation questions. It was also, however, exploratory. The team wanted not only to test hypotheses about A.T.I., but to improve its understanding of A.T.I. and to inductively identify new issues for A.I.D. and A.T.I. management attention where appropriate. As the team worked, its appreciation for the original A.I.D. Proposal to Congress increased. Therefore, this report

devotes considerable attention to several issues that were not included in the initial set of evaluation questions.

The major thrust of the evaluation was the review of A.T.I.'s field activities. Two research assistants compiled data on all subgrants from a review of A.T.I. files. Two-person teams, accompanied by A.T.I. informants, visited eleven countries to interview A.T.I. grantees, their clients and associates. The countries were chosen by the evaluation team to include the country with the largest number of grants in each region, a country with only one grant (in two regions), and at least one country with an intermediate number of grants. Moreover, an attempt was made to visit countries in each region exemplifying a range of socio-economic development, on the assumption that A.T.I.'s program design and level of success might be conditioned by such factors. Within countries, the evaluation team decided to visit A.T.I.-funded activities in various geographic regions to provide a viewpoint on interactions at this level.

The teams and countries visited are indicated in Table 1. (See annexes 9B, C, D, 10, 11 and 12 for specific regional trip reports.) Field teams were provided with questionnaires to record interviews and with copies of the completed forms of information extracted by the research assistants from A.T.I.'s files on the activities to be visited. The basic questionnaire is included in Annex 6.

Arthur D. Little (ADL) was contracted to provide personnel to participate with the evaluation team in the field visits. The four A.D.L. field participants received two days of briefing in Washington by the evaluation team, with the participation of A.T.I. personnel. They provided a draft report, and returned to Washington for an additional three days to discuss their experiences with the evaluation team, A.I.D. and A.T.I. personnel. They obtained written comments from A.T.I. and the evaluation team on the draft, and submitted a final report.3/

Each contact with individual subgrantees tended to last from one-half to two days. While efforts were made to interview clients of the subgrantee organization, U.S. and host government officials and other interested parties, the majority of effort was directed to review of A.T.I. assistance with personnel of the grantee organization.

Table 1: Field Visits of Evaluation Team

Region	Countries	Team Members	A.T.I. Informants
Africa	Malawi Swaziland Lesotho Kenya	Wayne Dunlap (USDA) Dennis Wood (Devres on ADL Contract)	C. Fort W. Pierce J. Henderson
Asia	Indonesia Sri Lanka India	Jan van der Veen (AID) Bryon Battle (ADL)	D. Richards J. Rosser B. Deolalikor
Latin America/ Caribbean	Dominican Rep. Colombia Barbados Honduras	John Daly (AID) Rafael Samper (ADL) (Colombia, Honduras) (Dominican Repubic, Colombia, Honduras) Julene Sorenson Beck (ADL) (Barbados)	J. Smith (DR, Colombia) V. Volkerodt (Barbados) G. Lofredo R. Acosta (Honduras)

The field teams confirmed the general accuracy of A.T.I.'s file data and of the objective information extracted from those files. The field teams challenged the accuracy of the conclusions drawn from reviews of these files, which depended on a subjective assessment concerning the nature of the subgrant and its activities. As a result of concern over this issue, the subjective assessments contained in file reviews were not used as the basis for the conclusions of this evaluation.

Field interviews were typically open-ended and relatively unstructured, although the common questionnaires did ensure a degree of commonality in data collection.

Questionnaires were developed in November and December. Field visits took place during January. Data analysis and the drafting of the evaluation report were carried out in February, March and April.

An outside consultant was contracted to carry out a detailed review of A.T.I. management and A.I.D. management of the A.T.I. grant and relationship. His report is included in Annex 7.

Members of the evaluation team reviewed A.T.I. publications for quality and content. A phone survey was done by research assistants of a sample of recipients of A.T.I.'s publications to review their use of these documents. The report of this study is presented in Annex 13.

Finally, the evaluation team had many contacts with A.T.I. Meetings were held with an A.T.I. senior management team prior to drafting the scope-of-work, at the start of the evaluation and to review draft versions of the report. A.T.I. provided a valuable briefing book at the start of the effort and additional materials several times during the evaluation. Three members of the team traveling with A.T.I. staff informants had scores of hours of discussions about A.T.I., its program, and individual activities. Draft trip

reports and three drafts of this evaluation report were reviewed by A.T.I., discussed with A.T.I., and A.T.I.'s written comments were returned to the authors. Questionnaires were reviewed by A.T.. staff, and A.T.I. staff participated with this evaluation team for two days in briefings of A.D. Little consultants. The management consultant interviewed all A.T.I. senior staff, and evaluation team members have had dozens of interviews with A.T.I. staff on specific issues. While the evaluation team has not always agreed with A.T.I, we have tried in this report to footnote major points of disagreement.4/ Comments by A.T.I. on the final draft of this evaluation are presented in Annex 14. These comments were prepared on short notice by the senior staff of A.T.I. and were not reviewed by A.T.I.'s Board of Directors. Formal response by the Board to a series of written questions are included in Annex 8 (pages 77 to 83).

III. INSTITUTION BUILDING

A. STRENGTHENING CLIENT ORGANIZATIONS

EVALUATION QUESTION:

> A.T.I.'s major function under the 1978 grant was "to help increase abilities of organizations to contribute to development." How effective has A.T.I. been in promoting this objective?

RESPONSIBILITIES: The Scope-of-Work for the A.T.I. grant specifically calls for activities including:

> "(1) Development and Testing of Appropriate Technologies, comprising, in general, creating and demonstrating equipment and techniques in the field, but more specifically encouraging and assisting indigenous organizations to improve their capacities to this end.
>
> "(2) Adaptation and Dissemination of Appropriate Technologies, comprising, in general, the conveyance of knowledge, awareness, and understanding of how to make, modify or use proven equipment and techniques within and between local populations, but more specifically encouraging and assisting indigenous organizations to improve their capacities to promote such adaptations and dissemination.

"(3) Common Services Organizations, comprising the strengthening of indigenous organizations and of relations between them to improve the capacities of developing countries to sustain self-determined innovation." (page 5)

COMMENTS: In studying A.T.I.'s field program, an operational definition was required of the concept "strengthening client organizations." The evaluation separated (somewhat artificially) this concept from that of "developing and diffusing technology." Three levels were considered: 1) explicit objectives, 2) observable efforts to strengthen organization, 3) observable changes in the organization. It was decided to use a concept related to the present value of the organization. That is, an organization was said to be strengthened if the net value of its property, know-how, and good-will appeared to be increased.

The evaluation of A.T.I.'s impact on strengthening organizations is conceptually difficult. It is relatively difficult to isolate intentions, attribute actions to specific objectives, and observe organizational change. It is even more difficult to determine the relative importance of changes that are perceived. How much more effective is an organization because its financial management is strengthened? Perhaps most difficult is the question of importance. It may be considerably more beneficial for A.T.I.'s ultimate target population to help a very strong organization make a slight shift in the way it applies its strength than to greatly increase the capacity of a weak organization. The reader is cautioned that there is much that is subjective in the following pages.

FINDINGS: The file review suggested that in 80 percent of A.T.I.'s subgrants, organizational development was explicitly identified as a major component of the activity.

Annex 2 summarizes the results of observations of 46 A.T.I. client organizations. That summary is far more complete than the following paragraphs which include strongly subjective judgments about the relative importance of different A.T.I. efforts and different organizational changes. Still more detailed information on the organizations are contained in Annexes 9, 10, 11, and 12.

In Africa, in nine of the fourteen organizations visited, there were explicit allocations of resources by A.T.I. to strengthen the client. Ten of the fourteen were judged to have been strengthened in some way. Most commonly, A.T.I. provided assistance in the form of financing, and most commonly organizations appeared to have been strengthened by improving linkages with their clients, or by the practical experience of a field project. Three of the fourteen organizations were judged to have had A.T.I.-funded project activities fail (BEDCO in Lesotho, NCWK and ICA in Kenya), and it is to be presumed that these failures did not tend to strengthen the client organizations.

The African program is interesting in its explicit attention to improving client accounting and bookkeeping systems (in four of fourteen cases, but covering thirteen different organizations, including the eleven Kenyan Institutes of Science and Technology). The African program also provided funding for several organizations to help generate future sources of financing (for example, it provided initial capital for a revolving fund for purchase of materials for the School of Appropriate Farm Technology in Swaziland). It appears that the Africa program typically deals with weaker organizations than do the Asia and LAC programs but pays less attention to strengthening client organizations than does the Asian program. Two of the organizations visited (Thaba Tseka in Lesotho and LADD in Malawi) are strong, strongly-supported, integrated-rural-development-project implementing agencies.

The Asian program included efforts to strengthen all of the nine organizations studied. Typically, assistance was in the form of financing, but consultants were provided to three organizations for this purpose and invitational travel to three. In eight of the nine organizations, A.T.I. helped improve contacts of service to client groups. It provided for improvements of the physical plant for five, additional future sources of financing for five, and direct improvement in management for four. None of the nine organizations appeared to have been negatively affected by A.T.I.'s inputs.

The largest and most comprehensive program to strengthen a single organization encountered by the evaluation teams was in Asia. Gian Desa received five subgrants totaling more than $200,000 and other assistance, including assistance to improve management, to build a workshop, and to build a winged

bean processing plant (both of which improved outreach and potentially provided future income). The Asia program was also interesting in its cooperation with very large or influential organizations helping those organizations (Sarvodaya, Dian Desa, CORT) to move into the field of appropriate technology or to use their strength more effectively to promote technological innovation and improvement.

The Latin American/Caribbean program was judged to have devoted resources to strengthening fifteen of the twenty-three organizations visited having ongoing or completed A.T.I. activities. Eighteen of the twenty-three had had some observable positive impact, with likely negative impacts in four cases. A.T.I. inputs designed to strengthen host organizational capacity were typically financial, or in the form of brokering contacts with other organizations. In six of the twenty-two cases, A.T.I. invested in the physical plant of the client organization, but had some impact with other organizations in strengthening relations with clients and/or with other organizations, improving staff capacity, or improving their financing. Two of the projects were terminated early by A.T.I.

Of the twenty-three organizations visited, seven appeared to be extraordinarily strong private development organizations, characterized by long histories of successful programs, large budgets, highly qualified administrative staffs, and strong linkages with national policy makers (DDF, Association for Development/CIMPA and PROAPE, Servivienda, Mariana Ospina Perez and Carvajal Foundations, and CCC/CADEC). On the other hand, there were a number of organizations that appeared to be seriously lacking in management capacity and professionally qualified personnel (most notably OFRANEH, CPP, FUNVIMWH, IMM, and MAI). In general, the Latin American program had fewer explicit budget items for management improvement or training than did the African and Asian programs. In the case of the weak counterpart organization, the lack of these inputs may have been significant.5/

DISCUSSION: The three regional programs of A.T.I are different in their emphasis and success in the development of client organizations. The Asia program has been particularly effective in identifying large, influential community development organizations (Dian Desa, Sarvodaya, Population and Community Development Association) and providing them with small amounts of

funds to catalyze a more active involvement in appropriate technology. In the African program, efforts have included the development of accounting systems to help clients improve their management, and small capital investments in buildings, equipment and supplies to provide the physical plant for some intermediaries. The Latin American program has more grants which fund a strong organization to carry out A.T. activities without major organizational development impacts being likely (Carvajal, Association for Development). One of the most interesting approaches of A.T.I. is to help non-profit organizations develop small enterprises to contribute to their own support (Dian Desa, Sarvodaya, AIEH, OFRANEH, etc.). Unfortunately, few of these have to date generated significant revenue flows.

There were occasions where A.T.I. efforts, usually in unfortunate juxtaposition with other circumstances, appeared to have negative impacts on counterpart organizations (OCIT, Women Applied to Industry)6/. In other subgrants reviewed, A.T.I. funding of weak grass-roots organizations sometimes resulted in outright project failures. (Three out of sixteen subgrants reviewed in Africa, four out of twenty-three subgrants in Latin America.) Such project failures attest to limitations on the part of A.T.I. to strengthen counterparts sufficiently, or to substitute outside technical assistance for any uncorrectable counterpart weakness. A.T.I. has taken the general policy position that it will focus on intermediaries. This decision, if taken earlier, might have avoided some of the above identified activity failures7/ and the change should be commended.

We accept A.T.I.'s position that networks of strong intermediaries capable of helping small enterprises and grass-roots organizations will play an important role in increasing the rate of innovation. Further, in some areas, key intermediaries either are missed by other donors or need assistance in tapping appropriate donors.

CONCLUSIONS: A.T.I. has demonstrated success in strengthening many client organizations. In other cases A.T.I. has not strengthened the client, and in several cases A.T.I. projects have failed due to uncorrected weaknesses of the client. In one or two cases reviewed, A.T.I. inputs may themselves, in unfortunate juxtaposition with other factors, have weakened counterpart organizations.

RECOMMENDATION: We recommend A.T.I. continue its efforts to strengthen counterpart organizations.

ISSUE: Can these benefits be improved?

CONSULTANTS' CONCLUSIONS: A. D. Little's expert, who reviewed the African program, states as conclusions (Annex 9B):

> "A.T.I. does a good job of increasing the capacity of the organizations it supports to contribute to development" (page 3)

but he also notes:

> "A.T.I. does not function effectively as a management assistance organization for organizations or individuals that it is supporting." (page 5)

The Asian A.D. Little team member concludes (Annex 9C):

> "A.T.I./Asia program has been conceived around, and oriented toward, strengthening local institutions which can act as appropriate delivery agents for technologies, ideas, training, etc. In most projects viewed, A.T.I. has significantly improved organizational and programming strength of the local group." (page 1)

The Latin American team member concludes (Annex 9D):

> "A.T.I. did not appear to have been very innovative in its approach to institution building at a project/institution level. Its involvement with the institution is passive, primarily focusing on informal visits and general suggestions from the field staff. A.T.I.'s field staff does not seem to analyze the management, technical or social aspects of the project to suggest effective alternatives for strengthening it." (page 3)8/

DISCUSSION: It would appear that some alternatives in A.T.I.'s approach may be considered.

Staff Development: A.T.I. might assure that each regional team has a member expert in organizational development, and that this expertise is brought to bear on all activities in planning and execution. It might provide on-the-job training for all operations representatives on organizational development

methods and approaches. A.T.I. operations representatives could all be trained in the ways to measure organizational capacity, the approaches which may be used to elicit proposals to strengthen client organizations, methodology for organizational development, and sources of resources for organizational development and administrative planning.(9)

Selection of Organizations: The majority of the evaluation team felt that the major issue with regard to organizational development is (related to the overall concern for the specificity of A.T.I.'s mandate) what organizations A.T.I. chooses to work with and why.10/ A.T.I. has chosen to strengthen shops and schools in Africa (Malindi Rural Center and RVIST), women in development groups in India and Barbados (SEWA, WWF, DWA), and minority focused community development organizations in Latin America (OFRANEH, CPP) with only remote connection to the development and dissemination of appropriate technology. While in some cases A.T.I. has chosen to deal with pace-setter organizations with national and even international visibility (e.g., Sarvodaya, Carvajal Foundation, Kenyatta University), in other cases they have not worked with such organizations but instead with weak organizations with little national or regional influence (e.g., Las Gaviotas in Colombia was never funded, but resources were provided to CPP).

A.T.I. might more often consciously use its resources to stimulate large organizational development programs funded by other donors (as it is doing now with Sarvodaya and CORT). It might more consciously orient itself toward strong organizations where they exist, which are likely to provide AT leadership in their countries, and help them develop strength in AT.

CONCLUSION: It is probable that A.T.I. can improve the benefits from its efforts to strengthen organizations by 1) developing its staff's ability to work with counterparts to plan organizational development projects, and 2) leveraging other, larger organizational development resources by A.T.I.'s example and assistance. A majority of the evaluation team feel that A.T.I. can also improve these benefits by selecting organizations to assist that will be more uniformly effective in achieving A.T.I.'s larger goals than was the case in the past.

B. STRENGTHENING OTHER INSTITUTIONS

ISSUE: What are the benefits from A.T.I.'s efforts relative to the institutionalization of improved systems to satisfy the technological demands of its target population?

DISCUSSION: A major thrust of A.T.I.'s effort is to strengthen the system of grass-roots private, non-profit organizations that promote technological innovation benefiting A.T.I.'s ultimate target population. This involves not only strengthening individual client organizations, but strengthening the channels of communication among them, and between them and organizations which provide them technical information and other resources.

Considerable attention is given within A.T.I.'s program to informal efforts to establish communications linkages among these organizations, and thus to encourage the establishment of communications networks. Operations representatives regularly suggest people and organizations their clients might contact. Travel grants are given for people to visit other projects and countries and to attend meetings and workshops. Meetings and seminars have been funded to stimulate the creation of channels of cooperation and communication. Funds have been obligated to support staff and costs for organizations to create cooperative networks of AT organizations. In a fundamental sense, it is extremely difficult to evaluate such efforts -- the benefits to poor people are so indirectly and subtly linked to A.T.I.'s inputs. Most of these efforts are considered successful by the participants, although some were clearly unsuccessful (OCIT, BEDCO).

It is particularly intersting, however, that A.T.I. has experimented with other institutional mechanisms for the transfer of technology, and that further experimentation with these mechanisms may provide insights of great importance to other donors. Some examples may be useful:

-- Franchising: A.T.I. made a grant to an Indian organization, FOOD, to develop technical packages for small tea shops and milk wholesaling and to disseminate the technology through a self-supporting franchising approach. FOOD is planning to move from this successful experience into other

businesses. Similarly, A.T.I. helped Servivienda in Colombia develop the design for a low-cost factory to prefabricate low-cost houses -- Servivienda licenses this technology in other cities.

-- Training: A.T.I. made a grant to the eleven Kenyan Institutions of Science and Technology (KIST) to develop an accounting system for small businesses, develop a curriculum for training bookkeepers in this system through accounting for on-the-job training projects run by KIST, and begin training. It is reasonable to assume that the graduates of the KIST bookkeeping course will soon begin to introduce the software technology on a large scale in Kenya. DESAP in Colombia and PROAPE in the Dominican Republic are using A.T.I. grants to disseminate similar bookkeeping techniques through short courses (10-15 hours) offered directly to small business owners. These projects are being replicated by other organizations in other cities of Colombia and the Dominican Republic.

-- Markets: Some of the markets for the transfer of appropriate technology are very weak. A.T.I.'s management of the Technology for the People Fair suggests the potential in strengthening markets for transfer of U.S. AT goods and services to LDCs. The Carvajala Foundation small-enterprise trade fair and PROAPE's inventory of small manufacturers suggest mechanisms for improving markets for local small enterprises to exchange AT goods and services in LDCs. Discussions suggested the potential for markets to be improved involving large and small enterprises in which the former would provide technical and managerial technology to the latter.

CONCLUSION: A.T.I. has demonstrated the potential for networks of grass-roots development organizations to be important institutions for the stimulation of technological innovation by its target population. Further, A.T.I. has experimented with a variety of alternative institutional mechanisms which hold promise such as franchising, development of training networks, and market development.

It seems obvious that by forcefully following up on successful efforts in this area, by searching more actively and innovatively for such institutional experiments, and by developing better channels to distill and disseminate the relevant experience, additional benefits can be achieved in the future.

IV. TECHNOLOGY DEVELOPMENT AND DISSEMINATION

EVALUATION QUESTION:

> The "T" in A.T.I. refers to technology. In the scores of grants A.T.I. has made, there must be scores of hardware and software techniques that have been developed, adapted, tested or promoted. Is this technology generally of high quality? Have appropriate technologies explored by A.T.I. been widely disseminated and used?

COMMENTS: The specification given in the grant document is quoted in Chapter III.

DISCUSSION: In analyzing A.T.I.'s efforts in the development and dissemination of appropriate technology, the evaluation team distinguished between technology used directly by the poor and technology benefiting the poor but used by intermediaries. The know-how necessary to put together a cost-effective credit program for micro-enterprises is an example of technology for intermediaries. The introduction of a new piece of machinery or of a new bookkeeping approach in a small, family enterprise would be examples of techniques directly usable by the poor. The team also found it relevant to consider indirect as well as direct impacts on technological innovation. For example, there were projects visited where small enterprises were vigorously introducing improved technology stimulated by A.T.I.'s project, but not funded by A.T.I.

It was also useful to try to distinguish situations in which a technological change was being initiated for its own sake (a simple innovation) from those in which the change was part of a conscious process stimulating the development and diffusion of appropriate technology. For example, in two cases in Africa, A.T.I. was involved in improving bookkeeping systems in trade schools. In one, the effort appeared primarily intended as an innovation to

strengthen the school management; in the other, the effort was related to a conscious process to develop a simplified system and disseminate it widely through the efforts of the school's graduates.

Finally, it was useful sometimes to separate hardware technology from software and other technology. Clearly, in solar ovens, brick making and low-cost construction, technology is embodied largely in hardware: machines and products. In credit systems, accounting systems and other management technology, know-how is embodied in software. In some cases, such as the genetic endowment of improved breeds of cattle or enterpreneurship training, we found it useful to have a category "other."

FINDINGS: In reviewing the file materials, it appeared that technology development and dissemination efforts had not been the major component of A.T.I.'s program. While 80 percent of A.T.I.'s subgrants appeared to specifically identify organizational development objectives, only 62 percent explicitly appeared to identify technology diffusion objectives (45 percent identify both). However, information dissemination was identified as characteristic of 90 percent of subgrants, most of which referred to technical information. In short, the large majority of activities in A.T.I.'s portfolio appeared to involve technical development or diffusion as a direct or indirect objective, but more often the immediate priority appeared to be on strengthening organizations.

Annex 3 summarizes the major technological impacts of the projects visited in the field. More detailed discussions of these activities are given in Annexes 9, 10, 11 and 12. The reader is strongly urged to review these materials to obtain a better understanding of the range of A.T.I.'s technological impacts.

Technology for the People: In Africa, thirteen of the sixteen subgrants studied by the field team appeared directed toward improving technology for the target population. Most frequently, the orientation appeared to be toward hardware -- small-scale energy devices, farm tools, metal working and woodworking, ferro-cement boats, tile making, low-cost roofing and construction. Software technology was included in several projects as well -- small boat operation, bookkeeping, etc.

In Asia, the field team found evidence of direct or reasonably close indirect technology impacts for the target population for ten of fourteen subgrants studied. Hardware included tools and machines for small manufacturing enterprises, fishpond construction, biogas digestors, looms, water lift systems, prefabricated "solar kiosks," and pedal-powered agricultural machinery. Software technology included managerial technology (bookkeeping, purchasing) and miniwatershed management and irrigation.

In Latin America, twenty-two of twenty-three activities reviewed involved one or more technologies directly useful to the poor. Hardware technology appeared more often in the program than software. Seven projects dealt specifically with renewable energy, three with construction, two (indirectly) with light manufacturing technology, two with processing of protein from fish wastes, and several with a wide variety of AT devices. A number of software technologies are also involved: management techniques (for street vendors and small manufacturing enterprises), range management, taro/pig farming systems, and lorena stove operations.

Technology for the Intermediary: In Africa, ten of sixteen subgrants appeared to have a technological component aimed at intermediaries. These included R&D methodology, management, and training technology. Most were software technologies as is to be expected.

In Asia, eleven of fourteen subgrants involved technology for intermediaries. Two involved approaches to providing credit to micro-enterprises, one involved the technique of franchising, and several involved R&D methodology. One project, as has been mentioned, involved the development of a winged bean processing plant, which would be operated by Dian Desa, but which would provide a market for small farmers producing the beans. In theory, this design could be copied by other organizations.

In Latin America, thirteen of twenty-three projects were judged to involve technology for intermediaries. These included development of a design for a prefabricated housing factory which has already resulted in four new factories, development of approaches to training small enterprise owners in management, developing a modern AT information system, and manufacturing technologies for intermediaries for several kinds of businesses (taro and cassava, fish protein, fruit products, semi-industrial crafts).

DISCUSSION: A.T.I.'s successes are quite varied. For example, an A.T.I. consultant prepared a useful and interesting study on charcoal briquetting as a way to use scrub brush for energy (Wilson). A.T.I. helped finance and plan a housing technology meeting in the Dominican Republic, which was quite effective especially in the use of field demonstrations. Later, A.T.I. sent attendees to an international conference on stabilized earth construction technology which was also characterized as quite useful. A village tile manufacturing industry in Indonesia may compete more effectively with urban tile factories due to technical improvements suggested by A.T.I.'s client, Dian Desa, and the village is now increasing the rate of technical improvement. Small businesses in Colombia are more profitable and technically innovative because they are using simplified bookkeeping and inventory control mechanisms developed by the A.T.I.-supported DESAP project.

Most of the efforts oriented toward technology for intermediaries appeared to be innovations that would benefit primarily the specific counterpart institution. However, four of the sub-grants studied involved approaches to provision of credit to micro-enterprises (SEWA and WWF in India, DDF in the DR, and ASEPADE in Honduras). Two of those (plus ICA/Kawangware and the parent organization that spun off FOOD) are used as case studies in "The PISCES Studies: Assisting the Smallest Economic Activities of the Urban Poor." Thus, the A.T.I. program has provided an important input to A.I.D.'s search for appropriate techniques for intermediaries targeting the informal enterprise sector.

The history, however, also includes projects less successful in their technical aspects. A micro-hydro project in Lesotho resulted in installation of equipment that local personnel can neither understand nor operate and maintain. After some two years, it is still not operational. A project sought to develop products from taro (to provide a market for small farmers in Colombia). Feasibility studies resulted in the conclusion that three of the four proposed products were not economically attractive; a considerable development effort will be required to make the fourth alternative -- pig farming -- work, and it appeared that the project may fail in the long run.11/ No technical results were obtained at all, due to early termination,

from projects to explore new products from cassava in Honduras, and a mother-boat, refrigeration system for increasing fishing revenues in Colombia.

One observation was made in both the Asian and Latin American contexts. (Annexes 11 and 12.) Some of the projects which are most explicitly technological in content seem not to be successful in achieving widespread use of improved techniques in the target population. Some which are not at all overtly concerned with technology appear to trigger rapid, widespread technical innovation. Examples of less successful projects are the pedal power efforts of RAT-C in India, the energy project of AIEH in Honduras and the general AT project of CIMTE in Colombia. In all three cases, organizations with relatively strong technicians have received substantial A.T.I. subgrants, but did not appear likely to the evaluation teams to achieve widespread dissemination of the technologies studied. On the other hand, the FOOD project in India and the Carvajal/DESAP project in Colombia provided a complete package of enabling conditions -- financing, management assistance, marketing assistance -- which triggered rapid, widespread technical innovation. In both cases, hardware innovation was obvious and, in the case of DESAP, it appeared that many individual businesses were developing exciting new hardware -- designing and building new machinery and products. It is suggested that "technology push" projects (originating in an interest in the technology per se), are less likely to be effective in promoting rapid, widespread, appropriate technological innovation than are "demand pull" projects (in which the conditions are created to unleash the latent demand of small enterprise for technological improvement).

CONCLUSION: The large majority of A.T.I.'s subgrants explicitly involve technology development and/or diffusion. Frequently, technology efforts focus on technologies that are directly usable by the target population, but some focus on technology for intermediaries. The efforts to develop and disseminate technology supported by A.T.I. are sometimes successful. There were a number of projects visited, however, which were unsuccessful in developing or introducing new technology. It is suggested from the data that it may be more effective to create conditions conducive to "demand pull," than to try to disseminate technology through "technology push."

ISSUE: Can these benefits be improved by strengthening the technology management process?

FIELD TEAM CONCLUSIONS 12/: The ADL consultant who traveled to Africa noted:

> "A.T.I. does not emphasize the technical content of its projects in most cases, even when attention to such content would greatly improve the impact of A.T.I.'s support." (Annex 9B, page 1.)

His colleague in the context of a generally favorable discussion of A.T.I.'s technological efforts in Africa, made the following comments suggestive of possible routes for improvement of the use and dissemination of technology.

> "A.T.I. does not take an active role in disseminating its own technology or the technology developed by its own grantee organizations." (Annex 10, page 46)

and in terms of management systems to follow-up technology use and controls:

> "The A.T.I. organization does not advocate or practice in the field with a system which would allow the replication of successful projects" (Annex 10, page 47)

and:

> "If successful private sector organizations were involved, the concept of managed technological development, adaptation and dissemination could be more readily adopted in a given country." (Annex 10, page 47)

finally:

> "The evaluation found that A.T.I.'s senior management is not effective in directing and guiding the staff and activities of the organization in terms of management systems to follow up technology." (Annex 10, page 47)

The evaluation team traveling to Asia did not specifically address the potential for improving A.T.I.'s technology management process in their reports. They stressed instead the responsive nature of A.T.I.'s approach, the definition of "appropriate" as "acceptability by local users of new methods or products," the emphasis on technologies "which give birth to a strong self-help, self-development effort at the local level." (Annex 6C, pages 3 and 5.) The thrust of their comments is that too active an effort by A.T.I. to improve the quality and dissemination of its grantee technological

efforts was likely to be detrimental to A.T.I.'s overall program, and that there were many mechanisms built into A.T.I.'s program in Asia to promote technological quality and assure efficiency of technological efforts.

The A.D.L. consultant travelling to Latin American stated:

> "A.T.I. did not appear to direct its efforts to impact on the technology used in projects, even when attention to the technical content would have greatly improved the effectiveness of A.T.I.'s support (Annex 9D, page 3.)

DISCUSSION: Perhaps the most disturbing aspect of the A.T.I. technical program was A.T.I.'s relatively uncritical acceptance of the technical judgments of (often relatively poorly informed) clients.13/ Both the African and Latin American field teams noted this phenomenon. A.T.I., for example, had had a number of activities supporting the transfer and dissemination of lorena stoves. The stove can be made relatively inexpensively from local materials. If properly constructed and used, there is good evidence that it saves fuelwood for a fixed amount of cooking. Discussions with energy experts in A.I.D. and the National Academy of Sciences, however, reveal that if improperly used, such stoves can increase the consumption of fuelwood and increase cooking costs. Moreover, the evaluation of the overall impact of these stoves is very complex, because they have many other functions, from space heating to insect control, according to the culture in which used. A.T.I.'s consultant report on its Honduran Lorena Stove project indicated users had been poorly trained in the use of these stoves, and that the stoves may not be used as planned. A.T.I.'s Technology Diffusion Report states it has spent more than $400,000 on lorena stove activities.14/ A.T.I. has not determined from actual experience if the net effect of this investment is a gain or loss in energy consumption for the communities adopting the stove, or what other impacts have occurred. Rather A.T.I. appears to have encouraged others to a similar uncritical acceptance of the design through its uncritical technology diffusion report.

Use of Consultants: A.T.I. often uses consultants with technical expertise and may be more effective in the future in the selection and qualification of consultants because of the development of its Technology Services Unit. Similarly, A.T.I. encourages counterpart organizations to incorporate technical expertise as appropriate and to develop linkages with more technical

organizations. These efforts appear useful, and A.T.I. correctly recognizes that it will depend primarily on outside technical expertise.

Incorporate Appropriately Trained Technical Staff: There are some management approaches that may help further. Where there is a common theme running through a number of A.T.I. projects (such as small-scale energy hardware, credit systems for micro-enterprises, or small business information systems), A.T.I. might seek regularly to incorporate a professional on its staff who has specific expertise in the topic (as well as general development qualifications). This has happened already in the case of small enterprise programs.

The involvement of more technically trained and experienced people on A.T.I.'s staff would benefit A.T.I. in terms of their specific technical inputs, but perhaps also in terms of their insights and experience in technology management. Such people should be able to help A.T.I. make better judgments about such things as the appropriate depth of technical analysis for a subgrant, or the quality of efforts from technician/consultants.15/

Multidisciplinary Teams: Ad hoc teams might be formed so that the people with relevant expertise for a specific activity or set of activities all can participate in defining A.T.I.'s position on the activity.

Training: Similarly, all staff could be provided with training opportunities to help them improve their technical abilities.

Reduce Technological Variety of Portfolio: Another potential for improving technology in A.T.I. program is to concentrate at any time on a number of specific areas so that the technological diversity faced by the organization is more limited. This approach was explicitly recommended in A.I.D.'s Proposal to Congress, was not included in the Grant Agreement, but has been accepted by A.T.I. management in its decision to stress five technological sectors. We suggest that A.T.I. consider a thematic approach rather than a sectoral approach, which would allow concentration on cross-sectoral themes and give more flexibility in choice of areas to emphasize. Whatever the mechanism, however, the selection of technological areas should not be immutable, but should be open to change.

Technology Studies: Informants have also suggested that A.T.I. could provide a very valuable service to the development community through the publication of technology reports discussing specific techniques which it has studied, and reporting on the successes and problems of using these techniques in real life situations. This recommendation was also included in A.I.D.'s Proposal to Congress, but has not been implemented as yet at A.T.I., with the exception of a brief series of "Technology Diffusion Reports" which were somewhat superficial. For such a purpose it may also be useful to have technicians on A.T.I.'s staff to plan the approach, to select groups of clients to cooperatively test the techniques involved, and to supervise the preparation of reports.

CONCLUSION: It appears that there are a number of ways A.T.I. could improve the technological aspects of its program. It could improve use of technical consultants, incorporate more technically trained staff in appropriate areas, use ad hoc multidisciplinary teams according to the needs of specific activities, provide technical training opportunities for its staff, limit the technological diversity of its portfolio, and carry out in depth studies on technology themes in its portfolio.

V. OTHER IMPACTS OF THE PROGRAM

The primary direct impacts of A.T.I.'s program were expected to be in the areas described above: strengthening of client organizations and development and dissemination of technology. It was believed, however, that the potential for indirect impacts from A.T.I.'s program was very significant, and that the evaluation would have to take these into account. In the following paragraphs, various aspects of these impacts are discused.

A. TRANSFER OF A.T.I.'s EXPERIENCE TO HOST GOVERNMENTS, PRIVATE SECTOR ORGANIZATIONS, AND AID DONORS

ISSUE: What are the benefits from the lessons of A.T.I.'s experience accruing to host governments, private sector organizations and aid donors?

RESPONSIBILITY: The A.I.D. Proposal to Congress states, as quoted on page 2:

"The Section 107 program is seen as a forum for innovation -- a provider of yeast to leaven the larger efforts of aid donors and LDC governments."

There is no parallel wording in the A.T.I. grant document.

DISCUSSION: A.I.D. policymakers, according to its management consultants' conclusions "have seldom dealt with the substantive aspects of the A.I.D./A.T.I. partnership." (Annex 8, page 44)

The A.I.D. Proposal to Congress to develop an A.T. unit in A.I.D. to relate to A.T.I. was never implemented, nor were similar proposals from internal task forces.16/ A.I.D. field staff interviewed in this evaluation frequently complained that they did not receive adequate information on A.T.I.'s activities from the grant manager or A.T.I.

There have been some examples of valuable contacts between A.T.I. and A.I.D. As described above, several of the projects identified and studied in A.I.D.'s PISCES project were funded by A.T.I. The U.S. exhibit at the Technology for the People Trade Fair was funded by A.I.D. and organized by A.T.I. Similarly, A.T.I. has undertaken activities in Turkey and Sri Lanka which were suggested by A.I.D. personnel.

The evaluation team did not discuss this topic in detail with LDC governments, private sector organizations or other aid donors.

CONCLUSION: It is our impression that the lessons from A.T.I.'s experience are not widely shared, and that benefits are not accruing widely from projects modelled after A.T.I.'s successes or from avoiding A.T.I.'s failures.

ISSUE: Can the benefits of transfer of A.T.I.'s experience be improved?

DISCUSSION: A.I.D. did not hold A.T.I. responsible in the grant document for the development and dissemination of new development approaches for aid donors and LDC governments. A.I.D. did not staff itself (and specifically rejected policies to do so) to encourage A.T.I. to undertake this role, or to enable A.I.D. to learn the lessons from A.T.I.'s experience. A.I.D. appears not to have sought to help A.T.I. transfer its experience to other donors or LDC

governments. A.T.I.'s Board and Staff have expressed a willingness to work with A.I.D. to improve this situation.

CONCLUSION: If A.I.D. were to implement its original Proposal to Congress (in terms of its internal organization and its relationship with A.T.I.), it seems likely that these benefits could become the most economically important results of the program.

DISCUSSION: A.T.I. could take more forceful efforts to distill and disseminate its experience. Frequently it appeared that A.T.I. staff in one region were unaware of relevant A.T.I. experience from other regions. A.T.I. staff do not generally seek mutual support among activities with common themes in different regions. They do not regularly fund experts to compare and contrast different approaches to common problems in their portfolio. They do not publish professional analyses of lessons from their experience.

CONCLUSION: Further application of these lessons could also be achieved by appropriate steps on the part of A.T.I.

B. PUBLICATIONS

ISSUE: What benefits are resulting from A.T.I.'s publications?

RESPONSIBILITY: The A.T.I. grant states:

> "The A.I.D. Proposal stresses Communication and Coordination, involving both the dissemination of appropriate technologies and the sharing of information and experience with other individuals and organizations interested in the promotion of appropriate technology. AT International's Adaptation and Dissemination activities and its Evaluation and Communication efforts reflect this program effort."

FINDINGS: Publications of A.T.I. include a short pamphlet, a report in the style of a corporate annual report, three issues of a newsletter (Network), and some 50 or 60 one-page descriptions of subgrants (Project Focus). While

these are generally readable and descriptive, they are superficial and partial to A.T.I.17/ A survey of recipients suggested that they are used by approximately 10 percent of recipients. (See Annex 13.) Discussions with clients suggest the need and demand for a better description of A.T.I. Discussions with other donors suggest a lack of a "paper trail" documenting A.T.I.'s activities. Moreover, there is a lack of thoughtful professional documentation distilling A.T.I. experience for professionals in the development field.

CONCLUSION: Few benefits are resulting from A.T.I.'s publication program.

ISSUE: Can benefits be increased by strengthening management of A.T.I.'s publications effort?

CONCLUSION: Clearly. A small number of additional publications can be developed serving specific needs. Quality can be improved and mailings better targeted.

C. BUSINESS AND TECHNOLOGY SERVICES

A.T.I. is expanding activities to identify AT resources and to promote coordination between the U.S. private sector and LDCs. This effort was not evaluated by the evaluation team. *A priori* the effort appears to fill a need and to be worthy of support. Initial experiments with the Technology for the People Fair, and other initiatives, are promising.

D. POLICY EFFORTS

ISSUE: What are the benefits from A.T.I.'s efforts in technology policy?

RESPONSIBILITIES: The A.I.D. Proposal to Congress, in the context of the difficulties of influencing technology policy, stated:

> "We believe one of the goals of the program should be to find better means to encourage planners and policymakers to design economic and institutional policies which facilitate use of appropriate technologies by private enterprises."

The grant agreement states:

> "AT International does not expect to operate at the national planning level in developing countries, as proposed under the A.I.D. heading 18/ National Policies for Appropriate Technology, at least until its own experience leads to requests for assistance from such planning organizations."

FINDINGS: A.T.I.'s program does include efforts to influence policy at a variety of levels. A.T.I. staff meet with influential people from a wide variety of roles in developing countries, and there is quite probably a useful but unmeasured influence from the direct contact. In Kenya, A.T.I. has funded a central AT policy organization which is likely to have some long-term impact on Kenyan national policies, and in India A.T.I. has established a unique partnership with CORT, a coordinating body for a number of organizations. A.T.I. has endeavored to influence policy in donor organizations with limited success -- the relative lack of success in the case of A.I.D. is discussed in Section VIIIB.

A.T.I. has funded or contributed funding to two international meetings on general technology policy.

Finally, A.T.I. has begun studies on several key technology policy issues with panels of distinguished international experts and has begun to carry out a related series of program evaluations examining the policy implications of subsets of its activities.

CONCLUSION: A.T.I.'s program in technology policy produces modest benefits.

ISSUE: Can benefits be increased by strengthening policy related activities?

DISCUSSION: A modest program of this nature is essential for the success of A.T.I.'s long-term mission. It is suggested, however, that A.T.I. be encouraged to seek funding outside the central grant (for other than base funding) for efforts to analyze, describe and organize technology policy information. Competing for such resources will encourage A.T.I. to clearly specify goals and objectives for such activities and to maintain efficiency in carrying them out.

It is also suggested that A.T.I. consider establishing a "technology policy chair." One or two outstanding theorists could be invited to spend a year at A.T.I. working on technology policy as it effects A.T.I.'s program, and learning the lessons of that program. They could be invited from universities, donor agencies, industry or client organizations. (It is probable that many qualified candidates would be able to bring their salaries, or at least partial support.)

A.I.D. proposed such policy studies to Congress, but did not require them of A.T.I. We suggest that A.I.D. should now accept the responsibility of financing the studies. A competitive process for selection of contractors, open to but not limited to A.T.I., appears likely to generate the best quality of work.

CONCLUSION: It appears that A.T.I. could increase benefits from technology policy efforts. It should be encouraged to compete for additional resources to do so. A.I.D. should also fund technology policy studies using competitive bidding.

B. FOREIGN POLICY

ISSUE: Are there costs or benefits accruing from A.T.I.'s program in terms of the larger U.S. foreign policy interests?

DISCUSSION: A.T.I. support to client organizations is not politically neutral. Given the inherent potential for political visibility in A.T.I.'s program, and given further the existence of A.T.I. programs in countries which are diplomatically sensitive for the U.S. (such as Nicaragua, India, Haiti, Colombia, and Bolivia), it is gratifying that we discovered no overt political problems nor diplomatic incidents in our evaluation. This is in large part due to the sensitivity and prudence of A.T.I.'s field staff. A.I.D. field officers did suggest that, as a policy, discussing potential problems with A.D.I. field staff prior to A.T.I. grants might help assure continued success in this area.19/

At a more macroscopic level, A.T.I. is a U.S. government-funded organization working in a foreign country, and thus under the general guidance of the U.S.

Ambassador and the host government. In two of the eleven countries visited, there were potential problems at this level which existing procedures were not handling. In Colombia, A.T.I. was not considered in the implementation of the Ambassador's instruction, implementing the GOC request, to terminate bilateral assistance in 1983. In India, the A.I.D. mission felt that A.T.I. should obtain prior approval from the GOI for A.T.I.'s activities since these activities were funded by USG monies. Anecdotally, interest was expressed in A.T.I.'s working in the Peoples Republic of China. In all three cases, there are substantive reasons why an A.T.I. organization would wish to work in the countries involved. In all three cases, A.I.D. funding of subsidized assistance programs would appear to require policy level consideration. If it were determined that on balance A.T.I.'s activities were contrary to the overall foreign policy interests of the United States, A.I.D. funding would necessarily be terminated for the countries specified.20/

In discussions with A.I.D. officials, Embassy officials, and client organizations of A.T.I., foreign policy benefits from A.T.I.'s program were identified. Several informants stressed the desirability of private sector linkages for developmental purposes with non-A.I.D. countries that A.T.I. can and does make. Similarly, various informants stressed the long-term benefits to the U.S. from A.T.I.'s working quietly at the grass-roots level, insulated from relatively short-term political influences.

CONCLUSION: There have been no foreign policy costs of the A.T.I. program and some benefits.

ISSUE: Is there potential to improve the foreign policy aspects of A.T.I.'s program?

A.I.D. management of the A.T.I. grant could be improved to recognize in advance situations such as those described above, and to assure appropriate compliance with overall U.S. policy.21/ The problem of U.S. governmental responsibility for A.T.I.'s efforts in countries such as Colombia, China, and India could be resolved completely by A.T.I.'s obtaining alternative sources of financing for activities in non-A.I.D. countries.

CONCLUSION: There is a modest potential to improve foreign policy aspects of A.T.I.'s program by A.I.D.'s moving earlier to resolve potential concerns in particularly sensitive country programs, or by diversifying A.T.I. funding.

VI. PROGRAM BENEFICIARIES

A. PARTICIPATION OF THE POOR

EVALUATION QUESTION:

> The end goal of A.T.I.'s program is self-sufficiency in its target population. Do A.T.I.'s activities promote political and economic self-sufficiency? Is there effective local participation in A.T.I. client organizations? Do A.T.I. resources displace other sources for client organizations? Do they create dependencies?

RESPONSIBILITY: The A.I.D. Proposal to the Congress states that:

> "As a matter of policy, the program will focus on the small scale sector in LDCs -- small farms and small and medium scale enterprises. It will focus on appropriate technology to provide low-cost services and consumption goods for the poor."

The A.T.I. grant document states:

> "The goal of AT International is to assist the poor societies of the developing countries improve their own capacities for invention and innovation."

DISCUSSION: A part of the ideology of the appropriate technology movement is the need to empower poor people to make their own technical choices, and to appropriate a fair share of the benefits that result from their technical improvements. A corollary of this position is that if control is to be vested in the person served, then the donor agency must be responsive to his demands rather than imperialistically or paternalistically make decisions for the client. This position is held to some extent by most A.T.I. personnel, and it has influenced the organization's approach to its clients. There is no doubt that A.T.I.'s portfolio is consciously oriented to participation of the poor in a self-sustaining process of development. There was no reasonable way to estimate A.T.I.'s probable long-range success in achieving this goal, however.

A clear but somewhat extreme 22/ statement of the concern is presented in a report prepared under contact to A.T.I.: "Building Local Capacity for Sustainable Development." 23/ That report contrasts two styles of development planning.

The first style is predicated on:

> "The premise that sustainable economic development is impossible without local participatory organizational frameworks through which the intended beneficiaries of development activity can plan and act on their own behalf."

The second is characterized as "decentralized development planning" usually undertaken by delegating some decision-making authority to field offices of national government ministries." The problems with this second model, according to the authors, are as follows:

> "Because such planning tends to rely upon existing power structure to 'get things done,' it is the elites rather than the poor who participate, and project activitity tends to favor the interests of those leased (sic) in need. Ultimate responsibility for planning rests with specialists, and responsibility for executing the programs rests with government workers. These people operate within a reward system that is product-oriented, not process oriented, and within a structure that tends to be paternalistic, static, poorly coordinated administratively, and ultimately hierarchically self-serving."

FINDINGS: Practically, A.T.I. has decided to work through intermediaries and this involves providing those intermediary organizations with resources, influence and contacts. There seems no reasonable doubt that the intermediaries are carefully selected for motivation consonant with A.T.I.'s objectives. However, some of these intermediaries are closely allied with current power structures in their countries, and some are managed by specialists and government workers. Realistically, it must be questioned if the majority of these efforts channeled through organizations directed by the rich and the middle class will be fully successful in enabling the poor to make their own technical choices.24/

At the other extreme, A.T.I. intermediaries are sometimes controlled by disadvantaged ethnic minorities or individuals active in political opposition to the current faction in power. Several A.T.I. projects appear to have failed in such situations due to government opposition. In addition to the risk involved in such projects, the long-term impact of empowering the poor is often problematic even if the project is successful.

In some cases, in Asia especially, A.T.I. appears to be working with broadly based, populist or ideologically-based intermediary organizations. These clients appear to exemplify an appropriate focus on participation of the poor.

DISCUSSION: A practical problem is the degree that A.T.I. must be responsive to the demands of its clients, which are generally intermediaries, in order to assure participation of beneficiaries and to create a self-sustaining innovative capacity in the host organization/country. This occasioned serious discussion within the evaluation team. We accept the concept of a partnership between A.T.I. and A.T. organizations in developing countries. Further, given that the counterpart organizations in many cases are stronger than A.T.I itself, A.T.I.'s humility is often valuable. However, the majority of the team felt that there were occasions when A.T.I. had mistaken passivity for responsiveness, and that when working with organizations weaker than itself, A.T.I. could and should take appropriate initiatives to assure project soundness.25/

CONCLUSIONS: A.T.I.'s program is properly targeted in the sense of the A.I.D. Proposal to the Congress. It could not be ascertained to what degree benefits were actually reaching the poor; it was, in fact, too early to adequately do so. However, A.T.I.'s success in reaching the poor in the more forceful sense used in its publication is naturally mixed and probably low.

ISSUE: Can the effectiveness of A.T.I.'s efforts to empower poor people to participate more fully in development be improved?

CONCLUSION: We see no need to make major improvement in A.T.I.'s focus on the poor, although continued attention to assure this focus is, of course, necessary.

B. PRIVATE SECTOR AND PRIVATE ENTERPRISE PROGRAMS

ISSUE: Does A.T.I. focus on private sector efforts, involving both U.S. and LDC private sector constituencies, as intended in A.I.D.'s Proposal to Congress?

REQUIREMENTS: The A.I.D. Proposal to Congress states:

> "Section 107 mandates an expanded and coordinated private effort to stimulate the development and dissemination of appropriate technologies in developing countries. The Congresional Committee interprets the term 'private effort' widely. Section 107 is intended to complement on-going A.I.D. programs by stimulating a variety of non-A.I.D. entities to undertake innovative programs in appropriate technology. This includes U.S. private and voluntary agencies, private business, individual citizens, not-for-profit organizations, and universities whether privately or state supported. Under the legislation, grants can be made directly to LDC private groups or publicly supported groups such as LDC R&D institutions, universities, or others."

The grant document, while implicitly recognizing the thrust toward LDC private sector institutions, deals with the U.S. private sector in the following terms:

> "The A.I.D. Proposal further includes programs to involve U.S. Business on a case-by-case basis which AT International also intends to do."

The examples of projects given by A.T.I. in the scope-of-work of the grant agreement, however, suggest a major focus on both U.S. and LDC private organizations.

FINDINGS: In signing the grant, A.I.D. approved a limited responsibility for A.T.I. to involve elements of the U.S. private sector in its effort, as compared with the responsibility envisioned in the A.I.D. Proposal to Congress. In its creation of a Division of Business and Technology Services, A.T.I. appears to have increased its orientation toward U.S. private sector constituencies. In discussion with the evaluation team, A.T.I.'s Executive Director stated that an informal and non-exhaustive count of services to the U.S. private sector had identified more than 120 U.S. organizations with which A.T.I. had worked.

The large majority of A.T.I. grantees were non-profit LDC private organizations -- private voluntary organizations, foundations, cooperatives, etc. However, there were 13 activities in the overall portfolio studied that funded commercial LDC organizations (primarily in Latin America).

The relationship with C.Ch.L.G., a small energy firm in Colombia, was particularly interesting. A.T.I. has used C.Ch.L.G. as a consulting firm, has helped them make contact with potential clients, and recently has put the firm in contact with a U.S. risk capital firm interested in investing to help C.Ch.L.G. expand. (It would seem interesting for A.T.I. to further experiment with vehicles to help involve commercial firms in systems to promote technical innovation.)

While most of the direct clients of A.T.I.'s programs are non-profit enterprises, a very large number of projects are indirectly oriented toward private production of goods and services to be sold on the market place. The range of concern includes informal sector (market women, itinerate vendors), urban micro-businesses, village industries and producer cooperatives. In several projects, A.T.I. is helping PVOs develop commercial ventures (potentially providing self-generated financing for currently subsidized activities). Thus, A.T.I.'s program may be considered as primarily an innovative experiment in reaching the very small and informal private enterprises in LDCs.

<u>DISCUSSION</u>: The appropriate level of involvement of A.T.I. with the U.S. private sector is a difficult issue. As defined by the Congress, the U.S. private sector includes hundreds of PVOs, thousands of colleges and universities, some 10,000 foundations and an enormous number of private individuals and corporations. A.T.I.'s portfolio of U.S. constituency-oriented activities is dwarfed in comparison with this inventory, but so too is A.T.I's total portfolio. There is a real risk that if A.T.I. were to open the floodgates for proposals for funding and technical assistance to the U.S. private sector, it would be overwhelmed by the demand, or would be unable to maintain adequate focus on the needs and priorities of its LDC clients. A balance has to be kept that maintains the primacy of A.T.I.'s responsibility to its LDC constituencies.

The evaluation team believes, however, that A.T.I. was clearly less responsive to its U.S. private sector constituencies early in this program than had been intended by Congress and by the A.I.D. proposal.26/

CONCLUSION: A.T.I. focuses on LDC private sector efforts, but has done less with the U.S. private sector than intended by Congress.

ISSUE: Can the orientation toward the private sector be improved?

CONCLUSION: From the above discussion, it is clear that orientation toward the LDC private sector does not need to be improved. A.T.I. is taking action designed to improve relations with the U.S. private sector.

VII. COST AND FINANCING

A. COSTS

ISSUE: What are the costs of the A.T.I. program?

RESPONSIBILITY: Table 2 gives the budget summary from the grant document. A.I.D. did not make funds available to fully implement this budget. While total funding allocated to the grant during its lifetime has been $18.0 million, the life of the grant has been extended ten months. Consequently, a lower expenditure rate was required in the latter years of the program.

According to the grant document, A.T.I.'s on-board staff was to be twenty persons in the first year, twenty-seven in the second year, and thirty-four in the third year.

FINDINGS: Actual expenditures are shown in Table 3 for these program years. Grants actually exceed targets in the first year, while the total budget was below that projected. In 1980, as budget modifications began to be made, both total grants and total budget were reduced from the projected level. Grants remained 60 percent of the total, as compared with 60.7 percent projected. In 1981, total expenditures were curtailed to 60 percent of those originally

Table 2

Budget Summary from Grant Document

	1st Year	2nd Year	3rd Year
Financial Assistance	1620	3300	5460
Technical Assistance			
Staff	266	484	784
Contractual Service	324	660	819
Travel	198	380	560
Review, Analysis, Evaluation	320	714	1177
Administration	772	924	1200
Total	3,500	6,500	10,000

projected; total grants dropped to 42 percent of the portfolio, significantly below the more than 50 percent projected for the second and third years of the grant.

Total staff at the end of 1981 was 49 persons, or 44 percent more than the 34 envisioned in the grant document.

DISCUSSION: For the purpose of management and evaluation, an ideal arrangement would be to have an accounting of all direct and indirect costs realistically and accurately allocated to each activity of A.T.I., and aggregated by major programmatic function. Such was obviously not possible. Consequently, we have had to make use of less than ideal data.

In reviewing the costs of A.T.I.'s program, we have maintained the concepts implicit in the previous chapters. A.T.I's efforts to build local institutions and develop and disseminate technologies have a relatively direct relationship to the direct costs of the goods and services involved, and to the impacts occurring to and through the counterpart organizations. We will term these A.T.I.'s direct functions. Were A.T.I.'s program limited to these direct functions, it seems probable that A.T.I. would be judged quite inefficient. If all that were of concern was the transfer of several million dollars per year in timely small grants to worthy LDC organizations, the funds

Table 3
A.T. International
Comparison of Expenses by Services, FY 1979, 1980 and 1981

A.T. Extension Services	1979	1980	1981	TOTAL
Technical Assistance				
Staff	$0.086M	$0.210M	$0.210M	
Consultants	0.000	0.102	0.173	
Travel	0.020	0.039	0.139	
Allocated Costs*	0.006	0.069	0.130	
Total	0.112 3%	0.420 9%	0.806 14%	1.338 9%
Financial Assistance				
Grants	1.887	2.334	2.321	
Program Development/-Management	0.463	0.710	0.837	
Allocated Costs	0.142	0.157	0.180	
Total	2.492 76%	3.201 68%	3.338 56%	9.031 66%
TOTAL ATES	2.604 79%	3.621 76%	4.144 70%	10.369 74%
Policy & Communication Service				
Technical Assistance	0.003	0.087		
Grants	0.023	0.093		
Program Development/-Management	0.271	0.360		
Allocated Costs	0.075	0.110		
TOTAL PCS	0.372 8%	0.650 11%	1.022 8%	
Business & Technology Services				
Technical Assistance		0.052		
Grants		0.055		
Program Development/Management		0.215		
Allocated Costs		0.059		
TOTAL BTS			0.381 6%	0.381 3%
General Administration**	0.685 21%	0.749 16%	0.746 13%	2.180 16%
TOTAL for A.T. International	$3.289M	$4.472M	$5.921M	$13.952M
TOTAL Grants	1.887 57%	2.357 50%	2.469 42%	6.713 48%
TOTAL Grants and Technical Assistance	1.999 61%	2.781 59%	3.442 58%	3.222 59%

* Allocated Costs are administrative costs that can be related directly to operational functions; for example, space, supplies, materials, equipment.

** General Administrative Costs are administrative costs that cannot be related directly to operational functions; for example, space, equipment, professional services, trustee expenses, supplies, materials.

could be most efficiently channeled through existing U.S. donor agencies --small projects funds in A.I.D., PVOs, IAF, Peace Corps, etc. The marginal costs for these agencies of handling such amounts would be smaller than A.T.I. could match with its Washington-based staff and heavy travel costs. The Office of A.I.D.'s Science Advisor, for example, will provide $5 million per year in small research grants primarily to LDC institutions with a staff consisting of one full and one part-time professional, and one part-time secretary.

A.T.I., however, has a number of functions that go beyond these direct services. It is to experiment with new forms of development assistance and distill and disseminate the lessons of this experience to governments, the private sector and aid donors. It is to influence policy. It is to compare and contrast information from various activities to distill and disseminate technological and organizational development information. It is to broker the transfer of A.T. resources and the greater involvement of the U.S. private sector in (A.T.) development programs. We will term these A.T.I.'s indirect functions. All of these indirect functions depend at least in part on the learning A.T.I. can do and the credibility it can establish through collaboration with its constituencies in carrying out its direct functions. Consequently, logically, a portion of the costs of the direct functions (of institution building and technology development and diffusion) should be allocated to the indirect functions. Indirect costs should logically be allocated among both classes of functions. As the importance of indirect functions increases toward some optimum balance with the direct functions, the unit costs of A.T.I.'s program become more reasonable.

The benchmarks which we have for evaluation of the costs of the program come from the grant agreement and the A.I.D. Proposal to Congress. The key indicator of performance of direct functions -- the value of subgrants -- dropped significantly below the planned 50 percent during the third year of the grant. On the other hand, staff level was significantly higher than proposed in the grant agreement. Finally, in Chapter V, we have concluded that key indirect functions (such as the dissemination of the lessons of A.T.I.'s experience with alternative modes of development, publications, and involvement of the U.S. private sector) were being carried out at lower than expected levels.

CONCLUSION: The unit costs of A.T.I.'s program functions were higher than originally envisioned. We judge that they have been higher than necessary.27/

ISSUE: Can the costs of the A.T.I. program be reduced through managerial improvements?

RESPONSIBILITY: In A.I.D.'s Proposal to Congress, one of the subordinate reasons for creation of A.T.I. as a private sector organization was management efficiency. It was stated that:

> "experience with similar organizations has has shown that they generally have a great deal of flexibility and can make grants rapidly in response to perceived opportunities. There is less procedural red tape and more rapid decision-making. Such organizations have a great deal of flexibility in hiring and managing staff -- a condition which does not pertain in A.I.D."

A.I.D., of course, has a general responsibility for managerial efficiency.

FINDINGS: A Transient Phenomenon. The conflict between the budget specified in the original scope-of-work for the A.T.I. grant and the decreasing obligations of A.I.D. central funds, were not fully confronted until the third quarter of FY 1981 when A.T.I. was officially informed that A.I.D.'s obligation for FY 1981 would be $4.1 million and the budget request for FY 1982 would be $4.5 million. There had been relatively little communication between A.I.D. and A.T.I. prior to that date on A.I.D.'s budgetary planning and the implications for A.T.I. These levels were roughly half of those proposed in the grant agreement and the tardy notification of A.T.I. of the actual budget levels caused major revision of A.T.I. program plans and considerable problems with morale within A.T.I.. A.T.I., at that time, froze personnel but did not take steps to reduce personnel costs.28/ Instead it increased emphasis on staff technical assistance, and embarked on an ambitious effort to define its mandate, procedures and future program in more detail. The result of A.I.D.'s and A.T.I.'s actions was a significant reduction of resource transfers as a percentage of A.T.I.'s budget.

More collaborative budget planning by A.I.D. and more timely information would help reduce the probability of such problems in the future. If sudden budget cuts did occur, A.T.I. management efforts to appropriately reduce personnel costs and overhead would reduce inefficiencies.

Cost Containment: A.T.I. appears to the evaluation team to be a reasonably well managed, cost conscious organization, and we would not expect to see major budget reductions achieved through internal savings. A.T.I. is, however, involved in reviewing its internal costs and overhead and has taken such steps as reducing the staff benefits. We applaud this effort and encourage continuing efforts to streamline A.T.I.'s operation. The management consultant (Annex 8) has suggested that gains could be achieved by routinizing frequently performed functions (such as location of consultants, etc). The considerably larger staff than originally envisioned suggests that staff costs be carefully reviewed.

A.I.D. Costs: A.I.D. appears to have minimized its costs of management of the A.T.I. program, but as is explained in Chapter VIII it appears that an increase in A.I.D. internal costs for the program is warranted.

CONCLUSION: Improved coordination by A.I.D. and A.T.I. can prevent or minimize future transient inefficiencies caused by unexpected program changes. Continued emphasis on cost containment is of course necessary.

ISSUE: Can A.T.I.'s program be improved through the use of alternative sources of financing?

COMMENT: In the initial discussions of A.T.I.'s program, it was argued that the managerial load of creating the organization, hiring a staff, conceptualizing a strategy and initating a program precluded active search for alternative souces of financing at that time. A.I.D. formally suggested in April 1981, however, that A.T.I. begin the process.

DISCUSSION: The evaluation did consider the feasibility and desirability of alternative sources of funding. In fact, A.T.I. has attracted some small grants from the private sector as well as funds from sub-units in A.I.D.

a. Decentralized Funding from A.I.D.

In the review of the African A.T.I. program, discussions were held with several missions of the relative value of the Bureau's I.R.T. project and A.T.I.'s African program. The team felt that the A.T.I. program was considerably more effective than the I.R.T. The strong advantage of A.T.I. suggests the potential for regional bureau funding. Similarly, A.I.D. missions have funded follow-on efforts for A.T.I. grants in several countries in Africa and Latin America, and some A.I.D. officers expressed interest in possible mission funding of A.T.I. country specific programs. Feasibility of this approach depends in part on A.T.I.'s eligibility for OPGs, in part on achieving an agreement on the level of independence appropriate for A.T.I. under alternative sources of A.I.D. funding, and in part on the encouragement given by A.I.D. policy makers to the agency to fund A.T.I.

b. Funding from Other Development Assistance Sources

A.I.D., to some degree, influences funds available in local currencies for development (PL 480 and SPTF, for example). Similarly, other aid donors such as the World Bank might fund A.T.I.. A significant advantage of these sources of funding would be the easier justification of work in more advanced developing countries (Brazil, Korea, etc.). In some cases, these countries offer exciting opportunities to A.T.I. and would be valuable members of A.T.I. supported networks. Moreover, there are certainly subpopulations who are sufficiently poor to fully warrant A.T.I.'s attention. However, it is hard to justify use of U.S. bilateral development assistance funds in these countries.

c. Private Sector, Non-Profit

In Colombia, the evaluation team discovered, unsystematically, interest on the part of a private foundation in the idea of cofinancing an A.T. Colombia with A.T.I. There may be similar opportunities in other countries. Similarly, U.S. foundations might consider support of portions of A.T.I.'s program if properly presented. For example, the Ford Foundation and Mellon Foundation recently have provided substantial subsidized loans and grants to the Program in Appropriate Technology for Health for efforts similar to A.T.I.'s. The advantages of the inputs of cooperating organizations in terms of personnel, experience and contacts may be significant.

d. Private Sector, Commercial

A.T.I. has made eleven grants to commercial organizations, illustrating an interesting new approach. It would appear that helping such organizations tap commercial loans, sources of commercial venture capital, or firms with which to enter coventures would be more appropriate in many cases than federally subsidized grants. Not only is this commercial financing repayable by such firms, but the input of business know-how from the private sector may improve the impact of the financing. Moreover, there are alternative ways in which private, commercial enterprises may find it desirable to provide resources for A.T.I.'s program (contribution of goods or services, etc.). A.I.D.'s Private Enterprise Bureau could in principal assist A.T.I. in tapping appropriate private financing for such efforts.

A.T.I., itself, can enter into the commercial market for its goods and services.29/ Given the need and demand for information in appropriate technology and techniques for alternative development approaches, A.T.I. should be able to partially support information distillation and dissemination efforts through the sale of publications. Entry into this commercial market might also encourage A.T.I. to improve publication quality, and help reach a larger and more concerned audience. Similarly, A.T.I.'s Resources and Business Services Division could commercialize some of its services. Occasional consultancy services by A.T.I. staff for aid donor agencies could both generate income and help transfer its experience to those agencies. Thus, while A.T.I. is not primarily a commercial enterprise, commercialization of some of its goods and services may both improve management and recover costs of activities.

CONCLUSION: A.T.I. should seek additional sources of financing.

RECOMMENDATIONS: A.T.I. should be actively encouraged and assisted to seek additional sources of financing.30/ Certainly, as happened in the past, central funding should not be decreased in proportion to the amount of outside support. Central funding should be programmed to match outside funding up to a specified level in future years. It is clear, however, that A.T.I. has not

yet developed sources for such funding, and that central funding must be maintained at roughly current levels for some years if A.T.I.'s program is not to suffer severe cutbacks.31/

VIII. MANAGEMENT

A. A.T.I. MANAGEMENT

ISSUE: Can this program be improved through general improvements in A.T.I.'s management?

FINDINGS: The overriding finding is that A.T.I. has succeeded over its history in creating a viable organization and carrying out a reasonable program with the resources allocated to it. This, in itself, is a significant accomplishment and should not be underestimated. Moreover, A.T.I. has successfully survived the predicted initial problems in direction and staffing. The current management is seriously and consciously striving to learn from its experience and to assure that the organization will more efficiently and effectively fulfill its mandate in the future.32/ The degree of success of A.T.I.'s management cannot be measured against the high ideals that were envisioned in its founding, but rather against the standard of other attempts to accomplish grass roots development objectives in innovative ways. By this standard, A.T.I.'s performance is more than adequate.

DISCUSSION: This evaluation is recommending no major reorganization of A.T.I., nor basic reformulation of A.T.I.'s organizational processes. The independent management consultant's comment is emphasized: "There is no evidence in the research literature on supervision that staff members will be more creative, productive or effective in their work when subjected to frequent rearrangement of the working process or inter-relationships." (Annex B, page 37.) Management improvement is not a "technological fix" to improve A.T.I.'s cost-effectiveness.

In Chapters III through VII, discussion of specific functions have resulted in conclusions that improved A.T.I. efforts can improve the A.T.I. program. These discussions stressed the improved distillation and dissemination of A.T.I.'s experience in alternative development approaches, strengthened

searches for alternative financing, improved A.T.I. inputs to organizational development and technology development and dissemination programs, and continued emphasis on cost containment.

Clarity of Charter: It appears that a significant improvement might be available through a clearer articulation of A.T.I.'s approach to development.33/ The authors of A.I.D.'s 1979 "Report on the Curent Status and Operations of A.T. International" stated as their first conclusion:

> "A.T.I. appears to have chartered itself as a general development agency with the objective to strengthen people's capacity to improve their well-being through their own efforts. This broad charter is belied somewhat by A.T.I.'s own portfolio which has more of an A.T. cast to it. The Review Committee believes A.T.I.'s description of itself should be stated in more specialized terms. For a definitive approach, experimental data could be derived that would be useful to A.T.I. and others in defining the uses of appropriate technology in development. A starting point would be to describe A.T.I. as an agency with a mandate to promote the use of appropriate technology."

The quotation illustrates both the internal tension between A.T.I.'s characterization of itself and the composition of its portfolio, and the tension between A.T.I. and outside observers on the specific nature of A.T.I.'s mandate. This tension is still not resolved. The management analyst participating in this evaluation has written (Page 36, Annex 8):

> "The lack of capacity to find competitive edges, package them in an A.T.I. way, and put them into operation with A.T.I.-type quality controls, constitutes a critical deficiency in current management practice. (It may surprise some that this deficiency and its importance to A.T.I. viability is known and understood often in alternative terms--by all staff members. This was a key area of agreement.)"34/

Selling Itself:35/ In Chapter VII, it was pointed out that alternative sources of financing are available for A.T.I., (including A.I.D. missions, regional bureaus, other bureaus, other aid donors, foundations, LDC organizations, businesses and private individuals) and there are specific programmatic advantages to tapping those sources to finance specific functions

of A.T.I.'s program. We will broaden the argument. In order to obtain resources from other sources, A.T.I. will be required to develop products and packages that are of real and apparent value to its constituencies. Clearly, these products and packages will have to be germane to A.T.I.'s charter, for there is no value for A.T.I. to diversify funding at the sake of its organizational focus or the coherence of its program. Thus, to be successful, A.T.I. will have to identify activities or sets of activities important to it and of relevance to at least some of its constituencies, describe and package these activities in a way that demonstrates their utility and A.T.I.'s comparative advantage in carrying them out, and interest the constituencies in its efforts to the point that they provide A.T.I. resources. We assert further that the problem of the transfer of A.T.I.'s experience to its constituencies will be much reduced when those constituencies are paying for A.T.I.'s efforts -- there will be a demand -pull for information at that point.

This approach also provides a basis for a new relationship between A.I.D. and A.T.I. In the following sections of this Chapter, it is argued that A.I.D. and A.T.I. should improve communication but that it is antithetical to A.T.I.'s purposes for A.I.D. to control A.T.I.'s programs and activities. This introduces the quandary: How can A.I.D., without exercising control over A.T.I., encourage A.T.I. to emphasize activities most relevant to its various constituencies and deemphasize less important activities, and to organize its experience and transfer experience to these constituencies? We believe that a financial approach may be the solution. A.I.D.'s S&T Bureau could provide central financing consonant with A.T.I.'s need for a secure base. This base would include funds to carry out experimental and innovative programs that would be hard and time-consuming to sell. Such central programmatic financing is consonant with A.I.D.'s own need for the experience and information A.T.I. can provide. A.I.D. could then encourage A.T.I. to seek to obtain or leverage additional resources from its various constituencies, (A.I.D. missions, regional bureaus, other donors, foundations, private firms, etc.) both by helping A.T.I. to make the necessary contacts and by matching some volume of contributions from outside sources. The relationship would then ideally be one where A.I.D. encouraged A.T.I.'s managerial improvement by encouraging A.T.I.'s responsiveness to its other constituencies.36/

Clearly, it is extremely unlikely that A.T.I. will be able to obtain a major portion of its budget from other sources in one or two years. However, seen over a decade or so, it is suggested that A.T.I. could diversify its sources of financing to receive the majority of its resources from sources other than the central A.I.D. grant. This would reduce A.T.I.'s financial dependency on a single office in A.I.D., and it would tend to ameliorate program disruption due to any sudden shift in a single source of financing (such as occurred in 1981). (Moreover, such a situation would considerably ease the management and financial burden for A.I.D. of budgeting for the A.T.I. program.)

Keeping Roots in LDC'S: The centerpiece of A.T.I.'s approach is its ability to make small financial, technical and managerial contributions to small LDC organizations in a timely way. One A.I.D. person interviewed said that "asking A.I.D. to do what A.T.I. does best is like asking an elephant to knit." (We assume that he liked both elephants and knitting.) The critical management problem for A.T.I. is then how to retain the flexibility to program very small activities quickly while assuring that in the aggregate its portfolio has real leverage to influence the forces that change the rate of innovation.

We believe the appropriate managerial response to this challenge is to give A.T.I. a low center of gravity, i.e., to delegate considerable authority and responsibility to the field operations representatives and to invest significantly in these key people. There should be a small number of operations representatives. They should form a multidisciplinary team with people bringing real expertise in organizational development, specific technologies, small enterprise management, and the social and cultural processes of technological development and diffusion. Of course, they must all also have a general understanding of socioeconomic development, overseas experience with grass roots organizations, appropriate language capabilities, and sensitivity to local clients and circumstances. A.T.I. should invest seriously to assure that these key staff share a common vision of the nature and function of the organization and can take decisions in the field consistent with the larger purposes of the organization because they have fully internalized a shared approach.

Since the evaluation effort began, we have been informed that the former directors of the A.T.I. Asian and African field teams are leaving A.T.I., and the former director of the A.T.I. Latin American field team has been given a Washington responsibility. Several other field team members appeared to be seriously considering leaving A.T.I. and most expressed concerns about trends in A.T.I. program directions. A.T.I. was formally reorganized in December 1981, with the combination of the three field teams into a Department of A.T. Extension Services, and the creation of two new departments -- Business and Technology Services and Policy and Communications Services. Direct costs of these latter two departments accounted for about one-fifth of A.T.I.'s budget in 1981. Various A.T.I. staff members informed the evaluation team of competition or rivalry among these departments.

We are disturbed by the pattern of these events.37/ We believe that A.T.I. must continue to emphasize its responsive partnership with LDC private-sector, grass-roots development organizations as the basis for all its program functions. The field operations representatives are A.T.I.'s principal contact with this constituency, and thus we feel they play a central role in all A.T.I.'s programs. We hope that the management changes in A.T.I. will not diminish the existing strength of the organization.

A.T.I. management points out that temporary problems of morale are to be expected following A.T.I.'s December 1981 reorganization and the uncertainties faced by A.T.I. during the last year. The management review (Annex 8) points out that it is too early in the course of adjustment to the reorganization to predict if it will be successful in solving the problems it sought to address. We accept both points, but we alert A.I.D. and A.T.I. management to the need to continue to strive to keep A.T.I.'s roots in the field and its center of gravity low.

CONCLUSIONS: It appears that A.T.I.'s program can be improved by A.T.I. itself. The evaluation team prefers a conservative approach to organizational change. A number of program specific actions were already identified in Chapters III through VII. In addition it appears that the program could be improved if A.T.I. were to better articulate its charter and were to strive more actively to sell itself to its various constituencies (and thereby raise

additional revenues for appropriate functions). We stress the need for A.T.I. to keep its roots in developing countries, and to maintain a low center of gravity so that decisions are made as close as possible to these roots.

B. A.I.D./A.T.I. RELATIONSHIP

ISSUE: Can the program be improved through improvements in the A.I.D./A.T.I. relationship?

FINDINGS: A.I.D. initiated the relationship by a conscious decision to minimize A.I.D. responsibility for A.T.I.'s activities. Each organization appears to have underestimated the difficulties of communicating with the other. Neither has an explicit policy encouraging communication with the other. Financial planning appears often to have been done in an adversarial relationship rather than in cooperation. While the situation has improved this year, there still appears to be work to do to improve the situation.

DISCUSSION: We believe that there is an important balance to be drawn. On the one hand, there is an unfortunate tendency for A.I.D. to try to control A.T.I. -- control which would be inimical to A.T.I.'s ability to program small activities efficiently in a timely way, and to work with institutions not reached by A.I.D. and other large donors. On the other hand, there is an unfortunate lack of communication between the organizations on policies, strategies, resources and field activities -- a lack which may reduce the impact of the overall U.S. appropriate technology effort and which can be embarassing to each organization.

We suggest that A.I.D. accept more responsibility for A.T.I.'s program in the future. Authority and responsibility have, of course, been invested primarily in A.T.I.'s Executive Director and Board of Directors and must remain there. However, A.I.D. has not attended Board meetings even when invited and, consequently, the Board has not had the benefit of continuing access to A.I.D. development expertise nor of exposure to the major substantive developmental concerns of A.I.D. policy makers. Nor have A.I.D. policy makers had the benefit from the exposure to A.T.I.'s Board members. A.I.D. policymakers in the future should be willing to accept invitations to meet with A.T.I.'s

Board. Similarly, A.I.D. should have at least the responsibility of providing A.T.I. operations representatives with information and advice that would increase their effectiveness.

CONCLUSIONS: Improvement in the A.I.D./A.T.I. relationship would improve the program. Changes in both organizations will be required.

C. A.I.D. MANAGEMENT

ISSUE: Can the program be improved through improvements in A.I.D. management?

FINDINGS: A.I.D. has been developing a significant bilateral program in appropriate technology and has carried out the basic functions required by the A.T.I. grant, including budgeting, audit and evaluation of A.T.I. This has been accomplished under circumstances of reduced expectations for the development assistance budget between 1977 and 1982 and reduced A.I.D. staff levels.

In 1977, the A.I.D. Administrator attempted to have the mandate for the A.T.I. program removed by the Congress and ordered that the A.I.D./A.T. Working Group be dismantled. He established a "hands off policy," reduced staffing of the grant management in A.I.D. from that in the A.I.D. proposal to Congress, and ordered A.I.D. officials not put the Agency in a position of taking responsibility for grant-related matters over which they could not exercise authority (Annex B, page 12).

The independent management consultant concluded (Annex B, page 44):

> "A.I.D. policymakers have seldom dealt with the substantive aspect of the A.I.D./A.T.I. partnership but have been forced by Congressional inquiries to devote sizeable amounts of time to consideration of budget and public information matters related to the grant. The pay-offs to A.I.D. under this arrangement of A.I.D. policymakers time have been extremely low."

DISCUSSION: Restore Support: The results of A.I.D.'s draw-back from its own proposal to Congress have seriously reduced the potential flow of benefits from the program. The effort was conceptualized as an important experiment providing insights in alternative development strategies which, when widely disseminated in the A.I.D. program, might improve the cost-effectiveness of the overall A.I.D. approach. Withdrawal of A.I.D.'s interest thus left A.T.I. as an experiment without an extension mechanism.

There are, in fact, important lessons. A.T.I.'s experience in Africa supports the value of small grants to grass-roots development organizations. This in turn might have influenced the judgement on the utility of an African Development Foundation patterned after the Inter-American Foundation. A.T.I.'s experiments in small enterprise development suggest approaches beyond those stressed in the PISCES project. Franchising experiments suggest a powerful new tool for technology extension and small enterprise development in LDCs. A.I.D. should begin to explore the application of these insig ts in other programs.

Move Management Responsibility: In the reorganization of A.I.D.'s Bureau of Science and Technology, it has been proposed to transfer A.T.I. grant management responsibility to a new Office of Multisectoral Developpnt. We endorse this approach 38/ The most relevant background for an understanding of A.T.I.'s program include the social and economic sciences relevant to the process of technological innovation in LDCs and the management sciences relevant to A.T.I.'s efforts to strengthen client organizations. Both of these topics are assigned to the Office of Multisectoral Development. We further recommend that this Office assign a significant portion of the time both of a relatively senior development officer and of an administrative assistant to the A.T.I. grant. In addition to the project management functions currently being handled in the Office of Agriculture, these officers would strive to increase information flow between A.I.D. and A.T.I. through such activities as the transmittal of A.T.I. documents to A.I.D. missions and the arrangement of briefings and meetings.

An Interbureau Committee: We also suggest that an interbureau committee be formed with representatives of the eight involved bureaus (Africa, Asia, Latin America/Caribbean, Middle East, Food for Peace and Voluntary Assistance,

Private Enterprise, Policy and Program Coordination, and Science and Technology) to facilitiate information exchange. The committee ideally would be multidisciplinary, with representatives embodying the various backgrounds appropriate to A.T.I.'s functions. The committee members would serve individually as a continuing contact for A.T.I. staff with A.I.D.'s Bureaus and Sector Councils. They would be responsible for moving information provided by A.T.I. to the appropriate people in A.I.D. The committee would meet quarterly as a group with A.T.I. representatives to develop ways to promote a more cooperative atmosphere between the organizations. The committee would also advise the A.I.D./A.T.I. project manager as required.

Improve Financial Management: In the financial management of the A.T.I. grant, we believe that the core funding for A.T.I. must be better protected from direct competition from A.I.D. projects. This is not because A.T.I. is not competitive with similar A.I.D. projects -- quite the contrary. Rather, given the large size of A.T.I.'s budget with respect to the Office in which it is managed, there is an inherent tendency for the managing office to seek to divert funds from A.T.I. to activities which the office itself controls. Moreover, we believe A.I.D. should work earlier and more closely with A.T.I. in preparing Congressional budget submissions for the A.T.I. core support, and in analyzing for A.T.I. the budgetary implications of alternative appropriation levels.

We further suggest that A.I.D. consider a longer-term instrument for financing A.T.I. Three years may be too short, in that a major evaluation should probably be carried out during the next project to assure that A.T.I. and A.I.D. management inputs are improving, benefit flows are increasing as expected, and A.T.I. is successfully attracting alternative sources of financing. Such an evaluation should not be done before two years are completed, yet there would not be time to carry out such an evaluation in the third year, plan a new grant, and carry out the necessary budgeting and administrative details. On the other hand, if the evaluation were to show failure to achieve significant improvement it would be desirable to wind down the program quickly.

CONCLUSION: A.I.D. can significantly improve the A.T.I. program by restoring backing to A.T.I., by devoting policy makers' attention to A.T.I.'s experiments in development, by transferring responsibility for A.T.I. to the Office of Multisectoral Development (or to an A.T. unit if one is formed), by creating an interbureau committee to relate to A.T.I., and by improving financial planning for the A.T.I. program.

IX. OVERALL CONCLUSIONS

EVALUATION QUESTION

A. Are the benefits resulting from the A.T.I. grant commensurate with the costs of the program?

DISCUSSION: It is too early in the program's history to answer this question accurately. The flow of benefits from A.T.I.'s program will require some years to be fully established. Even when fully established, they will probably not be quantitatively measurable due to methodological and substantive constraints. Therefore, the question requires a judgment of the evaluation team.

PREVIOUS CONCLUSIONS: Summarizing the relevant conclusions of Chapters III through VII:

- A.T.I. has demonstrated success in strengthening client organizations. In other cases A.T.I. has not strengthened the client and in several cases A.T.I. projects have failed due to uncorrected weaknesses of the client. In one or two cases reviewed, A.T.I. inputs themselves, in unfortunate juxtaposition with other factors, may have weakened counterpart organizations.

- A.T.I. has demonstrated the potential for networks of grass-roots development organizations to be important institutions for the stimulation of technological innovation by its target population. Further A.T.I. has experimented with a variety of alternative institutional mechanisms which hold promise, such as franchising, development of training networks, and market development.

- The large majority of A.T.I.'s subgrants explicitly involve technology development and/or diffusion. Frequently, technology efforts focus on technologies that are directly usable by the target population, but some focus on technology for intermediaries. The efforts to develop and disseminate technology supported by A.T.I. are sometimes successful. There were a number of projects visited, however, which were unsuccessful in developing or introducing new technology. It is suggested from the data that it may be more effective to create conditions conducive to "demand pull," than to try to disseminate technology through "technology push."

- It is our impression that the lessons from A.T.I.'s experience are not widely shared, and the benefits are not accruing widely from projects modelled after A.T.I.'s successor or from avoiding A.T.I.'s failures.

- Few benefits are resulting from A.T.I.'s publications program.

- A.T.I's new Business and Technology Services (which were not evaluated) a priori appear to fill a need and be worthy of support.

- A.T.I.'s program in technology policy produces modest benefits.

- There have been no foreign policy costs of the A.T.I. program and some benefits.

- A.T.I.'s program is properly targeted in the sense of the A.I.D.proposal to Congress. We could not ascertain the degree to which benefits were actually reaching the poor; it was in fact too early to do so adequately.

- A.T.I. focuses on LDC private sector efforts, but has done less with the U.S. private sector than intended by Congress.

- The unit costs of A.T.I.'s program functions were higher than originally envisioned. We judge that they have been higher than necessary.

DISCUSSION: The above pattern indicates that the A.T.I. program is property targeted toward the poor and the LDC private sector. It appears to be reasonably successful in building institutions, in developing and disseminating appropriate technology, in influencing technology policy, and avoiding foreign policy problems. The effort has been less successful than originally hoped in serving as "provider of yeast to leaven the larger efforts of aid donors and LDC governments." Its publications program has been less successful than hoped in distilling and disseminating AT information. It has been less successful in reaching its U.S. private sector constituencies. Finally, unit costs have been somewhat higher than planned. Overall the program is clearly less successful than hoped. Realistically, this is not unreasonable in retrospect.

The pattern further suggests that the program has been most successful in achieving the explicit, local purposes of its assistance activities, and least successful in drawing on this experience to influence its various U.S. and international constituencies. In this context, and ignoring the value to A.T.I. and A.I.D. of the experience they have acquired, we question the success of the program during the last three years. For the direct benefits obtained in LDC's -- strengthening host institutions, developing and disseminating appropriate technologies, and influencing host country technology policy -- could not a lower cost vehicle have been found? It is our considered opinion that one could have been.39/

It should be emphasized that we place the major responsibility on A.I.D. for several important problems which have significantly limited the success of the program. Thus, both A.I.D.and A.T.I. share responsibility for the fact that the program was not more successful in the past.

CONCLUSION: While the program was reasonably successful in LDCs in strengthening institutions, developing and disseminating appropriate technologies, and influencing policy, it was less successful in drawing on the experience and influencing its U.S. and international constituencies. Since costs were also higher than expected, it is judged that a lower cost vehicle could have been found to achieve these effects. The responsibility is shared by A.I.D. and A.T.I.

B. ISSUE: Can the A.T.I. program be made a more suitable vehicle for development assistance?

PREVIOUS CONCLUSIONS: Summarizing the relevant conclusions of Chapters III through VII, improvements could be implemented to improve aspects of this program. A.T.I. management improvements could further strengthen the program where it is strongest already -- in its direct impact in LDCs. A.I.D., by returning to its original position in proposing the program to Congress, could help transfer the lessons of A.T.I. to other organizations, could assure that future financial crises do not increase unit costs of the program. A.T.I., with A.I.D.'s assistance, could secure beneficial additional financing, and improve its contacts with the U.S. private sector.

CONCLUSION: If A.I.D. and A.T.I. are seriously willing to attempt the improvements required, modest success should assure that the flow of benefits fr m the A.T.I. program will be more than commensurate with costs in the future.

X. RECOMMENDATIONS

It is the judgment of the evaluation team that the value of A.T.I.'s program will best be judged over time by A.T.I.'s own ability to demonstrate to its constituencies that it is worthy of their financial and other support. Therefore, the following recommendations concerning A.T.I's management and funding contain elements which will encourage the development of A.T.I. as a resource generating, independent organization. A.T.I. should be closely in touch with is markets and constituencies, providing those services and carrying out those functions valued by these providers of resources, only one of which should -- in the long-run -- be the Bureau for Science and Technology of the Agency for International Development.40/

A. A.T.I. should begin a process of seeking broader funding for its program from other units of A.I.D., other aid donors, foundations, and other clients as appropriate to A.T.I.'s objectives and the clients' resources. Properly understood, the recommendation to increase its base of support is a management recommendation as well as a funding recommendation. In its management sense, this recommendation encourages A.T.I. to do more of those kinds of things for which its international, LDC and U.S. clients will, over time, pay.

B. It is recommended that the A.I.D. central funding mechanism for the future be a grant that provides a floor level of funding for A.T.I. field programs and its headquarters operations. This central funding mechanism recognizes the combined role of A.T.I. as providing an experimental approach to development assistance, providing leavening for the larger A.I.D. and LDC programs. Under such an arrangement, A.T.I's growth will come from funds provided by other sources, or by its increasing ability to catalyze or leverage efforts by others. In addition to providing a grant that contains a floor level of funding, A.I.D.'s grant to A.T.I. should provide matching funds for resources A.T.I. acquires during the next four years, so long as those funds come from outside the Agency. With respect to mission funds or contracts with central bureau offices, A.T.I. should not be penalized (by losing floor level resources) when it is able to secure funding from other parts of the Agency for specific services --on the other hand, these funds would not be matched, as would outside funds, either from fee-for-service arrangements with LDC organizations or other funders.

C. A.T.I. should seek funding from A.I.D., other donors and the private sector including foundations. There is a commercial market, however, for goods and services A.T.I. can provide, and competition in this market holds benefits for A.T.I. Therefore, the funding mechanism should encourage A.T.I. to compete on commercial markets to recover the costs of certain activities.

D. A.T.I.'s program depends on its practical experience with grass roots development efforts, and it is essential that overseas efforts continue as the critical focus of all A.T.I.'s programs. The grant agreement should assure this through review of the allocation of resources towards U.S. and LDC constituencies. Several indicators should be used to assure A.T.I.'s continued emphasis on service to LDCs and experimentation with LDC problems in LDCs with LDC partners.

E. It is the judgment of the evaluation team that A.I.D. policy level management attention will have to be directed to the A.T.I. program and to the larger appropriate technology interests expressed by Congress if the full potential of the program is to be realized, and that such attention will be substantially rewarded. Such policy level efforts will be required to establish an improved relationship with A.T.I., rectifying the negative

orientation of A.I.D. toward A.T.I. which was created in the past, and to assure the widespread applications in A.I.D. of new A.T. approaches pioneered by A.T.I. Senior staff attention will require additional professional staff support efforts.

It is recommended that A.I.D. strengthen its management of the implementation of its entire program in response to the Agency's 1976 Proposal to Congress on appropriate technology including as a central element of the overall program its grant to A.T.I. It is intended here that A.I.D. strengthen not only the management attention given to individual projects and grants, but also the management overview of the entire portfolio in this area.

F. Two important alternatives exist for managing the A.T.I. relationship within A.I.D. Management could be vested in the FVA Bureau, assuring maximum independence from A.I.D. Alternatively, management could be vested in the S&T Bureau with efforts to assure maximum effort to transfer the A.T.I. liaison into all aspects of A.I.D.'s program. The latter approach is our strong preference. Within the S&T Bureau, preference is directed to the Office with greatest interest in alternative grass-roots development alternatives and the social and economic institutions involved in technology transfer. It is therefore recommended that responsibility for the A.T.I grant management in A.I.D. be given to the S&T Bureau's Office of Multisectoral Development.

G. In developing the new grant scope of work, it is recommended that A.I.D.'s "Proposal for a Program in Appropriate Technology" generally be used as guidance rather than the previous grant agreement in areas where the two differ, such as the discussion of private sector activities, the nature of support for LDC institutions, and the role of policy efforts in A.T.I.'s program.

FOOTNOTES

1/ A simile might help to clarify the issue. Consider two games of 20 questions. In the first, a panel questions an individual about a topic he has selected. In the second, an individual questions the members of the panel sequentially, each of whom selects a topic consistent with the prior responses of his colleagues. An outsider could not tell from a simple listing of the questions and answers which game was being played. However, the processes are totally distinct. More to the point, the question of the "real topic" underlying the panels responses in the second game is meaningless.

2/ The Logical Framework Approach calls for establishment of a hierarchy of objectives and related success measures at the time of project design. It is subsequently used by A.I.D. as a guide to structure project evaluations.

3/ The evaluation team selected ADL from the organizations with existing Indefinite Quantity Contracts for evaluation services. These companies had been pre-qualified by a competitive procurement process. However, A.T.I. feels that "the value of the impressions of the ADL consultants is arguable given that their training and experience (limited to conventional programs) and the fact that A.I.D. cost cutting precluded any signficant participation by them in the pre or post-field visit meetings and discussions." The evaluation team in contrast, feels that ADL fielded a team of exceptional experience and competence, and placed considerable reliance on their observations and judgements

4/ A.T.I. feels there was little discussion with them on the findings and conclusions of the evaluation.

5/ A.T.I. feels this comment is speculative.

6/ A.T.I. disagrees that its efforts have had negative impacts on Women Applied to Industry.

7/ A.T.I. feels this is speculative. It seems obvious, however, that A.T.I. would not have funded projects for NCWK, OFRANEH, or CPP under current policies, and these failures would therefore not have occurred under current policies. Thus the speculation seems reasonable.

8/ A.T.I. feels this criticism is unfair, and due to what it perceives to be the "conventional perspective" of the consultant, Mr. Samper, who is an agricultural economist. Named by ADL as the team leader for this activity, Mr. Samper was raised in Colombia and worked as a Colombian national in the Colombian Agricultural Institute. He has also worked in A.I.D. and a U.S. university prior to his employment by ADL. The reader is referred to his field report, in Annex 9D. Dr. Daly, the evaluation team member who worked in the field with Mr. Samper, concurs in his basic judgement, although he would have balanced the statement with some of the positive aspects of the A.T.I. effort in the region (see Annex 12). Dr. Daly has graduate degrees in engineering and administration, and among other things has several years experience in organizational development projects in Chile, Colombia, and the Dominican Republic. He currently manages a portion of A.I.D.'s research program which stresses small grants to developing country institutions.

9/ A.T.I. suggests that the issue discussed in this paragraph is "a small idea blown out of proportion," not sufficiently based on data and academic. However, two of the three teams felt that the programs they saw could be improved by better A.T.I. approaches to strengthen management of client organizations. Improving the staff competency of A.T.I.'s Division of A.T. Extension Services in the area of organizational development appears to be a rational and probably effective step.

10/ There is strong opposing opinion by a minority of the evaluation team on this issue and A.T.I. does not accept the criticism implied in this paragraph as valid.

11/ A.T.I. disagrees with this assessment of the taro project.

12/ A.T.I. does not accept the validity of the criticisms in the conclusions of the African and Latin American teams, noting that A.T.I. feels the ADL consultants embraced a directive approach to technology development, and A.T.I. specifically chose not to be directive.

13/ A.T.I. believes that this paragraph is seriously inaccurate.

14/ A.T.I. states these dollar amounts are quite exaggerated. However, they are from its Technology Diffusion Report and we have no alternative figure.

15/ A.T.I. feels that there are a number of technically trained people on their staff, and this point is overaccentuated.

16/ However, A.I.D. is now moving to create a Small Enterprise and Employment Unit in the Office of Multisectoral Development. This unit would have many of the attributes originally proposed for the A.T. unit. Moreover, the overall evaluation of A.I.D.'s A.T. program will suggest creation of a center for A.T. efforts in A.I.D.

17/ A.T.I. feels this discussion is misleading and lacks backup evidence.

18/ Referring to the "Proposal for a Program in Appropriate Technology" to the Congress.

19/ A.T.I. notes, correctly, that requirements of this kind might create delays in A.T.I.'s response time and compromise A.T.I. in the eyes of potential grantees.

20/ A.T.I. objects to this paragraph as "an overworked hobby horse," and feels it is not relevant to an evaluation of A.T.I.

21/ A.T.I. appears to object to the recommendations of stronger A.I.D. management to assure compliance of A.T.I. programs to overall US policy.

22/ A.T.I. does not feel this is extreme.

23/ By Avrom Bendavid-Val and the Development Group for Alternative Policies, December, 1981.

24/ A.T.I. points out, correctly, this quandary confronts most aid donors.

25/ A.T.I. strongly disagrees with this position.

26/ A.T.I. may question this statement.

27/ A.T.I. strongly objects to this statement. The reader is cautioned to review the following section to put the statement in its intended context.

28/ A.T.I. feels it was justified in its approach to this crisis. The evaluation team is not commenting on the propriety of the decision, but simply describing a situation which caused a dramatic increase in the ratio of staff costs to subgrant volume.

29/ A.T.I. feels these approaches are good in principle, but require considerable reworking in detail.

30/ A.T.I. correctly suggests care in distinguishing functions which should and should not be centrally financed.

31/ One member of the evaluation team feels that A.T.I. central funding should be significantly increased. A.T.I. agrees.

32/ There is some disagreement among the evaluation team members in confidence in the current management of A.T.I.

33/ The evaluation team is divided on the discussion under this heading. The discussion represents the majority view. Some members express concern about the costs of the recent major exercise of A.T.I. to discuss its charter and reorganize its staff, and question the utility of further efforts in this regard.

34/ A.T.I. feels that this statement dismisses the progress it feels it has made in the last 20 months. The comment appears less applicable to the Asia program than to other portions of A.T.I.'s program.

35/ ATI has strong reservations about this discussion.

36/ A.T.I. feels this contains a misperception of the Congress' original interest.

37/ Note we are not specifically concerned with the loss of the individuals, or the simultaneous departure of several staff members. We are concerned with the possibility that these combined with the other events noted may signal a trend important in the long range development of ATI's program.

38/ Some members of the evaluation team feel that an Office of Appropriate Technology is needed, with a considerably stronger charter than A.I.D. management of the A.I.D./A.T.I. relationship. The majority of the team has resisted such recommendation because it could not be adequately supported by the evaluation of ATI's program alone. We defer on this point to the group doing the larger evaluations of A.I.D.'s A.T. program (which includes the two members of our team proposing the A.T. Office).

39/ A.T.I. finds this judgment poorly based on data and analysis. One member of the evaluation team disagrees.

40/ ATI takes exception to recommendations A through C.

Annex 1

Selected Tabulations of A.T.I Activities

Table 1-A

DISTRIBUTION OF SUBGRANTS BY SIZE OF GRANT

Amount ($000)	Number of Subgrants
1-10	20
11-20	21
21-30	22
31-40	14
41-50	13
51-60	7
61-70	6
71-80	11
81-90	7
91-100	16
100+	6
not certain	4

Table 1-B

DISTRIBUTION OF SUBGRANTS BY STATUS OF A.T.I GRANTS AND REGION

	Africa/So. Pacific	Asia/Mid East	Latin America Caribbean	Worldwide	Total
Ongoing	20	27	22	2	73
Completed or Terminated	11	16	39	4	70
Not Ascertained	--	3	1	--	4
TOTAL	31	46	62	6	147

(columns taken from individual computer runs - so not sum across rows)

Table 1-C

DISTRIBUTION OF SUBGRANTS BY TYPE OF GRANTEE AND REGION

	Africa/So. Pacific	Asia/Mid East	Latin America Caribbean	Worldwide	Total
Government	7	-	8	-	15
Commercial	1	-	11	1	13
Private-Non-Profit Coop*	22	40	33	2	98
Other	1	6	10	3	21
TOTAL	31	46	62	6	147

*Two rows have been added together. Difference between them judged to be less reliable than is acceptable.

Table 1-D
DISTRIBUTION OF SUBGRANTS BY FIELD OF TECHNOLOGY*

	Africa/So. Pacific	Asia/Mid East	Latin America Caribbean	Worldwide	Total
Small Manufacturing or Service Enterprise	6	17	20	1	44
Energy	11	12	11	2	36
Agriculture	4	9	11	2	25
Educ. or Training	9	4	6	2	22
Housing	-	1	8	-	6
Health	1	2	3	-	5
Not Ascertained	-	1	3	1	5
TOTAL	31	46	62	6	147

* The categories presented in Table 2-D are not exclusive. Thus, the data analysis carried out by the team does not adequately identify the degree to which energy projects or small manufacturing is oriented toward, for example, agriculture. Nevertheless, the table does provide a rough idea of the technological sector of A.T.I subgrants.

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - AFRICA

ORGANIZATION	AII EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS: TECHNOLOGY	FUTURE FLOW OF BENEFITS: OTHER
1) Thaba Tseka - Integrated rural devel. organization well financed by other donors and host government	- financing to improve outreach (marketing) capabilities of Thaba Tseka - financed training - financed consultant (6 mo.) for organization who provided technical and mgt. assistance	significant small significant	- shift in organization emphasis toward AI - some improvement in marketing ability with experience - strengthened management experience as result of managing AII funded project activities - training for staff	- potential improvement in local energy use through future Thaba Tseka programs	- potential employment through manufacture as result of capacities improved by projects
2) Basotho Enterprise Development Corp./AI Unit - BEDCO is a para-small enterprise dev. organization - The AI Unit of BEDCO was a proposed	- purchase of vehicle - consultancy to replan AI unit	significant	- vehicle purchased - UNIDO considering AII consultant designed plan for long term funding for BEDCO AI unit	- UNIDO SPONSORSHIP AS RESULT OF AII INITIAL EFFORTS	- none
3) School for Appropriate Farm Technology - private trade school	- capitalized revolving funds for small loans - financial curriculum development - construction of two buildings - purchase of vehicle and machinery (for course work)	large	- improved physical plant - improved curriculum - improved endowment	BETTER RELATIONS WITH MINISTRY OF AGRICULTURE.	- training for students in agriculture extension
4) Southern Diocese of Malawi/Mulindi Rural Center - The Diocese is a well established church group - The Mulindi Rural center occupies a large workshop built by foreign aid after prior quarters were flooded by Lake Malawi - Mulindi Rural Cen. is weak organization in terms of mgt & finances	- operating capital for manufacturing activities - financing to improve management and (specifically) accounting - AII staff continues working with organization to improve management	small small	- organization judged not to be self sufficient in terms of funding, technical capacity or management		- possible benefits in future from workshop manufacture

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - AFRICA

ORGANIZATION	AII EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS: TECHNOLOGY	FUTURE FLOW OF BENEFITS: OTHER
5) Ministry of Agriculture and Natural Resources/Department of Fisheries - The Dept. of Fisheries is a government of Malawi organization	INTRODUCTION OF FERRO-CEMENT BOAT TECHNOLOGY INTO THE MALAWI MINISTRY OF AGRICULTURE AND NATURAL RESOURCES	LARGE	- improved management capacity of Dept. of Fisheries incidental to project efforts	- Fisheries Dept. able to contribute more to adoption AI	
6) Ministry of Agriculture/Ulimpwe Agriculture Development Div. - Min. of Ag is [illegible] government ministry - IRDD is 12 year old integrated rural development project organization in final year of World Bank funding - Large, well staffed	SELF-GENERATION OF PLANS AND BUDGETS. DEVELOPMENT OF PLANNING CAPACITY WITHIN THE STAFF)	LARGE	- IRDD redirected part of efforts into small business development	- range of small manufacturing technologies will be introduced in project area due to IRDD interest	- employment and consumer benefits will flow from small enterprises
7) Appropriate Technology Advisory Committee - The committee is a recently formed ad hoc group of private citizens and government officials - Small staff totally supported currently by AII	- It is assumed that a portion of first two years operating budget will be capitalized in training and development of management systems	significant	- too early in AIAC/AII relation to estimate overall impact on AIAC organizational capacity	- AIAC is catalysing flow of AI project proposals which may result in funded AI projects in future - commitment and experience of influential committee members in AI may result in policy improvements in Kenya and AIAC AI policy role	
8) National Council on Women of Kenya - Private WID group - Small, weak, financially insecure	- AII endowed revolving loan fund	MINOR	- project failed and funds were cut off after less than 40% transferred		

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - AFRICA

ORGANIZATION	AII EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
				FUTURE FLOW OF BENEFITS	
	TYPE	MAGNITUDE	TYPE	TECHNOLOGY	OTHER
9) Kenya Institutes of Science and Technology - Eleven vocational training schools - Locally established by voluntary action and primarily self-supporting	- financed creation by Price Waterhouse of accounting system for schools commercial activities (construction, garment making, etc.) - financed development of curriculum for training of students in use of these systems in actual [school] production activities	large	- improved financial management capacity of schools - improved training capacity of schools in bookkeeping and accounting	- ability to transfer software technology of management (inventory control, accounts receivable, job costing, etc.) to Kenya enterprises through graduates - improved cost efficiency presumed in schools' commercial activities	
10) Rift Valley Institute of Science and Technology - One of the 11 institutes discussed in 9 above	- financed technical assistance for introduction of accounting system described above - financed purchase of materials for training courses	large	- financial capacity of RVIST improved thru the sale of products produced by students with materials bought by AII grant - improved accounting/management capacity		- school more self sufficient in training in textiles, masonry and carpentry and bookkeeping
11) Bura Village Polytechnic - Small, village school providing trng for local people - Self-supported largely from tuition & income generating projects	(total assistance $3,000)	minor	- project provided visibility for Bura school, especially with Kenya WID groups		
12) Kenyatta University College/Appropriate Technology Center for Education and Research - Major Kenyan Univ - Young, small AI center	(small project to hold meeting at University)	MINOR	- successful management of project funded workshop probably added to centers prestige		
13) Kilifi Plantations - private business	(small project to provide consultant to Flow)	MINOR			
14) ICA - International Fed		MINOR	- project failed and activities totally disappeared by time of visit - ICA has terminated small enterprise activities to return to education field		

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - (Asia)

ORGANIZATION	AID EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS	
				TECHNOLOGY	OTHER
INDONESIA DIAN DESA - successful grass roots organization - works largely at village level in a variety of AT areas (water supply, village industry) - good ties to international donors and government of Indonesia -	1) provide funds to hire administrative assistant to "free" time of director to chart new directions for organization.	small	1) administration of DD improved and capacity to deal with outsiders also improved. Director was able to reflect on the role of DD in development. Director also established contacts with small, scattered AT groups in Indonesia	1) DD was able to expand its activities generally (per related grants)	1)administrative assistant hired (one)
	2) provide funds for metal working machinery for DD's workshop. Also consultant efforts to assist setting-up shop.	large	2) DD used own funds to erect building. DD has added capacity to support itself with commercial undertakings. DD has added capacity to help local small metal manufacturers. DD has institutionalized workshop accounting system (accountant trained at local institution).	2) Extends subcontracting orders to small metal shops with quality control guarantees; assures quality to clients; devises AT hardware (brick making machine, noodle dryer, etc.); trains workers through local area schools; builds entrepreneurship qualities (trainers start own shops)	2)employs (N15) people. Trains skilled workers and students of technical high school. Trains entrepreneurs. Organizes association of metal working shops to promote specialization and cooperation.
	3) Feasibility study for winged bean processing plant; also consultants; invitational travel also awarded.	small	3) Link with local university (faculty member with Ph.D.-Berkeley); technical capacity in this area expanded. Linked with world-wide network in winged bean research. Organizational structure expanded to include lab (research) and related functions.	3) Capable of conducting feasibility studies in other areas as well.	3) Academic person involved in studies now very heavily involved in Dian Desa.
	4) Prototype winged bean processing plant now under construction. [4b minigrant to explore value of institutionalizing a marketing division within DD]	large	4) Potential commercial activity in key technical area; organizational capacity expanded to include processing (prototype) plant and linkages to small farmers and to customers through a new marketing division within DD (used for other projects as well as for winged bean products)	4) Exploring a new means of hulling ripe winged beans (not commercially done before); devised machinery to do the job (modified rice huller); devised new solvent extraction system to extract winged	4) potential great benefits to poor small farmers in semi-arid areas who can grow winged bean on marginal lands (employment and income benefits). Potential forward linkage

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - ASIA

ORGANIZATION	ATI EFFORTS TO STRENGTHEN CAPACITY		IMPACT OF ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS	
				TECHNOLOGY	OTHER
				been oil. All have been lab tested; the commercial prospects are promising but yet untested.	benefits to marketing and other consumer groups. Direct potential benefits to construction workers and processing plant employees. If proven commercially viable, replication on a wide scale likely.
OBOR DESA - very small, new organization - operates from provincial capital with outreach program to far-flung, isolated villages. - trains selected individuals from remote villages as "community motivators" - grants seed money to short projects in villages.	1) and 2) training community motivators and providing seed money for small projects initiated by the motivators; ATI provided funds for the above.	both grants small; combined medium	1) and 2) were the first activities of this new organization; (it is difficult to sort out organizations "capital" from routine operations when the activities are new); plans to generage reinvestible resources as outcome of grants to community motivators; Obor Desa is to prepare a plan for attracting other donor support and for attaining core self sufficiency. A temporary office now exists. Most facilities are donated.	1) and 2) linkages established with providers of many resources (banks, technical extension services, other) to remote villages; Obor Desa pioneered a new means of disseminating technologies via community motivators to those remote villages.	1) and 2) Twenty community motivators trained (proposed to be trained) by end of grants; at least one project activity started by each of these 20 in his local village; spread and linkage effect occurring (more employment and income for the poor). Also "financial support flows from successful Obor Desa projects which will spawn other activities.
SRI LANKA SARVODAYA - very large, well established institution - outreach to about 8,000+ villages in Sri Lanka	1) Feasibility studies on several prototypical AT-type (hardware oriented) approaches to village level manufacturing (e.g., soap, fibre-reinforce roofing, etc.) funded by ATI.	small	1) studies done by or in close cooperation with in-house staff w with two important results (A) Sarvodaya's capacity to do feasibility studies in small manufacturing (village level) and increased and (B) the perception that studies pointed to a severe marketing constraint quickly absorbed by Sarvodaya staff.	1) some feasibility studies favorable (e.g., soap), other not (e.g., fibre-reinforced roofing sheets). Soap now made and marketed by and through Sarvodaya units. but major benefit in identification of marketing constraint. (see 2 below)	

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - ASIA

ORGANIZATION	ATI EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
				FUTURE FLOW OF BENEFITS	
	TYPE	MAGNITUDE	TYPE	TECHNOLOGY	OTHER
SEWA -mature lower cohort of very strong labor union in Ahmedabad, India -concerned with self-employed slum women -has a bank as one of several key components (owned by SEWA members)	1. Grant funded some expenses for a meeting of 10 key women's organizations in India. 2. Core funding of SEWA	small large	1. Increased links between SEWA and other women's groups in India; developed capacity a local organization of its type in India; intended to act a leader in effort get more official recognition for unorganized (informal) sector comprised of poor women. 2. Prevented decapitalization of SEWA's institutional assets; allowed (and enabled) SEWA to plan for other funding sources.	1. Mechanisms in place to organize workshops and extract policy suggestions which may be taken seriously by the government; spread knowledge of SEWA banking system (based on peer pressure — see 1&2) 2. A broad range of process technologies; e.g., know how on how to organize Hindi workers, block printers; how to help design improved tools for use by women; how to set up a bank owned by the poor, etc.	1. Other women's groups strengthened by exchange of information occasioned by the workshop. 2. Increased incomes, jobs, etc. for slum women in the informal sector.
GCP -organization working with poor farmers in semi-arid region -developed mid-water shed management practices (protective irrigation) -social technologies at the core: participants pay 20% up front costs, water [illegible] 1 equity [illegible], agreements on crops not to be grown, other agreements	Grant to build and operate training facilities where private local extension agents will be trained.	large	Increases dramatically the capacity of GCP to replicate its program in the region in which it began operations; training young people selected by individual groups of villagers in water-shed management, other technologies.	Refine and extend (replicate) technology — both in mid-water shed management and in social organization consistent with local culture and equitable distribution of benefits — to a great number of villages. The trained workers will be paid by the local groups (private).	Employment to trained extension workers; indirectly an increase in agricultural output in semi-arid region near Pune, India. Incomes of farmers in the region will rise.

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - ASIA

ORGANIZATION	ATI EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS: TECHNOLOGY	FUTURE FLOW OF BENEFITS: OTHER
India — [illegible] (Working women's Forum) — young dynamic women's org. — focuses on needs of urban slum dwellers and is reaching out to poor rural women — entrepreneur to credit [illegible] self-employed women.	Grant and technical assistance (consultant) and networking (w/[illegible] and others) to help [illegible] establish own credit society (bank)	medium	Helped [illegible] create its Credit Society. Credit Society set-up was assisted by a consultant (guide by ATI) before the grant establishing the loan fund was sent. Basic procedures similar to procedures used by commercial banks in India. Grant extended [illegible]'s capacity to assist its members.	The credit system for poor slum dwellers is the technology involved here. Group leaders head groups of 10-20 women individual are granted loans if they obtain the approval of their leader. Strong peer pressure assures high repayment rates. System has flaws which will be worked out as system evolves.	Borrowers' incomes up an average of around 15%. Several hundred loans made (average loan is well under $50.)
Foundation of Entrepreneurial Development (FEED) — young dynamic org. recently split from (Women's) parent body — keys on business approach to solving problems	Grant to provide core funding to establish administrative portion of activity and initial capital for projects.	small to medium	Staff, headquarters and activities all well underway. FEED has established itself well, is well respected by bankers, and is operating actively. FEED has adopted a "corporate management" style and a "franchising" system through which educated unemployed youth own and operate their own businesses (tea stalls). The concept is replicable in a variety of areas.	Two major technologies of dissemination are (A) the franchising system through which tea is effectively marketed and (B) the linked corporate structure in which producers (e.g., of milk) supply other producers, (e.g., of tea) to sell to customers.	Many unemployed youth now have good jobs and high incomes; a sense of entrepreneurial spirit is alive. Linkages to manufacturing (building kiosks) and agriculture (the dairies) are strong, adding to employment and modes.
RAI-C — bicycle powered simple tools (pumps, grinders, peanut hullers, threshers) are tested in local villages — RAI-C linked to Thailand Christian Council and has a service oriented approach to tech. dissemination	Grant for funding adaptation efforts of pedal power machinery and institutional travel (with sampler) to technology (for the People Fair in Mexico City	medium	Strong thrust (including contractual requirement) to get RAI-C more interested in commercialization of successful pedal powered machinery	Increase productivity of tens powered activities by application of pedal power (prospects look excellent for peanut hullers; local acceptance of other machinery appear limited at present (changes are being made)	Incomes increase for small farmers in villages

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - ASIA

ORGANIZATION	ATI EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS: TECHNOLOGY	FUTURE FLOW OF BENEFITS: OTHER
SARVODAYA (cont'd) - organization relies heavily on volunteers labor, very highly motivated people; well connected nationally, internationally - keys on motivation, self-help, village level access to and control over resources. - recently moving into new areas, specifically producing (using labor-intensive methods) goods made at the village level.	2) Small commercial shops program funded by ATI. TA given by consultants. Shopkeepers trained to run shops scattered in Sri Lanka's villages, shops built (if needed), stocked, and operations in place for their pilot effort	large	2) Second step in process by which Sarvodaya gets involved with village level manufacturing at a small scale (a new initiative for Sarvodaya). Organizational development considerable as Sarvodaya gears up to address this new interest. Training strong element. NB: ATI is acting as a broker (Sarvodaya and the IBRD) for a proposed project to support the effort to do the village level manufacturing shops project.	2) Exploring alternative marketing system to government run cooperatives and private (monopolistic) moneylender-middleman system. Eventually will market goods produced in village level small manufacturing firms established by Sarvodaya.	2) Direct benefits: shopkeepers (new jobs, more employment) and related workers (warehousing, clerical, transport, etc.). Indirect benefits: consumers and those producers making the village level small scale goods to be marketed by Sarvodaya. Shops are profitable. People trained to run commercial system in addition to people trained to run the shops.
ATC/SL (Appropriate Technology Group of Sri Lanka)	grant to institutionalize operational capacity to test, adapt AT hardware items	small	established ability to do field work; established office; hired field staff person.	tests and evaluates hardware technologies with an eye on commercial prospects.	hired staff members, employs persons in field to conduct studies, build biogas plants, etc. Proposed indirect benefits yet to materialize.

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - Latin America

ORGANIZATION	AIT EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS: TECHNOLOGY	FUTURE FLOW OF BENEFITS: OTHER
1) CII & VIVIENDA/CEIRAIP - Umbrella organization for gov. & PVO's in housing in DR - New, small, financially insecure - Member organizations in some cases very strong	- provided library and demonstration devices - staff development thru travel	small, BUT SIGNIFICANT	- helped strengthen organizational image by lending AII prestige and by improving impact of first public function - library and exhibits in CEIRAIP headquarters	- CII VIVIENDA members will probably improve housing technology in DR - there will be some improvement due to umbrella organization and some portion of that due to AII's small but timely inputs	
2) Dominican Development Foundation/Solidarity Groups -DDF is well established, well linked DR Foundation - Grupos Solidarios is a specific subprogram of DDF for small and micro enterprise development	Program Money Only	Minor	- DDF will obtain somewhat more micro enterprise experience somewhat faster because of AII support - DDF will have additional channels for communication with similar projects		- Somewhat more credit will be available in Santo Domingo for small enterprises
3) Women Applied to Industry - Little WID organization - New, small and well financed - Project was to capitalize commercial workers organized by WAI but run (and originally to be owned) by local, poor women	- provided operating capital to WAI - provided technical assistance on management - travel to help director define markets and product lines	large small small	- original capital was more than adequate but operating capital has been consumed in slow moving inventory - overfinancing by combination of AII and other donors may have weakened management by allowing it to avoid major problems for year	- WAI tested semi-industrial craft shops but idea will probably not be widely used by WAI in future	- almost all of the AII moneys actually provided employment for poor women - If WAI recovers from its current difficulties, there will be future employment/income benefits
4) Reforestation for Development/Center for Research on Natural Environment - The Reforest. is a very strong local foundation known for developing and spinning off subsidiaries - The Center is a small and competent Ag research center	- provided funds for purchase of herd of cattle that will be base of future hybrid cattle dissemination effort	large	- will add cattle to center's programs in pigs, fowl and fish - R&D funded by AII will improve center's staff capacity to work in cattle	- probable that benefits will accrue from Center's sale of hybrid cattle	

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - LATIN AMERICA

ORGANIZATION	ATI EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
				FUTURE FLOW OF BENEFITS	
	TYPE	MAGNITUDE	TYPE	TECHNOLOGY	OTHER
5) Association for Development/Small Industry Project - The Assoc. is a very strong local foundation known for developing and spinning off subsidiaries - The project is a new, small-industry project focused on Santiago, DR	- contacts with similar projects	small, but significant	- experience of project increases strength of project staff and increases likelihood that it can be successfully spun off from Association in future	- if organization can obtain future financing will provide transfer of software technology and stimulate indirectly hardware technology innovation	- potential facilitation of flows of credit and other financial services
6) C.Th.I.G. - Small consulting firm specialized in micro-hydro electric projects - part time employees on offices or plant, precarious budget	- made contact with U.S. venture capital firm interested in LDC energy investments - Regrowed contacts with potential clients	small	- All funding of professional services contracts with firm significantly increased corporate experience - If additional capital and managerial expertise came from U.S. private sector, major impact could occur on C.Th.I.G. capacity	- organization can market small micro-hydro-electric systems - consulting capacity could be important for RI community if increased from current 2½ person years per year	
7) Servifuenda - Church related non-profit organization with large pre-fab housing business - Several other factories and distribution centers	- Contacts with other organizations - Financed two mobile factories	small, but significant	- strengthened hardware technology capacity by funding Servifuenda to carry out R&D internally - factories in operation	- lower cost housing due to lower cost factory design and local manufacture	- employment in new housing factories - housing (potentially 400 houses per year from two factories developed)
8) Save the Children Foundation/Bhagar - SCF is an international PVO - SCF Colombia is a well established local PVO working in six localities - The Bhagar SCF project is based on a local community action group	- Financed construction and equipment of small workshop	significant	- physical facilities in place for hardware experimentation and small scale metal construction manufacture - ATI influence and financing resulted in increased SCF interest in hardware technology at probable cost to more traditional CD efforts	- potential for sale of small water-powered water pumps if technology development is successful	- potential for other small manufacturing or training program using physical plant

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - LATIN AMERICA

ORGANIZATION	ARE EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS	
				TECHNOLOGY	OTHER
6. Office of Rural-National Cooperation (consortia of 27 PVOs from capital of Colombia and, and, financially poor organizations under orgs vary from strong to weak on specific national or technical focus	All funded two member organizations to strengthen overall connection	PROBABLY SMALL	All funding provided operational funds at time when they were important to survival of org. -All top catalyst disagreement that almost destroyed org.	-potential from competitive AI project proposals to be adjudicated by groups of member orgs.	
11. Foundation for Development Education in Colombia (FEDEC) small but high prof-level-mail non-profit org on endowment but effort to stabilizing growth and contacts		SMALL	-Organization feels venture into Idaho technology was useless and will stick to education in future.		
13. Nathan Ogden Foundation (ONEF) well endowed private foundation now strong professional staff	-Funded the creation of a data base on information on rural development	Large	-card catalog now in place of materials on rural development in many of the library collections in Colombia -NOF now in position to seek more funding for more elaborate data base.	-potentially great benefits from initial access to all Colombian info. using modern data base technology. -All efforts would be responsible for portion of these benefits with others attributable to NOF and other donor resource inputs	
17. Carvajal Foundation/Small Industries Project (SICOFI) - The foundation is large, well endowed, well staffed, established organization. - The SICOFI project team is small, generally inexperienced	Project Funding ($500K) Provided By IAF		-AII helped foundation enter this area faster than it would otherwise have done, helped stimulate other donor interest. -Foundation is more involved in small enterprises and small industry technology due to success of this effort.	-slight increase in technical benefits due to early entry -significant increase due to Carvajal's greater interest in small enterprise due to success of this effort.	-benefits to income and employment from project assistance -facilitated access to credit -facilitated access to markets

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - LATIN AMERICA

ORGANIZATION	AID EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS	
				TECHNOLOGY	OTHER
23. University of Valle/ Center for Research on Technology and Employment -U Valle is a major University well known in LAC - The center is a relatively new, small organization with weak financial position and a relatively young and inexperienced staff.	-Financed library for center Center -Funded Center's participation in LAC AI network with IDRI	modest small	-Experience in project improved linkages with rural community, provided experience for staff -Library operational -exhibit of AI devices in place -linkages with other AI organizations in Colombia and outside established -dependence on AID funding may have weakened linkages with other orgs.	- uncertain	
24. Matta Malaga Institute (IMM) -This is a decade old, church related organization with a variety of community development projects serving very poor people. -The Institute is under going a management crisis related to change in leadership	-Financed the development of a proposal for business to feed pigs corn and fish waste protein supplements -Helped make contact with other organizations	large minor	-Potential for a commercial source of financing for IMM -Project provided IMM with some technical experience in agriculture -Some linkages with other organizations	-Uncertain	
25. Buena Esperanza Fisherman's Coop. -This is a fishing cooperative, not not a development org. or an intermediary -The coop is small, poor and poorly managed	-Capital investment in "mother boat" for fishing fleet	small	-All out off funds for lack of increase production in first phase of project -Project failure may have w[illegible] organization -Boat was purchased but apparently not used as intended		
26. Dept. of Women's Affairs/Bajo Piura Fishermen Coop -DAP is a government office which has been recently reorganized and lost its chief during project development -BPC is a small local organization with no income, almost no income, and only a few active members.	- Project has not started.				

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - LATIN AMERICA

ORGANIZATION	AID EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
				FUTURE FLOW OF BENEFITS	
	TYPE	MAGNITUDE	TYPE	TECHNOLOGY	OTHER
17. Caribbean council of churches/ CRSS/Caribbean AT Centre - CCC/CRSS is a large, well established development organization	-funded conference to discuss planned CRSC Will fund CRSC operational costs for initial period of existence	significant (large)	-- developed agreement among clientele and CRSS or CRTC functions	- potentially significant AT benefits flowing to various nations.	
- CRSC is a new project organization developed to help coordinate national AT efforts in the English Caribbean.					
18. AIA - private company developed to distribute, consolidate, perform products manufacture and sale.	none (\$5000 small grant was major input)				
19. [illegible] - non-profit organization to develop low cost housing - new, small, poor - motivated by change in government housing project	\$ 250 to Write A Book On Low Cost Housing Technology	None			
20. Alliance for Development/Market Business College Corp. - non-profit development organization (MICROMO) with small paid staff - Corp is small, new local organization.	Financial initial funds of corp revolving loan fund.	None			Some to micro-enterprises.

BENEFITS FROM STRENGTHENING CLIENT ORGANIZATION CAPACITY - LATIN AMERICA

ORGANIZATION	ARI EFFORTS TO STRENGTHEN CAPACITY		IMPACT ON ORGANIZATION		
	TYPE	MAGNITUDE	TYPE	FUTURE FLOW OF BENEFITS	
				TECHNOLOGY -	OTHER
21. Save the Children Foundation - Save the Children is an International NGO - SCF Honduras is a well established development organization working in 2 rural areas and the capital.		None	- experience with an additional AT project - linkages with more than 1000 women that got stoves.		
22. Association of Evangelical Churches of Honduras (AEEH)/ Zona Vocational School is an AEEH creation, largely staffed by organizations and financed externally. It is relatively new, with a strong but inexperienced staff.	Funding to create a business for the center that would produce energy equipment, and in the process provide funding for the center and experience for students.	No Impact Yet, But ATI Made Effort	- business has not been created to date.		
23. Fraternal Organization of Honduran Blacks - this is a membership organization with no staff, and a well motivated but inexperienced group of officers.	[project was cut off after 1st tranche was used for purposes other than those programmed.]				

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - AFRICA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
1.) Ibaba Iseka Solar I & II projects	- development and demonstration of solar cookers and dryers	MANUFACTURING TECHNIQUES TO LOCAL PEOPLE.		Introduced manufacturing ability for solar devices signed	- Improved technology extension know-how	- Improved R&D ability	- little diffusion of technology yet inputs to USAID renewable energy project
2.) Ibaba Iseka micro-hydro project	- Introduced English micro-hydro unit						- project appears to have failed due to inability to use electronic controls of set.
3.) REACD AT Unit	- Intended to promote development and diffusion of appropriate technology, especially benefits small enterprise						- project failed, although UNIDO has picked up funding & management.
4.) School for Appropriate Farm Technology	- diffusion of appropriate farm tools through students from school - diffusion of metal working and woodwork technology through training students.	- training in modern farm and crop techniques - knowledge of farm cost accounting and cash control			- Introduced improved bookkeeping, record keeping techniques in school		- project raises the difficulty that support of vocational education as a means of technology transfer is perhaps better supported in general by larger donors
5.) Mulindi workshop project					- Introduced accounting system for workshop		- project was strongly oriented to strengthen capacity of workshop
6.) Fisheries Dept - ferro-cement boat project	- design and testing of 3 models of motor-and-sail powered ferro-cement boats	- train selected local fishermen to operate boats		- develop and test models for boat construction	- train staff in ferro-cement boat building		- technologically interesting project
7.) LAAD	- Improve tile making technology used in region	- technical assistance to local craftmen		- Improved technical capacity of LAAD to assist tile makers	- Introduce small scale credit system for manufacturing enterprises.		- primarily small industry development project - credit should trigger technical innovation in small enterprises

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - AFRICA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
8.) AIAC	- promote energy and rural industry technology		PRIVATE SECTOR EFFORTS AT SELF DEVELOPMENT		- provide staff operating funds to allow full time operation - bring private sector into AT development process		- operational funding for Kenyan counterpart to AII
9.) National Council on Women of Kenya/ small projects fund		- designed to stimulate enterprises, primarily through grants			- original design was intended to encourage a central private sector group to develop small enterprises in rural areas		- project failed - concept was to provide community action groups with grants for projects them designed
10.) Kenya Institutes of Science and Technology/financial records and management systems		- improved systems for financial management for small enterprises			- improved financial systems for school (and improved costing system for school commercial efforts in construction, shop work, etc.) - improved curriculum in financial assistance		- interesting technology diffusion scheme
11.) KWISI		- training in textiles, masonry and carpentry			- innovation of financial system described in 10 above		- see 4 above
12.) Bura Village Polytechnic/low cost roofing project	- introduction of low cost roofing technique in this village school						- very small project
13.) KSIFI Plantation Charcoal Briquetting activity				- adaptation of briquetting technology to charcoal from small shrubs			- consultancy
14.) Kenyatta Univ. College/Building Materials workshop	- disseminated technology for low cost construction			- disseminated technology for low cost construction			- project appeared successful - moneys remain for second meeting
15.) ICR Kawangware		- intended to improve metal working, sewing and similar technology					

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - ASIA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
Diane Desa 1) Organizational Development Grant	VERY INDIRECT BENEFITS						
2) AI Metal Workshop	- devised new tools and machines in a variety of areas (brickmaking, noodle drying), design and build new machinery	- training small scale workshop people in technical areas	-subcontracting jobs to small firms; product design; entrepreneurship training; and productivity up	- built metal workshop, obtained machinery began operations	- acctg system for costing jobs	- manuals, other publications in wide use	- strong organization, strong activity
3) Feasibility Study for #4 below	VERY INDIRECT BENEFITS				- feasibility study skills folded into organization		
4) Winged Bean Processing Plant (prototype)		- demonstration of value of cultivating winged bean given a market for that product	- probable dissemination of commercial scale winged bean cultivation if market established	- devised new means of hulling winged bean, solvent extraction method for extracting oil	- knowledge of technologies in research lab, adoption of new organizational structure to deal with processing plant	- manuals, other publications in wide use	- market will determine ultimate success and replicability
Ofer Desa 1) and 2) Community Mobilizator Training and Seed Grants	- know-how: to build fishponds, check pit dalves, construct pond walls, etc. demonstration sites	- management of small activities: fish ponds, sewing, coffee production, etc.			- linkage to local supplies of know-how and training skills learned		- key is motivation training to this potentially very succesful small activity
Serendeep 1) Feasibility Studies	VERY INDIRECT BENEFITS			learned to build simple effective AI machinery e.g. soap working machinery	- feasibility study skills folded into organization	- identified key constraints as marketing	- high quality technical studies; - lead to follow-on grant in related but different area

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - ASIA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
2) Commercial Shops		- training in running small retail village level shops, acctg. systems, inventory control mechanisms			- accounting, inventory purchasing systems put in place and knowledge folded into organization		- retail system in place to counter market control by oligopolistic middlemen - market improved
Appropriate Technology Group of Sri Lanka	- improved and adapted equipment e.g. biogas digesters, water lift systems, carts, etc. being tested	- marketing systems will be tested if products appear to be commercially viable		learning to build prototypes (e.g., biogas digestors) to test and adapt	- developed a field mechanism to test and adapt AT-type hardware		- strong emphasis on commercial market; exploring potential of disseminating hardware through commercial means
Working Women's Forum	- indirectly induced innovations in small business ventures (scale, better looms, improved quality production inputs.)				- learn how to run own bank, take deposits, make loans, collect payments, etc.	- manuels and documentation very strong	- rapidly growing system, owned by slum women
Foundation of Occupational Development	- disseminate solar kiosks for selling coffee, tea -- a small business venture	- disseminate know-how to run and own a business: accounting, purchasing, credit, etc.	- disseminate entrepeneurial skills, motivational training	- innovation induced in firms contracting for construction of pre-fab kiosks	- use franchising system to spread retail business; rely on corporate (integrated) business structure	- users assumed markets to stimulate sales (eg. of milk) to kiosk owners	
Self-Employed Women Association 1) workshop (conference)	VERY INDIRECT BENEFITS	- information dissemination on how to help informal sector poor women gain access to resources					- put together major all-India conference, result in policy attention in this sector. Good publications

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - ASIA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
2) Core Support	- indirectly promoted better machinery and equipment for use by women in small businesses						- keeps institution alive during a very difficult time -- after loss of its connections with the TLA
Gram Gourav Pratisthan	disseminated use of tools (e.g., surveyor's tools, pumps, water pipe, etc.) to conserve water in mini watershed management catchment areas	- training of private extension workers; improved water management systems; protective irrigation systems			- teaching materials, techniques, etc. on better watershed mgmt techniques - excellent data systems in place; - documentation excellent		- much improved agricultural output levels
Rural Appropriate Technology Committee	- dissemination of pedal powered machinery in rural areas	- teaching how to use pedal power as appropriate		- develop and adapt hardware (pedal powered machinery) to alternative conditions	- design manuals, other documents on pedal power machinery		

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - LATIN AMERICA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
1) CII Vivienda Housing Tech. Workshop	- construction technology for self help housing disseminated			- construction technology for housing project disseminated			- workshop of high quality and well attended - stimulated broad interest
2) BUR Solidarity Groups Project		- training on use of credit for direct beneficiaries			- small scale credit systems developed - risk sharing - group loans		- project appears interesting
3) Women Applied to Industry - Semi-al Workshop Project	- minor fabrication tech. development	- management of small workshop (not successfully transferred to target beneficiaries)	- product designs developed		- management of network of decentralized semi-industrial workshops developed		- project appears not to have been successful
4) CIMPA Criollo Cattle Project	- demonstration of pens and other physical of small dairy herd in place	- range management technology for very small dairy farms being developed	- hybrid attle from locally adapted and foreign high prod. stock being developed in DR		- (of credit from g bank to field tests f technology being tried) - use of production ecords of cooperating farms for studying anl-al productivity being developed in DR	- breeding technique transferred from other latin countries to DR	- while early in project life, technical work interesting and strong efforts made to assure eventual diffusion
5) PROAFE Small Business Project	- small enterprises indirectly stimulated to improve equipment innovation by credit and mgmt training - technical assistance being given	- management training being given			- approach to mgmt training for small enterprises being developed		- project appears most interesting in terms of stimulating small enterprise innovation
6) C.Ch.I.D. Micro-Hydro-Electric Project	- micro hydro-electric systems designed and technology disseminated						- use of IDC consultants firm for technology development and diffusion interesting

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - LATIN AMERICA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
7) Servivienda	- prefabricated self-help housing technique being disseminated			- small scale (mobile) prefab housing factories developed	- experience being gained in transfer of mobile factories to other locations by sale loan and rent		- central R&D unit supplying factory tech. to other locations on reimbursable basis is particularly interesting
8) SCF Shaque Water Pump and Drip Irrigation Project	- pumps being developed - drip irrigation systems being adapted and tested for local situation						- project moving slowly - should be concern for manufacturing and marketing techniques
9) OCIT	(5 AI project designs funded under this effort are not yet available)						
10) FIRCE Biogas Generator Project	- biogas plant built as demonstration				- intent to develop training materials on waste management and recycling		- project appears unsuccessful - training materials not developed
11) FMRP Agriculture Data Base	- should eventually increase dissemination of Ag data to all users in Colombia				- manual central data base identifying holdings of all Colombian Ag libraries - (moving toward computerized data base in future)		
12) Fund Carvajal Small Enterprise Development Project	- indirect stimulus of improvement of manufacturing hardware	- dissemination of improved bookkeeping, inventory, personnel, accounts receivable, and other management techniques	- indirect stimulus of product design improvement		- training materials for small business management		- project appears most interesting as means of promoting technical innovation in small businesses
13) U Valle/CIMIE Project	- various AI units adapted and tested in rural area	- intended that rural residents would learn mgmt of small enterprises (jam making, latrine building, etc.)				- experiment with university outreach to rural area	- project appears less successful than hoped
14) Inst. Mutis Malumbe	- diffusion of improvement pig pens to rural Choco in Colombia	- small farm management approach being developed to raising pigs on taro and fish protein supplement		- processing of taro starch and chips studied but not feasible - fish waste protein supplement process being adapted			- project in difficulty due in part to changes in IMM leadership

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - LATIN AMERICA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
15) Puerto Ventura Fishermen's Coop Mother Boat Project				- refrigerated boat and storage to increase fishing yields introduced to coop			- project failed
16) IWA Dojanne Producers Coop Fruit Processing Project	- small scale solar driers to be used by coop		- technique to produce fruit pastes from locally available fruits				- project has not yet started
17) CRUSC Caribbean AI Center Project	Various hardware and software technologies are to be disseminated by a consortium of national AI Centers. The regional center is being planned to provide resources and stimulate exchanges among the national centers.						- advisory meeting was successful; plan for phase 2 in development
18) ASL Fish Protein Project	- various technologies being studied for production of protein solutions from fish wastes						- $5,000 small activity
19) FUNVIMINI Housing Project	- report reviewed low cost housing technology						- disagreement between AII and FUNVIMINI on project objectives
20) ASEPADE Credit and Management for Market Women		- management training (very simple) given to beneficiaries			- adapting and testing an approach to providing credit to informal enterprises - (group loans to lower risk and loan costs) - tied to training		- interesting project
21) SCF Honduras - Lorena Stove Project	- more than 1,000 lorena stoves built in community	- training stove owners in stove operation (poorly done by AII report)					- stoves theoretically lower firewood use but this not verified in actual home use

BENEFITS FROM DEVELOPING AND DISSEMINATING TECHNOLOGY - LATIN AMERICA

ACTIVITY	BENEFITS TO TARGET POPULATION			BENEFITS TO INTERMEDIARY			COMMENTS
	HARDWARE	SOFTWARE	OTHER	HARDWARE	SOFTWARE	OTHER	
22) RAIN Energy Technology Project	- adapted designs for water wheels, hydraulic ram pumps and windmills		- Intended to train vo school students in entrepreneurship (not successful)				
23) GRAMEN Cassava Project	- study of market for products (starch, chips, etc.) from cassava						- small project discontinued after 1st tranche because it was not on track