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EMPLOYMENT, INCOMES AND CAPITAL SAVING TECHNOLOGY

A PLAN OF ACTION OF THE AGENCY FOR INTERNATIONAL DEVELOPMENT

Prepared for the Committee on Appropriations of the United States
House of Representatives

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I. Introduction

The purpose of this report is to outline a plan of action for delivery of capital savings technology to the poor in developing countries. The report is prepared in response to a request from the House Committee on Appropriations --

" . . . to develop a comprehensive strategy aimed at accomplishing a quantum leap in the delivery of capital saving technology to the world's poor within five years and report to the Committee on progress made durings its (AID's) fiscal year 1981 budget presentation and in each year thereafter."

The request of the Committee extends beyond a relatively narrow concern with development or adaptation of a better manually operated thresher or pedal driven corn grinder. The Committee has asked that AID raise incomes of the majority of the world's poor by assisting developing countries to provide more and higher productivity employment opportunities within a fixed time frame.

Accordingly, in this report, AID has outlined an approach to development -- a program strategy that will put capital into the hands of the poor and make them aware of the potential for raising their productivity and incomes through adoption of capital saving technologies.

A. The Development Problem and Choice of Technology

Emphasis on small, low-cost, labor-intensive technology in recent years stems from dissatisfaction and frustration with the way development is proceeding.

In many countries, per capita income has grown, in some cases quite rapidly, but the fruits of that growth often have not been widely shared. Part of the explanation for this inequitable pattern of growth is investment of resources in large-scale, high-cost capital intensive plant and equipment that do not produce many direct or indirect jobs. Only a few fortunate individuals find employment in the slowly expanding pool of relatively high paying jobs available in capital intensive industry.

Looked at from another perspective, the problem of continuing poverty may stem from an inability to improve traditional production methods. The causes may be lack of resources to invest in existing alternative technologies or to explore new ones; there may be resistance to change or simply inadequate incentives to change; there may be inadequate information on new or adapted technologies. In any case, the results are economic stagnation -- and human misery--for vast numbers of people.

Beyond the concern with growth and income distribution, destructive and disruptive effects of large scale capital intensive technology on the socio-economic structures of rural societies and the environment are important forces behind the drive to disseminate capital saving technology.

In sum, the larger issue raised by the report is the feasibility of an alternative development path that rapidly raises incomes of the total work force without severely disrupting their lives and damaging the environment.

B. The Task Force and the Strategy

The Task Force aimed at a report that was simple, direct and short with a plan of action. Our approach was to identify important program elements of a capital saving technology strategy and to recommend a course of action for each element, as well as organizational responsibility for implementation of the action.

The Task Force accepted this job recognizing limits to our understanding of the process of technological choice and change; the problematic nature of drafting a strategy about a process that is not fully understood; and the difficulty of translating such a strategy into activities that would be operationally feasible for A.I.D. to promote. The general feeling of humility was reinforced by our discussions.

We did not cover every element of an A.I.D. approach or strategy and among those we covered we left the details to be worked out by those who would be responsible for action. The key to successful follow through will be implementation of the recommendations in Chapter IV, Organization and Implementation. We envisage the strategy and its elements evolving as part of an on-going process of review and evaluation of the Agency's approach to development and program activities.

The Report is divided into three major sections. The first is a brief discussion of objectives of the A.I.D. program and the determinants of

technology choice and application that program and project changes would attempt to affect. The second section presents contents of the strategy. The third section presents Agency procedural and organizational changes to implement the strategy.

II. Employment, Incomes and Capital Savings Technology

A. Objectives

The goal of A.I.D.'s development strategy is to enable the poor in developing countries to overcome their poverty. The major means are (1) promotion of effective popular participation by the poor in decision making so that their needs, desires, capacities and indigenous institutions are recognized, and given major weight; (2) assistance to the poor to increase their incomes through raising their productivity and expanding their opportunities for productive employment; and (3) increasing, by the preceding and other means, the availability of and access to goods and services useful to the poor.

Widespread delivery of capital saving technology can make an important contribution to objectives listed above.

B. Definition of Technology

A technology is the skills, knowledge and procedures for making and doing useful things. In the context of this report, technology may be broadly identified with production methods in use.

Capital saving technologies have been defined by the House Committee as those technologies which --

"(1) Economize on capital without wasting or displacing labor;

- (2) Require a small capital investment per worker, on the order of magnitude of the average annual per capita income of people in the area of the project, with variations in this amount where justified by special circumstances;
- (3) Are modest in scale, simple to install and durable in operation;
- (4) Are not dependent on a highly centralized infrastructure for production, maintenance, or repair, and are thus manageable by small entrepreneurs;
- (5) Make efficient use of renewable resources and minimize costs by combining factors of production according to their relative process and scarcities;
- (6) Meet the needs of local communities and enhance the self-reliance and local control of such communities; and
- (7) Create a process of capital self-generation and self-liquidation so as not to become continually dependent on outside sources of financing."

The essential aspects of the above definition for A.I.D. programs in the support of manufactured and agricultural goods are that the technology combines labor and capital in accordance with their relative scarcity in the community; involves the local community in its selection and implementation; and is physically accessible to small enterprises, affordable by them and locally maintainable.

In the support of services such as health and education, the essential aspects are that the technology requires low initial capital outlay compared to other methods of delivery of those services, and provides on a continuing basis at low cost a service that is easily accessible, both physically and financially, to low income persons.

C. Determinants of Technological Choice

There is evidence that impoverishment of the majority of the work force in many developing countries can be attributed in part to choice and application of technology that is wasteful of labor and capital.

Improvement in choice of technology as part of a program to assist the poor requires attention to more than development and testing of new or adapted production methods. Technology choices are made in the context of complex social, political and economic situations. A program to promote widespread delivery of capital saving technology must have as its scope the total process of development.

The question of how to affect the process or the strategy to stimulate widespread adoption of capital savings technologies is one for which there are no ready made answers. An expert witness at Congressional hearings on the subject of appropriate technology responded to the question as follows:

"You say 'What should be the strategy?' My answer is no one really knows yet. It is rather the same situation as with the automobile in 1890. If someone had said then 'Chart out the path of this new industry.' no clear answer would have been forthcoming."

(Testimony by Dr. Nicolas Jequier at hearings before the House Subcommittee on Domestic and International Scientific Planning, Analysis and Cooperation, July 25-27, 1978, p. 99.)

We list below four areas of potential activity as an aid to the discussion that follows. The program and project elements of A.I.D.'s approach to widespread delivery of capital saving technology can all be classified under one of these four headings:

- a. Macroeconomic policies and the political and social situation;
- b. Product mix;
- c. Microeconomic and local social situation;
- d. Capacity to develop, adapt, and disseminate technology.

1. Macroeconomic policies and the political and social situation

Biases in government policies that favor capital intensive technologies are frequently cited as major constraints to the introduction of capital saving technology. These biases that range from credit subsidies to allocation of import licenses to public infrastructure investments act as disincentives to investments in capital saving technologies.

Neutralization of some of these biases would help significantly in promotion of strategy objectives. Agency program and project activities that would improve the general economic environment for capital saving technology and its political and social acceptance are recommended in the next chapter under this heading.

2. Product Mix

The problem of technological change in a country cannot be considered

apart from the product or output mix of the country. Output decisions in the public and private sectors are critical in determining the range of feasible technologies. These decisions are shaped by and in turn shape the distribution of income and assets.

There are no specific proposals put forward for A.I.D. with respect to product mix. Of course, to the extent governments choose to promote programs that benefit the poor through shifts in product mix, asset or income distribution, i.e., basic health care services for rural villages or land reform, and that may result in broad application of capital saving technology, A.I.D. should be prepared to support the change.

3. Microeconomic and local social situation

The first two categories cover programs and projects primarily national in scope and effective for the poor indirectly. These are important. At the same time, a capital saving technology approach should include programs and projects aimed primarily at the village or enterprise level and effective through direct contact with the poor or organizations that benefit them primarily. The success of a capital saving technology approach to development depends on strong and expanding village or community institutions and small scale private enterprises. These are the organizations that will demand capital saving technology and benefit from its application the most.

The main types of programs and projects covered under this heading are activities to improve access to resources of all kinds -- information, credit, markets, skills training, legal advice, etc. -- for enterprises and community organizations that have tended to be denied access. The underlying assumption is that small enterprises, which tend to use less capital and more labor per unit of output, can be assisted to achieve self sustaining growth through improved access to resources that already exist in the community or can be made available with external assistance.

4. Capacity to develop, adapt and disseminate capital saving technology

The supply of technology available to entrepreneurs seeking to change over from traditional technologies will likely have originated in developed countries. These technologies for the most part will have been designed to meet the present conditions of the developed countries. In these circumstances, in countries with weak capacity to adapt technology or develop indigenous technology, relatively capital intensive technologies may be adopted by indigenous enterprises that are not well suited to the countries' resource endowments or markets. To ensure survival of local enterprises against potentially ruinous international competition, elaborate institutional structures and policies may be established that effectively provide subsidies to the local enterprises and foster others like them. Continued over the longer term, the costs to society, and especially the poor who lose jobs and pay more for goods and services, can be staggering.

In the above context, support of capacity to develop, adapt and disseminate technology to meet the specific conditions of developing countries can make an important contribution to a capital saving technology approach to development.

Information dissemination on small scale, low cost technologies is not very well developed. Information dissemination activities ranging from international technological exchange systems to extension services and demonstration projects are among program and project activities covered under this category.

Also covered under the heading of development, adaptation and dissemination of capital saving technology are activities that add to the number of existing technologies adapted to developing country condition or developed specifically for them. Included are programs and projects to provide assistance to developing country research and development institutions and other organizations engaged in development of alternative technologies for developing country conditions.

5. Concluding Comment

Program activities designed to improve technological choices in order to meet employment and income objectives must be determined in the context of country development strategies and conditions. The broad categories

or areas of activity listed above are intended to help organize the discussion of possible A.I.D. program activities that follows. The degree and type of support in each area will be determined by the needs of individual countries.

III. Comprehensive Strategy Program Content

The A.I.D. approach or strategy to increase delivery of capital saving technology will include activities in each of the broad program categories listed in the previous chapter. The emphasis in this report will be on activities most in need of strengthening and new activities. Where the level of activity is adequate it is passed over or touched on only lightly. For example, the Agency at present provides considerable support to developing country institutions engaged in development, adaptation and testing of capital saving technologies through programs such as A.T. International, the International Rice Research Institute in the Philippines and an "Improved Rural Technology" project in Africa. Accordingly, there is neither much discussion of activities in this area nor specific recommendations for action. By contrast, while the Agency supports non-farm, small scale enterprise projects, especially through private voluntary organizations, we concluded the Agency should increase support of activities in this area. Accordingly, there is extensive discussion of assistance to non-farm, small scale enterprise and recommendations for action to increase activity in this sector.

A. Objectives of the Capital Saving Technology Strategy

The question the Task Force started with was "Technology for what

purpose?" We agreed at the outset that delivery of technology must be approached from the perspective of its potential contribution to employment, incomes and basic services for the poor and not as an end in itself.

Recognizing that capital saving technology can make a significant contribution to increased employment, incomes and basic services for low income families, what objectives can the Agency set for itself in this area over the next five years?

The Agency, through a program of research, education and policy advice, should aim to foster an open attitude toward the choice of technology in developing countries. ^a In attitude based not on declarations "for" or "against" capital saving technology, but on empirical evidence of what technology can do for employment, incomes and basic services for the poor.

The potential contribution of small scale, non-farm enterprises to development objectives is an important one. The Agency should, with other organizations, aim over the next five years to help developing country governments recognize the potential contribution of this sector to development objectives; assist in providing an environment less hostile to its growth; and help establish new programs of support and assist in expansion and improvement of existing programs in this sector.

The larger question of A.I.D.'s contribution to employment, incomes and basic services for low income families through a capital saving technology program is a difficult one ^{to answer} ~~one~~. It is a persistent question that will not go away. Can we show at the end of five or ten years that the majority of the poor in the host country are in some way better off than they would have been in the absence of an A.I.D. country program?

What is the reasonable expectation for the real rate of return on investment of A.I.D.'s development assistance. 5%? 10%? Can we even measure the rate of return? What is the gestation period and life of these investments? How much of it will accrue to the poor? 50%? 70%? 80%? What are the implications of this type of analysis for the A.I.D. contribution to the poor in a country of 30 million with the target group the bottom 40% and an A.I.D. program of 30 million dollars?

The Task Force does not have answers to the question of targets. The Missions are familiar with the country problems, their programs and available data sets. We urge Missions to consider what qualitative and quantitative measures can be devised against which country program contribution towards employment, income and basic services objectives can be measured.

B. Macroeconomic Policies and the Political and Social Situation

A recurring question in the development of a program strategy for delivery of capital saving technology is the priority to be placed on the developing country policy framework. Can a program that focuses on delivery of low cost, labor intensive technology make much headway in the face of an institutional framework that is biased towards capital intensity in productive activities? The answers we have are not very encouraging in this respect. They were summed up a few years ago by one economist as follows:

"while it may be possible to stimulate production without a redirection of government policies, this appears to be unsustainable in the absence of changes in relative factor prices and increased competition in product markets." ✓

The A.I.D. approach in recent years to macro policy issues might be characterized as an "implicit" or "bottom up" approach. To the extent the Agency has become involved in broader policy issues it has been through issues that have surfaced in the course of design and implementation of projects. This approach generally is seen as the natural result of a declining level of A.I.D. resources (financial leverage) and a new collaborative, non-interventionist development style. Taking the new A.I.D. style as a positive development--there is still a great deal that can be done to create an environment more conducive to dissemination of capital saving technology.

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The Task Force believes high priority should be given to activities that directly address the macro-economic and social policies that bias choice of technology in a capital intensive direction. An increased level of activity in this area could be accomplished by at least three types of programs: (1) policy and program oriented analyses of choice of technology in specific developing countries; (2) programs of communication and education, e.g., publications, workshops, films, etc., and (3) policy advice as requested.

1. Policy oriented analyses of choice and application of technology

In the world at present there are not many persons or groups engaged in serious economic and social analyses on choice and application of technology issues aimed at improving our understanding of the factors that affect decisions on choice and application of technology. In the U.S. there are probably no more than a dozen or so first rate researchers who have done policy oriented work in developing countries on these issues. Generally, A.I.D.'s support of research in this area has been weak.

Among questions one might want to know about to better formulate macro and sectoral policies are the sources, costs and process of information search by entrepreneurs in developing countries; productivity and cost estimates of alternative technologies for specific products in different settings; program or aggregate impact on employment, incomes,

environment and status of women of alternative technologies; how such factors as "modernity", perceptions of evolution of technology and risk enter into decision-making and how they affect promotion of capital saving technology. The above are in addition to analysis of macro-policies on raw materials allocation, labor markets, interest rates, fiscal policies, etc., as they affect diffusion of capital saving technology.

Recommendation: The Agency should formulate and undertake an expanded program of socio-economic research on choice and application of technology in developing countries¹.

Action: DSB and PPC in cooperation with ISTC and NSF

2. Programs of communication and education

As much as capital saving technology may be associated with small scale, locally maintainable pieces of equipment with low import content and sold at low prices, the term capital saving technology is mainly an expression of an approach (or several approaches) to development (and the human condition). There is a need to communicate on a continuing basis the underlying rationale for promotion of capital saving technology and the knowledge we have gained about such technologies, including failures and successes in the promotion of them.

A.I.D. could be more active in helping to promote exchanges of views and dissemination of information about the concept of capital saving

technology among policy makers in developing countries. While A.I.D. has participated in a variety of workshops, conferences, seminars, etc., the Agency has not taken a lead role in organizing and funding exchanges of views in developing countries on issues relating to capital saving technology. Efforts to improve the policy environment for dissemination of capital saving technology could be facilitated by such activities.

Recommendation: The Agency should take a more active role in organizing and funding workshops, seminars, conferences, and dissemination of publications aimed at exchange of views among business, academic and political leaders in LDCs on capital saving technology.

Action: DSB, PPC and PDC in cooperation with ISTC

3. Policy advice

Experience of the past decade has shown receptivity in a number of developing countries to policy advice to help achieve employment and income objectives. For example, the ILO has fielded nearly a dozen high level employment policy advisory missions at the request of governments such as Kenya, Colombia, Sudan, Sri Lanka, the Philippines and the Dominican Republic. Also, A.I.D. now supports a longer term

employment policy project in the Dominican Republic. The purpose of the project is to help establish within the Government capacity to formulate policies and overall strategy relating to national employment objectives.

An important aspect of policy advice on employment is to review investment programs and government policies from the perspective of their impact on the labor intensity of production and to recommend programs and policy changes that will better meet government economic and social objectives.

A.I.D., with the World Bank, UNDP, ILO and other institutions could make known their willingness to support long term programs of technical assistance to developing country governments to help them build their capacity to develop policies and programs that will more fully take into account employment objectives.

Recommendation: The Agency, in coordination with other organizations that provide technical assistance on employment policy, should formulate and implement a program to make such assistance available to developing countries on a long term basis.

Action: A.I.D. Missions with DSB, PPC and OLAB

Concluding Comment

The activities recommended in this section of our report may strike some as far removed from assisting in a quantum leap to deliver a better hand pump or grain storage bin into the hands of low income farmers within five years. Several points need to be made in this respect.

First, one of the major problems of widespread delivery of capital saving technology is that we barely understand how the system works and even less so how to change it. The political economy of innovation in capital saving technology has yet to be worked out.

A second point is that macro policies do make a difference. Taking into account differences in resource endowments between the countries, just compare impact of quite dissimilar land reform programs and import substitution policies on capital intensity of production, employment and incomes of the poor in Taiwan and the Philippines.

A third point is that the program in this section is not strictly limited to macro policy activities. It might be better characterized as a program of research, education and policy advice aimed at achieving employment objectives through improving the general climate for delivery of capital saving technology.

A fourth point is that the recommendations in this section of the report must be seen as a package. Failure to commit resources to any of the three components seriously weakens the program as a whole.

Finally, the Task Force gave some consideration to a suggestion that Missions provide financial support to assist developing countries to introduce macro policies and programs that would facilitate delivery of capital saving technology. The kind of project that came to mind was the financial and technical assistance we have provided in the past to help implement land reform programs. An example that came up in our discussions was the inordinately high import duties on sewing machines that were taxed as consumption rather than investment goods in a certain West African country. The very high cost of the machines limited entry and kept down productivity and incomes in that trade. A program of limited financial support might be proposed to cover the difference between duties on consumption and investment goods. Another example was a project in Bangladesh to assist with manufacture of hand pumps which is not proceeding as rapidly as anticipated because of raw materials allocation problems. The Mission has suggested project funds be used to finance imports of required raw materials. Limited financial assistance of this type that supports introduction of capital saving technology, and might possibly lead a government to reconsider the policy in question, could be a useful part of a capital saving technology program. The Task Force did not formulate a recommendation on this point because we see this as highly country specific type of project activity that will as often as not relate to a unique institutional situation in the country. The Task Force urges Missions to be alert to these opportunities and consider project support of this type.

C. Microeconomic and Local Social Situation

The major emphasis of the Task Force in the area of program content was on development of the small scale enterprise. Greater activity in this area lies at the heart of a program aimed at increased employment and incomes for the poor. Further, the small scale enterprise is the primary consumer of capital saving technology as well as a potential producer.

And beyond the benefits to the enterprise, the community-at-large will benefit by the contribution a capital saving technology approach can make to establishment of broad based capacity to participate in and propel forward the structural transformation of agrarian societies.

1. Non-Farm Small Scale Enterprises

A great deal has been written over the past few years about the role and potential of non-farm, small scale enterprise in development. In this report we will lay out in summary fashion arguments underlying our recommendations for increased activity in this sector. To the reader who is interested in pursuing the topic further we recommend the following papers which we drew upon heavily in preparation of this section of the report:

E. Chuta and C. Liedholm, Rural Non-Farm Employment: A Review of the State of the Art, M.S. U. Rural Development Paper, No. 4 (East Lansing, Michigan State University, 1979). Prepared under terms of an A.I.D. grant;

Samuel R. Daines, et. al., Agribusiness and Rural Enterprise Development, (Washington, 1979). Prepared under contract for A.I.D.;

Malcolm Harper and Tan Thian Joon, Small Enterprises in Developing Countries, Case Studies and Conclusions (London: Intermediate Technology Publications, Ltd., 1979).

In addition, ILO, UNIDO and the World Bank have published very helpful documents on non-farm small scale enterprise.

In recent years many governments and donor agencies have shown increased interest in development of non-farm small scale enterprises. The conventional wisdom of a decade or two ago largely ignored this sector. The small scale enterprise sector was viewed as a holding place or a "reservoir" of workers marking time until jobs opened up for them in the high growth, high productivity modern sector. Promotion of non-farm small scale enterprise was considered akin to promotion of widespread sharing of poverty.

The conventional wisdom has changed. The explicit emphasis on jobs as the surest means for raising incomes of the poor, and the slow growth of employment in the modern sector, led to a closer examination of the non-farm small scale sector. Researchers found that it is an important source of employment; wages and earnings are on average ~~higher~~ higher in this sector than in farming; and the sector is growing. Further, the enterprises are generally more labor intensive and generate more output per unit of capital than their larger scale counterparts.

Controversy continues about the economic efficiency of the sector. The survival, growth and profitability of many small scale enterprises in the face of policies (import licenses, raw material allocations, access to subsidized credit) that markedly favor large scale enterprises suggests sweeping generalizations on a trade-off between growth of employment and growth of output implicit in support of small scale enterprise will not hold up very well under close scrutiny. Empirical evidence collected from case studies over the past decade support the possibility of increasing both employment and output in selected product lines through promotion of non-farm small scale enterprise. In summary, dynamic, labor intensive, small scale and relatively efficient enterprise systems exist in many countries. Their expansion can make an important contribution to employment and income objectives.

Recommendation: The Agency should increase support of non-farm small scale enterprise projects

Action: Agencywide

a. Non-Farm Small Scale Enterprise Projects

The types of activities the Missions might undertake to promote non-farm small scale enterprise are discussed briefly below. There is no particular mystery as to what these activities are. The main problems remain for the Missions (a) to analyze the needs of the situation in the host country and (b) how to work with the host government and the private sector to ensure effective implementation.

Government Policies

Governments need to examine carefully ways in which policies may impinge on small enterprise in order to avoid unintentional discrimination which often happens when regulations are basically conceived for large firms. The type of project activity that might be developed in this area have been discussed already in the section on Macroeconomic policies and the political and social situation.

Credit Programs

Credit is often a problem, though not necessarily the main problem of small scale enterprises. Enterprises can be helped in this area by obtaining greater accessibility to fixed and working capital.

Institutional possibilities for extension of credit include establishment of a small enterprise finance corporation; establishment of a small enterprise credit line within an industrial development bank; establishment of a small enterprise fund for on-lending through commercial banks; establishment of local credit unions and cooperatives. Additionally, a number of experimental approaches to make very small sums of money available are being tried out by donors and private voluntary agencies.

Extension Services

An extension service should enable persons working in small enterprises to improve their managerial, technical and vocational skills and to help them analyze their needs and problems. Such assistance is often offered along with credit.

Product and Technology Development and Adaptation

Development and adaptation of products and production techniques is often done by small enterprises to their advantage. However, their resources including time available for these types of activities is limited, certainly as compared with very large enterprises. There may be some utility to the small scale enterprise in establishment or improvement of existing product and technology development institutions. Such institutions or centers could upgrade existing technologies, scale down and adapt new technologies, and help with product design.

Other Programs and Project Activities

The preceding is not an exhaustive listing of the types of activities that can support non-farm small scale enterprise. Infrastructure development and information services are discussed in other sections. Promotion of marketing assistance; provision of direct extension services such as can be provided through the International Executive Service Corps and Peace Corps; and supply of raw materials are other areas in which Missions could develop projects.

b. A.I.D. Resources

The Agency has in-house resources available for technical support of non-farm small scale enterprise projects. There are also private voluntary agencies active in this area that could be contacted by Missions to help out in project formulation and implementation.

Most of the in-house capacity is lodged in the Development Support Bureau. In DS/UD there is an experimental program to develop capacity to deliver credit in very small amounts to micro enterprises using AITEC as an intermediary (Michael Farbman, project monitor). In DS/ST there is a program to develop capacity to provide technical assistance to small firms in management, production techniques, marketing, etc. using Georgia Tech as an intermediary (Roger Moeller, project monitor). In DS/RD a program to develop capacity to analyze the non-farm small scale enterprise sector and make program recommendations is being carried out by Michigan State University (Cliff Barton, project monitor). In DS/AGR a program to develop capacity to identify and design off farm small scale enterprise projects is being carried out using Practical Concepts Incorporated as an intermediary (William Rodgers, project monitor). In addition to the above technical support capacity, the Agency funds a number of private voluntary organizations such as Partners for Productivity, Technoserve and Action International/AITEC that are active in this area.

c. Concluding Comment

The Task Force was unanimous in its support for an expanded program of support for non-farm small scale enterprise. At the same time, the Task Force was also insistent that this report raise as an issue the potential conflict between the Administrator's Guidance for preparation of the FY 82 CDSSs and the recommendations of the Task Force's report in the area of non-farm small scale enterprise.

The CDSS guidance recommends concentration of country programs in a limited number of sectors. While not necessarily inconsistent with this guidance, the Task Force's emphasis on a new sector of activity is not likely to help achieve the Administrator's objective.

The guidance recommends fewer and larger projects. The Task Force is of the opinion that the size and strength of developing country intermediaries in this area will make it difficult to undertake large projects at the outset. In sum, there may be conflict between the message to concentrate country programs on a few larger projects and increased delivery of capital saving technology to small enterprises.

2. Small Farm Enterprises

A.I.D.'s most important client group, in terms of projects and finance, is composed of proprietors of small farms. In an overall effort to improve the productivity and income derived from these family farms, technological improvement is a necessary and frequently supported program component.

Contrary to naive but popular misconception, the management of a family farm in a developing country often involves a large amount of technical information, and very serious choices among alternative productive and conservative activities. Thus, the farmer chooses crops to plant, and seed varieties for each crop; he manages soil resources (often with poor soil on difficult terrain); he manages his water resources; he

selects capital investments, including those related to tools and equipment and those relating to buildings and physical infrastructure; he makes storage, processing, transportation and consumption (cooking, clothes making, etc.) technology decisions.

The key to A.I.D.'s small farm technology strategy is to understand the constraints limiting income and productivity of that target population. Constraints limiting small farm production have been discussed often. They include (1) lack of input markets where farmers can buy good seed, fertilizer, pesticides, and tools; (2) lack of output markets where farmers can sell high-valued farm produce; and (3) lack of resources such as labor (at peak season), water, land or operating capital.

As part of a capital saving technology strategy, A.I.D. will make a far more serious effort to identify and ameliorate technological constraints to small farm productivity. Where it appears that significant improvements can be made in small farm income and productivity by improving the techniques used by the farmer, small farm technology projects will be undertaken.

The fundamental approach will be to create a self-sustaining process by which technological improvement will continue to occur rapidly at the grass-roots level. Further, it is believed that such a self-sustaining process depends on the accumulating power of small farmers themselves to make their own decisions and to benefit themselves from their increasing productivity.

A.I.D. projects will normally finance institutions that enable small farmers to improve the technology they use. For example, depending on the specific circumstances limiting technological efficiency, a field project may fund:

- (a) The start or improvement of a small farm extension service to provide technological advice and information to the farmer.
- (b) The start or improvement of appropriate financial institutions to help small farm communities mobilize savings, or obtain credit or insurance, which in turn are judged to be required to enable adaptation of new and improved techniques.
- (c) The creation of channels of communication and social approbation for small-farm technical improvement, such as are traditionally provided by county fairs in the U.S.
- (d) The creation of systems for the marketing of farm inputs (seed, fertilizer, pesticides) embodying improved technology where these are judged necessary to promote small farm technical improvement.
- (e) Organization of formal or non-formal technology training programs to assure that small farm managers and farm laborers have the necessary skills and knowledge to adopt available improved techniques and, if possible, have the necessary habits of thought to allow early adaptation.

In general, each of these efforts will in turn be organized in a way consistent with the capital saving technology strategy. That is, labor intensive techniques will be stressed, with small enterprises, local participation and decentralization emphasized.

Recommendation: A.I.D.'s rural development programs should utilize the potential of technological change to increase small farm productivity and income. These programs should foster self-sustaining grass-roots processes of small farm technology improvement.

Action: Agency wide

3. Physical Infrastructure Support

The Task Force did not prepare specific recommendations in the area of infrastructure support as part of its capital saving technology strategy. However, it is important that AID continue to fund infrastructure as part of a capital saving technology approach to development.

Normally infrastructure projects will consist of smaller scale infrastructure though networks may cover larger areas. Access roads, irrigation systems, water control facilities and distribution mechanisms for electric power are in many cases crucial as prerequisites to the attainment of objectives of increased food production and income for small farmers and growth of non-farm employment. AID has an important

role to play to ensure that infrastructure that would otherwise be neglected, and is required to provide productive employment opportunities and incomes for the poor, is constructed. Infrastructure programs, especially the types AID mainly supports, should afford an opportunity to introduce light capital technology.

Additional discussion of the Agency policy on infrastructure can be found in AID's Agricultural Development Policy Paper (June, 1978) pp. 41-55.

D. Capacity to Develop, Adapt, Select and Deliver Capital Saving Technology

1. Support of development adaptation, testing of Capital Saving Technology

A.I.D.'s explicit program for promotion of capital saving technology has centered primarily on expanding the supply of available capital saving technologies. In particular, numerous projects have been funded that support identification, development, testing and dissemination of capital saving technology tools and equipment.

For example, in Haiti a project has been developed which will explore adaptation for local manufacture and utilization of about eight technologies such as small windmills, solar cookers, hand tools and

food storage units. In Asia, the International Rice Research Institute's farm mechanization program based in the Philippine^S has been extended to Thailand and Pakistan. Tools and machinery developed in the Philippines for wetland farming will be adapted for dryland farming and local manufacture in the two countries. In Indonesia an appropriate technology project will explore a variety of low cost technologies in areas such as water use, power, crop storage and small scale manufacturing. In Africa, a regional improved rural technology project will provide an exchange of technological information and rapid consideration and funding of small scale experimental projects such as irrigation pumps, animal drawn farm implements, and vegetable oil presses. Also in Africa, several experimental and demonstration projects of small scale energy sources for village needs are underway or planned.

The types of projects described above are an important part of a capital saving technology strategy. A.I.D. will continue to fund and develop these types of projects as part of a broader effort to deliver capital saving technology. At the same time, there will be much greater emphasis on actions needed to move capital saving technologies from the prototype stage into the mainstream of economic activity. Indeed, the objective of this Report is to bring about an awareness that a

capital saving technology approach to development requires actions beyond experimental adaptation of existing equipment or attempts to develop new indigenous technology.

2. Information Exchange

Information is an important resource for development. In the specific context of a capital saving technology strategy, availability of information on alternative capital saving technologies is a critical element for achievement of strategy objectives.

Preliminary results of a survey by Volunteers in Technical Assistance (VITA) indicate that a broad consensus exists among institutions engaged in development and promotion of small scale, low cost technology that a resource base or information network is needed for dissemination of information on these technologies. Whereas information on technical developments in product lines such as steel, aircraft, and automobiles move rapidly over thousands of miles to many end-users, comparable information on capital saving technologies is not often disseminated rapidly or widely. The costs of the absence of this capacity are not only duplication of effort in adaptation and testing of technologies, but also loss of production and incomes among potential end-users because dissemination of a more productive technology was delayed, or perhaps never delivered.

AID has contracted with VITA to carry out a study on the feasibility of a worldwide capital saving technology information network. The purpose is to provide access to the specialized forms of technical information and resources required by capital saving technology practitioners. The networks under consideration (1) must be able to respond to its users' needs; (2) must be affordable; and (3) users must see how it can be important to them in terms of dealing with everyday problems they face.

In the course of the feasibility study, more than 1,500 organizations identified as practitioners in the field of capital saving technology will be surveyed by mail and onsite visits. The purpose of the survey will be to determine interest in the idea of the network and participation in it; current information use and needs; and recommendations on the content, operation and structure of the information network.

Assuming potential participants respond favorably to the idea of a network, VITA will prepare a proposal for establishment and implementation of worldwide information network.

Such a network would involve mobilization of resources at the international level and especially at the regional and national level. The feasibility study will be completed by April, 1980.

Recommendation

If the response to the idea of an information network as presented in the

VITA survey is strongly positive and if VITA, based on the response of interviewees, prepares a sound and actionable program of action for development of a capital saving or appropriate technology network, A.I.D. should lead an effort to mobilize financial resources to support the network.

Action: DSB

3. Extension Services

The topic of extension services for non-farm small scale enterprises was taken up very briefly in an earlier section of the report. This section focuses on agricultural extension services.

The body of agricultural technology has been tremendously improved by the international agricultural research centers and by other research activities over the past two decades. In the ten-year period (1965 - 75), rice and wheat production on between 40% and 60% of the LDC farm land shifted from traditional varieties to high yielding varieties that were developed by the international centers. There is other technology available now which would also increase yields on small farm enterprises. Much of this technology is somewhat more complex than the substitution of high yielding varieties. The absence of effective extension services is a constraint to the acceptance of this improved technology.

During the '70s several new initiatives for technology transfer to small farmers have had varying degrees of success. The most successful of these has been the Training and Visit System which was applied to the extension service in Maharashtra State of India with considerable success for a broad range of technologies. The Training ^{and} Visit System ^a is a carefully structured approach to the organization and operation of a conventional extension service which defines clearly the task and organizes the staff for accomplishing that defined task. The essence of the approach is more adaptive trials on farmers' fields.

The extensive, on-farm adaptive phase offers a number of advantages as an extension program. First, the continued involvement of the researchers who are familiar with the technology ensures that the farmers' plots are managed according to the requirements of the particular technology. Second, and perhaps more important, the farming community can actually see the technology in their own community rather than see pictures of it used in some remote location on a large experiment station. Third, the researchers become better acquainted with farmers' problems and the extension workers are better informed on the new technology and variations in its use within the range of local farming conditions.

In the application of this adaptive-research extension technique, the selection of farmers is done jointly with the extension agents. The result of this closer working relationship between extension agents and researchers has been a marked increase in the rate in which new technology is utilized in the neighboring small farm enterprises.

In implementation on a major scale, the Training and Visit System for technology transfer can be applied at modest cost-per-farmer when the system is properly managed. The system relies heavily on progressive farmers and intermediate skills for achieving the extensive impact which makes it the most cost-effective approach that has yet been developed for technology transfer to small farm enterprises.

Recommendation: Work should be continued to refine the Training and Visit System in order to further improve effectiveness and reduce costs of extension programs.

Action: Agencywide

4. Producers of Capital Saving Technology

Small-scale enterprises that use capital saving technologies may also be producers of some of these technologies. A village blacksmith is an example of a potential producer-consumer of capital saving technology. Program action recommended in an earlier section of this report on non-farm small-scale enterprise would cover activities designed to support these enterprises.

However, the production of some small-scale, low cost tools and equipment may be best accomplished by large firms using relatively capital intensive production methods. To the extent this is the case, AID may play a useful role by stimulating interest among such firms in the potential of the market for capital saving technology. An example of this type of project is an Asian Regional project that funded Georgia Tech to act as an intermediary to promote small-scale, low cost prototypes among manufacturers in Southeast Asia. In addition to making available prototypes to manufacturers for which royalty payments were not required, Georgia Tech also provided technical assistance for adaptation and production of the prototype by individual manufacturers.

In the course of Task Force discussions an idea or two for projects surfaced that might be of interest to the Agency. One suggestion was a proposal that where small size of country markets mitigate against low cost production of capital saving **technology** equipment, that AID promote the production and distribution of the equipment on a regional basis. A project of this type would involve support of manufacture of the tools or equipment in a country in the region and assistance with promotion of the product in the region.

Another suggestion to the Task Force was that AID support development of standardized small scale plant and equipment for production of low cost farm tools and processing equipment. The proposal stressed that

this "modular" approach to production of capital saving technology equipment would be responsive to a focus on small-scale enterprise, capital saving technology and widespread replicability. The underlying idea was that management, maintenance and production costs could be minimized by "a process of standardization in which we have, from Singer to MacDonald, acquired outstanding expertise." While production of low cost farm tools and equipment in scaled-down plant may not be subject to the level of standardization envisaged in the proposal, the idea of development of standardized plant with systematic adaptation to site specific conditions and product requirements is not far-fetched and, indeed, has been done notably by Philips of the Netherlands. AID might want to explore possibilities in this area with the U.S. private sector.

Recommendation:

The Agency should increase support of projects to promote manufacture of capital saving equipment and tools in developing countries.

Action: Agencywide

5. Construction Technology Programs

a. Light Shelter Construction Technology

It is proposed that A.I.D. begin a modest program to improve the technology used in small building construction. Such construction fills a basic human need for shelter, while providing productive employment.

A.I.D.'s relatively large housing (investment guaranty) program, and building of schools, health posts and other small public buildings, provides leverage necessary to encourage diffusion of improved technologies.

Significant improvements in construction techniques are possible in developing countries, and are probably achievable at relatively low cost. Building practices in LDCs often use materials of poor quality and high price, and finished buildings may be unsafe.

There are a variety of ways in which technology can be improved:

- Small building designs can be improved. For example, improvement can be made in use of passive energy systems to maintain room comfort, in fasteners or structural design to increase building safety in high winds or earthquakes, or in improved floor plans to increase operational efficiency of schools or health posts.

- Construction materials can be improved, as through the substitution of low cost, locally produced roofing materials for imported corrugated metal roofing, through the substitution of locally produced stabilized earth bricks for more expensive fired brick, or through the use of sulfur surface bonding materials to reduce construction time and effort.

Capital savings techniques in A.I.D.-managed construction

When A.I.D. finances the construction of small buildings (markets, cooperative or agricultural extension offices, industrial parks, etc.), the construction should be carried out within the context of the capital savings technology strategy. Specifically, additional funds should be allocated to assure that the activity promotes capital saving technologies through providing experience and incentives to local builders to use these technologies.

Accordingly, local contractors should be employed wherever possible, and technical assistance and training provided to the contractor and workers as necessary. Efforts should be made to build with local materials, and to utilize designs appropriate to local needs, conditions and culture.

Housing Investment Guaranty Program

A loan or grant-funded project to improve construction technology could accompany housing investment guarantees. Project design

would depend on local circumstances but representative project elements include:

- Strengthening housing technology extension services available to self-help builders, especially through improvement of teaching aids and instructional materials.

- Strengthening of small building material manufacturing capacity, through improving standards, extension services, financing systems, training courses, or capital equipment availability.

- Strengthening indigenous capacity to develop or adapt construction technology, such as in construction research laboratories.

It is particularly important that the leverage offered by the U.S. funding be applied to assure host country policy changes favoring capital saving construction technology, and to encourage the diffusion of the technology by helping to create markets for them.

Recommendation: A.I.D. should utilize its housing investment guaranty program and its construction of small buildings to provide the policy and financial leverage and the examples necessary to improve shelter technology in developing countries. For this purpose, funds for technology improvement should be incorporated in A.I.D. construction projects.

Action: DSB

b. Rural Roads and Irrigation Systems Construction

In the short term, expansion of efficient labor based construction of rural roads and irrigation systems is one of the means by which significant increases in employment and incomes of the poor can be achieved. Each year AID funds many million of dollars of rural roads and irrigation system projects. Evaluation of the feasibility of labor based construction on these projects and, where recommended, implementation of the projects using labor based construction methods could be an important part of a capital saving technology program.

Several years ago, a program manager with responsibility for roads or irrigation projects could justifiably claim that there was too little understanding and information about labor based construction technologies to properly evaluate them. This is no longer the case. The research of the World Bank and the ILO, over roughly the past decade, has provided us with the basic methodologies and information that make it feasible for us to evaluate labor based as well as equipment based construction technologies for rural roads and irrigation system construction projects. We now have careful analysis of data and experiences at the project or site level and also at the program level. In order to capitalize on the experimental studies and demonstrations of the past decade we need to promote labor based construction technology through projects and programs.

In low income countries the systematic, cost effective and large scale utilization of unskilled labor to build rural feeder roads of comparable quality to machine built roads can be accomplished with good management and proper works incentives. Obviously, there are conditions where machines will be preferred to labor based construction methods such as in countries where effective wage rates are more than \$3 or \$4 dollars a day or unskilled labor is unavailable; where management and supervisory skills are scarce and cannot be trained for the program; and where a government is set against labor based methods. Also, the feasibility of labor based methods will vary widely with the type of construction project. For example, labor based methods will be less feasible on a sealed surface road than on a gravel road; on a large unlined canal than on a small unlined canal and on masonry dams than earthfill dams. The suitability of labor based methods will also vary with site conditions such as terrain, soil density, and the work area and the task.

If we are willing to explore feasibility of labor based construction methods with an open attitude and by disaggregating the construction job into separate tasks, more labor can be used than at present without sacrificing quality of the physical asset or incurring greater economic costs. We have evidence to show that labor based

construction can be done and done well. It is crucial in this regard that a labor based construction program be conceived of and handled as part of a construction program and not a make-work or welfare program. The benefits of such a program will be more jobs and incomes for the poor as well as additional skills and a fully productive physical asset produced in a timely fashion.

Recommendation: AID should draw up a list of countries in which the "a priori" judgment of the Agency is that rural roads or irrigation projects will be built using primarily labor based construction methods.

Action: DSB with PPC and Regional Bureaus

Missions proposing to undertake a rural roads or irrigation project in countries on the list, and not wishing to develop a labor based construction program, will have to show why labor based methods could not be utilized for earthmoving and related tasks.

E. Multi-Purpose Projects and Programs

Quite a few programs and projects that are part of the strategy have multiple purposes. Some of these cannot be easily categorized under single headings listed above. Among these are AID general support grants for private voluntary organizations, country programs taken as a whole, and projects designed to promote a particular capital saving technology from the development stage through to its application by end-users.

1. Private Voluntary Organizations and Peace Corps

A key aspect or element of a capital saving technology approach to development is increased participation of the poor in the development process. Many private voluntary organizations (U.S. and developing country) and the Peace Corps (as well as similar developing country organizations) have accumulated experience and possess special talent for working directly with poor persons in developing countries. Many of these organizations also have as a central purpose of their program or projects introduction of improved low cost technologies for production of goods produced by the poor and basic services consumed by them. Their commitment to equity as well as to economic development, their own substantial resources and ability to draw on other affinity groups for collaboration commend these types of organizations for a major role in a capital saving technology approach to development.

Recommendation: The Agency should increase support and utilization of private voluntary organizations and the Peace Corps for delivery of capital saving technology.

Action: PDC and Missions

2. Country Program to Disseminate Capital Saving Technology

The House Committee proposed a massive program of capital saving technology in a few small countries "to deliver to all small producers in

such countries within five years a set of tested and effective technologies designated to increase productivity and incomes."

The A.I.D. country program must be at the center of a strategy for delivery of capital saving technology. With this in mind, the Task Force asked itself what ideally would be the substance and style of a country program oriented toward delivery of capital saving technology.

Program Objective: An AID country program oriented toward delivery of capital saving technology would be guided by the same general goal of raising employment and incomes of low income families as the rest of the Agency program. The specific objectives of A.I.D. country programs have to evolve from requests of host governments and subsequent inter-action with them and private and public organizations in the countries. In this context, in the same way that AID Missions now make known availability of support for agriculture, education, population projects, etc., the Mission would make known availability of support for activities that would promote delivery of capital saving technology as a means to achieve program goals.

Program Content: Possible elements of a country program strategy have been presented in earlier parts of the report. The specifics would have to be worked out through basically the same type of procedures we

presently use in the Agency -- the Country Development Strategy Statement and Annual Budget Statements.

Stress would be placed in the CDSS presentation on formulating specific, if possible: quantitative, objectives of the program and collection of baseline data and other information to be used to assess program progress. It may well be that a substantial part of the first year of the program may be devoted toward planning and laying the groundwork for the program changes. Very high priority would be given to the program in the AID/W country budget allocation procedure.

Selection of a Country Program: The selection of countries for the program will require a search process that first and foremost must take into account the predisposition of the host government to increase support of programs for delivery of capital saving technology. The development plan and past actions of the government should show a commitment to assist small farmers and to expansion of rural, dispersed and urban small scale off-farm enterprise.

Another important factor in selection of a country program would be the present program content and level. A sharp disruption of on-going commitments could well be counterproductive.

Program Procedures and Management: An important part of the program would be a change of procedures and management. The Mission would be provided

with blanket waivers, for example, on procurement of commodities, local cost financing and other regulations that the Mission Director can show may hinder his ability to do his job effectively. The Mission, as an addendum to the CDSS (or possibly in place of it) would submit annual progress reports outlining how well or badly the program was going and changes required. At the end of three and five years major evaluations of the program would take place to determine whether the program objectives were being met and changes that might be necessary.

Program Staffing: The staffing pattern of the program would be somewhat different than presently found in the Missions. First, it would be extremely helpful though not absolutely necessary to the program if a person with experience in development and promotion of capital saving technology was appointed as Mission Director. Second, one might expect that technical specialists such as an energy advisor, a small scale industry production advisor or financial advisor and a labor economist might be included in the Mission staff along with other specialists normally found on Mission staffs.

Concluding Comment: The Task Force is far from dogmatic about the details of the program. Listed below are a few principles that are held to be important in formulating the program:

- employment and income growth should be the goal;
- emphasis should be given to development of small scale enterprise;
- planning of the program strategy should go a step beyond the CDSS in level of detail (and length); particular attention should be given to planning for reporting on program progress;
- the Mission should be given blanket exemption from rules and regulations that can be shown to hinder program execution;
- the price of greater flexibility likely will have to be more reporting than normal;
- in any event, annual reporting on program progress towards objectives will be required along with a major external evaluation at the end of the third and fifth years.

Recommendation: At least two country programs should be chosen for the experimental employment and capital saving technology oriented development program.

Action: Regional Bureaus and Missions

The Task Force suggests that the Regional Bureaus in direct consultation with the Missions nominate country programs to become a part of the program. The Inter-Bureau Working Group on Capital Saving Technology would recommend at least two countries for the program for approval by the Administrator. The Regional Bureaus would be responsible for implementation of the program.

IV. Comprehensive Strategy -- Policies, Procedures and Organization

A. Agency Staff and the Strategy

1. Attitude

The key to promotion of the strategy through AID program and projects will be the understanding of and attitude of Agency staff toward the strategy. An open and flexible attitude in the promotion of small scale enterprise and other elements of the strategy as part of the process of improving technology choice and application is critical to strategy success.

Attitude is especially important in design of projects where opportunities for consideration of alternative technologies exist.

Capital saving alternatives should not be dismissed out of hand or ignored. The amount of information available not only on technical details of alternatives, but also on productivities for all types of products and services is surprisingly large and growing.

2. Workshops and Training Programs

Awareness of program and project possibilities can be fostered through workshops and training courses. The Task Force suggests that the PM Training and Development Division and DSB hold workshops and training courses on topics in the areas that constitute the elements of the strategy. Considerable written material is available under each major heading of the strategy to assist in planning workshops and training courses.

In addition to workshops and training courses on elements of the strategy, a short course of two to three days that would provide an overview of issues related to choice and application of technology as well as touch on specific program and project areas could be useful.

B. Policies and Procedures

1. Procurement Policies

The Task Force believes that promotion of a capital saving technology approach -- an approach that according to the House Committee should "minimize costs by combining factors of production according to their relative prices and scarcities" -- requires attention to AID's internal rules and regulations. Among the most important of these rules and regulations is Code 941 that guides Agency procurement policy.

The Task Force noted that Agency procurement policy is under review by a subcommittee of the Development Coordination Committee at the present time. Accordingly, we limit our remarks to the potential for working within the rules as they are presently constituted and to the importance of procurement rules to an Agency commitment to a capital saving technology approach to development.

In Mali, pumps required for an irrigation project were delivered on site at approximately one half the cost of U.S. procurement by purchase from a developing country. The purchase of the pumps from that third country substantially reduced the cost of the pumps to farmers in Mali as well as indirectly supporting Agency development efforts in the third country; it also allowed AID to allocate scarce development assistance capital for other programs. The direct and indirect benefits of third country procurement can be important to the objectives of the capital saving technology program. AID needs to be alert to the possibilities such as the one described above and act on them as allowed under present Code 941 rules.

The dollars sum spent on third country procurement is an extremely small fraction of AID total procurement of commodities and services, and relative to the U.S. trade balance, insignificant. To ignore possibilities of capital savings from third country procurement will waste development assistance capital; more importantly it may undermine the credibility of the type of development AID espouses -- namely, development that relies primarily on private enterprise and free competitive markets to not waste capital or labor.

Recognizing the complexity of AID procurement policy, we urge that consideration be given, perhaps by a working group, but in any event by the Commodity Management Office and the Missions on ways to take greater advantage of capital saving procurement possibilities under Code 941.

2. Program and Project Evaluation

The Task Force believes that evaluation is extremely important to the implementation of a capital saving technology strategy. An evaluation system can provide measures of success of program and project activities and information helpful to existing and future program and projects.

The Agency over the past two years has strengthened its capability to do evaluation studies. The Task Force believes that it would be useful to have evaluation of selected projects undertaken as elements of the strategy outlined in this Report. In addition, it was suggested that case studies be undertaken of projects designed specifically to increase the supply of capital saving technology. These would be projects for the purpose of broadening the range of technologies available through development, adaptation and field testing or to promote delivery of technologies through means such as demonstration projects and extension services.

Program evaluation can be quite as important as project evaluation. Basic questions such as the contribution of unconventional renewable energy or non-farm small scale enterprise programs to growth and equity objectives taken in the context of alternative development strategies are not well understood. Simultaneous with promotion of projects in these areas we also need to evaluate potential program impacts and adjust program policies and projects as necessary.

Recommendation: Missions and Regional Bureaus on a selective basis should build evaluation, including its costs, into projects that are part of the capital saving technology strategy.

Action: PPC and Regional Bureaus

3. Country Program Documentation

The Committee Report states that a report is expected on progress made toward implementation of the capital saving technology strategy during the fiscal year 1981 budget presentation and in each year thereafter.

The Task Force considered the question of how the Agency should report on strategy implementation. A recommendation on project portfolio reporting is found in the next section on project data. The issue addressed in this section is how to report on the results of implementation of elements of the capital saving technology strategy.

The FY 82 CDSS guidance cable provides the basis for reporting on the strategy:

"The impact of the proposed strategy to be expected at the end of a five year period should be set forth in this section. What elements of the poor will be most affected? How will they benefit? The discussion should focus on the short and long term effects that such a strategy would have on bringing the benefits of equitable development to the poor. Missions should consider the degree to which the proposed strategy will be measurable over time to determine its impact, and seek to articulate the anticipated impacts in that light."

If targets of the country program are reasonably well developed in the FY 82 guidance, reporting in future years could indicate progress towards these targets and relate projects that are elements of the capital saving technology strategy to achievement of the targets.

4. Data Requirements

The goal of the strategy outlined in this Report is improved technological choices resulting in greater employment and higher income. The strategy consists of a number of activities and policies intended to support increased adoption of capital saving technology.

The future reporting system must be able to track AID spending on "capital saving technology" in a way that captures the diverse program elements. It is not primarily a question of counting particular technological choices; but rather, of being able to

articulate what sorts of assistance -- including credit, policy advice, research, extension services, etc. -- leads to more appropriate choices of technology. The exact strategic roles of these supportive activities are not yet fully understood, and no doubt revisions in priorities will be made as the Agency tests some of its ideas about delivery of capital saving technology.

Although every attempt was made to relate the categories of the data collection to the emerging strategy, this year's statistics are at best, a first, rough cut. In future years the statistics will have to be brought into closer relationship with the elements of the strategy.

Ultimately, the collection of statistics should be the responsibility of the regional and central bureaus. Until such time as there are active CST officers in the bureaus, and a consensus has emerged on the essential components and direction of AID's strategy, statistics-gathering should be the responsibility of a special assistant for capital saving technology. The special assistant should draw on the experience of the Task Force members and the Bureau capital saving technology officers, and upon any available evaluative material in order to refine and articulate meaningful categories for tracking the progress of AID's capital saving technology strategy.

CST =
capital
saving
technology

5. Policy Papers

The Agency does not have a policy paper on non-farm small scale enterprise. Given that projects already exist in this area, and the recommendation that there be more project activity, a policy paper on non-farm small scale enterprise would be helpful to the Agency. The paper would provide an Agency view of the role of the sector in benefiting the poor and in the structural transformation of economic activity; it would also provide guidance on the extent of Agency support for the sector and the types of project activities the Agency would support.

Recommendation: A policy paper on non-farm small scale enterprise should be written.

Action: PPC with DSB

The Task Force considered whether a policy paper on capital saving technology strategy was required as such. The view of the group was that the Task Force Report would provide adequate overall guidance.

Recommendation: The Report of the Task Force should be distributed Agency wide.

Action: PPC

C. Organization and Implementation

The success of the capital saving technology strategy of the Agency will depend very much on follow-up to this report. The Task Force believes that in AID/W and the Missions some reallocation or additions to staff will have to be made if the strategy is to be implemented.

1. AID/Washington

a. Special Assistant for Capital Saving Technology

The follow-up to this report will require that parts of it be further elaborated and possibly modified. In addition, progress toward implementation of the report will need to be coordinated and monitored.

Recommendation:

PPC should designate a special assistant for capital saving technology with responsibility for elaboration of the strategy and coordinating and monitoring its implementation.

Action: PPC

b. Technology and Employment Unit

Technical support for the Missions in implementation of the strategy is essential to its success. In particular, there will be a need for strengthened support in the area of non-farm small scale enterprise development.

Also, the promotion of capital saving construction technologies will be an area where AID/W technical support will have to be strengthened.

The strengthened program of socio-economic analysis, education and policy advice on choice and application of technology will require an action unit.

The Agency will need a unit to develop programs and act as a contact point with intermediaries such as AT International and business and academic organizations concerned with capital saving technology.

Recommendation: A Technology and Employment unit should be established in DSB to take major responsibility for assisting in implementation of the capital saving technology strategy.

Action: DSB

c. Regional Bureaus

The key to success of the strategy will be the response of Regional Bureaus and the Missions. Each Regional Bureau should designate a Capital Saving Technology officer who would be responsible for promoting the strategy among the Missions in their respective regions. The CST officer will also be responsible for monitoring the progress on programs and projects within the regions and reporting on them annually as part of the Agency's annual report on implementation of the capital saving technology strategy.

Recommendation: Each Regional Bureau should appoint a Capital Saving Technology Officer.

Action: Regional Bureaus

2. Missions

The Task Force does not have specific recommendations for changes in Mission organization and staffing. As the various areas of the strategy are developed and projects are proposed in these areas, it may well be that technical specialities not now found on Mission staffs may be required, such as an energy advisor, an off-farm enterprise advisor, an engineer with labor-based construction experience, etc. These needs as they arise should be given special consideration.

3. Implementation

The implementation of the strategy must be an agency wide responsibility. Many details remain to be filled in over the next several months. To ensure that there is proper follow-up we believe the Administrator should establish an Inter-Bureau Working Group on Capital Saving Technology. The Working Group should be chaired by an official at the Assistant Administrator level. The proposed Special Assistant in PPC and the Technology and Employment unit would constitute the secretariat for the working group.

Recommendation: An Inter-Bureau Working Group on Capital Saving Technology, chaired by a high level, senior official of the Agency, should be established for the purpose of ensuring that the Agency's capital saving technology strategy is implemented.

Action: Administrator