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CASE STUDIES
HANDBOOK

AN AID TO EVALUATE
THE UTILIZATION OF
SCIENTIFIC AND TECHNICAL INFORMATION

PREPARED FOR USE BY PARTICIPANTS IN
THE USAID - SPONSORED
INTERNATIONAL TECHNICAL INFORMATION NETWORK

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SECTION 1

INTRODUCTION

INT-000

1.0 INTRODUCTION

This handbook is designed to help those concerned with evaluating the utilization of scientific and technical information. Although the experience of undertaking this task is here related to the International Technical Information Network Project (hereafter referred to as the "Network Project"), the techniques of developing case studies on information utilization are applicable in a variety of contexts - particularly within existing national or regional networks of information distribution as are the various agencies participating in the Network Project.

For the Network Project, the main concern governing the development of these case studies is to help evaluate how information contributes to development, to identify those scientific and technical reports which have proven utility, to gain insight into the nature of technology transfer, to identify alternatives or develop innovations to facilitate technology transfer and to share this information with all concerned.

To achieve these goals, certain criteria were chosen to conform with guidelines established by the U.S. Agency for International Development-US AID and to confine discussions on scientific and technical information utilization within the context of development. Components already established within the Network Project - mainly the promotions of user education seminars and appropriate technology - have been particularly useful in defining these criteria. Complementing the case studies component, user education seminars provide an excellent source for identifying candidates for future case study interviews who will already have had an exposure to the Network Project. The appropriate technology component, which has yielded valuable contributions by selectively searching the bibliographic data file at the National Technical Information Service of the U.S. Department of Commerce for information appropriate to development, and through its effort to acquire appropriate technology information from world-wide sources, has initiated a free dissemination of reports to those intending to adapt information to improve the lot of the disadvantaged. To access reports, requestors are asked to complete a special form to initiate the documentation of how this information is to be utilized; from these completed forms, yet another list emerges from which to identify candidates to be interviewed for case study development.

Other components of the Network Project also contribute to the formulation of user profiles for the identification of case study prospects. The main announcement tool of the Network Project, Applications of Modern Technology to International Development-AMTID, is widely circulated within participating countries; its mailing list contains names and addresses of individuals and organizations who have demonstrated an interest in promoting technological development. Such a list can also help identify candidates.

The Network Project also provides for direct interaction between members of the NTIS Developing Country Staff and members of those organizations responsible for

information dissemination located in each participating country. Network Project components such as field visits, the NTIS Information Systems Workshops and Regional Conferences provide opportunities for this direct and personal interaction - not only with NTIS, but also among members of the participating agencies themselves. Occasions such as these can generate fruitful discussions on evaluation methods and lead to a consensus as to what kind of case study is most appropriate. In most instances, people who attend the conferences or the Workshop will be personally involved in the selection of candidates and will also help arrange interviews for case study development.

This handbook will first discuss the development of case studies. Although the example here is the Network Project experience at undertaking this task, the ideas and methods discussed have a wide range of application. The intent here is to offer suggestions on how you may develop your own tools for evaluating information utilization. Section 2, How to Use This Handbook, tells you at a glance where to look in this handbook for ideas on particular aspects of case study development. Next, Section 3, How to Develop a Case Study, discusses how to use this handbook to identify candidates for case study development using various tools currently available through NTIS and possibly other organizations concerned with information transfer.

Section 4, Applications of Scientific and Technical Information in Developing Countries provides examples of case studies which have been developed by the Developing Country Staff resulting from interviews in 9 participating countries with 90 principal contacts from 49 organizations; these studies were developed during 1978 and through September 1979. These studies will demonstrate that adaptations of information can vary from context to context resulting in equally varied interpretations of utilization.

Section 5, Case Studies in Progress, includes case studies which are still in the initial stages of development. The entries in this section, many of which originate with responses to the Appropriate Technology Information Request Forms (see pages DEV-012,013), require further follow-up to see whether intended objectives have been reached. Are any of these information users located in your country? Can they be reached for further case study development? Has the information they received through the Network Project proved useful in developing their stated project goals? If you acquire any further information on these people's activities, please inform us so that we may all share these technological adaptations with your colleagues in the Network.

Section 6, A Referential Listing of NTIS Appropriate Technology Reports by Accession Number. Among the reports listed here are those which have already demonstrated utility or which otherwise have been identified by user/clients as containing helpful information. Such a list can then be used to cross-reference against bibliographies corresponding to the candidates being considered for case study development and so identify the users who are adapting information conducive to appropriate technology development. As your experience in developing case studies accumulates, you will notice that certain items of information will appear more

frequently and show greater applicability than others; a list of such reports should be maintained for reference. This procedure will also help you compare utilizations of similar information sources.

A current listing of agencies participating in the Network Project is found in Section 7. Unless you are already associated with one of these agencies, you may consider contacting them for assistance in developing a case study strategy.

SECTION 2

HOW TO USE THIS HANDBOOK

USE-000

A.) To Identify Users

- i.) Refer to Sections 3.2 and 3.3;
- ii.) Review Section 3.2c to identify users in your country;
- iii.) Review "Background" Sections to the Case Studies in Section 4.0;
- iv.) Survey deposit accounts or other records of document distribution; compare documents listed with accession numbers listed in Section 5.0;
- v.) Prepare a list of users from i and iv along with their addresses and bibliographies and any other information you may have.

B.) To Arrange the Interview

- i.) See Section 3.4 ;
- ii.) Consult "Background" segments to the Case Studies in Section 4.0.

C.) To Prepare the Case Study Report

- i.) See Section 3.5;
- ii.) Review Case Studies in Section 4.0 for ideas on form and content.

D.) To Develop a Follow-Up Strategy

- i.) See Section 3.6;
- ii.) Review Evaluation Formats in Section 3.2a.

SECTION 3

HOW TO DEVELOP A CASE STUDY

DEV-000

3.0 How to Develop a Case Study

The following sub-sections describe various aspects of case study development in a sequential format. These are: how information is used; how users are identified; how users are selected for interviewing; conducting the case study interview; suggestions for designing a working format to develop the case study itself; and, how to develop a follow-up strategy.

3.1 How Information is Used

To illustrate how information leads to the development of case studies, it may be useful to classify technical information into two broad categories:

- 1) applicative -- information which is acquired with an intent to adapt it towards solutions to particular problems, for policy formulation, in developing specifications for a project, for designing new tools, etc.; generally, this kind of utilization is action oriented, impacts upon prevailing technological circumstances, and is used to benefit a particular group. (e.g., "how-to" manuals, industrial plant specifications).
- 2) referential -- information which is acquired for personal evaluation, trend-scanning, state-of-the-art awareness, or for setting up an information bank; information utilized in this manner is not generally project-specific nor conducive to the development of case studies which are more concerned with describing the impact of adaptation; (e.g., glossaries, statistical charts, etc.).

An intangible commodity such as information often defies quantitative analysis. Rarely is a single item of technical information wholly referential or wholly applicative. Information which is utilized for reference in one instance may become applicative in another. Consequently, we must consider that any endeavor dedicated to technological transformation will make use of both varieties of information from diverse sources. As a project unfolds, different kinds of information will be used at different stages.

Generally, the information user will begin with the referential sort of information. Then, as research progresses, more specific "applicative" information is required. "Referential" and "applicative" in this context are defined by how information is utilized and not by how a particular report is designed or designated; utilization of any information in this respect is user-specific.

Therefore, to gain a perspective on how and at what stages scientific and technical information is used, we must go to the user himself to determine which information he considers to have been useful. In the final analysis, it is the user who determines, through creative adaptations, which set of documents contains resourceful information. The user, the individual who has taken in information to adapt to a given situation, is the final arbiter in the identification of useful information. Furthermore, he is in a perfect position to add to the value of the information he utilized by providing an illustration of how information has contributed to his project. The case studies researcher can then use these illustrations to provide better technical assistance when attending to the information needs of other clients with similar projects by describing the benefits which have resulted and perhaps offer some suggestions on how information can be modified for adaptation. The case study researcher can help further by identifying the variables and the constants attendant to the various forms of technology transfer; this can be done with increasing accuracy once more and more case studies can be documented and certain patterns of adaptation emerge.

Case studies which contribute most to understanding technology transfer are best developed by interviewing users who have expressed an applicative rather than referential use of information. This is primarily because the connection between a specific report and a consequent action is easier to distinguish.

For example, consider the following situation: a Spanish-speaking Latin American technical assistant who wants to develop a means of converting waste into energy orders the following bibliography:

PB 262 745

A Glossary of Agricultural Terms:
English-Spanish, Spanish-English

TID 27164

Bioconversion of Agricultural Wastes
for Pollution Control and Energy
Conservation.

We learn later that he has developed an energy-producing operation adapted from specifications contained in the second report but that he needed the glossary to interpret the terminology correctly. The connection between the second report and the users consequent action is clear. The glossary, however, was used here as a reference tool and, although it was very valuable to the user, it can not be said to contain information related to the outcome of the project. The glossary was a tool to understand terminology and not to develop technology; only when combined with the second report does it acquire any value of contribution to the project. This is another reason why the case study researcher should analyze documents collectively and look for an interrelationship among them.

Referential information such as the glossary is surely valuable; however, to develop case studies on how information is adapted to develop technology, it is much more useful to discuss the contributions of more "applicative" information such as contained in TID 27164. The case study researcher should develop a list of such reports (or combinations of reports) to identify other candidates for case study development.

At NTIS, such a list of accession numbers to reports which have demonstrated utility has been compiled to assist in the selection of candidates for case study interviewing, (please refer to Section 6). Perhaps you can develop a similar list for your own reference.

3.2 How Users Are Identified

The case studies researcher should begin his selection of candidates for interview by considering the following items:

3.2a Office Files

Most agencies which disseminate information, or otherwise provide technical assistance, maintain records of where reports are going and, sometimes, even an indication of what is to be done with the information.

Many of the Network Agencies not only maintain such information but have also developed evaluation forms where clients themselves are given an opportunity to discuss how the information they have acquired has benefitted them.

An inspection of one agency's returned evaluation forms showed the following responses:

Q: How was the information contained in these reports helpful to you in developing your work?

A: No. 1

"The information acquired was distributed to personnel throughout the firm to assist them in various different situations; therefore, no concrete answer is available for this question."

No. 2

"The information was acquired for future consultation."

No. 3

"Several tests for evaluating water purification were developed according to specifications contained in the reports."

- No. 4
"The documents contained information appropriate to the needs which generated their request."
- No. 5
"Some of the documents contained valuable information."
- No. 6
"They have served to enlighten and make clearer some of the working concepts I employ frequently in my work."
- No. 7
"These documents were selected for our technical personnel and were helpful in the development of the technicians projects."
- No. 8
"They were essential for the formulation of our reports--with comparison data, project descriptions."
- No. 9
"It expanded the information found in a footnote."
- No. 10
"Only through the Question-Answer Service was it possible to obtain this information."
- No. 11
"It provided data important to the development of our research."
- No. 12
"The information presented was clear, practical, and useful."
- No. 13
"As a reference base and as a bibliographic source."
- No. 14
"A. The methodological contents
B. The fields of information and research covered."
- No. 15
"The information contained helped me develop my current research."
- No. 16
"They contain up-to-date information, they are obtained quickly and very economically."
- No. 17
No response.
- No. 18
"The documents contained articles on themes related directly to my work."

On the basis of these responses, we should be able to formulate certain impressions about the users and the likelihood of developing case studies by interviewing the user.

Number 17 is clearly not interested in discussing his utilization; numbers 2, 9, and 13's intentions are referential and bibliographic - too broad to show a connection; numbers 1, and 7 were acquired by information gatherers for distribution; and numbers 10, 14 and 16 do not discuss at all how the information obtained is related to their tasks.

At the other end of the spectrum, number 3 offers the most concrete answer and appears to be the likeliest candidate for further case development with number 8 running a close second. Numbers 4 and 5 acknowledge that the information was "appropriate" and "valuable"; perhaps an interview with them would show how in more definite terms. Numbers 6, 8, 11, 12, 15 and 18 could also be investigated further.

Now we can draw up a list of potential interview candidates. Once these clients can be identified we can consult the disseminating agency's files and personnel for any additional information which relates to these clients' utilizations.

Document evaluation forms are a good source from which to develop a user profile and to identify case study candidates. Many agencies participating in the Network have developed their own forms according to their own information needs. Here are samples of these forms developed by NTIS (English and Spanish) and by the Colombian participating agency, COLCIENCIAS; perhaps they will help you formulate your own format for an evaluation of how information is utilized.

NTIS DOCUMENT EVALUATION FORM

We need your technical assistance. Please take a few minutes to tell NTIS whether this document is useful or not for your particular needs.

NAME _____

ORGANIZATION _____

ADDRESS _____

Title of Document: _____

Author: _____ PB Number _____

Please describe briefly your project for which the document was requested:

Was the document useful? Why or why not? _____

What other documents have you used for this project, with a short description in how useful they were. _____

Additional comments. (How can the NTIS service better meet your information needs?) _____

Please return this sheet to: Paul Bundick NTIS
425 13th Street, N.W. - Suite 620
Washington, D.C. 20004 USA

NTIS - FORMULARIO DE EVALUACION DE DOCUMENTOS

Necesitamos su asistencia técnica. Le rogamos dedicar unos pocos minutos para informar al NTIS si este documento le resulta de utilidad o no para sus necesidades específicas.

NOMBRE _____

ORGANIZATION _____

DIRECCION _____

Título del documento: _____

Autor: _____ Número de PB: _____

Breve descripción del proyecto para el cual se solicitó el documento:

¿Le resultó útil el documento? ¿Por qué o por qué no? _____

Indicar qué otros documentos se utilizaron para este proyecto, con una breve descripción de su utilidad. _____

Comentarios adicionales. (¿De qué manera el NTIS puede proporcionarle un mejor servicio para satisfacer sus necesidades de información?) _____

Le rogamos remitir este formulario a:

Paul Bundick, NTIS
425 13th Street, N.W.
Suite 620
Washington, D.C. 20004
U.S.A.



MINISTERIO DE EDUCACION NACIONAL
FONDO COLOMBIANO DE INVESTIGACIONES CIENTIFICAS
y Proyectos Especiales "Francisco José de Caldas"

NATIONAL TECHNICAL INFORMATION SERVICE NTIS

CUESTIONARIO DE EVALUACION

Lugar y fecha _____

Nombre y dirección del Usuario _____

Profesión _____

Entidad y cargo _____

Documentos pedidos _____ Documentos recibidos _____

Tiempo requerido para su adquisición _____

Area de estos documentos _____

Si la información contenida en los documentos fué útil para el desarrollo de su trabajo, diga por qué? _____

Teniendo en cuenta el contenido de los documentos adquiridos y su posible aplicación, el precio de ellos lo considera adecuado y por qué _____

CONCIENCIAS

- 2 -

Cuánto tiempo hace que utiliza el Servicio NTIS y cómo lo conoció? _____

Por qué en caso de tener que localizar información técnica, utilizaría nuevamente el Servicio? _____

Qué sugerencias desea usted hacer para que se pueda mejorar el Servicio NTIS ? _____

Considera que el Servicio NTIS se puede calificar como:

Eficiente _____ Bueno _____ Deficiente _____ Malo _____

Si conoce usted algún especialista que pueda estar interesado en este Servicio

anote:

Nombre _____ Profesión _____

Entidad _____ Cargo _____

Dirección _____

Firma _____

3.2b The Deposit Account

Most organizations in the business of disseminating information maintain current accounts for their regular clients. These account statements normally supply a listing of documents sent to individual clients who are usually identified by a code number assigned by the organization.

The documents which appear on these statements can then be analyzed to see whether they contain information which can be utilized for technological development. One way of doing this is to compare the list of document accession numbers on the statement against a similar list of documents which have shown "applicative" value to other users or which conform to an established set of criteria.

3.2c The Appropriate Technology Document Request Forms

In the case of the Network Project, which is designed to aid each participating country's national development, a reference list of accession numbers has been prepared of those documents which have shown successful applications or which contain information appropriate to development (Please see Section 5). A major source contributing to this expanding list is responses to the Appropriate Technology Document Request Forms.

In January 1979, the Agency for International Development initiated a subsidized dissemination through the Network for individuals and organizations in Latin America and the Caribbean which have expressed a commitment to developing projects designed to improve conditions of disadvantaged groups, a special order request-form was designed wherein the requestor is asked to describe his organization's purpose and provide a brief description of his intended utilization of the requested material. These forms are particularly meaningful since the user himself can indicate what information he considers beneficial.

Furthermore, comparisons can then be made between intended and actual results of utilization and help identify reports which have proven utility. It is important to remember that document groupings by project, as appear in these case studies and request forms, afford a better view of how information is utilized. These groupings can then be retrieved and packaged to provide similar technical assistance to other users with similar projects.

These request forms and evaluation sheets are only preliminary to case study development; to assess the real impact of information adaptation, the user/client should be interviewed.

The subsidy aspect provides an excellent background for identifying candidates for interview who are likely to be more receptive about discussing their utilization. Furthermore, the subject matter, appropriate technology, can have broad applicability in a variety of contexts; consequently, case studies resulting from these adaptations can provide valuable insights for other users with similar purposes, bibliographies and objectives.

Following is a sample of these request forms (English and Spanish). Case studies currently being developed from responses to these questionnaires are included in Section 5, Case Studies in Progress; as more responses are received to this questionnaire, they will be added on to this Section.

NTIS APPROPRIATE TECHNOLOGY DOCUMENT REQUEST FORM

The Agency for International Development has established a fund to purchase NTIS documents for organizations working to assist low-income groups in Latin America through the application of Appropriate Technology. Those wishing to request documents must complete this form and return it to:

Paul Bundick, NTIS
425 13th Street, N.W. - Suite 620
Washington, D.C. 20004

REQUESTING ORGANIZATION

NAME _____

ADDRESS _____

ORGANIZATION'S PURPOSE

(State explicitly how the organization works with low-income groups.)

PLEASE TELL US ABOUT YOUR PROJECT

What will it achieve? _____

Who is performing the technical assistance? _____

Who are the beneficiaries? (End-users and/or groups to be served) _____

DOCUMENTS REQUESTED

ORDER NUMBER	TITLE	QUANTITY*

* If microfiche is requested, please note.

NTIS - FORMULARIO PARA SOLICITAR DOCUMENTOS SOBRE TECNOLOGIAS APROPIADAS

La Agencia para el Desarrollo Internacional ha establecido un fondo destinado a la adquisicion de documentos del NTIS, para organizaciones dedicadas a ayudar a grupos de bajos ingresos en America Latina, mediante la utilizacion de tecno-
logias apropiadas. Para solicitar dichos documentos debe completarse este
formulario y remitirse a:

Paul Bundick, NTIS
425 13th Street, N.W. - Suite 620
Washington, D.C. 20004

ORGANIZACION SOLICITANTE

NOMBRE _____

DIRECCION _____

OBJETIVOS DE LA ORGANIZACION

(Detalle explicitamente la forma en que la organizacion trabaja con los grupos
de bajos ingresos.)

INFORMACION SOBRE EL PROYECTO

Cuales son sus objetivos? _____

Quien proporciona la asistencia tecnica? _____

Quienes son los beneficiarios? (Usuarios finales y/o grupos que seran ayudados)

DOCUMENTOS SOLICITADOS

NUMERO DE ORDEN	TITULO	CANTIDAD*

* Indiquese si se solicitan microfichas.

3.3 Problems to Consider When Selecting User/Clients for Interview

Development of case studies can be valuable in evaluating the impact which information has had on national development throughout Network member countries. Not only do case studies respond to the need to develop evaluative techniques necessary to any foreign aid program, but it is the only qualitative description of what transformations have taken place.

However, user/clients may not care to discuss their utilizations or the case studies may not reveal beneficial results. Here are some factors to consider when selecting candidates for interview from among the following categories:

1. Government Organizations

A problem distinct of this category is not obtaining cooperation from a particular user, but rather trying to implement the solution to given problems in a situation where many important needs are vying for national government attention. In many instances, it was observed that there had indeed been an active utilization of NTIS documents to produce a workable feasibility study or action plan to solve national problems, yet these efforts had not yet been adopted. Normally, solutions emerging from such utilizations are subjected to a framework of priorities established by the respective national government. National development objectives can vary from one administration to the next - depending on which policy guidelines prevail.

Utilization of information among this group of users usually develops into feasibility studies, project proposals, or position papers. Ideas for technological development contained in such reports demonstrate an action resulting from information intake. Furthermore, unless the specifics of these reports are considered restricted information by a government (which can be another block against accurate case study development), these ideas may yet yield beneficial results in other applications.

2. Industry

Within this group, there is frequently expressed application of scientific and technical information, particularly in the field of business management; however, there is a general reluctance to discuss usage of information to any great detail since a view is maintained that information which has been evaluated and applied acquires greater value and becomes new original information. In essence, then, information which was once public domain has now become transformed into private property. This tends to limit the possibilities of describing accurately the technological transformations taking place.

3. Universities and Research Centers

Often, interviews were scheduled with people who had ordered documents for others and are not themselves users, or they had received information dealing exclusively with documentation or library science. Also, orders are often placed by these clients in anticipation of need or for research in the university.

4. Consulting Firms

As with universities and research centers, the actual user of the information may not appear on the account statement since the documents may have been ordered for redistribution among staff members of the firm. Special attention should be given to the proper identification of the user in such firms; these users usually obtain the information to support a particular project and are therefore valuable candidates for illustrating how information is adapted to suit particular needs.

5. Trading Firms

Scientific and technical information utilization in this category is mostly referential. The business of trading firms is to identify, evaluate, acquire, and market technological packages. In this sense, technological development has not taken place unless the packaging, acting as a catalyst which may lead to development, is itself considered a technological development. Although it can be argued that it is an action resulting from valid information utilization, it nevertheless does not lend itself to a discussion of technological impact; however, case studies could be initiated by learning who intends to apply this technological package and then further developed through follow-up.

The problems described above are not necessarily contained to the particular category nor are these problems encountered in the development of every case study. By being aware of these problems, you can identify and select candidates for interviewing more accurately. Many of these problems can be avoided by contacting the candidate prior to the interview.

Who, then, are the candidates to interview most likely to help render case study developments? This depends on the kind of information you hope to gather from the interview. Generally, no single group of users interviewed will continuously supply you with case study material.

3.4 Conducting User Interviews

Before the actual interview takes place, the case studies researcher should review all available material pertaining to the user - particularly his corresponding bibliography; this will help to guide and contain the discussion on how particular pieces of information have been utilized. The user can now be contacted to schedule an interview appointment.

The interview itself should allow ample opportunities for all present to contribute to the discussion.

It is essential that the researcher remember that the interview is a favor granted by the user/client; the user/client is under no obligation to anyone to discuss what has been done with the information he has acquired and it may very well be that he has his own intentions for granting the interview. The case studies researcher should be receptive to the user/clients questions and answer them as thoroughly as possible. However, the discussion should focus on the evaluative aspect of the Network rather than the promotional; if it becomes apparent that the user/client requires further promotion, he should be scheduled another visit.

The researcher should preface the discussion with a brief, simple statement of objective. Then, with the prepared bibliography in hand, questions can be raised concerning information utilizations. The questions should be formulated clearly and raised in a tone nearer to curiosity than to aggressive inquisition. The last thing the researcher should do is barrage the user/client with a series of checklist type of "yes-or-no" questions. No two interviews are ever the same - even when identical bibliographies are being discussed. Therefore, questions should be formulated in such a manner as to allow the user/client to describe his experience in his own way.

After the interview, the researcher should develop a follow-up strategy. A one-time interview after the fact is an insufficient approach to case studies. Only after the effects of information transfer are measured against time can a valid evaluation be rendered and more solid conclusions be drawn.

3.5 A Case Study Checklist

After the interview, the case studies researcher is ready to report his findings emerging from the interview. The reporting format should be arranged in such a way as to render all the relevant information as accurately as possible while still flexible enough to accommodate a full picture of the context of transformation.

The following is a checklist which may help you design a format suited to your information needs. As you can see, the components are basic; nevertheless, this checklist can be easily modified to suit the particular case study. Sometimes, not all this information can be obtained at once and a follow-up strategy may have to be developed to complete the case study (see Section 3.6).

- Title; assign a title to your case study which describes the contents (refer to titles of case studies included in this handbook); you may also want to assign a code to your case study such as "MED-008"; i.e., the first three letters of the city or region where the case study was developed (e.g. Medellin) and/or an ordinal number (e.g. 008); this MED-008 would signify that it refers to the eighth case study developed in the city of Medellin, Colombia;
- Name and address of the principal contact interviewed and the date interviewed;
- A description of the user's organization and its purpose and of the project undertaken by the user;
- Specific references to documents used;
- An identification of other contributing factors relevant to project implementation such as financing sources, consultations, technical assistance, etc.;
- An identification of the individuals or groups who stand to benefit from this new technology.

3.6 Follow-Up Strategy

Follow-ups are an integral part of case study development. An interview with a user does not necessarily finalize the development of a case study. Theoretically, a case study describing the effects of information on technological development is an on-going process which can yield insights on various different levels - depending upon how the case study researcher chooses to interpret the information given. For Network evaluation, it seems appropriate to have case studies describe what actions result from an exposure to information contained in NTIS reports. For example, did a feasibility study, a project proposal, a position paper, or otherwise original contributions result from this intake? Is the user's functional role in technological transformation complete? Does he require further technical assistance? Follow-ups are necessary to determine the answers to these important questions.

Evaluation forms are only one way to follow-up a case study. Correspondence, telephone conversations, user education seminars, conferences, site visits, all offer opportunities for follow-up on previous case studies, as well as for initiating new ones.

There comes a point where the case studies researcher must allow the technological transformations being described to unfold over time. The researcher should then concentrate on developing a scheme of periodic follow-ups on a schedule appropriate to the pace of the technological transformations being described.

SECTION 4

APPLICATIONS OF SCIENTIFIC AND TECHNICAL
INFORMATION IN DEVELOPING COUNTRIES

APP-000

USE OF APPROPRIATE TECHNOLOGY HELPS DEVELOPMENT IN THE PHILIPPINES

The feasibility of the "appropriateness" of agricultural mechanization in the Philippines was developed using NTIS documents as resources. The project proposal was based in part on documents made available to the researcher, Dr. Singh, by TRC, a cooperating agency of the USAID International Technical Information Network.

Although many NTIS reports had been used (mostly on a referential basis), Dr. Singh singled out PB 235 408, An Evaluation of Farm Irrigation Practices As a Means to Control the Water Quality of Return Flow, as significantly contributing to the study. This document is available from the U.S. National Technical Information Service for \$5.25.

With funding from the Ford Foundation, this study was undertaken in 1976-77 by Dr. Singh, Chairman of the Division of Agricultural and Food Engineering at the Asian Institute of Technology (AIT) in Bangkok, Thailand. The purpose was to suggest an appropriate system of mechanization for the rice and maize crop based on farm size, cropping intensity, production and net income per unit area. Methods of drawing conclusions and developing economic models from statistical data were adapted from the NTIS documents in providing a convincing argument for the utilization of mechanical equipment to benefit agricultural areas in the Philippines.

For rice farms, it was found that the power tiller users had the highest cropping intensity and highest annual production per hectare resulting in the highest income per hectare. Tiller and tractor farms used more hired labor than animal-powered farms due to the animal-powered farms dependence on the family unit for their work force. In maize farming, the farmers who used four-wheel

tractors in land preparation had higher cropping intensity and higher animal production per hectare compared to animal-powered farms. With the exception of a third crop, which is grown in very few plots, the tractor farms used more hired labor than the animal-powered farms. As with rice farming, the use of family labor, was higher on the animal-powered farms compared to tractor farms.

Based on the study, the researchers concluded that agricultural mechanization in the Philippines is a viable project to increase the productivity of the farming population as well as providing more employment opportunities and economic growth to a developing country.

4.2

APPROPRIATE TECHNOLOGY PROVIDES MEANS FOR LOCAL ENERGY PRODUCTION

The feasibility of using large-scale composting plants to produce methane in Manila is being studied using NTIS publications. The project proposal was based in part on documents made available to the researchers by TRC, a cooperating agency of the USAID International Technical Information Network.

The National Environmental Protection Agency (NEPC) in Manila, in cooperation with TRC, is using NTIS publications to determine alternative and cheaper sources of producing methane. Current research is showing that composting plants are more costly to operate than solid waste plants in energy production, even though income can be earned by composting through the sale of salvaged materials. Information contained in two NTIS reports, The Economic Analysis of Selected Features of Municipal Wastewater Construction Grant Legislation, PB 276 619, and the Analysis of Cost Sharing Programs for Pollution Abatement of Municipal Wastewater, PB 239 420, has enabled the researchers to conclude that composting alone is not a solution. Furthermore, favorable features of existing recycling components such as salvaging activities should be more carefully considered in the management of solid waste recycling. This is due to the income generated by scavengers and brokers who make their living marketing recovered materials.

Among the alternatives suggested by the NEPC through their research, are the use of landfills designed to recover methane gas, and various forms of incineration and biogasification that are capable of generating millions of pesos of revenue as opposed to large quantities of compost which, because of poor market potential, may require continuous subsidy.

A SMALL WELL HELPS AN ECUADORIAN FISH PLANT PROSPER

A tuna-processing plant in Ecuador has solved its need for potable water through specifications received from a U.S. Agency for International Development sponsored publication. The report describes how to construct a small well to deliver 1500 gallons daily at a cost of U.S. \$2000.

The production manager of the plant, Mr. Gonzales-Artigas, needed to find a way of acquiring more water for his plant without taxing the local water supply. He obtained NTIS document PB 190 672, Small Wells Manual, through CENDES, the Network participating agency in Ecuador, and invested U.S. \$2000 to hire an engineer and construct a well for the plant.

The well now produces enough water to satisfy the needs of the processing plant. The water is used as a friction guard, a system where the water acts as a base for saline solution to preserve fish for future processing. This is needed when more fish are caught than can be processed in a given day.

Because of this information, a local business in Ecuador has become less dependant on outside factors in providing more food and water for his area. Mr. Gonzales-Artigas believes the well will become cost-effective in a few months and he does not expect any major maintenance costs. This well also produces enough water for local use at a lower cost because of the greater amount of water available.

The publication provides all the information necessary to construct this type of well which is aimed primarily at people with little technical know-how and limited resources. The manual provides instruction and guidance to people engaged in the construction, operation, and maintenance of small-diameter shallow wells used for individual and small community water supplies.

SEA COWS PROPOSED TO CONTROL WEED GROWTH IN EL SALVADOR

Sea cows (Manatees) are being considered in El Salvador to clear waterways of aquatic weeds that threaten the ecology and the productivity of water related industries. The project proposal was based in part on a document made available to the researcher by CENDES, a cooperating agency of the USAID International Technical Information Network. The publication, An International Centre for Manatee Research, is available from the U.S. National Technical Information Service for U.S. \$4.50 as PB 240 244. This document has provided the necessary information for using these mammals to control aquatic growth which is clogging waterways and causing a 70% reduction in water-generated electrical power. The idea to use sea cows came from a seminar consisting of 46 participants from 23 institutions in developing countries faced with the problem of weed control.

The researcher, Dr. Godines, explored the feasibility of utilizing manatees after studying the NTIS publication prepared for the U.S. Agency for International Development. According to the results of the seminar, manatees offer a significant approach to overcome the problem of aquatic weed control. One such approach cites an example of sea cow use in South America.

In 1952 four manatees were introduced in Guyana to control weeds in a water and sewage works canal. The weeds disappeared in eight weeks due to the sea cow's ability to readily adapt to confinement and being unselective in the food they eat. Over a period of 22 years, the canal was free of weeds until the death of the last mammal in 1972. The weed problem returned and two more sea cows were purchased for U.S. \$100 each. During the 27 years the manatees have been in the canal there has been no weed problem and no maintenance of the manatees.

Manatees are docile, harmless to people, and are adaptable to the water conditions of El Salvador. If they are left undisturbed, they remain passive and immobile when out of water and therefore easy to transport from neighboring Guatemala. Sea cows can also convert aquatic plants into protein suitable for human consumption and they furnish as much meat as a steer.

Dr. Godines has adopted this information in formulating a workable solution to the problems in El Salvador. This illustrates one example of technical cooperation among developing countries made possible by the U.S. Agency for International Development and the Information Transfer Program managed by the National Technical Information Service of the U.S. Department of Commerce.

4.5

INCOME GENERATING MACHINES HELP RURAL AREAS OF THE PHILIPPINES

A small-scale papermaking machine designed from specifications given in an NTIS document is providing rural people in the Philippines with additional income and employment diversification. The publication was originally sponsored by the International Cooperation Administration, the predecessor of the U.S. Agency for International Development. The information on how to build this invention was made available to the country by TRC, a cooperating agency of the USAID International Technical Information Network. Papermaking and Manufacturing of Paper Products as a Small-Scale, Semi-Mechanized, and Cottage Industry, is available from the U.S. National Technical Information Service for \$11.00 as PB 177 916.

This papermaking apparatus has been adapted to local conditions by using material produced in the Philippines and by conforming the specifications to measurements and tools familiar to rural segments of the area. The low cost of \$10 has caused rapid selling of the machine which can be built at home as a more simplified version.

The Design Centre of the Philippines (DCP) has been responsible for the distribution of the document and according to Mrs. Fe Gonzales, the project coordinator, the most significant utilization of any NTIS document has been the adaptation of information contained in PB 177 916. Although Mrs. Gonzales had originally acquired the document for specific papermaking machines, she was pleased to discover that this document also contained very valuable information on all aspects of papermaking at the cottage industry level. There is no doubt among DCP members involved in this promotion that this type of papermaking will make a significant commercial contribution to rural based economies.

4.6

INDONESIAN GOVERNMENT USES APPROPRIATE TECHNOLOGY TO INCREASE NATIONAL PRODUCTION

A project to improve the quality of life of 100 million people living in rural Indonesia has been using information supplied by the USAID International Technical Information Network to aid them in their developmental plans. The project proposal was based on the 1978 State Guidelines of the Government of Indonesia which has mandated the use of appropriate technology to combat the problems of food production and economic growth in rural areas. The goal set forth was to increase production in the fields of agriculture, industry, mining, energy and others. Using NTIS publications as resources for their third five-year development plan (Pelita III), the government of Indonesia has assigned a task force to work out details for the projects implementation. The National Institute of Physics (LIPI-LFN) was selected as the executing and coordinating agency and its director Dr. Suwanto Martosudinjo, was assigned as project leader.

The documents used in the project were made available by LIPI-PDIN, a cooperating agency of the USAID International Technical Information Network. This organization is a sister agency to LIPI-LFN and has brought many relevant NTIS reports to the attention of Dr. Suwanto. Of all NTIS materials received by LFN, four were identified by Dr. Suwanto as contributing substantially to the development of the LFN Rural Program of appropriate technology.

The NTIS reports cited pertain mostly to the initial stages of the projects implementation. However, as the project moves forward over the next five years, the engineers interviewed plan to make extensive use of this valuable resource.

BNL-20313 Preliminary Concept Analysis of a Low Cost Non-Metallic Flat Plate

The concept of using non-metallic materials such as masonry, porcelain, or concrete as the thermal conducting media in the manufacture of flat plate solar

energy collectors is examined and found functionally acceptable. The potential for large reduction in the cost of this component is illustrated.

PB-260 606 Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries.

This report provides a summary of the state-of-the-art of alternative technologies frequently suggested as solutions to rural or individual family energy needs. Moreover, it informs both the technologist and the planner where to go for more detailed information and what kinds of research and development are needed before a particular device or process is ready for use.

PB-265 105 Solar Energy Applications in Agriculture: Potential, Research Needs, and Adoption Strategies.

Objectives pursued in this study are: (1) Assessment of present agricultural operations to determine those with potential for use with solar energy; (2) Development of recommendations for strategies to achieve adoption of solar energy to the following aspects of agriculture are examined: grain drying, tobacco curing, peanut drying, broiler housing, swine production, farm housing, greenhouses, and irrigation. Current fuel prices for each of the agricultural regions (determined by crop production) are also reviewed.

ERDA-77 47/2 Solar Program Assessment: Environmental Factors. Solar Agricultural and Industrial Process Heat.

The major environmental issues associated with the further development of solar energy as a source of process heat in the industrial and agricultural sections are presented and prioritized. Agricultural and industrial heating represents the specific application of a variety of federally-funded solar technologies. To provide a background for this environmental analysis, the basic concepts and technologies of solar process heating are reviewed. The potential effects

of these applications of solar energy on the full range of environmental concerns (e.g., air and water quality, biosystems, safety, social/institutional structures) are then discussed in terms of both their relative significance and possible solutions. Although the development of solar energy as a source of process heat will contribute to some environmental problems common to construction projects and energy-producing technologies (e.g., construction noise, thermal discharge to the air and water), only those impacts unique to the solar portion of the technology are discussed in depth. Finally, an environmental work plan is presented, listing research and development proposals and a National Environmental Policy Act (NEPA) document work plan which might help clarify and/or alleviate specific environmental and safety problems.

IMPROVED WATER CONTROL MANAGEMENT IN TAIWAN SOLVES RESERVOIR PROBLEMS

The overall operation and management of an existing reservoir system in Taiwan has been improved through new design specifications obtained through USAID sponsored information. By using NTIS reports, the Asian Institute of Technology is providing optimum water resource utilization to the Tachia River Basin area of Taiwan.

The project proposed was based in part on documents made available to the researchers by TMA, a cooperating agency of the USAID International Technical Information Network. Hydrologic Engineering Methods for Water Resources Development, AD A007 107, and A Stochastic Rainfall Model and Statistical Analysis of Hydrologic Factors, PB 238 948, are available from the U.S. National Technical Information Service.

The Division of Water Resources Engineering of the Asian Institute of Technology in Bangkok, Thailand was contracted by the Taiwan Power Company of the Republic of China to provide an optimum water use examination of the 140 kilometer Tachia River. The principle investigator of this project, Dr. Selvalingam, cited NTIS reports as significantly contributing to the study of individual characteristics of existing and proposed water resources projects on the Tachia River.

The study suggests that a new reservoir be built upstream to reduce the danger of overspill during the rainy season while optimizing the use of regulating ponds.

This example typifies how a USAID sponsored agency in a developing country is providing assistance to other developing countries by supplying them with the information they need to implement their development projects. The outcome of the overall effect of this reservoir on the operation and management of the entire Tachia River water system will not only provide much needed water control but will also allow for more water to be available for irrigation.

CONCRETE CORROSION AVERTED ON CHILEAN HIGHWAYS

Three NTIS reports have helped solve a serious highway construction problem in Northern Chile involving concrete with a high salt content. The sand used in the production of the concrete was found to have a high level of salt which is corrosive and could result in inadequate construction and possible loss of life.

The Instituto de Investigaciones y Ensayos Materiales used these publications as resources in producing a report on the corrosion problem. They were made available to the researcher, Dr. Lamana, by INTEC/CORFO, a cooperating agency of the USAID International Technical Information Network.

Each of the NTIS reports was directly relevant and useful for this study. One report, The Effect of Sodium Chloride on the Corrosion of Concrete Reinforcing Steel and on the ph of Calcium Hydroxide Solution-PB 228 679, demonstrated that a lower ph scale in the concrete was an improvement. This contradicted a previous belief that a higher ph count was desirable. The other reports, Corrosion Testing of Bridge Decks, PB 241 294, and Repair of Hollow or Soft Areas in Bridge Decks by Rebonding With Injected Epoxy Resin of Other Polymers, PB 236 467, both proved to be highly effective in providing information for developmental needs. Because of this type of technical information, this area can now construct sound structures which would otherwise decay quickly and therefore add more cost to a capital scarce developing country in Latin America.

ELECTRONIC ACHIEVEMENTS AID DEVELOPMENT IN KOREA

United States technical information is supporting the development and expansion of business communications in Korea through documents available from the USAID International Technical Information Network, when it was still active in Korea. These 47 publications have saved the researchers, Gold Star Tele-Electronic Co., valuable time and expense in constructing a prototype of an electric private automatic branch exchange (EPABX) used in improving and expanding the communication system in Eastern Asia. The organization is a large manufacturer of communications and electronic products which has used USAID sponsored information extensively to update their electronic capabilities and become a recognized contender in world trade.

The development and prototype production of this invention marks a major achievement in the industrial development of Korea. In their 1977 Annual Report, Gold Star noted that the development of the EPABX had confirmed the technological competence of the company and had given the firm's researchers a "faith in their own abilities." Following the Korean policy to modernize industry and to become increasingly competitive in technology-intensive markets, Gold Star has devoted substantial resources to improving its technological competence. In this regard, the company has built an electric switching system research institute and a vocational training center. At this research institute, a modern library houses an impressive selection of scientific literature. It includes a complete set of U.S. patent abstracts, a current subscription to such NTIS products as SRIM, WGA, and GRA&I, and numerous other journals, reports, and documents from the NTIS data base.

From this experience, Gold Star has become an increasingly viable organization in the field of communications. They have been awarded a contract for a

consolidated telecommunications system in the Philippines and are planning many more such ventures in the future.

NATIONAL RESEARCH NEEDS MET BY HYDRAULIC RESEARCH CENTER

The development and maintenance of an official information retrieval system in the Philippines has been greatly enhanced through information sponsored by the USAID International Technical Information Network. Under the direction of the National Water Resources Council (NWRC) of the Philippines, the National Hydraulic Research Center acts as a repository and disseminating agency for all available data, information and literature on water resources and related fields. This Information Center Library has been established to serve the various research needs of the different government and private agencies having water related functions. Mrs. Pilar Liongson, the chief librarian, has identified NTIS reports as being particularly useful in improving the facilities available from the Information Center.

The two reports, Design and Operation of an Information Center on Analytical Methodology, PB 204 820, and PB 221 491 of the same title, both have helped this facility in meeting its information needs in creating its own information center which will benefit the country in meeting the information requirement for their developmental projects.

THE AIRCRAFT INDUSTRY IN INDONESIA BECOMES INDEPENDENT OF IMPORTED TECHNOLOGY

An aircraft industry plant composed of 1500 employees in Indonesia is decreasing its dependence on imported technology through NTIS publications. Adaptation of information contained in the engineering handbooks available from NTIS will contribute to the development of this country's first self-sufficient aircraft industry. The Nurtanio Indonesian Aircraft Industry, operating since August 1976, is currently undergoing extensive renovations and will house the latest technology in aircraft plant design.

The publications used in researching these new aircraft designs were made available by PDIN, a cooperating agency of the USAID International Technical Information Network. Eng. Sumarlan, Associate Director of the Testing and Laboratories Department at the plant, was identified by PDIN as a consistent requestor of NTIS reports. The utilization of these reports provides a good example of how information contained in NTIS documents is being adapted to suit national industrial needs and lessen dependence on imported equipment.

The documents listed below were selected from over one hundred Engineering Design Handbooks available from NTIS. These handbooks are highly technical, but provide engineers with a clear presentation of extremely useful information that will form part of an information bank which Mr. Sumarlan is using to design Nurtanio's Indonesian aircraft.

AD A025 665/LSL Engineering Design Handbook: Reliable Military Electronics.
Topics discussed include the following: basic principles; variables and parameter relations; development of intrinsic device theory and related fundamental limitations and their measurements; circuit parameter relations; design of transistor R-C amplifiers; circuit stabilization; transformer-coupled

amplifiers; RF and IF amplifiers; nonlinear theory of oscillators; practical L-C oscillators; R-C oscillators and time-delay oscillators; design of mixers and converters; transistor multivibrators; switching and sampling circuits.

AD/A-002 007/3SL Engineering Design Handbook. Helicopter Engineering.

Part One. Preliminary Design.

This handbook discusses the design requirements applicable to army helicopters for all missions under visual flight rule (VFR) operation, day or night.

As such, the scope of this document has been limited to cover the basic aerial vehicles. Design requirements for mission-essential equipment, e.g., weapons, sensors, cargo-handling equipment—are beyond this scope and are not discussed, although the helicopter-integrat^l. interface requirements for such equipment are included. The design of power plants, batteries, generators or alternators, and similar components are also beyond the scope of the handbook.

AD-865 109 Engineering Design Handbook: Electrical Wire and Cable.

The objective of the handbook is to provide a practical guide to correct design of equipment to meet the exacting transmission requirements of the many and varied aspects of today's electronic and electrical systems. This handbook contains information on the structure, application, usage, and installation of most of the wires and cables utilized by the army. Also included are a glossary of terms; a listing of equations for quick reference; and an appendix which presents the applicable military specifications, standards, and publications.

AD 783 697/6 Engineering Design Handbook: Military Vehicle Electrical Systems.

The objectives of the handbook are: (1) to collect diverse sources of information unique to combat and tactical vehicles in order to conserve time, materials, and money in the successful design of new equipment; (2) to provide guidance in

capsule form for new personnel, armed forces contractors, or experienced design engineers in other fields who require information about vehicle electrical systems; (3) to supply current fundamental information; and (4) to place the reader in a position to use new information generated subsequent to the publication of this handbook. To meet these objectives, the handbook has been written to provide the necessary background regarding electrical equipment and systems so that more complete information and data available in the references can be used.

AD 785 000/1 Engineering Design Handbook, Helicopter Performance Testing.

As the state of the art advances, the helicopter becomes more complex with accompanying difficulties in the development cycle. Also, the customer organizations become larger, more efficient, demand more reliability and accuracy, and in general, refine their capability in all areas. The manufacturers and government in turn are forced to provide more comprehensive and accurate information about the product, thus requiring an ever increasing flight test effort. This handbook discusses flight testing as it relates to helicopter performance determinations.

AD A026 006/7SL Engineering Design Handbook. Maintainability Engineering Theory and Practice.

The report details maintainability design requirements and develops methodology to be implemented to meet those requirements.

AD A025 665/1SL Engineering Design Handbook: Reliable Military Electronics.

Topics discussed include the following: basic principles; variables and parameter relations; development of intrinsic device theory and related fundamental limitations and their measurements; circuit stabilization; transformer-coupled amplifiers: RF and IF amplifiers; nonlinear theory of

theory of oscillators; practical L-X oscillators; R-C oscillators and time-delay oscillators; design of mixers and converters; transistor multi-vibrators; switching and sampling circuits.

AD 884 151 Engineering Design Handbook: System Analysis and Cost-Effectiveness.

The purpose of this handbook is to provide a text and reference material in system analysis and cost-effectiveness. It is intended for those technical, scientific, management, and administrative personnel who are responsible for preparing information, making decisions or reviewing decisions made by others regarding life-cycle cost, system effectiveness (availability, dependability, capability), or technical feasibility of a system or equipment at any phase in its life cycle. It is immediately useful to personnel who are familiar with a system or equipment under study but are not familiar with the methodology and techniques of system analysis and cost-effectiveness.

AD 763 495 Engineering Design Handbook. Infrared Military Systems. Part One.

The publication is one of a group of handbooks prepared under the auspices of the Engineering Handbook Office, Duke University, as part of the Engineering Design Handbook series. Presented in this handbook are the basic information and fundamental principles essential to the design and development of infrared systems for military application. Most of the material is devoted to the significant technological advances of recent years.

AD A021 390/05E Engineering Design Handbook: Maintenance Engineering Techniques.

The fundamental purpose of this handbook, Maintenance Engineering Techniques, is to provide authoritative information requisite to the planning and implementation of effective maintenance engineering programs. A comprehensive discussion of maintenance engineering functions that must be accomplished in order to insure

cost-effective acquisition, operation, and support of army material is presented. The general method of presentation is to define a function and its importance, and then to provide basic information on when the function should be accomplished and the techniques that should be used. Although written primarily for maintenance engineers, the handbook is structured with a wider audience in mind. The level of detail and manner of presentation make the handbook useful for the orientation and guidance of new personnel, army contractors, and personnel in engineering disciplines such as system design, reliability, maintainability, safety, and human engineering. Additionally, management personnel may improve their understanding of the scope and importance of maintenance engineering by reading the handbook.

AD 754 202 Engineering Design Handbook. Maintainability Guide for Design.

The objective of this handbook, Maintainability Guide for Design, is to influence design so that equipment can be (1) serviced efficiently and effectively if servicing is required, and repaired efficiently and effectively if it should fail, or (2) operable for the period of intended life without failing and without servicing, if possible. The designer who considers the technology of maintainability as one of the prime design considerations can play a vital part in the solution of the maintenance problem, whereas the designer who fails to do this adds to the tensity of the problem. Part one describes the extent of the maintenance problem in terms of the expenditure of money, men, and material. Part two presents maintainability abjectives, principles, and procedures. Part three describes the nature of the maintenance problem in terms of the conditions under which weapon systems must be operated and maintained.

AD 903 789/6SL Engineering Design Handbook. Sabot Technology Engineering.

This handbook presents engineering design procedures for sabots. It takes

into consideration the conflicting criteria associated with maximum performance and maximum reliability. The steps and decisions which must be made in the process of producing an engineering design are summarized.

AD A027 372/2SL Engineering Design Handbook. Development Guide for Reliability.
Part Six. Mathematical Appendix and Glossary.

Contents: probability distribution, some cautions and names; binomial distribution; poisson distribution; gaussian (S-Normal) distribution; probability distributions; Weibull distribution; Lognormal distribution; Beta distribution; Gamma distribution; confidence; plotting positions; goodness-of-fit tests; tests for monotonic; bayesian statistics; sampling plans; and miscellaneous design aids.

AD A027 371/1SL Engineering Design Handbook. Development Guide for Reliability.
Part Four. Reliability Measurement.

Reliability measurement techniques provide a common discipline that can be used to make system reliability projections throughout the life cycle of a system. The data on component and equipment failures obtained during the reliability measurement program can be used to compute component failure distributions and equipment reliability characteristics. Reliability measurement techniques are used during the research and development phase to measure the reliability of components and equipments and to evaluate the relationships between applied stresses and environments and reliability. Later in a system life cycle, reliability measurement and testing procedures can be used to demonstrate that contractually required reliability levels have been met.

AD A020 020/4SL Engineering Design Handbook: Timing Systems and Components.
This handbook presents both theoretical and practical data pertaining to design methods and procedures for timing systems and devices. The subjects covered

are precision reference timers, electronic timers, mechanical timers, pyrotechnic timers, fluoric timers, and a few others.

AD 884 151/2SL Engineering Design Handbook: System Analysis and Cost-Effectiveness.

The purpose of this handbook is to provide a text and reference material in system analysis and cost-effectiveness. It is intended for those technical, scientific, management, and administrative personnel who are responsible for preparing information, making decisions or reviewing decisions made by others regarding life-cycle cost, system effectiveness (availability, dependability, capability), or technical feasibility of a system or equipment at any phase in its life cycle. The handbook consists of four chapters:

- (1) An introduction to the concept of system analysis and cost-effectiveness;
- (2) A basic framework, or general methodological approach, for conducting and reviewing techniques (linear programming, queueing theory, simulation, etc.) that can be used for performing cost-effectiveness and system analysis studies;
- and (4) a review of the basic mathematical and statistical concepts that underlie the scientific approach in the system analysis/cost-effectiveness process.

ENGINEERING INFORMATION AIDS CONSTRUCTION NEEDS IN DEVELOPING COUNTRIES

From information contained in NTIS reports, new engineering guidelines are being developed to overcome the difficulties of tunneling and excavating through soft clay. This substance is found in many urban areas of developing countries and has added costly problems to the rapid urbanization growth now being experienced in these countries.

The Associate Director of the Asian Information Centre on Geothermal Engineering, Dr. Peter Brenner, is editing a conference report on soft clay engineering using NTIS documents in his research. These documents were obtained from TMA, a cooperating agency of the USAID International Technical Information Network in Thailand. In this manner, U.S. technical information is being used by researchers to adapt foreign technology to local conditions.

The reports used in the research are as follows:

PB 257 210/5 Goldberg-Zoino and Associates, Inc., New Upper Falls, Mass.

Lateral Support Systems and Underpinning. Volume I. Design and Construction.

This volume is a convenient reference on the design and construction of lateral support systems and underpinning which are often required in conjunction with cut-and-cover or soft ground tunneling. The design recommendations and construction methods described herein are a summary of the more detailed information presented in the companion volumes of this study. Included in this volume are discussions of displacements, lateral earth pressure, ground water, passive resistance, stability analysis, bearing capacity, soldier piles, steel sheeting, and diaphragm.

SECTION 5
CASE STUDIES IN PROGRESS

Cas-000

CASE STUDY IN PROGRESS

PLACE:

Women and Development Unit
Extra-Murals Department
Cavehill Campus
University of the West Indies
Barbados

PRINCIPAL CONTACT:

Dr. Glenn W. Patterson, Ph. D.

ORGANIZATION'S PURPOSE:

"In the Caribbean region, it provides direct technical assistance to poorer rural community development projects relating to small food processing and preservation operations."

PROJECT DESCRIPTION

"The MFM (Meals for Millions Foundation, 1800 Olympic Boulevard, P.O.Box 680, Santa Monica, California 90406) is to collaborate with the Women and Development Unit of the Extra-Mural Department of the University of the west Indies to work with poorer communities in food technologies (processing and preservation) to:

- A. Improve the nutritional status;
- B. Increase self-sufficiency;
- C. Improve socio-economic status."

"To achieve these, the following activities will be and are now being carried out. The program is designed to be an on-going project directed toward the Leeward and Windward Islands, Jamaica and Belize. These activities include:

1. Provide direct technical assistance to specific community food technology-related programs and projects;
2. Answer inquiries relating to community food technology;
3. Participate in workshops, seminars, and training sessions designed to exchange or provide information on food technology related to community development;
4. Locate, document, and disseminate those innovative and related technologies now or once used in the Caribbean or other regions;
5. Assist in project design, proposal writing, and locating funds needed by food technology oriented projects; and,

6. Carry out testing and adaptation of appropriate food technologies at the University of the West Indies or within country locations."

Who is performing the technical assistance? Dr. Glenn W. Patterson, Ph.D. with backup from the University of the West Indies Food Technology Department and the Meals For Millions Foundation. Dr. Patterson has been operating in the Caribbean for 2½ years in similar community work.

Who are the beneficiaries? "Rural communities, women, children (through nutritional improvement), young people and men presently out of work."

BIBLIOGRAPHY

- | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| PB 174 673 | Small Canning Facilities |
| PB 219 721 | Development of a Simple Storage Unit and Storage Method Applicable for Humid Areas in Developing Countries |
| PB 220 825 | Ferrocement: Applications in Developing Countries |
| PB 248 338 | Proceedings of the Conference and Seminar on Techniques and Methodologies for Stimulating Small-Scale Labor-Intensive Industries in Developing Countries |
| PB 263 350 | Resources for Development Organizations and Publications |
| PB 280 196 | The Performance and Economic Feasibility of Solar Grain Drying Systems |
| PB 282 460 | Rural Potable Water Chlorination |

CASE STUDY IN PROGRESS

PLACE: Instituto Tecnológico de Costa Rica
Apartado 159
Cartago, Costa Rica

PRINCIPAL CONTACT: Kent Smith

ORGANIZATION'S PURPOSE

"The Institute, through its Division of Research Development and Technical Extension, is promoting the development and use of the concepts of appropriate technology in Costa Rica. This includes utilization of renewable resources, reclamation of scrap metal, utilization of wood manufacturing wastes, soil testing techniques, improved agricultural techniques and implements for the small-scale farmer."

PROJECT DESCRIPTION

"The project is intended to decrease Costa Rica's dependence upon foreign resources and technologies. It shall benefit small-scale industries using local materials. It shall provide for more productive technologies for the small farmer. It shall benefit the country as a whole by emphasizing less ecologically destructive technologies." Examples of specific projects:

- 1) substantial increase in use of particle board and composite products from wood waste;
- 2) creation of a metallurgy program to aid small industry in quality control;
- 3) teaching of simple soil testing techniques and methods of improving the soil quality;
- 4) utilization of solar energy--the first application to be the heating of a public swimming pool.

BIBLIOGRAPHY

ADA 026 041	Method for Estimating Solar Heating and Cooling System Performance
ADA 045 184	Corrosion Control in Civil Works: Cathodic Protection
ADA 046 078	Improved Utilization of Lumber in Glued Laminated Beams
ADA 054 601	Solar Heating of Building and Domestic Hot Water

AD 210 105	Indigenous Tropical Agriculture in Central America: Land Use, Systems, and Problems
BNL 20313	Preliminary Concept Analysis of a Low-Cost Nonmetallic Flat Plate Solar Energy Collector
COO 4094 1	Photovoltaic Power in Less Developed Countries
COM 73 10527	A Study of the Feasibility of Mechanized Adobe Production
DOE/ET 0036	Guide to Solar Energy Programs
DSE 2322 1	An Economic Analysis of Solar Water and Space Heating
N74 15752	Utilization of Wind Power in Agriculture in the USSR
N76 22671	Design Fabrication, Testing, and Delivery of a Solar Collector
N76 27671	An Inexpensive Economical Solar Heating System for Homes
PB 175 521	Metal Working Industry Training Manual
PB 175 531	A Small Sawmill Enterprise
PB 175 532	Small Brass Foundry
PB 175 500	Wood Wastes
PB 177 930	Plant Requirements for Manufacture of Plywood
PB 178 345 (1 copy)	Effect of Operational Speed on Forces Acting on Wedges
PB 178 347 (1 copy)	The Problems of Basic Parameters of Tillage Tools for Primary Soil Tillage
PB 178 373 (1 copy)	Determination of the Optimum Parameters Rotary Tiller Cultivation Equipment
PB 206 776	Farm Tools and Implements
PB 210 130 (2 copies)	Care and Maintenance of Farm Machinery

CASE STUDY IN PROGRESS

PLACE: Corporacion de Desarrollo de la
VII^a Region
CIDERE-MAULE
1 Sur 923, Oficina 202
Casilla 690
Talca, Chile

ORGANIZATION'S PURPOSE:

A private, non-profit organization devoted to promoting all aspects of development in Region VII (comprised of the provinces of Culico, Talca, Maule, and Linares) in Chile. It identifies exploitable natural resources and it organizes rural communities through capacitation, marketing, and technical and commercial assistance. For example, CIDERE-MAULE discovered abundant blackberries; it then found an extramarginal investor on the futures market, capacitated the rural communities for harvesting and preparing the blackberries, and organized a system for gathering, transporting, receiving, and retailing them.

Results of the 1979 season (summer in Chile is January, February, and March).

Amount gathered: 200,00 kilograms
Contributions to the Community: 2,000,000 Chilean pesos
(approx. US \$57,000)

Indirect contributions: 3,000,000 Chilean pesos
(approx. US \$86,000)

PROJECT DESCRIPTION

a) Demonstration and Experimental Apain Center--this center will house 120 different types of beehives where current honey production techniques can be evaluated and new ones developed; it will provide capacitation courses and technical assistance. Honey production will be promoted in the region. Courses will be offered in rural areas to provide poor people with a means of livelihood. Those who graduate from this course will receive financial credit to install the learned technology.

b) Identification of potential resources--the jojoba and blackberry have similar qualities for exploitation.

BIBLIOGRAPHY

PB 275 386	Pollination of Agricultural Crops by Bees
PB 253 126	Products from Jojoba: A Promising New Crop for Arid Lands

CASE STUDY IN PROGRESS

PLACE:

Instituto de Investigaciones Tecnologicas
INTEC
Casilla 667
Santiago, Chile

PRINCIPAL CONTACT:

Mr. Sergio Varas O.

ORGANIZATION'S PURPOSE:

"Transfer of technology to governmental and private clients."
"Since 1977, an Appropriate Technology Program has been developed to improve the living standards and employment levels of low income groups."

PROJECT DESCRIPTION

"Technologies are being adapted and developed for the exploitation of castor oil beans; papain production and the use of windmills for pumping water."

BIBLIOGRAPHY

- | | |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONF-770367 | Proceedings of a Conference on Solar Energy for Heating Greenhouses and Greenhouse-Residential Combinations |
| COO 4094 1 | Photovoltaic Power in Less Developed Countries |
| ERDA-tr- 288 | Center for the Integral Development of "Las Gaviotas" |
| PB 174 673 | Small Canning Facilities |
| PB 175 531 | A Small Sawmill Enterprise |
| PB 177 916 | Papermaking and Manufacture of Paper Products as a Small-Scale, Semi-Mechanized and Cottage Industry Materials--Processes, Equipment Organization--Economics Marketing |
| PB 206 800 | Small-Scale Power Supplies for Rural Communities in Developing Countries |
| PB 262 630 | Peace Corps Intermediate Technology for 15 Years |

PB 263 672	Aquaculture as an Integral Part of the Agricultural Farming System
PB 267 970	Appropriate Technology: A Directory of Activities and Projects
PB 272 436	Aquaculture in Southeast Asia A Historical Overview
PB 274 193	A Cross-Sectional Epidemiologic Survey of Vinyl Chloride Workers
PB 274 612	Expansion of Water Resources in Arid Regions
PB 280 196	The Performance and Economic Feasibility of Solar Grain Drying Systems
COM-73-50645-11	Marine Fisheries Review
LBL 6182	Feed and Food from Desert Environments
N74-15752	Utilization of Wind Power in Agriculture in the USSR
PB 196 340	The Continued Development and Field Evaluation of the AID Hand-Operated Water Pump
PB 206 776	Farm Tools and Implements
PB 247 819	Agricultural Machinery Development Program
PB 264 459	Extractives as a Renewable Resource for Industrial Materials
PB 264 561	Fibers as a Renewable Resources for Industrial Materials
PB 268 161	IRRI Small Agricultural Machinery Project: US Technology Transfer to Resource--Poor Developing Countries
PB 268 987	Freshwater Fisheries Program Planning

CASE STUDY IN PROGRESS

PLACE: Instituto de Investigaciones Tecnologicas
INTEC
Casilla 667
Santiago, Chile

PRINCIPAL CONTACT: Mr. Sergio Varas O.

ORGANIZATION'S PURPOSE:

"Transfer of technology to governmental and private clients."
"Since 1977, an Appropriate Technology Program has been developed to improve the living standards and employment levels of low income groups."

PROJECT DESCRIPTION

"There is a special program in intermediate technology which intends to evaluate the appropriate technologies needed to raise the standard of living of the poor and to generate employment."

BIBLIOGRAPHY

- PB 211 843 Recommendation for FEEOAGROH Grain Storage and Handling Facilities in Honduras
- PB 211 883 Observations and Recommendations for Improving Grain Storage and Marketing in Bolivia
- PB 260 606 Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries
- PB 263 849 Reprint: A Method for the Cultivation of the Mangrove Oysters in Puerto Rico (Metodo para el Cultivo del Ostron de Mangle en Puerto Rico)
- PB 269 049 Accounting for the Small Business: Teaching Manual (Contabilidad para la Micro Empresa: Manual de Ensenanza)

CASE STUDY IN PROGRESS

PLACE: Novoa Ingenieros Consultores, S.A.
Los Colibries 104
Lima 27, Peru

PRINCIPAL CONTACT: Alfredo Novoa

ORGANIZATION'S PURPOSE:

"Transfer of technology through information."

PROJECT DESCRIPTION:

"To transfer and adapt technology to needs of rural areas."
Technical assistance will be provided by the consulting firm
of Novoa Ingenieros Consultores, S.A.

BIBLIOGRAPHY

- | | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------|
| AD 751 178 | New Mexico University, Albuquerque-
Seismic Design of Building Structures |
| AD A003 045 | Foreign Technology Div. Wright-
Patterson AFB Ohio-Analysis of Action,
During Simultaneous Damages of
Protective R--FTC |
| AD A004 451 | Foreign Technology Div. Wright
Patterson AFB Ohio-Using High-
Temperature Solar Installation to
Study Refractory M--FTC |
| AD A010 801 | Oak Ridge National Lab, Tenn.
Power System Emp Protection |
| AD A012 733 | Urban Innovations Group Los Angeles,
Calif. A Review of Architectural
Methods and Their Effectiveness |
| AD A026 344 | Massachusetts Inst. of Tech.
Cambridge-Computer Programs for
Mathematical Programming Models in
Produc--Etc. |

AD A026 904	Florida University Gainesville- The Layout of Divisible Activities on the Line
AD A040 460	Texas Tech. Univ. Dynamics and Failure Criteria of Structural Connections
AD A041 957	Science Applications, Inc., Berkeley, Calif. Propagation Characteristics of a Periodically Loaded Transmission
BNWL-SA-5595	Quality Control Program for 100% Inspection Using Non-Destructive Measurements
LA 5967	Solar Heating Handbook for Los Alamos
N74 16614	Outer Skin Protection of Colombian Thermal Protection System (TPS) Panels
N75 27567	Space and Energy Conservation Housing Prototype Unit Development
N75 32591	Flat Plate Solar Collector Performance Evaluation with a Solar Simulator as a Basis for Collector Selection and Performance Prediction
PB 202 936	Response and Energy Dissipation of Reinforced Concrete Frames Subjected to Strong Base Motions
PB 206 549	A Manual on Water Desalination. Vol. 1 Technology
PB 214 006	SOM (Space Organization Method)- A Method for Space Allocation
PB 241 110	Power Line Alarm Transmission System
PB 245 318	The Substitute Structure Method for Earthquake Resistant Design of Reinforced Concrete Frames

PB 251 382	Decentralized Tomato Processing: Plant Design, Costs, and Economic Feasibility
PB 258 842	The Siesmic Behavior of Critical Regions of Reinforced Concrete Components as Influenced, etc.
PB 267 947	Review of Literature on Earthquake Damange to Single Family Masonry Dwellings
VITRO-MA-9	Architectoral/Engineering Standards

CASE STUDY IN PROGRESS

PLACE:

Grupo de Tecnologia Apropiada
Apartado 1421
Panama 9A, Panama

PRINCIPAL CONTACT:

Samuel Bern

ORGANIZATION'S PURPOSE:

To publish periodic reports on appropriate technology; to organize seminars in rural areas on alternative energy resource development and agriculture.

PROJECT DESCRIPTION

"The reports selected will be utilized as a source of reference for programs already under way such as the aquatic weed control at Lake Bayano and the analysis of water quality; they will also serve as valuable reference on contamination problems arising from agroindustrial wastes. Other countries' experiences are very useful for an evaluation of the impact of these projects as well as for eliminating possible negative effects."

BIBLIOGRAPHY

- AD 715 871 Weight and Energy Values of Selected Litter-Fall Components from Two Forest Stands in the Canal Zone, Republic of Panama
- ADA 003 909 Corrosion of Metals in Tropical Environments: Part 10, Final Report of Sixteen-Year Exposures
- ADA 036 072 Proceedings, Research Planning Conference on the Aquatic Plant Control Program, October 22-24, 1975, Charlestown, S.C.
- PB 187 841 A Study of the Economic Impact of Water Impundment Through Validity Testing of a Comparative-Projection Model
- PB 196 312 Relative Toxicities of Selected Chemicals to Several Species of Tropical Fish

PB 198 125	Water Quality Management Problems in Arid Regions
PB 204 408	Water Quality Standards and Inter- national Development
PB 212 265	Fluctuations in Nitrate Concentration Utilized as an Assessment of Agri- cultural Contamination to an Aquifer of a Semiarid Climatic Region
PB 214 508	Nonpoint Rural Sources of Water Pollution
PB 240 244	An International Centre for Manatee Research
PB 244 557	Guidelines for the Disposal of Small Quantities of Unused Pesticides
PB 247 430	The Environmental Impact of a Large Tropical Reservoir: Guidelines for Policy and Planning, Based Upon a Case Study of Lake Volta, Ghana, in 1973 and 1974
PB 248 630	Environmental Aspects of a Large Tropical Reservoir: A Case Study of Volta Lake, Ghana
PB 248 899	The Biological and Ecological Effects of Oil Pollution in Tropical Waters
PB 263 089	Eutrophication and Fish Toxicity Potentials in a Multiple-Use Sub- tropical Reservoir

CASE STUDY IN PROGRESS

PLACE: Grupo de Tecnologia Appropriada
Apartado 1421
Panama 5A, Panama

PRINCIPAL CONTACT: Samuel Bern

ORGANIZATION'S PURPOSE:

To publish periodic reports on appropriate technology; to organize seminars in rural areas on alternative energy resource development and agriculture.

PROJECT DESCRIPTION:

To acquire NTIS reports on various themes for the promotion of appropriate technology in the Panamanian media and subsequent adaptation. Technical assistance will be provided by professional members of the Appropriate Technology Group-GTA (i.e. architects, engineers, administrators, sociologists, etc.)

BIBLIOGRAPHY

ADA 038 234	Software Acquisition Guidebook
PB 195 912	Fishculture Survey Panama
PB 211 762	Corn Fortification
PB 218 129	Latin American Tables of Feed Composition
PB 224 506	Chemical Control of Vampire Bats
PB 251 382	Decentralized Tomato Plant Design
PB 264 015	Application of Sewage Sludge

CASE STUDY IN PROGRESS

PLACE: 25 Avenida Norte #915
San Salvador, El Salvador

PRINCIPAL CONTACT: Craig B. Warriner

ORGANIZATION'S PURPOSE:

To provide technical assistance to low-income farmers in the form of methane gas and solar research.

PROJECT DESCRIPTION:

"The Project will provide electricity for home and commercial cooking for the cooperative "El Grupo Solidario de Gas Metano Las Chinamas". Technical assistance will be provided by Mr. Craig B. Warriner, Peace Corps Volunteer. Beneficiaries: "Nearly 9 separate families make up the co-op and will participate and benefit from the products of the Methane Project."

Mr. Warriner has already been successful in his experiments to produce methane from coffee pulp and water. "We have been able to extract a beautiful blue flame solely from the fermentation of pulp from coffee and water. Sam Bern, the guy from Panama (Respondant 20), was certain that it would not work with just pulp and water but from some luck it's producing the most beautiful blue (and hot) flame I've ever seen. The coffee people are very excited but somewhat hesitant due to previous failures in Guatemala and El Salvador."

BIBLIOGRAPHY

- | | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------|
| PB 187 565 | The Small New Business |
| PB 206 800 | Small-Scale Power Supplies for Rural Communities in Developing Countries |
| PB 206 801 | Generation and Utilization of Power for Rural Communities in Developing Countries |
| PB 217 142
(2 copies) | Engineering Studies of Coffee Mill Wastes in El Salvador |
| PB 231 149 | Proceedings of the Bioconversion Energy Research Conference Held at Massachusetts University, Amherst on June 25-26, 1973 |

PB 238 103	Technology for the Conversion of Solar Energy to Fuel Gas
PB 239 465	An Overview of Alternative Energy Sources for Lesser Developed Countries
PB 240 113	Animal Waste Conversion Systems Based on Thermal Discharge
PB 241 055	Technology for the Conversion of Solar Energy to Fuel Gas (National Center for Energy Management and Power);
PB 255 021 (2 copies)	Kansas Water Resources Research Institute
PB 269 049 (5 copies)	Accounting for the Small Business: Teaching Manual
PB 276 469	Methane Generation from Human, Animal, and Agricultural Wastes
PB 278 351	Sugarcane Production Resudues Tec- nologic and Economic Assessment of Methods for Conservation to Utilizable Energy Forms
PB 278 998	Economic Considerations for Manpower Revenue Sharing

CASE STUDY IN PROGRESS

PLACE: Instituto de Technologie et
d'Animation-ITECA
Boite Postal 510
Port-au-Prince, Haiti

PRINCIPAL CONTACT: Jean-Jacques Honorat

ORGANIZATION'S PURPOSE:

"Research and dissemination of low-cost technologies appropriate to Haitian rural communities."

PROJECT DESCRIPTION:

To evaluate and adapt technologies to develop alternative forms of energy for Haiti. Technical assistance will be provided by "consultants to be selected as needs arise." Beneficiaries are the rural poor.

BIBLIOGRAPHY

- | | |
|------------|---------------------------------------------------------------------------------------------------------|
| PB 239 465 | An Overview of Alternative Energy Sources for Lesser Developed Countries (LDC's) |
| PB 260 606 | Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries |
| PB 208 550 | Solar Energy in Developing Countries |
| PB 241 055 | Technology for the Conversion of Solar Energy to Fuel Gas |
| PB 258 499 | Fuel and Energy Production by Bioconversion of Waste Materials State-of-the-Art |
| PB 269 049 | Accounting for the Small Business: Teaching Manual |
| PB 260 763 | An Evaluation of the Use of Agricultural Residues as an Energy Feedstock Vol. I |

BNL 20313

Preliminary Concept Analysis of
a Low Cost Non-Metallic Flat Plate
Solar Energy Collector

NTIS/PS-77/1161

Solar Water Pumps

CASE STUDY IN PROGRESS

PLACE:

Centro de Investigaciones Multi-
disciplinarias en Tecnologia y
Empleo-CIMTE
Division de Ingenieria
Universidad de Valle
Cali, Colombia

PRINCIPAL CONTACT:

Isabel de Dias

ORGANIZATION'S PURPOSE

CIMTE-(Center for Multidisciplinary Investigations on Technology and Employment), associated with the Engineering Division of the Universidad del Valle, is charged with "the creation and application of intermediate technology which is within the economic capacity of the marginalized sectors of the Colombian population, rural and urban, and at the same time: generates employment and promotes greater productivity."

BIBLIOGRAPHY

PB 270 038

The State of the Art of Delivering
Low Cost Health Services in Developing
Countries: A Summary Study of 180
Health Projects

CASE STUDY IN PROGRESS

PLACE:

Instituto de Tierras y Colonizacion
Apartado 5054
San Jose, Costa Rica

PRINCIPAL CONTACT:

Stefan Platteau

ORGANIZATION'S PURPOSE

To provide technical assistance to small family businesses that are about to fail.

PROJECT DESCRIPTION

"Using the ideas of appropriate technology, we hope to make changes and improvements that insure the survival of the business." Technical assistance will be provided by the Department of Technical Assistance (Departamento de Asistencia Tecnica) and by Mr. John F. De Clue, a Peace Corps volunteer. The project budget is "very small" and funded for 1 year. The beneficiaries are "the end-users of locally manufactured products; the urban and rural poor."

BIBLIOGRAPHY

PB 175 523

Plant Requirements to Set Up and
Operate Small Bread Bakeries

PB 255 649

Small Business in the Metals Industry:
A Background Study

PB 257 404

Front End Recycling
A Study of the Economics of Recycling
by Source Separation and Its Application
for Fairfield County, Connecticut

CASE STUDY IN PROGRESS

PLACE:

Centro de Investigaciones Tecnologia
en Metal-Mecanica-DIDET
Instituto Tecnologia de Costa Rica
Apartado 159
Cartago, Costa Rica

PRINCIPAL CONTACT:

Mario Bonilla

ORGANIZATION'S PURPOSE

"FUNDAEC's projects are aimed at bettering the life of the small rural farmer." "The projects are carried out in a participatory manner with the community, the students, and the FUNDAEC staff." Beneficiaries are the students in particular and the small rural farmers in general.

BIBLIOGRAPHY

- | | |
|------------|------------------------------------------------------------------------------------------------------|
| PB 262 745 | Glossary of Agricultural Terms:
English-Spanish, Spanish-English |
| PB 262 928 | Glossary of Environmental Terms:
English-Spanish, Spanish-English |
| PB 285 983 | Standards and Procedures for Design
of Water Supply Systems in Rural Areas
of Nepal and Bhutan |
| PB 294 160 | Selected Appropriate Technologies for
Developing Countries: Abstracts from
the NTIS Data Base |

CASE STUDY IN PROGRESS

PLACE:

ACOPI-Seccional Boyaca
Asociacion de Confeccionistas de
Boyaca-ACOBOY
Edificio Beneficiencia
Oficina 602
Tunja, Boyaca
Colombia

PRINCIPAL CONTACT:

Dr. A.E. Russler

ORGANIZATION'S PURPOSE:

Small-scale industrial development in Boyaca Province in collaboration with SENA (Servicio Nacional de Aprendizaje-National Apprenticeship Service), Corporacion Financiera Popular (People's Financial Cooperation), University Pedagogica y Tecnologica de Colombia, and the Department of Industrial Management. Beneficiaries are the small-scale textile businessmen in Boyaca.

BIBLIOGRAPHY

PB 175 915

Men's Work Shirt's Capital Requirements,
Techniques, and Operations

PB 175 539

Plant Requirements for Manufacture of
Cotton Dresses

CASE STUDY IN PROGRESS

PLACE:

Instituto Tecnologica de Costa Rica
ITCR
Apartado 159
Cartago, Costa Rica

PRINCIPAL CONTACT:

Ing. John F. DeClue

PROJECT DESCRIPTION

To adapt and design tools appropriate to conditions in Costa Rica and of benefit to the small-scale farmer. The following document was "of great utility--a valuable source of information due to its simplicity and subject matter."

BIBLIOGRAPHY

TT 69 50019

Agricultural Machines Theory and
Construction Volume I

CASE STUDY IN PROGRESS

PLACE

Instituto de Investigaciones Tecnologicas
INTEC
Casilla 667
Santiago, Chile

PRINCIPAL CONTACT:

Mr. German Johannsen

ORGANIZATION'S PURPOSE:

"Project development, feasibility studies and technological research to be applied in socio-economic and industrial activities."

PROJECT DESCRIPTION

"The project deals with the possibility of using ethanol as fuel, especially in those places without electric energy, making use of unexploited lands and generating a high grade of labor force."

BIBLIOGRAPHY

PB 284 742	Parameters for Legislative Consideration of Bioconversion Technologies
CONS 2693-1	Sources of Alcohol Fuels for Vehicle Fleet Tests
LBL 6881	Process Development Studies on the Bioconversion of Cellulose and Production of Ethanol
HCP/M2098-01	Denaturants for Ethanol/Gasoline Blends
HCP/T3891-1	Preliminary Economic Evaluation of a Process for the Production of Fuel Grade Ethanol by Enzymatic Hydrolysis of an Agricultural Waste
TID 27336	Systems Study of Fuels from Sugarcane, Sweet Sorghum, Sugar Beets, and Corn
TID 27834	Fuels from Sugar Crops
PS-78/0673	Alcohol Fuels
PS-78/0674	Alcohol Fuels

BMI-1957 (Vol. 3)

Systems Study of Fuels from Sugarcane,
Sweet Sorghum, and Sugar Beets

BMI-1957A-V 4

Systems Study of Fuels from Sugarcane,
Sweet Sorghum, Sugar Beets, and Corn
(Volume IV. Corn Agriculture)

BMI-1957A-V 5

Systems Study of Fuels from Sugarcane,
Sweet Sorghum, Sugar Beets, and Corn
(Volume V. Comprehensive Evaluation
of Corn)

CASE STUDY IN PROGRESS

PLACE: Servicio de Informacion y
Transferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT: Ing. Gustavo Valle, SITT Manager

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESCRIPTION

"To increase the number of textile factories and to improve the existing technology." Technical assistance will be provided by Gustavo Valle, chemical engineer and coordinator of the information service of the National Productivity Center, along with technicians from other government institutions such as:

CENAP-Center for Training in Farming and Animal Husbandry
ISTA-The Salvadorian Institute of Agrarian Reform; and,
BRFA-Agricultural Development Bank

Beneficiaries are the agricultural societies and small factories in the country.

BIBLIOGRAPHY

PB 175 538 Plant Requirements for Manufacture
of Nylon Hosiery

PB 175 539	Plant Requirements for Manufacture of Cotton Dresses
PB 177 297	Plant Requirements for Manufacture of Worsted Yarns
PB 177 915	Men's Work Shirts: Capital Requirements, Techniques, and Operations
PB 177 924	Plant Requirements for Manufacture of Terry Cloth
PB 177 946	Silk Screen Printing in Textiles

CASE STUDY IN PROGRESS

PLACE: Servicio de Informacion y Trans-
ferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT: Ing. Gustavo Valle, SITT Manager

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESIGN

Improve systems of traditional methods of marketing fish. Technical assistance will be provided by the Center for Information and Technology Transfer of the National Center for Productivity (Servicio de Informacion y Transferencia Tecnologica-SITT, Centro Nacional de Productividad-CENAP) and a team of technicians from the Banco de Fomento Agropecuario (the Agricultural Development Bank). The budgeting is still being considered. The target beneficiary groups are the fishermen's cooperatives located in the Gulf of Fonseca and the port city of Acajatla.

BIBLIOGRAPHY

- PB 263 672 Aquaculture as an Integral Part of
the Agricultural Farming System.
A Case Study in the North-East of
Thailand

NTIS/PS-78/0100

Fisheries Economics: Part 1.
Marketing

NTIS/PS-78/0101

Fisheries Economics: Part 2.
General Economics Studies

NTIS/PS-78-0394

Fisheries Law: Vol. 2 April 1976-
March 1978

COM-73-50645-11

Marine Fisheries Review 35 (11):
1-48, November 1973

CASE STUDY IN PROGRESS

PLACE: Servicio de Informacion y
Transferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT: Ing Gustavo Valle, Manager of SITT

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESCRIPTION

To evaluate the various means of aquatic weed control in the lakes, dams and ponds of El Salvador; Ing. Gustavo Valle of CENAP and Dr. Jose Francisco Godines of CENAP (National Center for Capacitation), chemical engineer and biologist respectively, will act as the technicians of this project.

The beneficiaries are:

- "1. The fishermen groups and their families, and;
2. The hydroelectric dams"

The estimated cost of the pilot project of aquatic-weed control being launched at the Olomega Lagoon and at the Cerron Grande Reservoir is 55,000 Salvadorian colones (approximately US \$22,000) to be apportioned over a three year period; funds will be provided by the Government of El Salvador with the Canadian International Development Agency-CIDA contributing financing over manpower costs.

BIBLIOGRAPHY

- N75-22938 Application of Vascular Aquatic
Plants for Pollution Removal, Energy
and Food Production in a Biological
System
- PB 208 527 Control of Aquatic Vegetation in
Fresh water
- PB 238 909 Biological Control of Aquatic
Vegetation
- PB 244 263 Nutritional Ecology of Nuisance
Aquatic Plants
- PB 253 341 Preliminary Control of African Rue
With Various Herbicides
- PB 257 724 Apply Pesticides Correctly. A Guide
For Private Applicators.
- PB 259 992 Wastewater Treatment by Natural and
Artificial Marshes
- PB 261 002 Apply Pesticides Correctly. A Guide
for Commercial Applicators. Right-
of-Way Pest Control
- AD 726 948 Aquatic Weed Control in Fish Ponds
with Chemical Methods
- AD 775 408 Aquatic Plant Control Program-Technical
Report 6. Biological Control of Water
Hyacinth with Insect Enemies
- ADA 018866 Aquatic Plant Control Program-
Technical Report 11. Effects of CO₂
Laser on Water Hyacinth Growth
- ADA 032970 Water Hyacinth Research in Puerto Rico

CASE STUDY IN PROGRESS

PLACE:

Servicio de Informacion y
Transferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT:

Ing Gustavo Valle, SITT Manager

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESCRIPTION

"To reduce the loss of fruits and vegetables in our markets due to management, transportation, package, and storage." Technical assistance will be provided by Ing. Gustavo and other technicians of the corresponding government institutions. Beneficiaries are the small sellers and producers.

BIBLIOGRAPHY

NTIS/PS-78/0482

Food Packaging and Storage.
Volume 2. June 1977-April 1978.
Bibliography with Abstracts.

NTIS/PS-78/0761

Solid Waste Reclamation and Recycling.
Part 1. Packaging and Containers.
Bibliography with Abstracts.

CASE STUDY IN PROGRESS

PLACE: Center Nacional de Productividad
CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT: Pedro E. Garcia, Director

ORGANIZATION'S PURPOSE

"To provide information and technical assistance to those organizations who require continuous contact and updating."

PROJECT DESCRIPTION

"To make maximum advantage of natural resources heretofore neglected. Technical assistance will be provided by CENAP's Department of Technical Assistance and the Technology Transfer and Information Service (SITT)."

BIBLIOGRAPHY

- PB 258 499 Fuel and Energy Production by Bioconversion of Waste Materials State-of-the-Art
- PB 259 990 Report of a Workshop on Aquatic Weed Management: Some Prospects for the Sudan and Nile Basin, Held at Khartoum, Sudan on 24-29 November 1975
- N75 22938 Application of Vascular Aquatic Plants for Pollution Removal, Energy and Food Production in a Biological System
- N76 10569 Grown Organic Matter as a Fuel Raw Material Resource

CASE STUDY IN PROGRESS

PLACE:

Grupo de Tecnologia Apropiada
Apartado 1421
Panama 9A, Panama

PRINCIPAL CONTACT:

Samuel Bern

ORGANIZATION'S PURPOSE:

To publish periodic reports on appropriate technology to organize seminars in rural areas on alternative energy resource development and agriculture.

PROJECT DESCRIPTION

"To increase awareness among rural populations of the dangers of pollution occurring in the waste stream of the coffee processing plants and to propose appropriate solutions. Technical assistance is provided by an agronomist specializing in bio-technology. The project has a \$5,000 budget for 6 months duration. The beneficiaries are the residents of the Boquete area who utilize the water from these streams.

BIBLIOGRAPHY

PB 217 142

Engineering Studies of Coffee Mill
Wastes in El Salvador, C.A.

PB 217 790

Treatment of Wastes from Coffee
Processing in Costa Rica

CASE STUDY IN PROGRESS

PLACE:

Ministerio de Salud Publica
Tegucigalpa, Honduras

ORGANIZATION'S PURPOSE

To train extension personnel to provide basic health services.

PROJECT DESCRIPTION

"To extend these services throughout greater areas. Technical assistance will be provided by AID and the rural population which comprise almost 70% of Honduras' population.

BIBLIOGRAPHY

PB 239 556-T	Barefoot Doctors Manual
PB 262 754	Health Training Resource Material
PB 268 988	Health Advice for the African Family
NTIS/PS 78 0870	Aquatic Weed Control

CASE STUDY IN PROGRESS

PLACE: Foster Parents Plan International/
Chalatenango
la Calle Poniente #12
Chalatenango, El Salvador

PRINCIPAL CONTACT: Tim Allen

ORGANIZATION'S PURPOSE

"PLAN, Foster Parents Plan Internacional begins at the grassroots level in that all ideas, organizations, human resources involved in a project come from the beneficiary community itself."

PROJECT DESCRIPTION

To facilitate "the implementation of projects in preventative health, vocational and formal education, community development and small income generating and agricultural projects. PLAN has a team of local project promoters, trained in-house in simple organizing techniques. PLAN will enroll some 3,000 affiliated low-income farming families in the Department of Chalatenango within the next year. The total population benefitting from programs and services is 36,000 people."

BIBLIOGRAPHY

PB 283 958 Manual de Tecnologia para la
Comunidad (Village Technology
Handbook-Spanish version)

CASE STUDY IN PROGRESS

PLACE:

Directora Ejecutiva
Centro de Integracion Familiar
Apartado Postal 186-A
Guatemala, Guatemala

PRINCIPAL CONTACT:

Maria Mercedes de Rossi

ORGANIZATION'S PURPOSE

"We have a Rural Home in Rabinal, Baja Verapaz province which services five villages with equipment to promote health, agriculture and home economics, etc. to low-income groups (average monthly income per family: U.S. \$12); we are particularly aware of the role women play as a key element in promotion and development."

PROJECT DESCRIPTION

Technical assistance will be provided by a team native to the area and composed of a General Supervisor, a doctor, a professor, an agronomist, a nutritionist, etc. The project has an operating budget of U.S. \$110,000 for three years. (The Project is designed to last three years for each group of four or five villages). Funding is provided locally and from European sources."

BIBLIOGRAPHY

PB 263 349

Manual Didactico: Huertos Escolares
y Nutricion (Teaching Manual: School
Gardens and Nutrition).

"We consider this report as very useful, didactic, and practical. Mostly, it will be utilized to train the women since they are the key to the development of home economics within the context of capacitating the five villages covered by this project."

CASE STUDY IN PROGRESS

PLACE:

CARE, Inc.
Box 773
Port-au-Prince, Haiti

ORGANIZATION'S PURPOSE

"CARE-Haiti currently serves over 170,000 children in its School Feeding Program, plus 55,000 workers and dependants in Food for Work."

PROJECT DESCRIPTION

"Food for Work projects strive to encourage community action in soil conservation, road construction, housing, etc. Technical assistance will be provided by specialists from the Haitian Government Department of Agriculture, Education, Public Health and Public Works, and our own staff of engineers and agronomists. CARE's beneficiaries represent the poorest segment of the Haitian society; Haiti is the poorest country in Latin America."

BIBLIOGRAPHY

- | | |
|-------------|----------------------------------------------------------------------------------------------------------|
| PB 253 126 | Products from Jojoba: A Promising New Crop for Arid Lands |
| PB 282 650 | Solar Cookers for Haiti: A Feasibility Study |
| HRP 0200501 | Guide to the Collection and Use of Health Expenditures and Utilization Data for Health Planning Agencies |
| TID 22781 | Fuels from Sugar Crops |

SECTION 6

REFERENTIAL LISTING OF NTIS

APPROPRIATE TECHNOLOGY REPORTS

BY ACCESSION NUMBER

REF-000

AD-A002 212
AD-A003 909
AD-A004 254
AD-A008 453
AD-A010 976
AD-A013 482
AD-A015 426
AD-A026 264
AD-A029 823
AD-A029 842
AD-A032 835
AD-A036 072
AD-A038 482
AD-A044 343
AD-A044 765
AD-A044 767
AD-A044 982
AD-A047 981

AD-210 105
AD-417 467
AD-464 900
AD-600 859
AD-615 459
AD-636 809
AD-638 118
AD-651 116
AD-657 007
AD-657 858
AD-664 641
AD-668 852
AD-668 853
AD-670 260
AD-671 856
AD-675 354
AD-676 124
AD-677 010
AD-678 292
AD-678 728
AD-679 182
AD-679 459
AD-679 473
AD-679 474
AD-679 475
AD-679 477
AD-679 833
AD-683 052
AD-683 935
AD-684 411
AD-685 455

AD-685 824
AD-686 717
AD-686 836
AD-687 028
AD-687 318
AD-701 167
AD-701 189
AD-703 222
AD-703 223
AD-703 224
AD-703 232
AD-703 235
AD-703 884
AD-704 160
AD-704 261
AD-707 560
AD-709 715
AD-709 718
AD-714 914
AD-715 802
AD-715 871
AD-716 235
AD-716 403
AD-716 740
AD-717 965
AD-720 097
AD-722 000
AD-723 062
AD-727 713
AD-730 939
AD-731 719
AD-740 285
AD-743 436
AD-744 691
AD-746 489
AD-748 582
AD-750 351
AD-755 424
AD-758 524
AD-765 616
AD-772 930
AD-781 403
AD-782 199
AD-785 748
AD-785 928
AD-787 465
AD-837 454
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AD-837 497
AD-878 676

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COM-72-50175-017
COM-72-50175-018
COM-72-50175-027
COM-72-50175-033
COM-72-50175-038
COM-72-50251-03-12
COM-72-50659
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COM-73-10343
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COM-74-10547	E77-10024	PATENT-4 035 065
COM-74-11005	E78-10132	PATENT-4 065 053
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COM-74-11489	HCP/M3879-0003	PB-169 304
COM-74-11490	HCP/M3879-1(V.1)	PB-169 744
COM-74-11491		PB-170 306
COM-74-11492	HIT-693(V.2) (App.)	PB-170 327
COM-74-11493		PB-173 709
COM-74-11494	HRP-0006853	PB-173 710
COM-74-11645	HRP-0007411	PB-174 333
COM-74-11781	HRP-0010205	PB-174 346
COM-74-50182	HRP-0013245	PB-174 673
COM-74-50184	HRP-0016123	PB-175 521
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COM-74-50522	JPRS-43442	PB-175 524
COM-74-51230	JPRS-57636	PB-175 526
COM-75-10241		PB-175 531
COM-75-10263	LA-DC-13156	PB-175 532
COM-75-10394	LA-6489	PB-175 535
COM-75-11378		PB-175 537
COM-75-50001	LBL-5927	PB-175 538
COM-75-50185-03-05	LBL-6182	PB-175 539
COM-75-50192-03-04	LBL-7214	PB-175 541
		PB-175 546
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CONF-750712-12		PB-175 549
CONF-750761-1	NTIS/PS-75/655/1	PB-175 550
CONF-760536-1	NTIS/PS-77/0112/1	PB-175 551
CONF-770367	NTIS/PS-77/0113/9	PB-176 780
		PB-177 544
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COO-2829-2	N74-16801	PB-177 915
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COO-4094-1	N76-10569	PB-177 919
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DIB-77-10-514	N77-18954	PB-177 924
	N78-10603	PB-177 925
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ED-070 505	ORNL-5024	PB-177 931
		PB-177 932
EIS-AA-72-5805-D	PAT-APPL-566 493	PB-177 933
EIS AA-73-1451-F	PAT-APPL-598 969	PB-177 934
	PAT-APPL-617 202	PB-177 934
ERDA-tr-288		PB-177 943
ERDA-77-47/2	PATENT-3 331 356	PB-177 944
ERDA-77-79	PATENT 3 984 266	PB-177 945

PB-177 946	PB-188 918	PB-192 794
PB-177 948	PB-188 919	PB-193 242
PB-177 949	PB-188 921	PB-193 553
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PB-177 956	PB-188 926	PB-194 391
PB-177 962	PB-188 927	PB-194 757
PB-177 963	PB-188 931	PB-195 052
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PB-178 373T	PB-189 831	PB-195 326
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PB-179 327	PB-189 920T	PB-195 900
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PB-179 359	PB-189 966	PB-196 296
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PB-179 363	PB-189 972	PB-196 340
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PB-180 509	PB-189 996	PB-201 729
PB-182 735	PB-190 000	PB-202 778-Set
PB-182 764	PB-190 001	PB-203 331
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PB-184 450	PB-190 674	PB-203 491
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PB-185 168	PB-190 676	PB-203 844
PB-186 188	PB-190 677	PB-204 408
PB-187 565	PB-191 034	PB-205 761
PB-188 841	PB-191 721	PB-206 539
PB-188 851	PB-192 726	PB-206 549
PB-188 852	PB-192 750	PB-206 550

PB-206 698	PB-209 172	PB-212 398
PB-206 700	PB-209 175	PB-212 632
PB-206 70-	PB-209 176	PB-212 633
PB-206 775	PB-209 177	PB-212 726
PB-206 776	PB-210 105	PB-212 748
PB-206 790	PB-210 128	PB-212 749
PB-206 798	PB-210 129	PB-212 779
PB-206 799	PB-210 130	PB-212 784
PB-206 800	PB-210 138	PB-212 916
PB-206 801	PB-210 332	PB-212 975
PB-206 803	PB-210 507	PB-213 181
PB-206 804	PB-210 508	PB-213 372
PB-206 805	PB-210 592	PB-213 492
PB-206 806	PB-210 593	PB-213 594
PB-206 851	PB-210 594	PB-213 612
PB-206 902	PB-210 595	PB-213 756
PB-206 904	PB-210 596	PB-213 758
PB-206 913	PB-210 597	PB-213 764
PB-206 967	PB-211 367	PB-213 766
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PB-206 969	PB-211 444	PB-213 794
PB-206 970	PB-211 473	PB-214 172
PB-206 971	PB-211 487	PB-214 489
PB-206 972	PB-211 628	PB-214 508
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PB-206 977	PB-211 629	PB-214 984
PB-207 132	PB-211 640	PB-215 103
PB-207 192	PB-211 641	PB-215 149
PB-207 385	PB-211 642	PB-215 282
PB-207 393	PB-211 643	PB-217 117
PB-207 400	PB-211 658	PB-217 119
PB-207 491	PB-211 663	PB-217 142
PB-207 495	PB-211 669	PB-217 293
PB-207 496	PB-211 671	PB-217 382
PB-207 497	PB-211 672	PB-217 667
PB-207 507	PB-211 761	PB-217 790
PB-207 520	PB-211 762	PB-218 226
PB-207 534	PB-211 774	PB-218 232
PB-207 613	PB-211 775	PB-218 338
PB-207 618	PB-211 843	PB-218 681
PB-207 619	PB-211 882	PB-218 990
PB-207 625	PB-211 883	PB-219 684
PB-207 626	PB-212 001	PB-219 685
PB-207 628	PB-212 002	PB-219 696
PB-207 636	PB-212 034	PB-219 708
PB-207 647	PB-212 035	PB-219 710
PB-207 812	PB-212 101	PB-219 711
PB-207 862	PB-212 238	PB-219 712
PB-207 980	PB-212 288	PB-219 721
PB-208 432	PB-212 371	PB-219 725
PB-208 550	PB-212 372	PB-219 735

ATTACHMENT C

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(4)

CASE STUDIES
HANDBOOK

AN AID TO EVALUATE
THE UTILIZATION OF
SCIENTIFIC AND TECHNICAL INFORMATION

PREPARED FOR USE BY PARTICIPANTS IN
THE USAID - SPONSORED
INTERNATIONAL TECHNICAL INFORMATION NETWORK

MANAGED BY
OFFICE OF THE DIRECTOR
THE NATIONAL TECHNICAL INFORMATION SERVICE
U.S. DEPARTMENT OF COMMERCE

REPORT DOCUMENTATION PAGE	1. REPORT NO. NA	2.	3. Recipient's Accession No. NA
4. Title and Subtitle Case Studies Handbook: An Aid to Evaluate the Utilization of Scientific and Technical Information			5. Report Date October 1979
7. Author(s) Francisco J. Pardo de Zela			6.
9. Performing Organization Name and Address National Technical Information Service (NTIS) Office of the Director Developing Country Staff 425 13th Street, N.W. Suite 620 Washington, D.C. 20004			8. Performing Organization Rept. No.
12. Sponsoring Organization Name and Address Agency for International Development (AID) Washington, D.C. 20523			10. Project/Task/Work Unit No.
			11. Contract(C) or Grant(G) No. (C) PASA #CZ/LAR-0572-1-77 (G) PASA #CZ/TAB-1114-2-77
15. Supplementary Notes Handbook prepared as part of the AID sponsored International Technical Information Network.			13. Type of Report & Period Covered
16. Abstract (Limit: 200 words) This handbook contains an elaborated discussion on how to develop case studies describing some of the uses of scientific and technical information in development projects. Suggestions are offered to establish techniques adaptable to the needs and specifications of the reader. Sample case studies are provided on the use of information available through the US AID Network. These resulted from interviews with users in nine participating countries. This handbook can also be used as a reference tool to identify interview candidates from among users of appropriate technology information obtained from the NTIS bibliographic data base.			14.
17. Document Analysis a. Descriptors			
b. Identifiers/Open-Ended Terms case studies, development information utilization, appropriate technology, development information dissemination, methodology, interview techniques			
c. COSATI Field/Group			
18. Availability Statement intended for limited distribution		19. Security Class (This Report) unclassified	21. No. of Pages 106
		20. Security Class (This Page) unclassified	22. Price NA

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SECTION 1
INTRODUCTION

INT-000

1.0 INTRODUCTION

This handbook is designed to help those concerned with evaluating the utilization of scientific and technical information. Although the experience of undertaking this task is here related to the International Technical Information Network Project (hereafter referred to as the "Network Project"), the techniques of developing case studies on information utilization are applicable in a variety of contexts - particularly within existing national or regional networks of information distribution as are the various agencies participating in the Network Project.

For the Network Project, the main concern governing the development of these case studies is to help evaluate how information contributes to development, to identify those scientific and technical reports which have proven utility, to gain insight into the nature of technology transfer, to identify alternatives or develop innovations to facilitate technology transfer and to share this information with all concerned.

To achieve these goals, certain criteria were chosen to conform with guidelines established by the U.S. Agency for International Development-US AID and to confine discussions on scientific and technical information utilization within the context of development. Components already established within the Network Project - mainly the promotions of user education seminars and appropriate technology - have been particularly useful in defining these criteria. Complementing the case studies component, user education seminars provide an excellent source for identifying candidates for future case study interviews who will already have had an exposure to the Network Project. The appropriate technology component, which has yielded valuable contributions by selectively searching the bibliographic data file at the National Technical Information Service of the U.S. Department of Commerce for information appropriate to development, and through its effort to acquire appropriate technology information from world-wide sources, has initiated a free dissemination of reports to those intending to adapt information to improve the lot of the disadvantaged. To access reports, requestors are asked to complete a special form to initiate the documentation of how this information is to be utilized; from these completed forms, yet another list emerges from which to identify candidates to be interviewed for case study development.

Other components of the Network Project also contribute to the formulation of user profiles for the identification of case study prospects. The main announcement tool of the Network Project, Applications of Modern Technology to International Development-AMTID, is widely circulated within participating countries; its mailing list contains names and addresses of individuals and organizations who have demonstrated an interest in promoting technological development. Such a list can also help identify candidates.

The Network Project also provides for direct interaction between members of the NTIS Developing Country Staff and members of those organizations responsible for

information dissemination located in each participating country. Network Project components such as field visits, the NTIS Information Systems Workshops and Regional Conferences provide opportunities for this direct and personal interaction - not only with NTIS, but also among members of the participating agencies themselves. Occasions such as these can generate fruitful discussions on evaluation methods and lead to a consensus as to what kind of case study is most appropriate. In most instances, people who attend the conferences or the Workshop will be personally involved in the selection of candidates and will also help arrange interviews for case study development.

This handbook will first discuss the development of case studies. Although the example here is the Network Project experience at undertaking this task, the ideas and methods discussed have a wide range of application. The intent here is to offer suggestions on how you may develop your own tools for evaluating information utilization. Section 2, How to Use This Handbook, tells you at a glance where to look in this handbook for ideas on particular aspects of case study development. Next, Section 3, How to Develop a Case Study, discusses how to use this handbook to identify candidates for case study development using various tools currently available through NTIS and possibly other organizations concerned with information transfer.

Section 4, Applications of Scientific and Technical Information in Developing Countries provides examples of case studies which have been developed by the Developing Country Staff resulting from interviews in 9 participating countries with 90 principal contacts from 49 organizations; these studies were developed during 1978 and through September 1979. These studies will demonstrate that adaptations of information can vary from context to context resulting in equally varied interpretations of utilization.

Section 5, Case Studies in Progress, includes case studies which are still in the initial stages of development. The entries in this section, many of which originate with responses to the Appropriate Technology Information Request Forms (see pages DEV-012,013), require further follow-up to see whether intended objectives have been reached. Are any of these information users located in your country? Can they be reached for further case study development? Has the information they received through the Network Project proved useful in developing their stated project goals? If you acquire any further information on these people's activities, please inform us so that we may all share these technological adaptations with your colleagues in the Network.

Section 6, A Referential Listing of NTIS Appropriate Technology Reports by Accession Number. Among the reports listed here are those which have already demonstrated utility or which otherwise have been identified by user/clients as containing helpful information. Such a list can then be used to cross-reference against bibliographies corresponding to the candidates being considered for case study development and so identify the users who are adapting information conducive to appropriate technology development. As your experience in developing case studies accumulates, you will notice that certain items of information will appear more

frequently and show greater applicability than others; a list of such reports should be maintained for reference. This procedure will also help you compare utilizations of similar information sources.

A current listing of agencies participating in the Network Project is found in Section 7. Unless you are already associated with one of these agencies, you may consider contacting them for assistance in developing a case study strategy.

SECTION 2

HOW TO USE THIS HANDBOOK

USE-000

A.) To Identify Users

- i.) Refer to Sections 3.2 and 3.3;
- ii.) Review Section 3.2c to identify users in your country;
- iii.) Review "Background" Sections to the Case Studies in Section 4.0;
- iv.) Survey deposit accounts or other records of document distribution; compare documents listed with accession numbers listed in Section 5.0;
- v.) Prepare a list of users from i and iv along with their addresses and bibliographies and any other information you may have.

B.) To Arrange the Interview

- i.) See Section 3.4 ;
- ii.) Consult "Background" segments to the Case Studies in Section 4.0.

C.) To Prepare the Case Study Report

- i.) See Section 3.5;
- ii.) Review Case Studies in Section 4.0 for ideas on form and content.

D.) To Develop a Follow-Up Strategy

- i.) See Section 3.6;
- ii.) Review Evaluation Formats in Section 3.2a.

SECTION 3

HOW TO DEVELOP A CASE STUDY

3.0 How to Develop a Case Study

The following sub-sections describe various aspects of case study development in a sequential format. These are: how information is used; how users are identified; how users are selected for interviewing; conducting the case study interview; suggestions for designing a working format to develop the case study itself; and, how to develop a follow-up strategy.

3.1 How Information is Used

To illustrate how information leads to the development of case studies, it may be useful to classify technical information into two broad categories:

- 1) applicative -- information which is acquired with an intent to adapt it towards solutions to particular problems, for policy formulation, in developing specifications for a project, for designing new tools, etc.; generally, this kind of utilization is action oriented, impacts upon prevailing technological circumstances, and is used to benefit a particular group. (e.g., "how-to" manuals, industrial plant specifications).
- 2) referential -- information which is acquired for personal evaluation, trend-scanning, state-of-the-art awareness, or for setting up an information bank; information utilized in this manner is not generally project-specific nor conducive to the development of case studies which are more concerned with describing the impact of adaptation; (e.g., glossaries, statistical charts, etc.).

An intangible commodity such as information often defies quantitative analysis. Rarely is a single item of technical information wholly referential or wholly applicative. Information which is utilized for reference in one instance may become applicative in another. Consequently, we must consider that any endeavor dedicated to technological transformation will make use of both varieties of information from diverse sources. As a project unfolds, different kinds of information will be used at different stages.

Generally, the information user will begin with the referential sort of information. Then, as research progresses, more specific "applicative" information is required. "Referential" and "applicative" in this context are defined by how information is utilized and not by how a particular report is designed or designated; utilization of any information in this respect is user-specific.

Therefore, to gain a perspective on how and at what stages scientific and technical information is used, we must go to the user himself to determine which information he considers to have been useful. In the final analysis, it is the user who determines, through creative adaptations, which set of documents contains resourceful information. The user, the individual who has taken in information to adapt to a given situation, is the final arbiter in the identification of useful information. Furthermore, he is in a perfect position to add to the value of the information he utilized by providing an illustration of how information has contributed to his project. The case studies researcher can then use these illustrations to provide better technical assistance when attending to the information needs of other clients with similar projects by describing the benefits which have resulted and perhaps offer some suggestions on how information can be modified for adaptation. The case study researcher can help further by identifying the variables and the constants attendant to the various forms of technology transfer; this can be done with increasing accuracy once more and more case studies can be documented and certain patterns of adaptation emerge.

Case studies which contribute most to understanding technology transfer are best developed by interviewing users who have expressed an applicative rather than referential use of information. This is primarily because the connection between a specific report and a consequent action is easier to distinguish.

For example, consider the following situation: a Spanish-speaking Latin American technical assistant who wants to develop a means of converting waste into energy orders the following bibliography:

PB 262 745

A Glossary of Agricultural Terms:
English-Spanish, Spanish-English

TID 27164

Bioconversion of Agricultural Wastes
for Pollution Control and Energy
Conservation.

We learn later that he has developed an energy-producing operation adapted from specifications contained in the second report but that he needed the glossary to interpret the terminology correctly. The connection between the second report and the users consequent action is clear. The glossary, however, was used here as a reference tool and, although it was very valuable to the user, it can not be said to contain information related to the outcome of the project. The glossary was a tool to understand terminology and not to develop technology; only when combined with the second report does it acquire any value of contribution to the project. This is another reason why the case study researcher should analyze documents collectively and look for an interrelationship among them.

Referential information such as the glossary is surely valuable; however, to develop case studies on how information is adapted to develop technology, it is much more useful to discuss the contributions of more "applicative" information such as contained in TID 27164. The case study researcher should develop a list of such reports (or combinations of reports) to identify other candidates for case study development.

At NTIS, such a list of accession numbers to reports which have demonstrated utility has been compiled to assist in the selection of candidates for case study interviewing, (please refer to Section 6). Perhaps you can develop a similar list for your own reference.

3.2 How Users Are Identified

The case studies researcher should begin his selection of candidates for interview by considering the following items:

3.2a Office Files

Most agencies which disseminate information, or otherwise provide technical assistance, maintain records of where reports are going and, sometimes, even an indication of what is to be done with the information.

Many of the Network Agencies not only maintain such information but have also developed evaluation forms where clients themselves are given an opportunity to discuss how the information they have acquired has benefitted them.

An inspection of one agency's returned evaluation forms showed the following responses:

Q: How was the information contained in these reports helpful to you in developing your work?

A: No. 1

"The information acquired was distributed to personnel throughout the firm to assist them in various different situations; therefore, no concrete answer is available for this question."

No. 2

"The information was acquired for future consultation."

No. 3

"Several tests for evaluating water purification were developed according to specifications contained in the reports."

- No. 4
"The documents contained information appropriate to the needs which generated their request."
- No. 5
"Some of the documents contained valuable information."
- No. 6
"They have served to enlighten and make clearer some of the working concepts I employ frequently in my work."
- No. 7
"These documents were selected for our technical personnel and were helpful in the development of the technicians projects."
- No. 8
"They were essential for the formulation of our reports--with comparison data, project descriptions."
- No. 9
"It expanded the information found in a footnote."
- No. 10
"Only through the Question-Answer Service was it possible to obtain this information."
- No. 11
"It provided data important to the development of our research."
- No. 12
"The information presented was clear, practical, and useful."
- No. 13
"As a reference base and as a bibliographic source."
- No. 14
"A. The methodological contents
B. The fields of information and research covered."
- No. 15
"The information contained helped me develop my current research."
- No. 16
"They contain up-to-date information, they are obtained quickly and very economically."
- No. 17
No response.
- No. 18
"The documents contained articles on themes related directly to my work."

On the basis of these responses, we should be able to formulate certain impressions about the users and the likelihood of developing case studies by interviewing the user.

Number 17 is clearly not interested in discussing his utilization; numbers 2, 9, and 13's intentions are referential and bibliographic - too broad to show a connection; numbers 1, and 7 were acquired by information gatherers for distribution; and numbers 10, 14 and 16 do not discuss at all how the information obtained is related to their tasks.

At the other end of the spectrum, number 3 offers the most concrete answer and appears to be the likeliest candidate for further case development with number 8 running a close second. Numbers 4 and 5 acknowledge that the information was "appropriate" and "valuable"; perhaps an interview with them would show how in more definite terms. Numbers 6, 8, 11, 12, 15 and 18 could also be investigated further.

Now we can draw up a list of potential interview candidates. Once these clients can be identified we can consult the disseminating agency's files and personnel for any additional information which relates to these clients' utilizations.

Document evaluation forms are a good source from which to develop a user profile and to identify case study candidates. Many agencies participating in the Network have developed their own forms according to their own information needs. Here are samples of these forms developed by NTIS (English and Spanish) and by the Colombian participating agency, COLCIENCIAS; perhaps they will help you formulate your own format for an evaluation of how information is utilized.

NTIS DOCUMENT EVALUATION FORM

We need your technical assistance. Please take a few minutes to tell NTIS whether this document is useful or not for your particular needs.

NAME _____

ORGANIZATION _____

ADDRESS _____

Title of Document: _____

Author: _____ PB Number _____

Please describe briefly your project for which the document was requested:

Was the document useful? Why or why not? _____

What other documents have you used for this project, with a short description in how useful they were. _____

Additional comments. (How can the NTIS service better meet your information needs?) _____

Please return this sheet to: Paul Bundick NTIS
425 13th Street, N.W. - Suite 620
Washington, D.C. 20004 USA

NTIS - FORMULARIO DE EVALUACION DE DOCUMENTOS

Necesitamos su asistencia técnica. Le rogamos dedicar unos pocos minutos para informar al NTIS si este documento le resulta de utilidad o no para sus necesidades específicas.

NOMBRE _____

ORGANIZATION _____

DIRECCION _____

Título del documento: _____

Autor: _____ Número de PB: _____

Breve descripción del proyecto para el cual se solicitó el documento:

¿Le resultó útil el documento? ¿Por qué o por qué no? _____

Indicar qué otros documentos se utilizaron para este proyecto, con una breve descripción de su utilidad. _____

Comentarios adicionales. (¿De qué manera el NTIS puede proporcionarle un mejor servicio para satisfacer sus necesidades de información?) _____

Le rogamos remitir este formulario a:

Paul Bundick, NTIS
425 13th Street, N.W.
Suite 620
Washington, D.C. 20004
U.S.A.



MINISTERIO DE EDUCACION NACIONAL
FONDO COLOMBIANO DE INVESTIGACIONES CIENTIFICAS
y Proyectos Especiales "Francisco José de Caldas"

NATIONAL TECHNICAL INFORMATION SERVICE NTIS

CUESTIONARIO DE EVALUACION

Lugar y fecha _____

Nombre y dirección del Usuario _____

Profesión _____

Entidad y cargo _____

Documentos pedidos _____ Documentos recibidos _____

Tiempo requerido para su adquisición _____

Area de estos documentos _____

Si la información contenida en los documentos fué útil para el desarrollo de su trabajo, diga por qué? _____

Teniendo en cuenta el contenido de los documentos adquiridos y su posible aplicación, el precio de ellos lo considera adecuado y por qué _____

CONCIENCIAS

- 2 -

Cuánto tiempo hace que utiliza el Servicio NTIS y cómo lo conoció? _____

Por qué en caso de tener que localizar información técnica, utilizaría nuevamente el Servicio? _____

Qué sugerencias desea usted hacer para que se pueda mejorar el Servicio NTIS ? _____

Considera que el Servicio NTIS se puede calificar como:

Eficiente _____ Bueno _____ Deficiente _____ Malo _____

Si conoce usted algún especialista que pueda estar interesado en este Servicio anote:

Nombre _____ Profesión _____

Entidad _____ Cargo _____

Dirección _____

Firma _____

3.2b The Deposit Account

Most organizations in the business of disseminating information maintain current accounts for their regular clients. These account statements normally supply a listing of documents sent to individual clients who are usually identified by a code number assigned by the organization.

The documents which appear on these statements can then be analyzed to see whether they contain information which can be utilized for technological development. One way of doing this is to compare the list of document accession numbers on the statement against a similar list of documents which have shown "applicative" value to other users or which conform to an established set of criteria.

3.2c The Appropriate Technology Document Request Forms

In the case of the Network Project, which is designed to aid each participating country's national development, a reference list of accession numbers has been prepared of those documents which have shown successful applications or which contain information appropriate to development (please see Section 5). A major source contributing to this expanding list is responses to the Appropriate Technology Document Request Forms.

In January 1979, the Agency for International Development initiated a subsidized dissemination through the Network for individuals and organizations in Latin America and the Caribbean which have expressed a commitment to developing projects designed to improve conditions of disadvantaged groups; a special order request-form was designed wherein the requestor is asked to describe his organization's purpose and provide a brief description of his intended utilization of the requested material. These forms are particularly meaningful since the user himself can indicate what information he considers beneficial.

Furthermore, comparisons can then be made between intended and actual results of utilization and help identify reports which have proven utility. It is important to remember that document groupings by project, as appear in these case studies and request forms, afford a better view of how information is utilized. These groupings can then be retrieved and packaged to provide similar technical assistance to other users with similar projects.

These request forms and evaluation sheets are only preliminary to case study development; to assess the real impact of information adaptation, the user/client should be interviewed.

The subsidy aspect provides an excellent background for identifying candidates for interview who are likely to be more receptive about discussing their utilization. Furthermore, the subject matter, appropriate technology, can have broad applicability in a variety of contexts; consequently, case studies resulting from these adaptations can provide valuable insights for other users with similar purposes, bibliographies and objectives.

Following is a sample of these request forms (English and Spanish). Case studies currently being developed from responses to these questionnaires are included in Section 5, Case Studies in Progress; as more responses are received to this questionnaire, they will be added on to this Section.

NTIS APPROPRIATE TECHNOLOGY DOCUMENT REQUEST FORM

The Agency for International Development has established a fund to purchase NTIS documents for organizations working to assist low-income groups in Latin America through the application of Appropriate Technology. Those wishing to request documents must complete this form and return it to:

Paul Bundick, NTIS
425 13th Street, N.W. - Suite 620
Washington, D.C. 20004

REQUESTING ORGANIZATION

NAME _____

ADDRESS _____

ORGANIZATION'S PURPOSE

(State explicitly how the organization works with low-income groups.)

PLEASE TELL US ABOUT YOUR PROJECT

What will it achieve? _____

Who is performing the technical assistance? _____

Who are the beneficiaries? (End-users and/or groups to be served) _____

DOCUMENTS REQUESTED

ORDER NUMBER	TITLE	QUANTITY*

* If microfiche is requested, please note.
DEV-012

NTIS - FORMULARIO PARA SOLICITAR DOCUMENTOS SOBRE TECNOLOGIAS APROPIADAS

La Agencia para el Desarrollo Internacional ha establecido un fondo destinado a la adquisicion de documentos del NTIS, para organizaciones dedicadas a ayudar a grupos de bajos ingresos en America Latina, mediante la utilizacion de tecnologias apropiadas. Para solicitar dichos documentos debe completarse este formulario y remitirse a:

Paul Bundick, NTIS
425 13th Street, N.W. - Suite 620
Washington, D.C. 20004

ORGANIZACION SOLICITANTE

NOMBRE _____

DIRECCION _____

OBJETIVOS DE LA ORGANIZACION

(Detalle explicitamente la forma en que la organizacion trabaja con los grupos de bajos ingresos.)

INFORMACION SOBRE EL PROYECTO

Cuales son sus objetivos? _____

Quien proporciona la asistencia tecnica? _____

Quienes son los beneficiarios? (Usuarios finales y/o grupos que seran ayudados)

DOCUMENTOS SOLICITADOS

NUMERO DE ORDEN	TITULO	CANTIDAD*

* Indiquese si se solicitan microfichas.

3.3 Problems to Consider When Selecting User/Clients for Interview

Development of case studies can be valuable in evaluating the impact which information has had on national development throughout Network member countries. Not only do case studies respond to the need to develop evaluative techniques necessary to any foreign aid program, but it is the only qualitative description of what transformations have taken place.

However, user/clients may not care to discuss their utilizations or the case studies may not reveal beneficial results. Here are some factors to consider when selecting candidates for interview from among the following categories:

1. Government Organizations

A problem distinct of this category is not obtaining cooperation from a particular user, but rather trying to implement the solution to given problems in a situation where many important needs are vying for national government attention. In many instances, it was observed that there had indeed been an active utilization of NTIS documents to produce a workable feasibility study or action plan to solve national problems, yet these efforts had not yet been adopted. Normally, solutions emerging from such utilizations are subjected to a framework of priorities established by the respective national government. National development objectives can vary from one administration to the next - depending on which policy guidelines prevail.

Utilization of information among this group of users usually develops into feasibility studies, project proposals, or position papers. Ideas for technological development contained in such reports demonstrate an action resulting from information intake. Furthermore, unless the specifics of these reports are considered restricted information by a government (which can be another block against accurate case study development), these ideas may yet yield beneficial results in other applications.

2. Industry

Within this group, there is frequently expressed application of scientific and technical information, particularly in the field of business management; however, there is a general reluctance to discuss usage of information to any great detail since a view is maintained that information which has been evaluated and applied acquires greater value and becomes new original information. In essence, then, information which was once public domain has now become transformed into private property. This tends to limit the possibilities of describing accurately the technological transformations taking place.

3. Universities and Research Centers

Often, interviews were scheduled with people who had ordered documents for others and are not themselves users, or they had received information dealing exclusively with documentation or library science. Also, orders are often placed by these clients in anticipation of need or for research in the university.

4. Consulting Firms

As with universities and research centers, the actual user of the information may not appear on the account statement since the documents may have been ordered for redistribution among staff members of the firm. Special attention should be given to the proper identification of the user in such firms; these users usually obtain the information to support a particular project and are therefore valuable candidates for illustrating how information is adapted to suit particular needs.

5. Trading Firms

Scientific and technical information utilization in this category is mostly referential. The business of trading firms is to identify, evaluate, acquire, and market technological packages. In this sense, technological development has not taken place unless the packaging, acting as a catalyst which may lead to development, is itself considered a technological development. Although it can be argued that it is an action resulting from valid information utilization, it nevertheless does not lend itself to a discussion of technological impact; however, case studies could be initiated by learning who intends to apply this technological package and then further developed through follow-up.

The problems described above are not necessarily contained to the particular category nor are these problems encountered in the development of every case study. By being aware of these problems, you can identify and select candidates for interviewing more accurately. Many of these problems can be avoided by contacting the candidate prior to the interview.

Who, then, are the candidates to interview most likely to help render case study developments? This depends on the kind of information you hope to gather from the interview. Generally, no single group of users interviewed will continuously supply you with case study material.

3.4 Conducting User Interviews

Before the actual interview takes place, the case studies researcher should review all available material pertaining to the user - particularly his corresponding bibliography; this will help to guide and contain the discussion on how particular pieces of information have been utilized. The user can now be contacted to schedule an interview appointment.

The interview itself should allow ample opportunities for all present to contribute to the discussion.

It is essential that the researcher remember that the interview is a favor granted by the user/client; the user/client is under no obligation to anyone to discuss what has been done with the information he has acquired and it may very well be that he has his own intentions for granting the interview. The case studies researcher should be receptive to the user/clients questions and answer them as thoroughly as possible. However, the discussion should focus on the evaluative aspect of the Network rather than the promotional; if it becomes apparent that the user/client requires further promotion, he should be scheduled another visit.

The researcher should preface the discussion with a brief, simple statement of objective. Then, with the prepared bibliography in hand, questions can be raised concerning information utilizations. The questions should be formulated clearly and raised in a tone nearer to curiosity than to aggressive inquisition. The last thing the researcher should do is barage the user/client with a series of checklist type of "yes-or-no" questions. No two interviews are ever the same - even when identical bibliographies are being discussed. Therefore, questions should be formulated in such a manner as to allow the user/client to describe his experience in his own way.

After the interview, the researcher should develop a follow-up strategy. A one-time interview after the fact is an insufficient approach to case studies. Only after the effects of information transfer are measured against time can a valid evaluation be rendered and more solid conclusions be drawn.

3.5 A Case Study Checklist

After the interview, the case studies researcher is ready to report his findings emerging from the interview. The reporting format should be arranged in such a way as to render all the relevant information as accurately as possible while still flexible enough to accommodate a full picture of the context of transformation.

The following is a checklist which may help you design a format suited to your information needs. As you can see, the components are basic; nevertheless, this checklist can be easily modified to suit the particular case study. Sometimes, not all this information can be obtained at once and a follow-up strategy may have to be developed to complete the case study (see Section 3.6).

- Title; assign a title to your case study which describes the contents (refer to titles of case studies included in this handbook); you may also want to assign a code to your case study such as "MED-008"; i.e., the first three letters of the city or region where the case study was developed (e.g. Medellin) and/or an ordinal number (e.g. 008); this MED-008 would signify that it refers to the eighth case study developed in the city of Medellin, Colombia;
- Name and address of the principal contact interviewed and the date interviewed;
- A description of the user's organization and its purpose and of the project undertaken by the user;
- Specific references to documents used;
- An identification of other contributing factors relevant to project implementation such as financing sources, consultations, technical assistance, etc.;
- An identification of the individuals or groups who stand to benefit from this new technology.

3.6 Follow-Up Strategy

Follow-ups are an integral part of case study development. An interview with a user does not necessarily finalize the development of a case study. Theoretically, a case study describing the effects of information on technological development is an on-going process which can yield insights on various different levels - depending upon how the case study researcher chooses to interpret the information given. For Network evaluation, it seems appropriate to have case studies describe what actions result from an exposure to information contained in NTIS reports. For example, did a feasibility study, a project proposal, a position paper, or otherwise original contributions result from this intake? Is the user's functional role in technological transformation complete? Does he require further technical assistance? Follow-ups are necessary to determine the answers to these important questions.

Evaluation forms are only one way to follow-up a case study. Correspondence, telephone conversations, user education seminars, conferences, site visits, all offer opportunities for follow-up on previous case studies, as well as for initiating new ones.

There comes a point where the case studies researcher must allow the technological transformations being described to unfold over time. The researcher should then concentrate on developing a scheme of periodic follow-ups on a schedule appropriate to the pace of the technological transformations being described.

SECTION 4

APPLICATIONS OF SCIENTIFIC AND TECHNICAL
INFORMATION IN DEVELOPING COUNTRIES

USE OF APPROPRIATE TECHNOLOGY HELPS DEVELOPMENT IN THE PHILIPPINES

The feasibility of the "appropriateness" of agricultural mechanization in the Philippines was developed using NTIS documents as resources. The project proposal was based in part on documents made available to the researcher, Dr. Singh, by TRC, a cooperating agency of the USAID International Technical Information Network.

Although many NTIS reports had been used (mostly on a referential basis), Dr. Singh singled out PB 235 408, An Evaluation of Farm Irrigation Practices As a Means to Control the Water Quality of Return Flow, as significantly contributing to the study. This document is available from the U.S. National Technical Information Service for \$5.25.

With funding from the Ford Foundation, this study was undertaken in 1976-77 by Dr. Singh, Chairman of the Division of Agricultural and Food Engineering at the Asian Institute of Technology (AIT) in Bangkok, Thailand. The purpose was to suggest an appropriate system of mechanization for the rice and maize crop based on farm size, cropping intensity, production and net income per unit area. Methods of drawing conclusions and developing economic models from statistical data were adapted from the NTIS documents in providing a convincing argument for the utilization of mechanical equipment to benefit agricultural areas in the Philippines.

For rice farms, it was found that the power tiller users had the highest cropping intensity and highest annual production per hectare resulting in the highest income per hectare. Tiller and tractor farms used more hired labor than animal-powered farms due to the animal-powered farms dependence on the family unit for their work force. In maize farming, the farmers who used four-wheel

tractors in land preparation had higher cropping intensity and higher animal production per hectare compared to animal-powered farms. With the exception of a third crop, which is grown in very few plots, the tractor farms used more hired labor than the animal-powered farms. As with rice farming, the use of family labor, was higher on the animal-powered farms compared to tractor farms.

Based on the study, the researchers concluded that agricultural mechanization in the Philippines is a viable project to increase the productivity of the farming population as well as providing more employment opportunities and economic growth to a developing country.

4.2

APPROPRIATE TECHNOLOGY PROVIDES MEANS FOR LOCAL ENERGY PRODUCTION

The feasibility of using large-scale composting plants to produce methane in Manila is being studied using NTIS publications. The project proposal was based in part on documents made available to the researchers by TRC, a cooperating agency of the USAID International Technical Information Network.

The National Environmental Protection Agency (NEPC) in Manila, in cooperation with TRC, is using NTIS publications to determine alternative and cheaper sources of producing methane. Current research is showing that composting plants are more costly to operate than solid waste plants in energy production, even though income can be earned by composting through the sale of salvaged materials. Information contained in two NTIS reports, The Economic Analysis of Selected Features of Municipal Wastewater Construction Grant Legislation, PB 276 619, and the Analysis of Cost Sharing Programs for Pollution Abatement of Municipal Wastewater, PB 239 420, has enabled the researchers to conclude that composting alone is not a solution. Furthermore, favorable features of existing recycling components such as salvaging activities should be more carefully considered in the management of solid waste recycling. This is due to the income generated by scavengers and brokers who make their living marketing recovered materials.

Among the alternatives suggested by the NEPC through their research, are the use of landfills designed to recover methane gas, and various forms of incineration and biogasification that are capable of generating millions of pesos of revenue as opposed to large quantities of compost which, because of poor market potential, may require continuous subsidy.

A SMALL WELL HELPS AN ECUADORIAN FISH PLANT PROSPER

A tuna-processing plant in Ecuador has solved its need for potable water through specifications received from a U.S. Agency for International Development sponsored publication. The report describes how to construct a small well to deliver 1500 gallons daily at a cost of U.S. \$2000.

The production manager of the plant, Mr. Gonzales-Artigas, needed to find a way of acquiring more water for his plant without taxing the local water supply. He obtained NTIS document PB 190 672, Small Wells Manual, through CENDES, the Network participating agency in Ecuador, and invested U.S. \$2000 to hire an engineer and construct a well for the plant.

The well now produces enough water to satisfy the needs of the processing plant. The water is used as a friction guard, a system where the water acts as a base for saline solution to preserve fish for future processing. This is needed when more fish are caught than can be processed in a given day.

Because of this information, a local business in Ecuador has become less dependant on outside factors in providing more food and water for his area. Mr. Gonzales-Artigas believes the well will become cost-effective in a few months and he does not expect any major maintenance costs. This well also produces enough water for local use at a lower cost because of the greater amount of water available.

The publication provides all the information necessary to construct this type of well which is aimed primarily at people with little technical know-how and limited resources. The manual provides instruction and guidance to people engaged in the construction, operation, and maintenance of small-diameter shallow wells used for individual and small community water supplies.

4.4

SEA COWS PROPOSED TO CONTROL WEED GROWTH IN EL SALVADOR

Sea cows (Manatees) are being considered in El Salvador to clear waterways of aquatic weeds that threaten the ecology and the productivity of water related industries. The project proposal was based in part on a document made available to the researcher by CENDES, a cooperating agency of the USAID International Technical Information Network. The publication, An International Centre for Manatee Research, is available from the U.S. National Technical Information Service for U.S. \$4.50 as PB 240 244. This document has provided the necessary information for using these mammals to control aquatic growth which is clogging waterways and causing a 70% reduction in water-generated electrical power. The idea to use sea cows came from a seminar consisting of 46 participants from 23 institutions in developing countries faced with the problem of weed control.

The researcher, Dr. Godines, explored the feasibility of utilizing manatees after studying the NTIS publication prepared for the U.S. Agency for International Development. According to the results of the seminar, manatees offer a significant approach to overcome the problem of aquatic weed control. One such approach cites an example of sea cow use in South America.

In 1952 four manatees were introduced in Guyana to control weeds in a water and sewage works canal. The weeds disappeared in eight weeks due to the sea cow's ability to readily adapt to confinement and being unselective in the food they eat. Over a period of 22 years, the canal was free of weeds until the death of the last mammal in 1972. The weed problem returned and two more sea cows were purchased for U.S. \$100 each. During the 27 years the manatees have been in the canal there has been no weed problem and no maintenance of the manatees.

Manatees are docile, harmless to people, and are adaptable to the water conditions of El Salvador. If they are left undisturbed, they remain passive and immobile when out of water and therefore easy to transport from neighboring Guatemala. Sea cows can also convert aquatic plants into protein suitable for human consumption and they furnish as much meat as a steer.

Dr. Godines has adopted this information in formulating a workable solution to the problems in El Salvador. This illustrates one example of technical cooperation among developing countries made possible by the U.S. Agency for International Development and the Information Transfer Program managed by the National Technical Information Service of the U.S. Department of Commerce.

4.5

INCOME GENERATING MACHINES HELP RURAL AREAS OF THE PHILIPPINES

A small-scale papermaking machine designed from specifications given in an NTIS document is providing rural people in the Philippines with additional income and employment diversification. The publication was originally sponsored by the International Cooperation Administration, the predecessor of the U.S. Agency for International Development. The information on how to build this invention was made available to the country by TRC, a cooperating agency of the USAID International Technical Information Network. Papermaking and Manufacturing of Paper Products as a Small-Scale, Semi-Mechanized, and Cottage Industry, is available from the U.S. National Technical Information Service for \$11.00 as PB 177 916.

This papermaking apparatus has been adapted to local conditions by using material produced in the Philippines and by conforming the specifications to measurements and tools familiar to rural segments of the area. The low cost of \$10 has caused rapid selling of the machine which can be built at home as a more simplified version.

The Design Centre of the Philippines (DCP) has been responsible for the distribution of the document and according to Mrs. Fe Gonzales, the project coordinator, the most significant utilization of any NTIS document has been the adaptation of information contained in PB 177 916. Although Mrs. Gonzales had originally acquired the document for specific papermaking machines, she was pleased to discover that this document also contained very valuable information on all aspects of papermaking at the cottage industry level. There is no doubt among DCP members involved in this promotion that this type of papermaking will make a significant commercial contribution to rural based economies.

INDONESIAN GOVERNMENT USES APPROPRIATE TECHNOLOGY TO INCREASE NATIONAL PRODUCTION

A project to improve the quality of life of 100 million people living in rural Indonesia has been using information supplied by the USAID International Technical Information Network to aid them in their developmental plans. The project proposal was based on the 1978 State Guidelines of the Government of Indonesia which has mandated the use of appropriate technology to combat the problems of food production and economic growth in rural areas. The goal set forth was to increase production in the fields of agriculture, industry, mining, energy and others. Using NTIS publications as resources for their third five-year development plan (Pelita III), the government of Indonesia has assigned a task force to work out details for the projects implementation. The National Institute of Physics (LIPI-LFN) was selected as the executing and coordinating agency and its director Dr. Suwanto Martosudinjo, was assigned as project leader.

The documents used in the project were made available by LIPI-PDIN, a cooperating agency of the USAID International Technical Information Network. This organization is a sister agency to LIPI-LFN and has brought many relevant NTIS reports to the attention of Dr. Suwanto. Of all NTIS materials received by LFN, four were identified by Dr. Suwanto as contributing substantially to the development of the LFN Rural Program of appropriate technology.

The NTIS reports cited pertain mostly to the initial stages of the projects implementation. However, as the project moves forward over the next five years, the engineers interviewed plan to make extensive use of this valuable resource.

ENL-20313 Preliminary Concept Analysis of a Low Cost Non-Metallic Flat Plate

The concept of using non-metallic materials such as masonry, porcelain, or concrete as the thermal conducting media in the manufacture of flat plate solar

energy collectors is examined and found functionally acceptable. The potential for large reduction in the cost of this component is illustrated.

PB-260 606 Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries.

This report provides a summary of the state-of-the-art of alternative technologies frequently suggested as solutions to rural or individual family energy needs. Moreover, it informs both the technologist and the planner where to go for more detailed information and what kinds of research and development are needed before a particular device or process is ready for use.

PB-265 105 Solar Energy Applications in Agriculture: Potential, Research Needs, and Adoption Strategies.

Objectives pursued in this study are: (1) Assessment of present agricultural operations to determine those with potential for use with solar energy; (2) Development of recommendations for strategies to achieve adoption of solar energy to the following aspects of agriculture are examined: grain drying, tobacco curing, peanut drying, broiler housing, swine production, farm housing, greenhouses, and irrigation. Current fuel prices for each of the agricultural regions (determined by crop production) are also reviewed.

ERDA-77 47/2 Solar Program Assessment: Environmental Factors. Solar Agricultural and Industrial Process Heat.

The major environmental issues associated with the further development of solar energy as a source of process heat in the industrial and agricultural sections are presented and prioritized. Agricultural and industrial heating represents the specific application of a variety of federally-funded solar technologies. To provide a background for this environmental analysis, the basic concepts and technologies of solar process heating are reviewed. The potential effects

of these applications of solar energy on the full range of environmental concerns (e.g., air and water quality, biosystems, safety, social/institutional structures) are then discussed in terms of both their relative significance and possible solutions. Although the development of solar energy as a source of process heat will contribute to some environmental problems common to construction projects and energy-producing technologies (e.g., construction noise, thermal discharge to the air and water), only those impacts unique to the solar portion of the technology are discussed in depth. Finally, an environmental work plan is presented, listing research and development proposals and a National Environmental Policy Act (NEPA) document work plan which might help clarify and/or alleviate specific environmental and safety problems.

IMPROVED WATER CONTROL MANAGEMENT IN TAIWAN SOLVES RESERVOIR PROBLEMS

The overall operation and management of an existing reservoir system in Taiwan has been improved through new design specifications obtained through USAID sponsored information. By using NTIS reports, the Asian Institute of Technology is providing optimum water resource utilization to the Tachia River Basin area of Taiwan.

The project proposed was based in part on documents made available to the researchers by TMA, a cooperating agency of the USAID International Technical Information Network. Hydrologic Engineering Methods for Water Resources Development, AD A007 107, and A Stochastic Rainfall Model and Statistical Analysis of Hydrologic Factors, PB 238 948, are available from the U.S. National Technical Information Service.

The Division of Water Resources Engineering of the Asian Institute of Technology in Bangkok, Thailand was contracted by the Taiwan Power Company of the Republic of China to provide an optimum water use examination of the 140 kilometer Tachia River. The principle investigator of this project, Dr. Selvalingam, cited NTIS reports as significantly contributing to the study of individual characteristics of existing and proposed water resources projects on the Tachia River.

The study suggests that a new reservoir be built upstream to reduce the danger of overspill during the rainy season while optimizing the use of regulating ponds.

This example typifies how a USAID sponsored agency in a developing country is providing assistance to other developing countries by supplying them with the information they need to implement their development projects. The outcome of the overall effect of this reservoir on the operation and management of the entire Tachia River water system will not only provide much needed water control but will also allow for more water to be available for irrigation.

CONCRETE CORROSION AVERTED ON CHILEAN HIGHWAYS

Three NTIS reports have helped solve a serious highway construction problem in Northern Chile involving concrete with a high salt content. The sand used in the production of the concrete was found to have a high level of salt which is corrosive and could result in inadequate construction and possible loss of life.

The Instituto de Investigaciones y Ensayos Materiales used these publications as resources in producing a report on the corrosion problem. They were made available to the researcher, Dr. Lamana, by INTEC/CORFO, a cooperating agency of the USAID International Technical Information Network.

Each of the NTIS reports was directly relevant and useful for this study. One report, The Effect of Sodium Chloride on the Corrosion of Concrete Reinforcing Steel and on the ph of Calcium Hydroxide Solution-PB 228 679, demonstrated that a lower ph scale in the concrete was an improvement. This contradicted a previous belief that a higher ph count was desirable. The other reports, Corrosion Testing of Bridge Decks, PB 241 294, and Repair of Hollow or Soft Areas in Bridge Decks by Rebonding With Injected Epoxy Resin of Other Polymers, PB 236 467, both proved to be highly effective in providing information for developmental needs. Because of this type of technical information, this area can now construct sound structures which would otherwise decay quickly and therefore add more cost to a capital scarce developing country in Latin America.

ELECTRONIC ACHIEVEMENTS AID DEVELOPMENT IN KOREA

United States technical information is supporting the development and expansion of business communications in Korea through documents available from the USAID International Technical Information Network, when it was still active in Korea. These 47 publications have saved the researchers, Gold Star Tele-Electronic Co., valuable time and expense in constructing a prototype of an electric private automatic branch exchange (EPABX) used in improving and expanding the communication system in Eastern Asia. The organization is a large manufacturer of communications and electronic products which has used USAID sponsored information extensively to update their electronic capabilities and become a recognized contender in world trade.

The development and prototype production of this invention marks a major achievement in the industrial development of Korea. In their 1977 Annual Report, Gold Star noted that the development of the EPABX had confirmed the technological competence of the company and had given the firm's researchers a "faith in their own abilities." Following the Korean policy to modernize industry and to become increasingly competitive in technology-intensive markets, Gold Star has devoted substantial resources to improving its technological competence. In this regard, the company has built an electric switching system research institute and a vocational training center. At this research institute, a modern library houses an impressive selection of scientific literature. It includes a complete set of U.S. patent abstracts, a current subscription to such NTIS products as SRIM, WGA, and GRA&I, and numerous other journals, reports, and documents from the NTIS data base.

From this experience, Gold Star has become an increasingly viable organization in the field of communications. They have been awarded a contract for a

consolidated telecommunications system in the Philippines and are planning many more such ventures in the future.

NATIONAL RESEARCH NEEDS MET BY HYDRAULIC RESEARCH CENTER

The development and maintenance of an official information retrieval system in the Philippines has been greatly enhanced through information sponsored by the USAID International Technical Information Network. Under the direction of the National Water Resources Council (NWRC) of the Philippines, the National Hydraulic Research Center acts as a repository and disseminating agency for all available data, information and literature on water resources and related fields. This Information Center Library has been established to serve the various research needs of the different government and private agencies having water related functions. Mrs. Pilar Liongson, the chief librarian, has identified NTIS reports as being particularly useful in improving the facilities available from the Information Center.

The two reports, Design and Operation of an Information Center on Analytical Methodology, PB 204 820, and PB 221 491 of the same title, both have helped this facility in meeting its information needs in creating its own information center which will benefit the country in meeting the information requirement for their developmental projects.

THE AIRCRAFT INDUSTRY IN INDONESIA BECOMES INDEPENDENT OF IMPORTED TECHNOLOGY

An aircraft industry plant composed of 1500 employees in Indonesia is decreasing its dependence on imported technology through NTIS publications. Adaptation of information contained in the engineering handbooks available from NTIS will contribute to the development of this country's first self-sufficient aircraft industry. The Nurtanio Indonesian Aircraft Industry, operating since August 1976, is currently undergoing extensive renovations and will house the latest technology in aircraft plant design.

The publications used in researching these new aircraft designs were made available by PDIN, a cooperating agency of the USAID International Technical Information Network. Eng. Sumarlan, Associate Director of the Testing and Laboratories Department at the plant, was identified by PDIN as a consistent requestor of NTIS reports. The utilization of these reports provides a good example of how information contained in NTIS documents is being adapted to suit national industrial needs and lessen dependence on imported equipment.

The documents listed below were selected from over one hundred Engineering Design Handbooks available from NTIS. These handbooks are highly technical, but provide engineers with a clear presentation of extremely useful information that will form part of an information bank which Mr. Sumarlan is using to design Nurtanio's Indonesian aircraft.

AD A025 665/1SL Engineering Design Handbook: Reliable Military Electronics.

Topics discussed include the following: basic principles; variables and parameter relations; development of intrinsic device theory and related fundamental limitations and their measurements; circuit parameter relations; design of transistor R-C amplifiers; circuit stabilization; transformer-coupled

amplifiers; RF and IF amplifiers; nonlinear theory of oscillators; practical I-C oscillators; R-C oscillators and time-delay oscillators; design of mixers and converters; transistor multivibrators; switching and sampling circuits.

AD/A-002 007/3SL Engineering Design Handbook. Helicopter Engineering.

Part One. Preliminary Design.

This handbook discusses the design requirements applicable to army helicopters for all missions under visual flight rule (VFR) operation, day or night.

As such, the scope of this document has been limited to cover the basic aerial vehicles. Design requirements for mission-essential equipment, e.g., weapons, sensors, cargo-handling equipment--are beyond this scope and are not discussed, although the helicopter-integral interface requirements for such equipment are included. The design of power plants, batteries, generators or alternators, and similar components are also beyond the scope of the handbook.

AD-865 109 Engineering Design Handbook: Electrical Wire and Cable.

The objective of the handbook is to provide a practical guide to correct design of equipment to meet the exacting transmission requirements of the many and varied aspects of today's electronic and electrical systems. This handbook contains information on the structure, application, usage, and installation of most of the wires and cables utilized by the army. Also included are a glossary of terms; a listing of equations for quick reference; and an appendix which presents the applicable military specifications, standards, and publications.

AD 783 697/6 Engineering Design Handbook: Military Vehicle Electrical Systems.

The objectives of the handbook are: (1) to collect diverse sources of information unique to combat and tactical vehicles in order to conserve time, materials, and money in the successful design of new equipment; (2) to provide guidance in

capsule form for new personnel, armed forces contractors, or experienced design engineers in other fields who require information about vehicle electrical systems; (3) to supply current fundamental information; and (4) to place the reader in a position to use new information generated subsequent to the publication of this handbook. To meet these objectives, the handbook has been written to provide the necessary background regarding electrical equipment and systems so that more complete information and data available in the references can be used.

AD 785 000/1 Engineering Design Handbook, Helicopter Performance Testing.

As the state of the art advances, the helicopter becomes more complex with accompanying difficulties in the development cycle. Also, the customer organizations become larger, more efficient, demand more reliability and accuracy, and in general, refine their capability in all areas. The manufacturers and government in turn are forced to provide more comprehensive and accurate information about the product, thus requiring an ever increasing flight test effort. This handbook discusses flight testing as it relates to helicopter performance determinations.

AD A026 006/7SL Engineering Design Handbook. Maintainability Engineering Theory and Practice.

The report details maintainability design requirements and develops methodology to be implemented to meet those requirements.

AD A025 665/1SL Engineering Design Handbook: Reliable Military Electronics.

Topics discussed include the following: basic principles; variables and parameter relations; development of intrinsic device theory and related fundamental limitations and their measurements; circuit stabilization; transformer-coupled amplifiers: RF and IF amplifiers; nonlinear theory of

theory of oscillators; practical L-X oscillators; R-C oscillators and time-delay oscillators; design of mixers and converters; transistor multi-vibrators; switching and sampling circuits.

AD 884 151 Engineering Design Handbook: System Analysis and Cost-Effectiveness.

The purpose of this handbook is to provide a text and reference material in system analysis and cost-effectiveness. It is intended for those technical, scientific, management, and administrative personnel who are responsible for preparing information, making decisions or reviewing decisions made by others regarding life-cycle cost, system effectiveness (availability, dependability, capability), or technical feasibility of a system or equipment at any phase in its life cycle. It is immediately useful to personnel who are familiar with a system or equipment under study but are not familiar with the methodology and techniques of system analysis and cost-effectiveness.

AD 763 495 Engineering Design Handbook. Infrared Military Systems. Part One.

The publication is one of a group of handbooks prepared under the auspices of the Engineering Handbook Office, Duke University, as part of the Engineering Design Handbook series. Presented in this handbook are the basic information and fundamental principles essential to the design and development of infrared systems for military application. Most of the material is devoted to the significant technological advances of recent years.

AD A021 390/05E Engineering Design Handbook: Maintenance Engineering Techniques.

The fundamental purpose of this handbook, Maintenance Engineering Techniques, is to provide authoritative information requisite to the planning and implementation of effective maintenance engineering programs. A comprehensive discussion of maintenance engineering functions that must be accomplished in order to insure

cost-effective acquisition, operation, and support of army material is presented. The general method of presentation is to define a function and its importance, and then to provide basic information on when the function should be accomplished and the techniques that should be used. Although written primarily for maintenance engineers, the handbook is structured with a wider audience in mind. The level of detail and manner of presentation make the handbook useful for the orientation and guidance of new personnel, army contractors, and personnel in engineering disciplines such as system design, reliability, maintainability, safety, and human engineering. Additionally, management personnel may improve their understanding of the scope and importance of maintenance engineering by reading the handbook.

AD 754 202 Engineering Design Handbook. Maintainability Guide for Design.

The objective of this handbook, Maintainability Guide for Design, is to influence design so that equipment can be (1) serviced efficiently and effectively if servicing is required, and repaired efficiently and effectively if it should fail, or (2) operable for the period of intended life without failing and without servicing, if possible. The designer who considers the technology of maintainability as one of the prime design considerations can play a vital part in the solution of the maintenance problem, whereas the designer who fails to do this adds to the tensity of the problem. Part one describes the extent of the maintenance problem in terms of the expenditure of money, men, and material. Part two presents maintainability abjectives, principles, and procedures. Part three describes the nature of the maintenance problem in terms of the conditions under which weapon systems must be operated and maintained.

AD 903 789/6SL Engineering Design Handbook. Sabot Technology Engineering.

This handbook presents engineering design procedures for sabots. It takes

into consideration the conflicting criteria associated with maximum performance and maximum reliability. The steps and decisions which must be made in the process of producing an engineering design are summarized.

AD A027 372/2SL Engineering Design Handbook. Development Guide for Reliability.
Part Six. Mathematical Appendix and Glossary.

Contents: probability distribution, some cautions and names; binomial distribution; poisson distribution; gaussian (S-Normal) distribution; probability distributions; Weibull distribution; Lognormal distribution; Beta distribution; Gamma distribution; confidence; plotting positions; goodness-of-fit tests; tests for monotonic; bayesian statistics; sampling plans; and miscellaneous design aids.

AD A027 371/1SL Engineering Design Handbook. Development Guide for Reliability.
Part Four. Reliability Measurement.

Reliability measurement techniques provide a common discipline that can be used to make system reliability projections throughout the life cycle of a system. The data on component and equipment failures obtained during the reliability measurement program can be used to compute component failure distributions and equipment reliability characteristics. Reliability measurement techniques are used during the research and development phase to measure the reliability of components and equipments and to evaluate the relationships between applied stresses and environments and reliability. Later in a system life cycle, reliability measurement and testing procedures can be used to demonstrate that contractually required reliability levels have been met.

AD A020 020/4SL Engineering Design Handbook: Timing Systems and Components.
This handbook presents both theoretical and practical data pertaining to design methods and procedures for timing systems and devices. The subjects covered

are precision reference timers, electronic timers, mechanical timers, pyrotechnic timers, fluoric timers, and a few others.

AD 884 151/2SL Engineering Design Handbook: System Analysis and Cost-Effectiveness.

The purpose of this handbook is to provide a text and reference material in system analysis and cost-effectiveness. It is intended for those technical, scientific, management, and administrative personnel who are responsible for preparing information, making decisions or reviewing decisions made by others regarding life-cycle cost, system effectiveness (availability, dependability, capability), or technical feasibility of a system or equipment at any phase in its life cycle. The handbook consists of four chapters:

- (1) An introduction to the concept of system analysis and cost-effectiveness;
- (2) A basic framework, or general methodological approach, for conducting and reviewing techniques (linear programming, queueing theory, simulation, etc.) that can be used for performing cost-effectiveness and system analysis studies;
- and (4) a review of the basic mathematical and statistical concepts that underlie the scientific approach in the system analysis/cost-effectiveness process.

ENGINEERING INFORMATION AIDS CONSTRUCTION NEEDS IN DEVELOPING COUNTRIES

From information contained in NTIS reports, new engineering guidelines are being developed to overcome the difficulties of tunneling and excavating through soft clay. This substance is found in many urban areas of developing countries and has added costly problems to the rapid urbanization growth now being experienced in these countries.

The Associate Director of the Asian Information Centre on Geothermal Engineering, Dr. Peter Brenner, is editing a conference report on soft clay engineering using NTIS documents in his research. These documents were obtained from TMA, a cooperating agency of the USAID International Technical Information Network in Thailand. In this manner, U.S. technical information is being used by researchers to adapt foreign technology to local conditions.

The reports used in the research are as follows:

PB 257 210/5 Goldberg-Zoino and Associates, Inc., New Upper Falls, Mass.

Lateral Support Systems and Underpinning. Volume I. Design and Construction.

This volume is a convenient reference on the design and construction of lateral support systems and underpinning which are often required in conjunction with cut-and-cover or soft ground tunneling. The design recommendations and construction methods described herein are a summary of the more detailed information presented in the companion volumes of this study. Included in this volume are discussions of displacements, lateral earth pressure, ground water, passive resistance, stability analysis, bearing capacity, soldier piles, steel sheeting, and diaphragm.

SECTION 5
CASE STUDIES IN PROGRESS

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CASE STUDY IN PROGRESS

PLACE:

Women and Development Unit
Extra-Murals Department
Cavehill Campus
University of the West Indies
Barbados

PRINCIPAL CONTACT:

Dr. Glenn W. Patterson, Ph. D.

ORGANIZATION'S PURPOSE:

"In the Caribbean region, it provides direct technical assistance to poorer rural community development projects relating to small food processing and preservation operations."

PROJECT DESCRIPTION

"The MFM (Meals for Millions Foundation, 1800 Olympic Boulevard, P.O.Box 680, Santa Monica, California 90406) is to collaborate with the Women and Development Unit of the Extra-Mural Department of the University of the west Indies to work with poorer communities in food technologies (processing and preservation) to:

- A. Improve the nutritional status;
- B. Increase self-sufficiency;
- C. Improve socio-economic status."

"To achieve these, the following activities will be and are now being carried out. The program is designed to be an on-going project directed toward the Leeward and Windward Islands, Jamaica and Belize. These activities include:

1. Provide direct technical assistance to specific community food technology-related programs and projects;
2. Answer inquiries relating to community food technology;
3. Participate in workshops, seminars, and training sessions designed to exchange or provide information on food technology related to community development;
4. Locate, document, and disseminate those innovative and related technologies now or once used in the Caribbean or other regions;
5. Assist in project design, proposal writing, and locating funds needed by food technology oriented projects; and,

6. Carry out testing and adaptation of appropriate food technologies at the University of the West Indies or within country locations."

Who is performing the technical assistance? Dr. Glenn W. Patterson, Ph.D. with backup from the University of the West Indies Food Technology Department and the Meals For Millions Foundation. Dr. Patterson has been operating in the Caribbean for 24 years in similar community work.

Who are the beneficiaries? "Rural communities, women, children (through nutritional improvement), young people and men presently out of work."

BIBLIOGRAPHY

- | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| PB 174 673 | Small Canning Facilities |
| PB 219 721 | Development of a Simple Storage Unit and Storage Method Applicable for Humid Areas in Developing Countries |
| PB 220 825 | Ferrocement: Applications in Developing Countries |
| PB 248 338 | Proceedings of the Conference and Seminar on Techniques and Methodologies for Stimulating Small-Scale Labor-Intensive Industries in Developing Countries |
| PB 263 350 | Resources for Development Organizations and Publications |
| PB 280 196 | The Performance and Economic Feasibility of Solar Grain Drying Systems |
| PB 282 460 | Rural Potable Water Chlorination |

CASE STUDY IN PROGRESS

PLACE:

Instituto Tecnológico de Costa Rica
Apartado 159
Cartago, Costa Rica

PRINCIPAL CONTACT:

Kent Smith

ORGANIZATION'S PURPOSE

"The Institute, through its Division of Research Development and Technical Extension, is promoting the development and use of the concepts of appropriate technology in Costa Rica. This includes utilization of renewable resources, reclamation of scrap metal, utilization of wood manufacturing wastes, soil testing techniques, improved agricultural techniques and implements for the small-scale farmer."

PROJECT DESCRIPTION

"The project is intended to decrease Costa Rica's dependence upon foreign resources and technologies. It shall benefit small-scale industries using local materials. It shall provide for more productive technologies for the small farmer. It shall benefit the country as a whole by emphasizing less ecologically destructive technologies." Examples of specific projects:

- 1) substantial increase in use of particle board and composite products from wood waste;
- 2) creation of a metallurgy program to aid small industry in quality control;
- 3) teaching of simple soil testing techniques and methods of improving the soil quality;
- 4) utilization of solar energy--the first application to be the heating of a public swimming pool.

BIBLIOGRAPHY

- | | |
|-------------|--------------------------------------------------------------------|
| ADA 026 041 | Method for Estimating Solar Heating and Cooling System Performance |
| ADA 045 184 | Corrosion Control in Civil Works: Cathodic Protection |
| ADA 046 078 | Improved Utilization of Lumber in Glued Laminated Beams |
| ADA 054 601 | Solar Heating of Building and Domestic Hot Water |

AD 210 105	Indigenous Tropical Agriculture in Central America: Land Use, Systems, and Problems
BNL 20313	Preliminary Concept Analysis of a Low-Cost Nonmetallic Flat Plate Solar Energy Collector
COO 4094 1	Photovoltaic Power in Less Developed Countries
COM 73 10527	A Study of the Feasibility of Mechanized Adobe Production
DOE/ET 0036	Guide to Solar Energy Programs
DSE 2322 1	An Economic Analysis of Solar Water and Space Heating
N74 15752	Utilization of Wind Power in Agriculture in the USSR
N76 22671	Design Fabrication, Testing, and Delivery of a Solar Collector
N76 27671	An Inexpensive Economical Solar Heating System for Homes
PB 175 521	Metal Working Industry Training Manual
PB 175 531	A Small Sawmill Enterprise
PB 175 532	Small Brass Foundry
PB 175 500	Wood Wastes
PB 177 930	Plant Requirements for Manufacture of Plywood
PB 178 345 (1 copy)	Effect of Operational Speed on Forces Acting on Wedges
PB 178 347 (1 copy)	The Problems of Basic Parameters of Tillage Tools for Primary Soil Tillage
PB 178 373 (1 copy)	Determination of the Optimum Parameters Rotary Tiller Cultivation Equipment
PB 206 776	Farm Tools and Implements
PB 210 130 (2 copies)	Care and Maintenance of Farm Machinery

CASE STUDY IN PROGRESS

PLACE: Corporacion de Desarrollo de la
VII ^a Region
CIDERE-MAULE
1 Sur 923, Oficina 202
Casilla 690
Talca, Chile

ORGANIZATION'S PURPOSE:

A private, non-profit organization devoted to promoting all aspects of development in Region VII (comprised of the provinces of Culico, Talca, Maule, and Linares) in Chile. It identifies exploitable natural resources and it organizes rural communities through capacitation marketing, and technical and commercial assistance. For example, CIDERE-MAULE discovered abundant blackberries; it then found an extramarginal investor on the futures market, capacitated the rural communities for harvesting and preparing the blackberries, and organized a system for gathering, transporting, receiving, and retailing them.

Results of the 1979 season (summer in Chile is January, February, and March).

Amount gathered: 200,00 kilograms
Contributions to the Community: 2,000,000 Chilean pesos
(approx. US \$57,000)

Indirect contributions: 3,000,000 Chilean pesos
(approx. US \$86,000)

PROJECT DESCRIPTION

a) Demonstration and Experimental Apain Center--this center will house 120 different types of beehives where current honey production techniques can be evaluated and new ones developed; it will provide capacitation courses and technical assistance. Honey production will be promoted in the region. Courses will be offered in rural areas to provide poor people with a means of livelihood. Those who graduate from this course will receive financial credit to install the learned technology.

b) Identification of potential resources--the jojoba and blackberry have similar qualities for exploitation.

BIBLIOGRAPHY

PB 275 386	Pollination of Agricultural Crops by Bees
PB 253 126	Products from Jojoba: A Promising New Crop for Arid Lands

CASE STUDY IN PROGRESS

PLACE:

Instituto de Investigaciones Tecnologicas
INTEC
Casilla 667
Santiago, Chile

PRINCIPAL CONTACT:

Mr. Sergio Varas O.

ORGANIZATION'S PURPOSE:

"Transfer of technology to governmental and private clients."
"Since 1977, an Appropriate Technology Program has been developed to improve the living standards and employment levels of low income groups."

PROJECT DESCRIPTION

"Technologies are being adapted and developed for the exploitation of castor oil beans; papain production and the use of windmills for pumping water."

BIBLIOGRAPHY

- | | |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CONF-770367 | Proceedings of a Conference on Solar Energy for Heating Greenhouses and Greenhouse-Residential Combinations |
| COO 4094 1 | Photovoltaic Power in Less Developed Countries |
| ERDA-tr- 288 | Center for the Integral Development of "Las Gaviotas" |
| PB 174 673 | Small Canning Facilities |
| PB 175 531 | A Small Sawmill Enterprise |
| PB 177 916 | Papermaking and Manufacture of Paper Products as a Small-Scale, Semi-Mechanized and Cottage Industry Materials--Processes, Equipment Organization--Economics Marketing |
| PB 206 800 | Small-Scale Power Supplies for Rural Communities in Developing Countries |
| PB 262 630 | Peace Corps Intermediate Technology for 15 Years |

PB 263 672	Aquaculture as an Integral Part of the Agricultural Farming System
PB 267 970	Appropriate Technology: A Directory of Activities and Projects
PB 272 436	Aquaculture in Southeast Asia A Historical Overview
PB 274 193	A Cross-Sectional Epidemiologic Survey of Vinyl Chloride Workers
PB 274 612	Expansion of Water Resources in Arid Regions
PB 280 196	The Performance and Economic Feasibility of Solar Grain Drying Systems
COM-73-50645-11	Marine Fisheries Review
LBL 6182	Feed and Food from Desert Environments
N74-15752	Utilization of Wind Power in Agriculture in the USSR
PB 196 340	The Continued Development and Field Evaluation of the AID Hand-Operated Water Pump
PB 206 776	Farm Tools and Implements
PB 247 819	Agricultural Machinery Development Program
PB 264 459	Extractives as a Renewable Resource for Industrial Materials
PB 264 561	Fibers as a Renewable Resources for Industrial Materials
PB 268 161	IRRI Small Agricultural Machinery Project: US Technology Transfer to Resource--Poor Developing Countries
PB 268 987	Freshwater Fisheries Program Planning

CASE STUDY IN PROGRESS

PLACE: Instituto de Investigaciones Tecnologicas
INTEC
Casilla 667
Santiago, Chile

PRINCIPAL CONTACT: Mr. Sergio Varas O.

ORGANIZATION'S PURPOSE:

"Transfer of technology to governmental and private clients."
"Since 1977, an Appropriate Technology Program has been developed to improve the living standards and employment levels of low income groups."

PROJECT DESCRIPTION

"There is a special program in intermediate technology which intends to evaluate the appropriate technologies needed to raise the standard of living of the poor and to generate employment."

BIBLIOGRAPHY

- PB 211 843 Recommendation for FECOAGROH Grain Storage and Handling Facilities in Honduras
- PB 211 883 Observations and Recommendations for Improving Grain Storage and Marketing in Bolivia
- PB 260 606 Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries
- PB 263 849 Reprint: A Method for the Cultivation of the Mangrove Oysters in Puerto Rico (Metodo para el Cultivo del Ostron de Mangle en Puerto Rico)
- PB 269 049 Accounting for the Small Business: Teaching Manual (Contabilidad para la Micro Empresa: Manual de Ensenanza)

CASE STUDY IN PROGRESS

PLACE: Nova Ingenieros Consultores, S.A.
Los Colibries 104
Lima 27, Peru

PRINCIPAL CONTACT: Alfredo Novoa

ORGANIZATION'S PURPOSE:

"Transfer of technology through information."

PROJECT DESCRIPTION:

"To transfer and adapt technology to needs of rural areas."
Technical assistance will be provided by the consulting firm
of Nova Ingenieros Consultores, S.A.

BIBLIOGRAPHY

- | | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------|
| AD 751 178 | New Mexico University, Albuquerque-
Seismic Design of Building Structures |
| AD A003 045 | Foreign Technology Div. Wright-
Patterson AFB Ohio-Analysis of Action,
During Simultaneous Damages of
Protective R--FTC |
| AD A004 451 | Foreign Technology Div. Wright
Patterson AFB Ohio-Using High-
Temperature Solar Installation to
Study Refractory M--FTC |
| AD A010 801 | Oak Ridge National Lab, Tenn.
Power System Emp Protection |
| AD A012 733 | Urban Innovations Group Los Angeles,
Calif. A Review of Architectural
Methods and Their Effectiveness |
| AD A026 344 | Massachusetts Inst. of Tech.
Cambridge-Computer Programs for
Mathematical Programming Models in
Produc--Etc. |

AD A026 904	Florida University Gainesville- The Layout of Divisible Activities on the Line
AD A040 460	Texas Tech. Univ. Dynamics and Failure Criteria of Structural Connections
AD A041 957	Science Applications, Inc., Berkeley, Calif. Propagation Characteristics of a Periodically Loaded Transmission
BNWL-SA-5595	Quality Control Program for 100% Inspection Using Non-Destructive Measurements
LA 5967	Solar Heating Handbook for Los Alamos
N74 16614	Outer Skin Protection of Colombian Thermal Protection System (TPS) Panels
N75 27567	Space and Energy Conservation Housing Prototype Unit Development
N75 32591	Flat Plate Solar Collector Performance Evaluation with a Solar Simulator as a Basis for Collector Selection and Performance Prediction
PB 202 936	Response and Energy Dissipation of Reinforced Concrete Frames Subjected to Strong Base Motions
PB 206 549	A Manual on Water Desalination. Vol. 1 Technology
PB 214 006	SOM (Space Organization Method)- A Method for Space Allocation
PB 241 110	Power Line Alarm Transmission System
PB 245 318	The Substitute Structure Method for Earthquake Resistant Design of Reinforced Concrete Frames

PB 251 382	Decentralized Tomato Processing: Plant Design, Costs, and Economic Feasibility
PB 258 842	The Siesmic Behavior of Critical Regions of Reinforced Concrete Components as Influenced, etc.
PB 267 947	Review of Literature on Earthquake Damange to Single Family Masonry Dwellings
VITRO-MA-9	Architectoral/Engineering Standards

CASE STUDY IN PROGRESS

PLACE:

Grupo de Tecnologia Apropiada
Apartado 1421
Panama 9A, Panama

PRINCIPAL CONTACT:

Samuel Bern

ORGANIZATION'S PURPOSE:

To publish periodic reports on appropriate technology; to organize seminars in rural areas on alternative energy resource development and agriculture.

PROJECT DESCRIPTION

"The reports selected will be utilized as a source of reference for programs already under way such as the aquatic weed control at Lake Bayano and the analysis of water quality; they will also serve as valuable reference on contamination problems arising from agroindustrial wastes. Other countries' experiences are very useful for an evaluation of the impact of these projects as well as for eliminating possible negative effects."

BIBLIOGRAPHY

- AD 715 871 Weight and Energy Values of Selected Litter-Fall Components from Two Forest Stands in the Canal Zone, Republic of Panama
- ADA 003 909 Corrosion of Metals in Tropical Environments: Part 10, Final Report of Sixteen-Year Exposures
- ADA 036 072 Proceedings, Research Planning Conference on the Aquatic Plant Control Program, October 22-24, 1975, Charlestown, S.C.
- PB 187 841 A Study of the Economic Impact of Water Impundment Through Validity Testing of a Comparative-Projection Model
- PB 196 312 Relative Toxicities of Selected Chemicals to Several Species of Tropical Fish

PB 198 125	Water Quality Management Problems in Arid Regions
PB 204 408	Water Quality Standards and Inter- national Development
PB 212 265	Fluctuations in Nitrate Concentration Utilized as an Assessment of Agri- cultural Contamination to an Aquifer of a Semiarid Climatic Region
PB 214 508	Nonpoint Rural Sources of Water Pollution
PB 240 244	An International Centre for Manatee Research
PB 244 557	Guidelines for the Disposal of Small Quantities of Unused Pesticides
PB 247 430	The Environmental Impact of a Large Tropical Reservoir: Guidelines for Policy and Planning, Based Upon a Case Study of Lake Volta, Ghana, in 1973 and 1974
PB 248 630	Environmental Aspects of a Large Tropical Reservoir: A Case Study of Volta Lake, Ghana
PB 248 899	The Biological and Ecological Effects of Oil Pollution in Tropical Waters
PB 263 089	Eutrophication and Fish Toxicity Potentials in a Multiple-Use Sub- tropical Reservoir

CASE STUDY IN PROGRESS

PLACE: Grupo de Tecnologia Appropriada
Apartado 1421
Panama 5A, Panama

PRINCIPAL CONTACT: Samuel Bern

ORGANIZATION'S PURPOSE:

To publish periodic reports on appropriate technology; to organize seminars in rural areas on alternative energy resource development and agriculture.

PROJECT DESCRIPTION:

To acquire NTIS reports on various themes for the promotion of appropriate technology in the Panamanian media and subsequent adaptation. Technical assistance will be provided by professional members of the Appropriate Technology Group-GTA (i.e. architects, engineers, administrators, sociologists, etc.)

BIBLIOGRAPHY

ADA 038 234	Software Acquisition Guidebook
PB 195 912	Fishculture Survey Panama
PB 211 762	Corn Fortification
PB 218 129	Latin American Tables of Feed Composition
PB 224 506	Chemical Control of Vampire Bats
PB 251 382	Decentralized Tomato Plant Design
PB 264 015	Application of Sewage Sludge

CASE STUDY IN PROGRESS

PLACE: 25 Avenida Norte #915
San Salvador, El Salvador

PRINCIPAL CONTACT: Craig B. Warriner

ORGANIZATION'S PURPOSE:

To provide technical assistance to low-income farmers in the form of methane gas and solar research.

PROJECT DESCRIPTION:

"The Project will provide electricity for home and commercial cooking for the cooperative "El Grupo Solidario de Gas Metano Las Chinamas". Technical assistance will be provided by Mr. Craig B. Warriner, Peace Corps Volunteer. Beneficiaries: "Nearly 9 separate families make up the co-op and will participate and benefit from the products of the Methane Project."

Mr. Warriner has already been successful in his experiments to produce methane from coffee pulp and water. "We have been able to extract a beautiful blue flame solely from the fermentation of pulp from coffee and water. Sam Bern, the guy from Panama (Respondant 20), was certain that it would not work with just pulp and water but from some luck it's producing the most beautiful blue (and hot) flame I've ever seen. The coffee people are very excited but somewhat hesitant due to previous failures in Guatemala and El Salvador."

BIBLIOGRAPHY

- | | |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------|
| PB 187 565 | The Small New Business |
| PB 206 800 | Small-Scale Power Supplies for Rural Communities in Developing Countries |
| PB 206 801 | Generation and Utilization of Power for Rural Communities in Developing Countries |
| PB 217 142
(2 copies) | Engineering Studies of Coffee Mill Wastes in El Salvador |
| PB 231 149 | Proceedings of the Bioconversion Energy Research Conference Held at Massachusetts University, Amherst on June 25-26, 1973 |

PB 238 103	Technology for the Conversion of Solar Energy to Fuel Gas
PB 239 465	An Overview of Alternative Energy Sources for Lesser Developed Countries
PB 240 113	Animal Waste Conversion Systems Based on Thermal Discharge
PB 241 055	Technology for the Conversion of Solar Energy to Fuel Gas (National Center for Energy Management and Power)
PB 255 021 (2 copies)	Kansas Water Resources Research Institute
PB 269 049 (5 copies)	Accounting for the Small Business: Teaching Manual
PB 276 469	Methane Generation from Human, Animal, and Agricultural Wastes
PB 278 351	Sugarcane Production Resudues Tecn- logic and Economic Assessment of Methods for Conservation to Utilizable Energy Forms
PB 278 998	Economic Considerations for Manpower Revenue Sharing

CASE STUDY IN PROGRESS

PLACE: Instituto de Technologie et
d'Animation-ITECA
Boite Postal 510
Port-au-Prince, Haiti

PRINCIPAL CONTACT: Jean-Jacques Honorat

ORGANIZATION'S PURPOSE:

"Research and dissemination of low-cost technologies appropriate to Haitian rural communities."

PROJECT DESCRIPTION:

To evaluate and adapt technologies to develop alternative forms of energy for Haiti. Technical assistance will be provided by "consultants to be selected as needs arise." Beneficiaries are the rural poor.

BIBLIOGRAPHY

- | | |
|------------|---------------------------------------------------------------------------------------------------------|
| PB 239 465 | An Overview of Alternative Energy Sources for Lesser Developed Countries (LDC's) |
| PB 260 606 | Energy for Rural Development: Renewable Resources and Alternative Technologies for Developing Countries |
| PB 208 550 | Solar Energy in Developing Countries |
| PB 241 055 | Technology for the Conversion of Solar Energy to Fuel Gas |
| PB 258 499 | Fuel and Energy Production by Bioconversion of Waste Materials State-of-the-Art |
| PB 269 049 | Accounting for the Small Business: Teaching Manual |
| PB 260 763 | An Evaluation of the Use of Agricultural Residues as an Energy Feedstock Vol. I |

BNL 20313

Preliminary Concept Analysis of
a Low Cost Non-Metallic Flat Plate
Solar Energy Collector

NTIS/PS-77/1161

Solar Water Pumps

CASE STUDY IN PROGRESS

PLACE:

Centro de Investigaciones Multi-
disciplinarias en Tecnologia y
Empleo-CIMTE
Division de Ingenieria
Universidad de Valle
Cali, Colombia

PRINCIPAL CONTACT:

Isabel de Dias

ORGANIZATION'S PURPOSE

CIMTE-(Center for Multidisciplinary Investigations on Technology and Employment), associated with the Engineering Division of the Universidad del Valle, is charged with "the creation and application of intermediate technology which is within the economic capacity of the marginalized sectors of the Colombian population, rural and urban, and at the same time: generates employment and promotes greater productivity."

BIBLIOGRAPHY

PB 270 038

The State of the Art of Delivering
Low Cost Health Services in Developing
Countries: A Summary Study of 180
Health Projects

CASE STUDY IN PROGRESS

PLACE:

Instituto de Tierras y Colonizacion
Apartado 5054
San Jose, Costa Rica

PRINCIPAL CONTACT:

Stefan Platteau

ORGANIZATION'S PURPOSE

To provide technical assistance to small family businesses that are about to fail.

PROJECT DESCRIPTION

"Using the ideas of appropriate technology, we hope to make changes and improvements that insure the survival of the business." Technical assistance will be provided by the Department of Technical Assistance (Departamento de Asistencia Tecnica) and by Mr. John F. De Clue, a Peace Corps volunteer. The project budget is "very small" and funded for 1 year. The beneficiaries are "the end-users of locally manufactured products; the urban and rural poor."

BIBLIOGRAPHY

PB 175 523

Plant Requirements to Set Up and
Operate Small Bread Bakeries

PB 255 649

Small Business in the Metals Industry:
A Background Study

PB 257 404

Front End Recycling
A Study of the Economics of Recycling
by Source Separation and Its Application
for Fairfield County, Connecticut

CASE STUDY IN PROGRESS

PLACE:

Centro de Investigaciones Tecnologia
en Metal-Mecanica-DIDET
Instituto Tecnologia de Costa Rica
Apartado 159
Cartago, Costa Rica

PRINCIPAL CONTACT:

Mario Bonilla

ORGANIZATION'S PURPOSE

"FUNDAEC's projects are aimed at bettering the life of the small rural farmer." "The projects are carried out in a participatory manner with the community, the students, and the FUNDAEC staff." Beneficiaries are the students in particular and the small rural farmers in general.

BIBLIOGRAPHY

- | | |
|------------|------------------------------------------------------------------------------------------------------|
| PB 262 745 | Glossary of Agricultural Terms:
English-Spanish, Spanish-English |
| PB 262 928 | Glossary of Environmental Terms:
English-Spanish, Spanish-English |
| PB 285 983 | Standards and Procedures for Design
of Water Supply Systems in Rural Areas
of Nepal and Bhutan |
| PB 294 160 | Selected Appropriate Technologies for
Developing Countries: Abstracts from
the NTIS Data Base |

CASE STUDY IN PROGRESS

PLACE:

ACOPI-Seccional Boyaca
Asociacion de Confeccionistas de
Boyaca-ACOBOY
Edificio Beneficiencia
Oficina 602
Tunja, Boyaca
Colombia

PRINCIPAL CONTACT:

Dr. A.E. Russler

ORGANIZATION'S PURPOSE:

Small-scale industrial development in Boyaca Province in collaboration with SENA (Servicio Nacional de Aprendizaje-National Apprenticeship Service), Corporacion Financiera Popular (People's Financial Cooperation), University Pedagogica y Tecnologica de Colombia, and the Department of Industrial Management. Beneficiaries are the small-scale textile businessmen in Boyaca.

BIBLIOGRAPHY

PB 175 915

Men's Work Shirt's Capital Requirements,
Techniques, and Operations

PB 175 539

Plant Requirements for Manufacture of
Cotton Dresses

CASE STUDY IN PROGRESS

PLACE:

Instituto Tecnologica de Costa Rica
ITCR
Apartado 159
Cartago, Costa Rica

PRINCIPAL CONTACT:

Ing. John F. DeClue

PROJECT DESCRIPTION

To adapt and design tools appropriate to conditions in Costa Rica and of benefit to the small-scale farmer. The following document was "of great utility--a valuable source of information due to its simplicity and subject matter."

BIBLIOGRAPHY

TT 69 50019

Agricultural Machines Theory and
Construction Volume I

CASE STUDY IN PROGRESS

PLACE

Instituto de Investigaciones Tecnologicas
INTEC
Casilla 667
Santiago, Chile

PRINCIPAL CONTACT:

Mr. German Johannsen

ORGANIZATION'S PURPOSE:

"Project development, feasibility studies and technological research to be applied in socio-economic and industrial activities."

PROJECT DESCRIPTION

"The project deals with the possibility of using ethanol as fuel, especially in those places without electric energy, making use of unexploited lands and generating a high grade of labor force."

BIBLIOGRAPHY

PB 284 742	Parameters for Legislative Consideration of Bioconversion Technologies
CONS 2693-1	Sources of Alcohol Fuels for Vehicle Fleet Tests
LBL 6881	Process Development Studies on the Bioconversion of Cellulose and Production of Ethanol
HCP/M2098-01	Denaturants for Ethanol/Gasoline Blends
HCP/T3891-1	Preliminary Economic Evaluation of a Process for the Production of Fuel Grade Ethanol by Enzymatic Hydrolysis of an Agricultural Waste
TID 27336	Systems Study of Fuels from Sugarcane, Sweet Sorghum, Sugar Beets, and Corn
TID 27834	Fuels from Sugar Crops
PS-78/0673	Alcohol Fuels
PS-78/0674	Alcohol Fuels

BMI-1957 (Vol. 3)

Systems Study of Fuels from Sugarcane,
Sweet Sorghum, and Sugar Beets

BMI-1957A-V 4

Systems Study of Fuels from Sugarcane,
Sweet Sorghum, Sugar Beets, and Corn
(Volume IV. Corn Agriculture)

BMI-1957A-V 5

Systems Study of Fuels from Sugarcane,
Sweet Sorghum, Sugar Beets, and Corn
(Volume V. Comprehensive Evaluation
of Corn)

CASE STUDY IN PROGRESS

PLACE:

Servicio de Informacion y
Transferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT:

Ing. Gustavo Valle, SITT Manager

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESCRIPTION

"To increase the number of textile factories and to improve the existing technology." Technical assistance will be provided by Gustavo Valle, chemical engineer and coordinator of the information service of the National Productivity Center, along with technicians from other government institutions such as:

CENAP-Center for Training in Farming and Animal Husbandry
ISTA-The Salvadorian Institute of Agrarian Reform; and,
BRFA-Agricultural Development Bank

Beneficiaries are the agricultural societies and small factories in the country.

BIBLIOGRAPHY

PB 175 538

Plant Requirements for Manufacture
of Nylon Hosiery

PB 175 539	Plant Requirements for Manufacture of Cotton Dresses
PB 177 297	Plant Requirements for Manufacture of Worsted Yarns
PB 177 915	Men's Work Shirts: Capital Requirements, Techniques, and Operations
PB 177 924	Plant Requirements for Manufacture of Terry Cloth
PB 177 946	Silk Screen Printing in Textiles

CASE STUDY IN PROGRESS

PLACE: Servicio de Informacion y Trans-
ferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAI
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT: Ing. Gustavo Valle, SITT Manager

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESIGN

Improve systems of traditional methods of marketing fish. Technical assistance will be provided by the Center for Information and Technology Transfer of the National Center for Productivity (Servicio de Informacion y Transferencia Tecnologica-SITT, Centro Nacional de Productividad-CENAP) and a team of technicians from the Banco de Fomento Agropecuario (the Agricultural Development Bank). The budgeting is still being considered. The target beneficiary groups are the fishermen's cooperatives located in the Gulf of Fonseca and the port city of Acajatla.

BIBLIOGRAPHY

PB 263 672 Aquaculture as an Integral Part of
the Agricultural Farming System.
A Case Study in the North-East of
Thailand

NTIS/PS-78/0100

Fisheries Economics: Part 1.
Marketing

NTIS/PS-78/0101

Fisheries Economics: Part 2.
General Economics Studies

NTIS/PS-78-0394

Fisheries Law: Vol. 2 April 1976-
March 1978

COM-73-50645-11

Marine Fisheries Review 35 (11):
1-48, November 1973

CASE STUDY IN PROGRESS

PLACE: Servicio de Informacion y
Transferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT: Ing Gustavo Valle, Manager of SITT

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESCRIPTION

To evaluate the various means of aquatic weed control in the lakes, dams and ponds of El Salvador; Ing. Gustavo Valle of CENAP and Dr. Jose Francisco Godines of CENAP (National Center for Capacitation), chemical engineer and biologist respectively, will act as the technicians of this project.

The beneficiaries are:

- "1. The fishermen groups and their families, and;
2. The hydroelectric dams"

The estimated cost of the pilot project of aquatic-weed control being launched at the Olomega Lagoon and at the Cerron Grande Reservoir is 55,000 Salvadorian colones (approximately US \$22,000) to be apportioned over a three year period; funds will be provided by the Government of El Salvador with the Canadian International Development Agency-CIDA contributing financing over manpower costs.

BIBLIOGRAPHY

- N75-22938 Application of Vascular Aquatic
Plants for Pollution Removal, Energy
and Food Production in a Biological
System
- PB 208 527 Control of Aquatic Vegetation in
Fresh water
- PB 238 909 Biological Control of Aquatic
Vegetation
- PB 244 263 Nutritional Ecology of Nuisance
Aquatic Plants
- PB 253 341 Preliminary Control of African Rue
With Various Herbicides
- PB 257 724 Apply Pesticides Correctly. A Guide
For Private Applicators.
- PB 259 992 Wastewater Treatment by Natural and
Artificial Marshes
- PB 261 002 Apply Pesticides Correctly. A Guide
for Commercial Applicators. Right-
of-Way Pest Control
- AD 726 948 Aquatic Weed Control in Fish Ponds
with Chemical Methods
- AD 775 408 Aquatic Plant Control Program-Technical
Report 6. Biological Control of Water
Hyacinth with Insect Enemies
- ADA 018856 Aquatic Plant Control Program-
Technical Report 11. Effects of CO₂
Laser on Water Hyacinth Growth
- ADA 032970 Water Hyacinth Research in Puerto Rico

CASE STUDY IN PROGRESS

PLACE:

Servicio de Informacion y
Transferencia de Tecnologia-SITT
Centro Nacional de Productividad-CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT:

Ing Gustavo Valle, SITT Manager

ORGANIZATION'S PURPOSE

CENAP-the National Productivity Center-provides the following services:

1. identification of needs
2. analysis of known solutions
3. screening
4. fabrication of prototype
5. testing
6. redesign
7. operational field tests
8. demonstration to low-income groups

In essence, CENAP functions as a transfer agent of previously evaluated appropriate technology to low-income areas.

PROJECT DESCRIPTION

"To reduce the loss of fruits and vegetables in our markets due to management, transportation, package, and storage." Technical assistance will be provided by Ing. Gustavo and other technicians of the corresponding government institutions. Beneficiaries are the small sellers and producers.

BIBLIOGRAPHY

NTIS/PS-78/0482

Food Packaging and Storage.
Volume 2. June 1977-April 1978.
Bibliography with Abstracts.

NTIS/PS-78/0761

Solid Waste Reclamation and Recycling.
Part 1. Packaging and Containers.
Bibliography with Abstracts.

CASE STUDY IN PROGRESS

PLACE:

Center Nacional de Productividad
CENAP
Avenida Espana 732
San Salvador, El Salvador

PRINCIPAL CONTACT:

Pedro E. Garcia, Director

ORGANIZATION'S PURPOSE

"To provide information and technical assistance to those organizations who require continuous contact and updating."

PROJECT DESCRIPTION

"To make maximum advantage of natural resources heretofore neglected. Technical assistance will be provided by CENAP's Department of Technical Assistance and the Technology Transfer and Information Service (SITT)."

BIBLIOGRAPHY

- | | |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| PB 258 499 | Fuel and Energy Production by Bioconversion of Waste Materials State-of-the-Art |
| PB 259 990 | Report of a Workshop on Aquatic Weed Management: Some Prospects for the Sudan and Nile Basin, Held at Khartoum, Sudan on 24-29 November 1975 |
| N75 22938 | Application of Vascular Aquatic Plants for Pollution Removal, Energy and Food Production in a Biological System |
| N76 10569 | Grown Organic Matter as a Fuel Raw Material Resource |

CASE STUDY IN PROGRESS

PLACE: Grupo de Tecnologia Apropiada
Apartado 1421
Panama 9A, Panama

PRINCIPAL CONTACT: Samuel Bern

ORGANIZATION'S PURPOSE:

To publish periodic reports on appropriate technology to organize seminars in rural areas on alternative energy resource development and agriculture.

PROJECT DESCRIPTION

"To increase awareness among rural populations of the dangers of pollution occurring in the waste stream of the coffee processing plants and to propose appropriate solutions. Technical assistance is provided by an agronomist specializing in bio-technology. The project has a \$5,000 budget for 6 months duration. The beneficiaries are the residents of the Boquete area who utilize the water from these streams.

BIBLIOGRAPHY

PB 217 142	Engineering Studies of Coffee Mill Wastes in El Salvador, C.A.
PB 217 790	Treatment of Wastes from Coffee Processing in Costa Rica

CASE STUDY IN PROGRESS

PLACE:

Ministerio de Salud Publica
Tegucigalpa, Honduras

ORGANIZATION'S PURPOSE

To train extension personnel to provide basic health services.

PROJECT DESCRIPTION

"To extend these services throughout greater areas. Technical assistance will be provided by AID and the rural population which comprise almost 70% of Honduras' population.

BIBLIOGRAPHY

PB 239 556-T	Barefoot Doctors Manual
PB 262 754	Health Training Resource Material
PB 268 988	Health Advice for the African Family
NTIS/PS 78 0870	Aquatic Weed Control

CASE STUDY IN PROGRESS

PLACE: Foster Parents Plan International/
Chalatenango
la Calle Poniente #12
Chalatenango, El Salvador

PRINCIPAL CONTACT: Tim Allen

ORGANIZATION'S PURPOSE

"PLAN, Foster Parents Plan International begins at the grassroots level in that all ideas, organizations, human resources involved in a project come from the beneficiary community itself."

PROJECT DESCRIPTION

To facilitate "the implementation of projects in preventative health, vocational and formal education, community development and small income generating and agricultural projects. PLAN has a team of local project promoters, trained in-house in simple organizing techniques. PLAN will enroll some 3,000 affiliated low-income farming families in the Department of Chalatenango within the next year. The total population benefitting from programs and services is 36,000 people."

BIBLIOGRAPHY

PB 283 958 Manual de Tecnologia para la
Comunidad (Village Technology
Handbook-Spanish version)

CASE STUDY IN PROGRESS

PLACE:

Directora Ejecutiva
Centro de Integracion Familiar
Apartado Postal 186-A
Guatemala, Guatemala

PRINCIPAL CONTACT:

Maria Mercedes de Rossi

ORGANIZATION'S PURPOSE

"We have a Rural Home in Rabinal, Baja Verapaz province which services five villages with equipment to promote health, agriculture and home economics, etc. to low-income groups (average monthly income per family: U.S. \$12); we are particularly aware of the role women play as a key element in promotion and development."

PROJECT DESCRIPTION

Technical assistance will be provided by a team native to the area and composed of a General Supervisor, a doctor, a professor, an agronomist, a nutritionist, etc. The project has an operating budget of U.S. \$110,000 for three years. (The Project is designed to last three years for each group of four or five villages). Funding is provided locally and from European sources."

BIBLIOGRAPHY

PB 263 349

Manual Didactico: Huertos Escolares
y Nutricion (Teaching Manual: School
Gardens and Nutrition).

"We consider this report as very useful, didactic, and practical. Mostly, it will be utilized to train the women since they are the key to the development of home economics within the context of capacitating the five villages covered by this project."

CASE STUDY IN PROGRESS

PLACE:

CARE, Inc.
Box 773
Port-au-Prince, Haiti

ORGANIZATION'S PURPOSE

"CARE-Haiti currently serves over 170,000 children in its School Feeding Program, plus 55,000 workers and dependants in Food for Work."

PROJECT DESCRIPTION

"Food for Work projects strive to encourage community action in soil conservation, road construction, housing, etc. Technical assistance will be provided by specialists from the Haitian Government Department of Agriculture, Education, Public Health and Public Works, and our own staff of engineers and agronomists. CARE's beneficiaries represent the poorest segment of the Haitian society; Haiti is the poorest country in Latin America."

BIBLIOGRAPHY

- | | |
|-------------|----------------------------------------------------------------------------------------------------------|
| PB 253 126 | Products from Jojoba: A Promising New Crop for Arid Lands |
| PB 282 650 | Solar Cookers for Haiti: A Feasibility Study |
| HRP 0200501 | Guide to the Collection and Use of Health Expenditures and Utilization Data for Health Planning Agencies |
| TID 22781 | Fuels from Sugar Crops |

SECTION 6

REFERENTIAL LISTING OF NTIS

APPROPRIATE TECHNOLOGY REPORTS

BY ACCESSION NUMBER

REF-000

AD-A002 212
AD-A003 909
AD-A004 254
AD-A008 453
AD-A010 976
AD-A013 482
AD-A015 426
AD-A026 264
AD-A029 823
AD-A029 842
AD-A032 835
AD-A036 072
AD-A038 482
AD-A044 343
AD-A044 765
AD-A044 767
AD-A044 982
AD-A047 981

AD-210 105
AD-417 467
AD-464 900
AD-600 859
AD-615 459
AD-636 809
AD-638 118
AD-651 116
AD-657 007
AD-657 858
AD-664 641
AD-668 852
AD-668 853
AD-670 260
AD-671 856
AD-675 354
AD-676 124
AD-677 010
AD-678 292
AD-678 728
AD-679 182
AD-679 459
AD-679 473
AD-679 474
AD-679 475
AD-679 477
AD-679 833
AD-683 052
AD-683 935
AD-684 411
AD-685 455

AD-685 824
AD-686 717
AD-686 836
AD-687 028
AD-687 318
AD-701 167
AD-701 189
AD-703 222
AD-703 223
AD-703 224
AD-703 232
AD-703 235
AD-703 884
AD-704 160
AD-704 261
AD-707 560
AD-709 715
AD-709 718
AD-714 914
AD-715 802
AD-715 871
AD-716 235
AD-716 403
AD-716 740
AD-717 965
AD-720 097
AD-722 000
AD-723 062
AD-727 713
AD-730 939
AD-731 719
AD-740 285
AD-743 436
AD-744 691
AD-746 489
AD-748 582
AD-750 351
AD-755 424
AD-758 524
AD-765 616
AD-772 930
AD-781 403
AD-782 199
AD-785 748
AD-785 928
AD-787 465
AD-837 454
AD-837 489
AD-837 490
AD-837 491

AD-837 492
AD-837 495
AD-837 496
AD-837 497
AD-878 676

BMFT-FB-T-77-06

BMI-1957(V.3)

BNL-20510
BNL-21491
BNL-21874
BNL-22311
BNL-23340
BNL-50633

COM-71-00049
COM-71-00111
COM-71-00202
COM-71-00655
COM-71-00716
COM-71-00717
COM-71-01017
COM-71-50005-62
COM-71-50005-92
COM-71-50584
COM-72-10054
COM-72-10588
COM-72-11539
COM-72-50175-017
COM-72-50175-018
COM-72-50175-027
COM-72-50175-033
COM-72-50175-038
COM-72-50251-03-12
COM-72-50659
COM-73-10115-04
COM-73-10152
COM-73-10275
COM-73-10343
COM-73-10355
COM-73-10527
COM-73-10791
COM-73-10795
COM-73-10810
COM-73-50276
COM-73-50645-11-2
COM-74-10059
COM-74-10543

COM-74-10547	E77-10024	PATENT-4 035 065
COM-74-11005	E78-10132	PATENT-4 065 053
COM-74-11487		
COM-74-11489	HCP/M3879-0003	PB-169 304
COM-74-11490	HCP/M3879-1(V.1)	PB-169 744
COM-74-11491		PB-170 306
COM-74-11492	HIT-693(V.2) (App.)	PB-170 327
COM-74-11493		PB-173 709
COM-74-11494	HRP-0006853	PB-173 710
COM-74-11645	HRP-0007411	PB-174 333
COM-74-11781	HRP-0010205	PB-174 346
COM-74-50182	HRP-0013245	PB-174 673
COM-74-50184	HRP-0016123	PB-175 521
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TT-70-57149
TT-70-57224
TT-73-54014

UCLA-12-1123

UCRL-79515

UMD-4908-8

SECTION 7

LIST OF NETWORK
PARTICIPATING AGENCIES

NET-000

NTIS REPRESENTATIVES

LATIN AMERICA REGION

BARBADOS AND THE EASTERN CARIBBEAN

Caribbean Development Bank (CDB)
Technology Information Unit
ATTN: Jeffrey Dellimore
Project Design & Analysis Div.
P.O. Box 408
Wilkey, St. Michael
Barbados, W.I.

BOLIVIA

Direccion General de Normas y
Tecnologia (DGNT)
ATTN: Ing. Carlos Garvizu T.
Jefe, Servicio de Informacion
Tecnica Industrial
Casilla 4430
La Paz

BRAZIL

Barroslearn
ATTN: Adelaide Paes de Barros
Rua 24 de Maio, 62-Andar 5^o
01041 Sao Paulo, S.P.

CHILE

Instituto de Investigaciones
Tecnologicas (INTEC/CHILE)
ATTN: Margarita Barraza C.
Jefa de Adquisiciones
Casilla 667
Avenida Santa Maria 06500
(Lo Curro)
Santiago

COLOMBIA

Fondo Colombiano de Investigaciones
Cientificas (COLCIENCIAS)
ATTN: Sra. Isabel Forero de Moreno
Jefa, Division Biblioteca y
Documentacion
Transversal 9, No. 133-28
Apartado Aereo 051 580 - 29828
Bogota, D.E.

COSTA RICA

Instituto Tecnologico de Costa
Rica (ITCR)
ATTN: Sr. Gerardo Mirabelli
Director, Centro de Informacion
Tecnologica
Apartado 159
Cartago

DOMINICAN REPUBLIC

Instituto Dominicano de Tecnologia
Industrial (INDOTEC)
ATTN: E. Enrique Leyba D.
Sub-Director
Av. Nunez de Caceres
Esquina Jose Amado Soler
Apartado 329-2
Santo Domingo

ECUADOR

Centro de Desarrollo Industrial
del Ecuador (CENDES)
ATTN: Dr. Victor Martinez C.
Jefe, Servicio de Informacion Tecnica
Garcia Aviles 217 y 9 de Octubre
Apartado 5833
Guayaquil

ECUADOR Sub-Agency

Escuela Politecnica Nacional
Instituto de Investigaciones
Tecnologicas
ATTN: Ing. Elman Lopez
Apartado 2759
Quito

EL SALVADOR

Centro Nacional de Productividad (CENAP)
ATTN: Sr. Gustavo Valle
Servicio de Informacion y
Transferencia de Tecnologia
Avenida Espana 732
San Salvador

GUATEMALA

Instituto Tecnico de Capacitacion
(INTECAP)
ATTN: Ing. Gustavo Chang
Apartado Postal 709
Guatemala City

GUATEMALA

Instituto Centroamericano de
Investigacion y Tecnologia
Industrial (ICAITI)
ATTN: Sra. Rocio Marban
Documentacion y Informacion Dept.
Apartado Postal 1552
Guatemala City

HONDURAS

Universidad Nacional Autonoma de
Honduras
Centro de Informacion Industrial (CII)
ATTN: Srta. Patricia Duron
Tegucigalpa

JAMAICA

Scientific Research Council
ATTN: Mrs. Ouida Lewis
Technical Information Officer
P.O. Box 350
Kingston 6

MEXICO

INFOTEC/CONACYT
ATTN: Sr. Jorge Cepeda
Coordinator de Servicio
Division NTIS
Apartado 19-194
Mexico 19, D.F.

NICARAGUA

Centro Nicaraguense de Informacion
Tecnologica (CENIT)
Banco Central de Nicaragua
ATTN: Ing. Francisco Vega, Director
Apartado 2252, Banco Central
Managua

PANAMA

Centro para el Desarrollo de la
Capacidad Nacional en la Investigacion
(CEDECANI)
ATTN: Mrs. Nitzia Barrantes,
Librarian
Estafeta Universitaria
Universidad de Panama
Panama City

PARAGUAY

Instituto Nacional de Tecnologia
y Normalizacion (INTN)
Avenida General Artigas y General Roa
ATTN: Dr. Jose Martino
Casilla de Correo 967
Asuncion

PERU

Novoa Ingenieros Consultores, S.A.
Division NTIS
Los Colibries 104
Lima 27

VENEZUELA

Red de Informacion en Ingenieria
Arquitectura y Afines (REDINARA)
ATTN: Econ. Francisco Rizo
Apartado de Correos 2006
Caracas

NTIS REPRESENTATIVES

ASIA - AFRICA REGION

BANGLADESH

Bangladesh National Scientific
& Technical Documentation
Centre (BANSDOC)
Mipur Road, Dhanmondi
Dacca 5

KENYA

Technical Consultants International
ATTN: Clare Sammons
Marshall House, Harambee Avenue
P.O. Box 14565
Nairobi

GABON

Centre National pour la
Recherche Scientifique et
Technique (CENAREST)
ATTN: M. Nzoghe Nguema
Commissaire General
B.P. 842
Libreville

KOREA

Korea Scientific & Technological
Information Center (KORSTIC)
ATTN: Mr. Koo-Ho Yoon
Director, Dept. of Information
Resources
C.P.O. Box 1229
Seoul

INDIA

Higginbotham's Ltd.
ATTN: Mr. V. Balaraman
Director and Manager
165 Anna Salai
Madras 600002

Constellate Consultants (P) Ltd.
ATTN: Mr. Vijay Bhargava
5 Anand Lok
New Delhi 110049

NEPAL

Research Centre for Applied Science
and Technology (RECAST)
National Council for Science and
Technology
ATTN: D.B. Shakya
Tribhuvan University
Kathmandu

Allied Publishers, Pvt., Ltd.
ATTN: S.M. Sachdev, Director
15 Graham Road
Ballard Estate
Bombay 400038

NIGERIA

Federal Institute of Industrial
Research (FIIR), Oshodi
ATTN: Mrs. Beola Ariyo
Office of the Director of Research
Private Mail Bag 1023
Murtala Muhammed Airport
Lagos State

INDONESIA

Pusat Dokumentasi Ilmiah
Nasional (PDIN)
ATTN: Mr. Hernandono
Jl. Jenderal Gatot Subroto
P.O. Box 3065/Jkt
Jakarta

PAKISTAN

Pakistan Scientific &
Technological Information
Center (PASTIC)
ATTN: Miss Shamin Farrukh,
Translating Officer
Sub-Centre
142-C/II P.E.C.H.S.
Karachi-29

Pakistan Scientific and
Technological Information
Center (PASTIC)
ATTN: Dr. A.R. Mohajir
13-P. Almarkaz, F-7/2
P.O. Box 1217
Islamabad

PHILIPPINES

Technology Resources Center (TRC)
ATTN: Jesus Fragante
TRC Building
Buendia Avenue Extension
Makati, Metro Manila

SRI LANKA

National Science Council of Sri Lanka
Sri Lanka Scientific and Technical
Information Center (SLSTIC)
ATTN: Mr. N.U. Yapa
Head Librarian
47/5 Maitland Place
Colombo 7

SUDAN

The National Council for Research
ATTN: Professor M.L. Khidir
P.O. Box 2404
Khartoum

THAILAND

Thailand Management Association (TMA)
308 Silom Road
Bangkok 5

TUNISIA

Centre National de l'Informatique (CNI)
ATTN: Ferida Gribaa
6, Rue Bel Hassen Ben Chaabane
Tunis

NETWORK COMMUNICATIONS

There were seven issues of ACCESS, a bulletin for the U.S. AID technical information network, distributed during FY-1979. They were sent to the USAID cooperating agencies, AID missions and other network participants. The following subjects were featured during the year:

October	1978--	Appropriate Technology
January	1979--	Introduction to the new NTIS Director, Melvin S. Day
February	1979--	Interview with Lida Allen, Director of AID DS/DIU
April	1979--	Ambassador John McDonald's comments on Technical Cooperation among Developing Countries
May	1979--	Presentation of the Contadora Regional Conference and data base discussions in Peru
June	1979--	The Appropriate Technology Fair in Washington, D.C.
July	1979--	Congressman Clarence D. Long's comments on Capital-Saving Technology. Rep. Long is an economist and a leading U.S. advocate of appropriate technology utilization. He is chairman of the House Foreign Operations Sub-committee for Appropriations.

The latter issue is included in Attachment 5 along with the new AMTIDs.

Other NTIS publications printed and distributed to the cooperating agencies included the brochure "Technical Information for Development" which describes the AID Network activities to aid international development, and an updating and translation to Spanish of the manual "How to use the NTIS Order Processing System". The latter was completed after receiving comments, corrections, and suggestions from various NTIS line personnel.

Two documents, "Directory of Federally Supported Information Analysis Centers" and "Information Services on Research in Progress" were sent without charge to the agencies as were monthly copies of the NTIS Best Sellers List. The latter contains 100 report titles every issue.

During the past year the Developing Country Staff has contacted a large number of international organizations which are actively interested in the distribution of scientific and technical information to developing countries. The NTIS Director, Melvin S. Day, and this office's Administrator, Terrance L. Lindemann, attended several planning sessions for the U. S. Committee meeting of UNESCO/PGI (United Nations Educational Scientific and Cultural Organization/Programme General d'Information).

Mr. Day also headed the U. S. Delegation to the second session of UNISIST II (United Nations World Information System for Science and Technology) during May of this year. The original concept of UNISIST was to bring together a voluntary world-wide cooperative network of scientific and technical information systems--an indirect objective, on a smaller scale, of the USAID network program in Latin America and the Caribbean. Nevertheless, many of the underdeveloped country organizations which represented the Governments, displayed more interest in how the various systems and services of UNISIST can be used to assist them rather than how to interrelate amongst each other.

The U. S. PGI committee officially agreed to host the fourth UNESCO meeting on Planning and Implementation of National Information Activities. UNRSEC and NTIS will jointly organize the seminar in Washington, D. C. in May 1980 with UNESCO paying most of the expenses and NTIS doing the managerial work. The theme will be "the Assessment of Information Needs for Development as a Basis for Information Policy".

Many of the Latin American and the Caribbean USAID Network members will be invited to attend the seminar. Ms. Lida Allen, the Director of AID's Office of Development Information and Utilization, included funds in the AID budget to support the cost of bringing candidates for developing countries in Africa, Asia and the Near East. The arrangements for the payment of the Latin American candidates expenses has not been completed but funding problems are not anticipated. The staff also had separate meetings with A. A. Winters and Victor Montvilloff of the Paris UNESCO office and Ms. Judith Werdel of the National Academy of Sciences to review the U. S. obligations in hosting the UNESCO sponsored conference.

An NTIS representative also attend a State Department meeting of the Interagency Working Group of the UNESCO Science Sub-committee. In addition, Mr. Frank Post delivered a paper, "On-line Searching for Developing Countries", at a Mexico City UNESCO regional conference on the Transfer of Technical Information in Latin America.