PD-ACB-840

AGENCY FOR
INTERNATIONAL
DEVELOPMENT

ANNUAL BUDGET SUBMISSION
FY 1979

TECHNICAL ASSISTANCE BUREAU
OFFICE OF SCIENCE AND TECHNOLOGY

DEPARTMENT
OF
STATE

MAY 1977

I N D E X

PART I

	Page
Office Narrative	1
Table V - FY 1979 Proposed Program Ranking	24

OFFICE TABLES

Cluster Total in Priority Order	26
Project Listing within Category	27

CLUSTER DATA

9951	Exploratory New Applications of Science and Technology	
	Narrative	28
	A-1 Tables	33
9952	Energy	
	Narrative	37
	A-1 Tables	42
	PID's:	
	931-1216 Energy Technology Demonstration	47
	931-1217 Energy Analysis Techniques	56
	931-1218 Training in Energy/Management	62
	931-1219 Energy - Food Plantation	68
	931-1220 Solar Power Generation	75
9953	Environment/Natural Resources	
	Narrative	83
	A-1 Tables	87
	PID's:	
	931-1080 Wood as a Fuel Resource	91
	931-1209 Env. Nat. Resources: Expanded Info. Base	96
	931-1211 Environment: Institutional Support	102
	931-1212 Integrated Pest Managment R&D	107
	931-1213 Renewable Resource Plantation	116
	931-1214 Mineral Exploration - OECD	122

Page

9954 Technology Transfer and Development

Narrative 128
A-1 Tables 139
PID's:
931-1075 Small Industry Implementation 142
931-1079 Industrial Property Rights Assistance . 148
931-1088 Involving the Private Sector 156
931-1205 Dev. Center - Feasibility Study 163
931-1206 LDC-IRI Contract Research Network . . . 169
931-1207 Tech. Info. Transfer System 174
931-1208 Tech. Dev. Corp. Feasibility Study . . . 181

9957 Building Scientific and Technological Infrastructure

Narrative 185
A-1 Table 191
PID's:
931-1089 Interaction of S&T and LDC Cultures . 197
931-1221 White House Sum Study on Science Policy . . . 200
931-1222 Regional Workshops on Energy, Resources & Environment 210

9958 Remote Sensing and Satellite Technology

Narrative 217
A-1 Tables 223
PID's:
931-1215 Remote Sensing in Cartography 227
931-1224 Remote Sensing in Agriculture 231
931-1225 Computer Applications in Remote Sensing . . . 236
931-1226 Portable Ground Stations 241
931-1227 Earth Resources Information Systems 249

A-2 Tables 254

(index cont.) Page

PART II

F Tables (Fiscal Data)

9951	Exploratory New Applications of Science and Technology	270
9952	Energy	271
9953	Environment/Natural Resources	285
9954	Technology Transfer and Development	299
9957	Building Scientific and Technological Infrastructure	312
9958	Remote Sensing and Satellite Technology	321

G Tables (Small Activities) 342-347

OFFICE NARRATIVE

May 23, 1977

OFFICE SUMMARY NARRATIVE

TA/OST

BACKGROUND AND OBJECTIVES

The role of the Office of Science and Technology is defined by AID's Policy Determination 51:

> "to assist developing countries with selected aspects of the problem of technological transfer and adaptation."

OST was directed to support and supplement the Agency's activities in the sectors of principal emphasis, but was to approach the development effort with the less focused and somewhat broader viewpoint of the general scientific community. The Policy Document enunciated three principal tasks (objectives) for this Office:

-- To help developing countries establish national policies and institutions that will permit better technological choices, particularly in industry.

-- To assess and manage natural resources.

-- To reduce public investment costs.

Since then the interests of both the developing and developed countries in the application of science and technology to development, especially in such fields as energy, technology transfer, and utilization of natural resources, have grown at an increasing rate. Concern for the environment, including the well-being of people, has kept pace.

RESPONSE

Within the limits of available resources, OST has responded to these changing currents of world interest. Past and projected funding levels (see Attachment A) are indicative of the overall trend. At the same time, the content of the program is changing, emphasizing the areas of current world interest and moving toward exploratory investigation instead of the application of more conventional technologies and techniques. Recognizing the long gestation period between innovation and implementation in operational programs, we have attempted to look further into the future and to find expeditious paths for our exploratory activities. At the same time, to make room for such new activities under limited personnel ceilings, we have transferred ongoing projects related to public construction to SER/ENG and now propose to transfer additional ongoing projects to other offices, as shown on Attachment B.

OST PROGRAM STRATEGY

The future strategy of the Office is to continue the general trend toward exploratory investigations. This is reflected not only in the establishment of the ENAST cluster, but also in the nature of the work proposed for the other clusters. In addition, we will attempt to strengthen our non-project activities to keep the Agency better informed of new developments in science and technology and to assess these in the light of future impacts as well as current needs. Finally, we have allocated a higher portion of staff time (about 25%) to support of Regional Bureaus and Missions.

Based on the past year's experience and responding to current and foreseen needs we propose, effective with FY 1978, to group the work of the Office into six clusters:

Exploratory New Applications in Science and Technology (ENAST)

Energy

Environment and Natural Resources

Technology Transfer and Development

Science and Technology Policy ("Building S & T Infrastructure")

Remote Sensing

The close affinities and mutual support between energy, environment, and natural resources as well as between technology transfer and science policy is recognized in the reorganization of OST now being proposed. In view of the independent nature of the International Industrialization Institute and the uncertainty of A.I.D.'s future participation in this activity, no plans for it are included in this Annual Budget Submission.

RESEARCH AND DEVELOPMENT PRIORITIES

Since OST activity is designed to explore areas of future rather than current AID interest, the reactions of Missions to these activities in the past sometimes have been more apathetic than enthusiastic. However, Attachment C, which summarizes the results of the recent survey of Mission views, shows strong interest in energy, environment, and especially in renewable natural resources. Other clusters have support, but among fewer Missions.

As an indication of the priority the U.S. Government assigns to the transfer of science and technology to developing countries, the State Department has committed the U.S. to substantial participation in the 1979 U.N. Conference on Science, Technology and Development. Similarly, to respond more effectively to issues raised in the North-South dialogue, the U.S. has adopted a policy of increased technology transfer. With coordination from the Appropriate Technology Unit, the clusters for Technology Transfer and Science Policy will be the principal source of project support for both of these activities as they relate to developing countries.

Regional Bureaus and Missions have attached increasing importance to the involvement of OST personnel in planning major projects in Science Policy and Technology Transfer. Indonesia, Tunisia, Egypt, Ghana and Haiti are examples of countries for which OST assistance has been requested. Georgia Tech has studied the small industry potential in AID's Tunisia Rural Development project, sent technical information on solar energy applications in response to requests from Upper Volta, Sudan, and Jamaica, analyzed the feasibility of using pyrolytic conversion to convert agricultural and forestry wastes to energy in Indonesia and Ghana. Another OST contractor, the Denver Research Institute, responded to the Mission request to assist Jordan's Royal Scientific Society and, at ARA's behest, briefed Panama's Center for National Research Development (CEDECANI) on DRI's management training program for LDC industrial research institutes.

Finally, following the AIDSAT demonstration, 23 countries asked for assistance and training in the use of remote sensing imagery for land use planning, cartography, monitoring of resources and other development activities. Remote sensing specialists from the Environmental Research Institute of Michigan were helpful at the 27 foreign sites in selecting and briefing host country panelists, explaining scenes from the orientation movies, and discussing appropriate applications and follow-on programs for the participating nations.

In these various "customer surveys" we see support and endorsement for strengthened programs in each of the selected clusters. The base level for each of these clusters is not adequate to insure that these skilled intermediaries will be able to respond to expected future requests from Bureaus, Missions and developing countries.

At the same time, we abandon for the present any efforts in the previously active sectors of transportation, public construction and technical education.

FUNDING LEVELS: CRITERIA AND IMPACT

In preparing the FY 79 program, we have carefully examined each cluster to determine:

- The rationale for each cluster (see the cluster narratives).

- The minimal level or "critical mass" below which the effort would appear to be marginal (approximately equal to 80% of the Office budget for FY 78). At this level the concept of forward funding had to be abandoned to avoid catastrophic impact on high priority programs. Should this level be adopted we would consider sacrificing one or more clusters to preserve better momentum in the remainder, but as noted above these clusters are mutually supportive in an intensive way.

- The best distribution of effort at a funding level equal to 100 percent of the FY 1978 budget("Current Level"). Due to increased Mission interest as well as inflation, funds at this level would result in less than adequate and sustained support from one or more clusters.

- A "full funding" level at which we could satisfy all known and reasonable requirements in these clusters ($25 million).

- A lower "proposed" level or decision package which covers all of the high priorities in each cluster and allows for research and exploration of the new areas with highest priority. Three quarters of this budget has been allocated to Environment and Natural Resources, to Energy, and to Remote Sensing. Staffing above the authorized FY 78 level would not be necessary. The small deficiency in the Remote Sensing Cluster could be handled by current contract. The total budget for this decision package (See Proposed-A in Table V) is about $19 million, which could be trimmed by relaxing the three-year forward-funding requirement.

The funds and staff workdays required for all these program levels are summarized in Table V and, in somewhat different form, in Attachment D.

IMPACT OF HOLDING TO FY 77 STAFF CEILINGS

Should the Office be held to FY 77 ceilings (eight scientific positions were authorized last summer for FY 78), the impact would be severe for the ENAST, Energy, Environment and Remote Sensing clusters. For FY 79 specific impacts would be:

ENAST - Effort reduced by 25%.

Energy - Effort reduced by 40%. Only three ongoing projects could be handled. It would not be possible to start any of the five new projects planned for FY 78 and FY 79.

Environment and Natural Resources - The proposed research project on integrated pest management would be dropped and support to Missions and Regional Bureaus would suffer.

Remote Sensing - The major project could probably be handled, but two new projects designed to respond to needs in agriculture and cartography could not be started.

There would be no impact on the remaining two clusters since no FY 78 vacancies have been authorized for them.

POTENTIAL IMPACT OF OST ACTIVITIES ON POPULATION GROWTH

For the past several years OST has been the technical manager for an AID project (funded by PHA/POP) that explores the application of remote sensing from satellites to demography in developing countries. This technique permits (1) more accurate population estimates based on correlations between land use and population density and (2) improved monitoring of migration. With more accurate estimates leaders receive improved analyses of the consequences of rapid population growth rates and are more receptive to proposals for effective and widespread family planning.

In a more general sense, there is support for the contention that all of TA/OST's programs indirectly support family planning. The Harvard Center for Population Studies argues that analysis over the past two decades shows that cooperation in lowering human fertility in poor countries depends upon the degree to which the basic human needs of individual couples can be met by means other than having large families. This refers not to needs that all mammals have for food, warmth, health, and

sexual satisfaction, but to those needs unique to humans -- hope that the future will be better or at least not worse than the present and that individuals can participate in shaping their own futures.

The North-South confrontation has produced strident demands from Group 77 LDCs that industrialized countries share their technology. This is ample evidence that, for the poor, hope for a brighter future lies in gaining access to Western technologies that can directly benefit them. Therefore, projects holding visible promise of sharing U.S. science and technology can persuade couples that the benefits of modern science are reaching their lives and will provide a better life for their children.

TECHNICALLY QUALIFIED STAFF IN MISSIONS AND REGIONAL BUREAUS

One of the major hurdles in the path of integrating OST activity with the other Bureaus and Missions is the scarcity of technically qualified personnel outside of TAB and SER/ENG. Communication of technical ideas is difficult, evaluations are circumscribed, feedback to OST is limited and, most importantly, opportunities to identify, shape and apply useful technologies are overlooked. For example, Mission response to the survey of research needs was necessarily constrained by the lack of qualified personnel.

At the present time no scientists and only one engineer from the Regional Bureaus are assigned to work with OST. As for the Missions, Tunis has recently acquired a science adviser (Dr. Williams who we recommended) and Bill Littlewood was requested by AID/Jakarta in July, 1976. John Cooper, though not a scientist, has been assigned as Science Officer in Accra. There are no other Mission personnel assigned to S & T program responsibilities and we know of none with a scientific background.

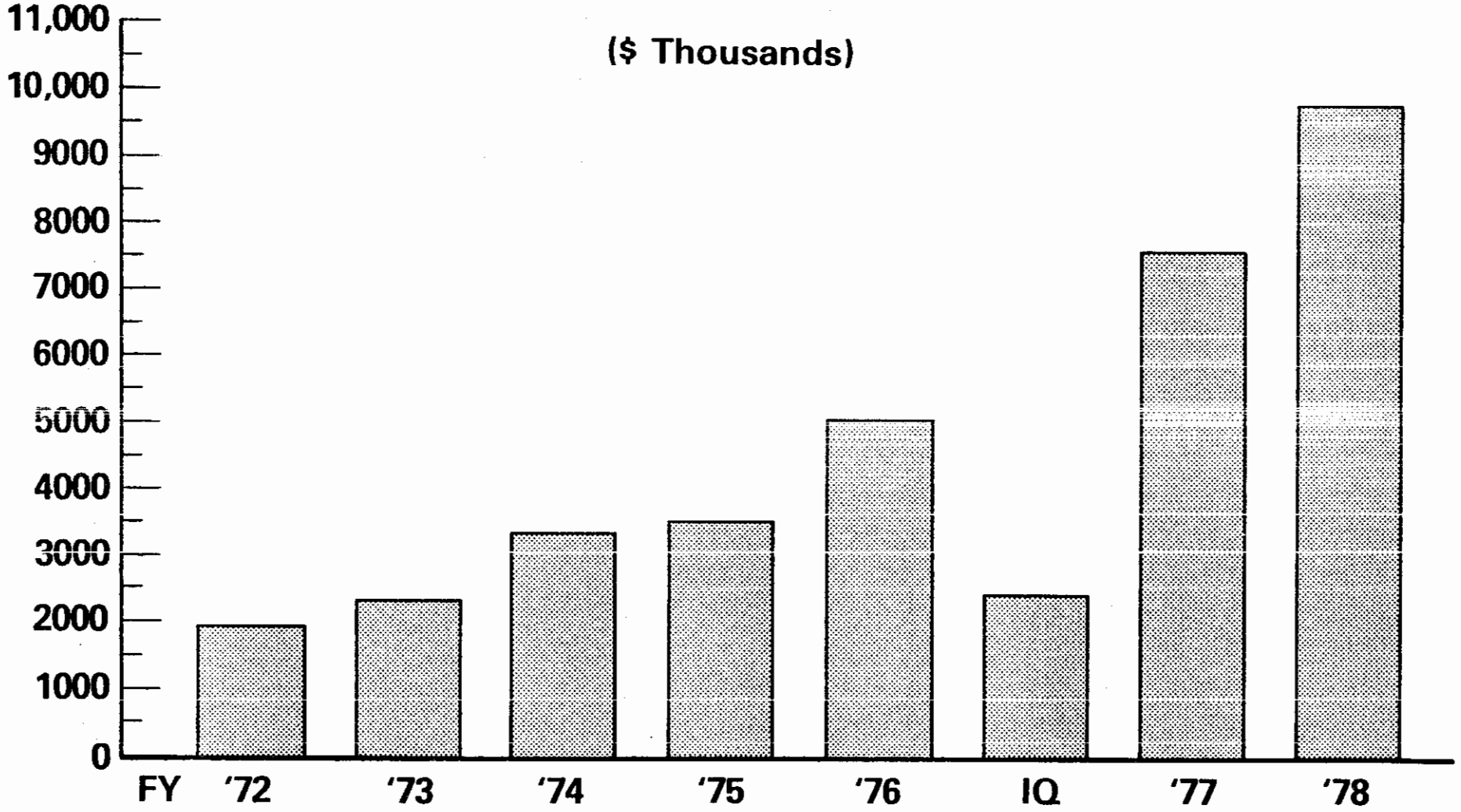
Engineers, posted in some of the major missions, have sometimes helped but not filled the gap since most of our work is not conventional engineering. The absence of a full time focal point for science and technology in the Regional Bureaus limits the potential effectiveness of OST support.

In our view, each Regional Bureau should have a scientifically qualified person assigned full time to serve as a point of contact not only with OST but with other unrepresented offices of TAB, with State, OAS, NAS, environmental groups, etc. In the field we suggest a full time senior scientist, one junior

scientist, and a local scientist be assigned to each geographic region. In countries where the interest in science is especially high, such as Egypt, Indonesia and India, a scientist in the Mission staff could be most usefully employed full time.

ATTACHMENT A

OFFICE OF SCIENCE AND TECHNOLOGY
TECHNOLOGY ASSISTANCE BUREAU
FUNDING FY '72 - '78



Attachment B

Ms. Caroline McGraw
AA/TA, Room 503F, RPC

April 21, 1977

Henry A. Arnold
Director, TA/OST, Room 209, RPC

Possible Transfer of OST Projects.

For possible use during AAA/PPU/MGT review of other TA office budget submissions is the following list of OST projects we recommend be transferred to other offices:

		FY77	WD	FY78	WD
0962	Scientists/Engineers in Economic Development (SEED) (to EHR)	0		0	
0149	Employment Generation thru Small Scale Industry. (to RD/UD)	0		0	
0243	Standardization to LDCs (to SER/ENG)	60		200	
0990	Small Industry Grants (to RD/UD)	0		175	
1075	Small Industry Imp. (78 Shelf) (to RD/UD?)	0		150	
1027	Arid Lands Info. (to AG or EUI)	120		60	

TA/OST:R. Flynn:sat

ATTACHMENT C

SUMMARY OF USAID MISSION RESPONSES ON SCIENCE & TECHNOLOGY TO

TAB R&D EXERCISE FY77

(See AIDTO 316 & AID CIRC A-58)

Reference Airgrams and Cables

Afghanistan	Cable #1740
Bangledesh	Airgram #TOAID A-14
Colombia	Cable #1946
Costa Rica	Airgram TOAID A-9
CAE/Cameroon	Cable #1243
Chile	Cable #2194
Dominican Republic	Cable #864
Ethiopia	Airgram #TOAID A-22
Ghana	Cable #1935
Guyana	Airgram #TOAID A-09
Haiti	Cable #0847
Honduras	Cable #1249
Indonesia	Cable #3271
Jamaica	Airgram #TOAID A-5
Kenya	Airgram #TOAID A-23
Liberia	Cable #1406
Morocco	Cable #1279
Pakistan	Cable #2445
Paraguay	Airgram #TOAID A-15
Peru	Airgram #TOAID A-16
Phillippines	Cable #3891
REDSO	Airgram #TOAID A-25
ROCAP	Airgram #CAPTO A-14
Senegal	Cable #1352
Tunisia	Airgram #TOAID A-022
Yemen	Cable #0927
Zaire	Cable #2272

Prepared by
Dr. Walter E. Parham
TA/OST
April 27, 1977

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
AFGHANISTAN	High Priority (Firewood)	High Priority; Very Important.	High Priority; Important (conditional) Pesticides, herbicides, Deforestation.	Very useful: (Production & processing fresh & dried fruits & vegetables).	Low Priority.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment.	No Comment.	Relevant: Low-cost, improved roof design. Mission doubts Afghan central government would assign this as a high priority.	Overall level of sophistication of proposed R&D areas make subject program not very relevant or useful to Afghanistan in immediate future.	

BANGLADESH	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	(See Comments)	(See Comments)	(See Comments)	Impressed with ALNAT demonstration but greater effort should be made to adapt the technology to conditions & needs of LDCs.	(See Comments)
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	(See Comments)	(See Comments)	(See Comments)	Airgram from AID/W provides very little descriptive information on the scope of the proposed research investigations, governmental locale (if any), methodology, relationships to prior & current research, etc. Therefore, regret that Mission is unable to provide an assessment of the priority for topics. Mission suggestions: Stress utilization with development of product; "Low-cost" Technologies should be "No-cost" technologies from recipient view.	

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
COLOMBIA	Wants publications on alternate energy sources.	Wants publications on management of natural resources.	No Comment	No Comment	No Comment
	STRENGTHING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment	Columbia has decided to phase-out AID assistance. Therefore, new R&D effort inappropriate at this time.	

COSTA RICA	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Interested in R&D on small scale, low-cost energy sources. Like to have Costa Rica site for centrally-funded R&D.	Interested and active. Like to have Costa Rica site for centrally-funded R&D.	Mission feels GCR would like more concrete AID assistance on relationship between environment and development. Like to have Costa Rica site for centrally-funded R&D.	Costa Rica is interested in development & transfer of appropriate technology through private sector.	Most interested in utilization of tropical forests, marine science, low-cost substitute construction materials, earthquake prediction, computer and communications technologies.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	Interested for land-use planning, natural resource inventories, and detection of plant diseases. Want follow-up activities in this area.	No Comment	USAID/CR believes natural resources and environment are most urgent. Less urgent but important are exploratory new applications of S&T. Energy, and industrial technology.	

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
CENTRAL AFRICAN EMPIRE AND CAMEROON	Important: Small-scale, low-cost energy sources. Solar Dryer for cash crops.	(See Remote Sensing)	Need to Develop an institutional capacity on environment in Cameroon. Need to train project personnel in AID environmental procedures.	No Comment	Cameroon interested in having OST send them researcher in medicinal plant research.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	Both governments interested & intend AIDSAT follow-on. CAE & Cameroon considering using remote sensing & Aero-Magnetics for resource assessment & Cameroon interested in evaluation of timber resources. Both feel strong interest in Remote Sensing.	No Comment		

CHILE	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Desirable: Highest priority to nuclear energy. Great potential for solar energy. Need for waste-disposal systems for energy production, especially for northern quarter of country & remote areas.	Desirable: recycling & reprocessing of mineral wastes. Revegetation of denuded areas in north is particularly important.	Important. Has been ignored in Chile but is receiving increased interest.	No Comment	Important. Utilization of seaweed & sea products on artisan level. Earthquake prediction.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	Urgent. For long-range weather & water availability & forecasting.	Low-cost substitute construction materials.		

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EMPLOYMENT VIA APPLICATIONS OF S&T
DOMINICAN REPUBLIC	(See Comments)	(See Comments)	(See Comments)	(See Comments)	(See Comments)
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	(See Comments)	(See Comments)	(See Comments)	Mission reports insufficient time and staff availability to provide response.	
ETHIOPIA	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EMPLOYMENT VIA APPLICATIONS OF S&T
	Urgent. Importance of R&D Areas: High Need electricity for rural poor. (See Comments)	Important. Importance of R&D Areas: High Need soil conservation & water development (See Comments)	Desirable to low priority. Importance of R&D Areas: Medium (See Comments & new S&T)	Desirable to low priority Importance of R&D Areas: Medium-low Need appropriate technologies in small-scale industries, agricultural implements. Need good technical material on alternative scales of production for mass consumer items.	Desirable to low priority. Importance of R&D Areas: Uncertain. Need advanced, applied technology for determining population densities & migration. Need safe, inexpensive, easy-to-use contraceptive.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	Need road construction. Low cost construction.	The relation between energy and environment was noted. Soil and water conservation & acute wood fuel needs are incompatible. Rapid population growth is causing increasing pressure on strained ecosystem giving rise to serious consequences for rural development.	

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS FOR S&T
GHANA	Important	Important	Important	No Comment	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment	Most interests relate to forest topics.	
GUYANA	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Important. Plan to build large hydroelectric plant for aluminum smelting. Little interest in small-scale energy sources.	Important. Forest Resource development ranks high with country. UNDP now assisting Guyana.	Urgent. Interested in environmental assessment related to their planned hydroelectric project.	No Comment	Important. Interest in local plants for pharmaceutical & cosmetic industries.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment		
HAITI	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Urgent	Urgent	Urgent	Important	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment	Partial response at this time.	

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
HONDURAS	Priority #1 Energy from Local materials with village & family emphasis. Small hydro-power systems very beneficial.	Priority #2 (Really meant industrial technology)	Priority #3 Environmental destruction hard to quantify. Important to create environmental awareness.	I^3 May be timely. 19th century small-scale industry might prove instructive & relevant. Need quality control.	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	CULTURAL CONTENTS	
	No Comment	No Comment	No Comment		
INDONESIA	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Agrees with Mission's priorities. (Includes reducing deforestation through firewood-charcoal usage by working on alternate energy sources.)	Agrees with Mission's priorities. (managed with environmental effects minimized.	Mission says high priority but they feel less so for GOI priorities.	No Comment	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	CULTURAL CONTENTS	
	No Comment	No Comment	No Comment	Interested and active in appropriate technology for rural and urban applications.	

RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
nt. lar interest ersion of waste s to fertilizer stock feed.	Desirable.	Desirable	No Comment

SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS
ent	No Comment	

RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
Deforestation, le. Research h types of trees grown economically a.	Desirable. Kenya already receiving considerable attention on environment.	Desirable/low previous research not terribly encouraging.	Important/Desirable.

SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS
as considerable rce.	No Comment	

RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
le	Low Priority	Low priority unless directed at low-cost intermediate technology; than desirable.	No Comment

SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS
ent	No Comment	

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
MOROCCO	Desirable	Important. Especially NAS study on firewood.	Desirable	Low Priority	Low Priority
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	Urgent	No Comment	No Comment		
PAKISTAN	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	High Priority. Alternate energy sources. (See Comments).	High Priority. Deforestation and watershed management.	(See Comments)	Heavy industrial technology research underway but Mission views topic as lower priority.	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment	Rapid Denudation of forest and wood cover here and over most of South Asia exacerbates energy problem. Mission generally concurs with suggested R&D areas.	
PERU	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Urgent. Solar & Wind appropriate energy systems. Energy workshops.	Important. Interest in valuable raw materials.	Desirable. Training programs & seminars for decision makers to increase environmental awareness.	[illegible] will be forwarding cable with comments on recent visit of special Assistant to the Administrator, Bell, to discuss I^3 with Peruvians.	[illegible] in earthquake prediction, marine science.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	Government has shown keen interest in AIDSAT & is now utilizing remote sensing for natural resource studies & land-use planning.	Urgent. Improved low-volume road technology.		

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
PARAGUAY	Urgent (See Comments) Desirable (other than forestry products) Paraguay will become exporter if electrical energy in 1980s when gigantic power dams on Parana river are complete. Of Interest: conversion of organic wastes to fuel; small-scale, low-cost renewable energy resources for rural areas.	Urgent (See Comments) Important (other than forestry area) Interested in all activities related to forests. Need geological survey established. Interested in natural resource base of rural areas which support nearby urban centers.	Urgent (See Comments) Desirable (other than in forestry area) Slash-and-burn agriculture causing air polution, erosion, & soil depletion. Concern over industrial & human waste disposal in water bodies. Concerned about environmental effects of big dams.	Urgent. Need small-scale industries; need to train managers of small & medium firms, Interested in I^3, Standardization, Quality Control.	Important. Of Interest: Long-range weather forecasting, conversion of organic wastes to food, improved low-volume road technology, transportation strategies, computer & communications technologies.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GLOBAL COMMENTS	
	Interested in Cornell University's summer institute in S&T.	Could be used in monituring forest resources. Could complement mapping & geological survey.	Of interest. Low-cost substitute construction materials.	Urgent. An effort combining natural resources, environment and energy in regard to Paraguay's forest resources. Lots of deforestation with little or no reforestation. Country's timber resources could be exhausted in 20 years. Wood & charcoal major energy resource for cooking, generating electricity running locomotives and now maybe for iron and steel production. FAO noted in 1974.	

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
PHILIPPINES	(See Comments)	(See Comments)	(See Comments)	No Comment	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment	Since mission has obviously attached importance to each of the above categories, we defer to other missions for establishment of order of priorities.	

REDSO	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Urgent. Organic waste conversion to fuel. Desirable: Small solar power.	Desirable. Important. Strengthening geological surveys; high altitude lands. Urgent: fast growing trees; protection of forests, wildlife & land resources.	Desirable. A sophisticated approach to such basic environmental considerations as land fertility, erosion, water resources management, free of the shrill cry of the evils of "modernization" would be received favorably. Low priority. Developing LDC environmental institutes; pre- and post-monitoring of ecosystems (not an area for AID).	Urgent. Appropriate technology is the name of the game; I^3. Desirable. Small-scale industrial techniques. Low priority. Industrial standardization & quality control institutions (important but not an area of AID expertise).	Urgent. Improved low-volume roads; organic waste conversion to food. Important: Indigenous plants for medicines. Desirable: earthquake prediction; transportation; flood-warning computer systems. Low Priority: long range weather forecasting; marine science; computer communication techniques. Systems analysis except in river-basin planning.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	Low Priority	Important.	Important. Low-cost, locally available construction materials.		

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
ROCAP	Important: organic waste conversion, solar dryers & coolers, methane generation.	Important: use of protection of tropical forests; fast growing trees.	Important: pollution baseline indicators Data in cities.	I^3 - Desirable Strengthening S&T institutions, small-scale industry, industrial standardization & quality control - important.	Communication technology & earthquake prediction important. Long-range weather forecasting, road technology, transportation, marine science - desirable. (Continued in comments)
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	Important	Low-cost substitute construction materials Important.	(Exploratory New Applications of S&T) Continued: Lesser priority: Flood-warning computer systems, local plants for medicine, systems analysis, computer technologies, utilization of aquatic weeds.	

SENEGAL	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Important	Important	Desirable	Low priority	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment		

TUNISIA	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	(See Comments)	(See Comments)	(See Comments)	No Comment	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comments	(See Comments)	No Comment	OST should continue to identify resources within other U.S. Agencies to help Missions identify program possibilities, develop technical dialogue with host country scientists, and suggest joint research training and regional cooperation. Mission now preparing S&T PP which will focus on remote sensing, energy, natural resources & environment. Host country interest in many of these areas presently is low.	

20

COUNTRY	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
YEMEN	Urgent: Want solar energy R&D.	Urgent: USAID currently involved in well drilling. Very interested in determining resource base.	Low Priority: Little concern throughout country. Not understood by citizens & Gov. would be powerless to enforce corrective action.	Urgent: Needs small-scale, non-water intensive industry.	No Comment
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	No Comment	No Comment		
ZAIRE	ENERGY	NATURAL RESOURCES	ENVIRONMENT	INDUSTRIAL TECHNOLOGY	EXPLORATORY NEW APPLICATIONS OF S&T
	Important: Small-scale energy systems.	Local interest in systematic exploitation of natural resources. Urgent: Natural-Resource surveys. Particular interest in [illegible] inventories.	Desirable: Need information and training program to heighten country awareness.	Important.	(See Remote Sensing) Desirable.
	STRENGTHENING S&T POLICY	REMOTE SENSING	INNOVATIVE CONSTRUCTION	GENERAL COMMENTS	
	No Comment	Most significant of new applications of S&T.	No Comment		

TA/OST
SUMMARY OF RESOURCES REQUIRED

	78		79 Min. 80%		79 Curr. 100%		79 Proposed	
	$	WD	$	WD	$	WD	$	WD
9951 Exp. New App.	1,200		900		1,000		1,450	
(a) Cluster Related		764		979		979		979
(1) Project		-		-		-		-
(2) Non-Project		-		-		-		-
(b) Non-Cluster		268		313		313		313
TOTAL		1,032		1,292		1,292		1,292
9952 Energy	1,131		1,100		1,400		4,300	
(a) Cluster Related								
(1) Project	230	230		225		256		321
(2) Non-Project		210		250		225		345
(b) Non-Cluster		114		130		130		175
TOTAL		554		605		611		841
9953 Environmental/Nat. Res.	1,060		1,200		1,440		6,340	
(a) Cluster Related								
(1) Project		242		225		255		280
(2) Non-Project		412		294		264		239
(b) Non-Cluster		209		209		209		209
TOTAL		863		728		728		728
9954 Technology Transfer & Dev.	1,225		300		700		1,395	
(a) Cluster Related								
(1) Project		186		213		237		240
(2) Non-Project		130		155		150		140
(b) Non-Cluster		175		165		165		165
TOTAL		491		533		552		545
9957 Building S & T Infra.	1,525		1,500		1,600		2,100	
(a) Cluster Related								
(1) Project		110		164		156		159
(2) Non-Project		218		245		244		241
(b) Non-Cluster		322		365		362		375
TOTAL		650		774		762		775
9958 Remote Sensing	2,300		1,800		2,300		3,400	
(a) Cluster Related								
(1) Project		293		320		368		436
(2) Non-Project		439		604		556		488
(b) Non-Cluster								
TOTAL		732		924		924		924

	78		79 Min. 80%		79 Curr.100%		79 Proposed	
	$	WD	$	WD	$	WD	$	WD
TOTAL PROJECT a(1)		1,825		2,126		2,251		2,415
TOTAL CLUSTER		4,322		4,856		4,869		5,105

TABLE V - FY 1979 PROPOSED PROGRAM RANKING

TABLE V – FY 1979 PROPOSED PROGRAM RANKING

DECISION UNIT: OST | REVISED BY: | CONSOLIDATED BY:

RANK	DECISION PACKAGES/PROGRAM ACTIVITY/SUPPORT ITEM: DESCRIPTION	APPROP ACCT	RESOURCE REQUIREMENTS: CUMULATIVE MISSION OPERATING EXPENSES (000)	WORKFORCE (OH ONLY) 2/ INCREMENT US	INCREMENT FN	CUMULATIVE US	CUMULATIVE FN	PROGRAM FUNDING (000) INCREMENT	CUMULATIVE
	Decision Package Minimum Work Force Required Assuming No FY79 Obligations			37	N/A	37		–	–
	Cluster No. / Cluster Title								
	9952 Energy	ST		–		37		1,100	1,100
	9953 Environment	ST		–		37		1,200	2,300
	9958 Remote Sensing	FN		–		37		1,800	4,100
	9957 S&T Infrastructure	ST		–		37		1,500	5,600
	9951 Exploratory New Applications	ST		1 1/		38		900	6,500
	9954 Technology Transfer & Development			–		38		300	6,800
	Decision Package – Current								
	Cluster No. / Cluster Title								
	9954 Technology Transfer & Development	ST		–		38		400	7,200
	9952 Energy	ST		1 1/		39		300	7,500
	9957 S&T Infrastructure	ST				39		100	7,600
	9953 Environment & Natural Resources	ST				39		240	7,840
	9958 Remote Sensing	FN				39		500	8,340
	Decision Package – Proposed (A)								
	Cluster No. / Cluster Title								
	9952 Energy	ST		–		39		2,900	11,340
	9954 Technology Transfer	ST				39		695	12,035
	9957 S&T Infrastructure	ST				39		500	12,535
	9953 Environment & Natural Resources	ST				39		4,900	17,435
	9951 Exploratory New Applications	ST				39		450	17,885
	9958 Remote Sensing	FN				39		1,100	18,985

1/ One additional Secretary (see separate memo on reorganization).

2/ These numbers include the AID Environmental Coordinator and one secretary whose work is not directly concerned with AID cluster activities.

AID 1330-9 (4-77)

TABLE V - FY 1979 PROPOSED PROGRAM RANKING

DECISION UNIT: OST | REVISED BY: | CONSOLIDATED BY:

RANK	DECISION PACKAGES/PROGRAM ACTIVITY/SUPPORT ITEM			RESOURCE REQUIREMENTS						
				CUMULATIVE MISSION OPERATING EXPENSES (000)	WORKFORCE (DH ONLY)				PROGRAM FUNDING (000)	
					INCREMENT		CUMULATIVE			
	DESCRIPTION		APPROP ACCT		US	FN	US	FN	INCREMENT	CUMULATIVE
	Decision Package - Proposed (B)									
	Cluster No.	Cluster Title								
	9952	Energy	ST				39		1200	20185
	9957	S & T Infrastructure	ST				39		280	20465
	9954	Technology Transfer	ST				39		2290	22755
	9958	Remote Sensing	FN		1		40		3500	26255

AID 1330-9 (4-77)

OFFICE TABLES TO BE DISTRIBUTED SEPARATELY

9951

EXPLORATORY NEW APPLICATIONS OF SCIENCE AND TECHNOLOGY

NARRATIVE

EXPLORATORY NEW APPLICATIONS OF SCIENCE AND TECHNOLOGY (ENAST)

PROBLEM

Development appears to be always accompanied by changes in technology. In some cases the changing socio-economic conditions outmode one technology and favor an alternative. In other cases improved technologies fuel the development process. Unfortunately, changes in technology may also hinder development in a specific country, as when a newly developed synthetic product replaces an agricultural or extractive one. With the increased pace of development, therefore, our concern for technological change increases. This concern is expressed in international programs for intermediate technology and technology transfer to meet the needs of developing countries.

GENERAL OBJECTIVES

The ENAST program is intended (1) to identify, analyze, and test technologies unused or underused in developing countries that could improve or accelerate important aspects of the development process or that could improve the effectiveness of AID programs, and (2) to provide advanced warning about new applications of science and technology that endanger interests in AID-supported countries.

RELATION TO OTHER EFFORTS

All other donors and research programs in AID share these general objectives, and the ENAST program is intended to complement other efforts in the following sense. AID research and development is needs-oriented,

that is, it responds to a field-perceived need for improved technology to eliminate a key constraint to development. Often, however, experience has shown that a means-oriented approach, that is, new developments in science or technology, can direct attention to an unsuspected possibility of solving a problem or improving a process. Thus, carefully guided and selective effort to monitor new or underutilized technologies can complement needs-oriented research. The ENAST program is intended to help the Office of Science and Technology function as a center of cognizance for such investigations and analysis.

RELATION TO ONGOING ACTIVITIES

The program is just beginning. The existing program on remote sensing is, however, a forerunner of ENAST. The development of satellite remote-sensing technology offers to developing countries opportunities to improve land use, agriculture, environment, cartography, demography, mineral exploration, and other similar development activities.

Generally, two-thirds to three-fourths of the ENAST program efforts will be directed to technologies identified as directly relevant to AID priorities: agriculture and nutrition, health and population, education and human resource development, and selected development problems mentioned in the Foreign Assistance Act. The remainder of resources will be directed to areas of science and technology that cut across or complement these areas and are consistent with overall objectives of improving the lives of the poorest majority in developing countries.

TIME FRAME

ENAST is a long-range program. Benefits to the rural poor will not be evident in one year or two. AID's remote-sensing program is more than seven years old, and while it is now being used by Regional Bureaus and is making an impact on development, new potential applications are still being uncovered.

ENAST is unique among AID's research and development activities in that a deliberate attempt is made to avoid preselection of projects to be implemented two years in the future. (Important projects that could be identified with such lead time would be incorporated in other research clusters.) By expediting the programming process it will allow AID to explore and test selected applications of science and technology soon after technological developments take place, and opportunities are identified.

We plan to identify each year several potential applications of technology that appears to be important, and to introduce appropriate AID programs to test or retest these applications several years earlier than would otherwise occur. Such new applications should be in process by 1978, and more innovations should be forthcoming in each future year. We would expect to develop six to ten assessments of technology areas and two to four pilot projects to test prospective applications each year.

PERSONNEL

It is proposed to assign four direct-hire professionals to ENAST full time and two direct-hire professionals half time. These professionals would direct the overall program; plan, manage, and evaluate, in coordination with appropriate personnel from other units of AID, assessments and

pilot projects related to existing AID R&D clusters and form the nucleus of a center of cognizance of new applications of science and technology for AID.

Three alternative levels of financing have been identified for FY 1979: $900,000, $1,000,000 and $1,450,000. The level of financing does not affect the large scope of technology surveillance activities expected of the OST. Consequently, similar amounts of staff time would be spent on strategic planning and analysis of areas of exploration at all budget levels. Alternative levels of financing will therefore affect the level of assessment and field project activity. Estimating that $75,000 would be required for one technology assessment and $200,000 for a pilot project, then the lowest level of financing would permit six assessments and two pilot projects. The second level of financing would add one or two assessments. This is still a budget reduction from FY 1978. Finally, at 120% of the FY 1978 budget, approximately nine assessments and four pilot projects could be developed in FY 1979.

In a recent publication AID identified 13 areas of centrally funded research and development. If two-thirds to three-fourths of ENAST expenditures were concentrated in these 13 areas, at the highest budget level, six assessments and three pilot projects would be developed in FY 1978 in existing areas (and three assessments and one pilot project in complementary areas). This provides an average of one technology assessment every two years and one pilot project every four years in AID's areas of concentration. Such

a program effort appears modest in terms of the importance of AID as a technology transfer mechanism, and the importance of expediting the introduction of important new applications in developing countries.

TA/CST:JDaly:sat:5/10/77

Office TA/OST
Cluster No. 9951 Title ENAST (80%)
Activity Coordinator John Daly

Technical Assistance Bureau Program Review
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 80 %
Date

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						68				–	297		–	368			
B. Regional Bureau and Mission Services						5	–			–	65		–	145			---
C. Activity Development and Managemen	270	B	2	19	1,000	87	–		1,200	1,200	343		900	415			
D. Contacts with International Agencies						–	–			–	11		–	11			
E. Administration and Supervision						–	–			–	48		–	40			
GRAND TOTAL					1,000	160	–		1,200	1,200	764		900	979			

33

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office TA/OST
Cluster No. 9951 Title ENAST (100%)
Activity Coordinator John Daly

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 100 %
Date

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						68				-	297		-	368			
B. Regional Bureau and Mission Services						5	-			-	65		-	145			
C. Activity Development and Management	270	B	2	19	1,000	87	-		1,200	1,200	343		1,000	415			
D. Contacts with International Agencies						-				-	11			11			
E. Administration and Supervision						-	-			-	48		-	40			
GRAND TOTAL					1,000	160	-		1,200	1,200	764		1,000	979			

34

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office TA/OST
Cluster No. 9951 Title ENAST (120%)
Activity Coordinator John Daly

Technical Assistance Bureau Program Review
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 120 %
Date

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						68	-			-	297		-	368			
B. Regional Bureau and Mission Services						5	-			-	65		-	145			
C. Activity Development and Management	270	B	2	19	1,000	87	-		1,200	1,200	343		1,450	415			
D. Contacts with International Agencies						-	-			-	11		-	11			
E. Administration and Supervision						-	-			-	48		-	40			
GRAND TOTAL					1,000	160	-		1,200	1,200	764		1,450	979			

35

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office TA/OST
Cluster No. 9951 Title ENAST (Proposed)
Activity Coordinator John Daly

Technical Assistance Bureau Program Review
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority Proposed
Date

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						68	-			-	297		-	368			
B. Regional Bureau and Mission Services						5	-			-	65		-	145			
C. Activity Development and Management	270	B	2	19	1,000	87	-		1,200	1,200	343		1,450	415			
D. Contacts with International Agencies						-	-			-	11		-	11			
E. Administration and Supervision						-	-			-	48		-	40			
GRAND TOTAL					1,000	160	-		1,200	1,200	764		1,450	979			

36

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

9952
ENERGY

NARRATIVE

ENERGY CLUSTER

CLUSTER OBJECTIVES

The program of energy assistance is designed to meet three principal objectives: (1) to increase the understanding of the interrelationships between energy consumption and development, (2) to improve the capability of developing countries to assess, develop, and manage their energy supplies and needs, and (3) to develop appropriate solutions to selected energy problem. Recently asked to comment on the importance of research, development, and demonstration in various subject areas, the AID Missions indicated the high priority, if not urgency, that should be given to the field of energy. The proposed energy program was structured to be responsive to this expressed need.

In addition, several other factors were considered in formulating the energy program. First, although searching for an alternative to continued reliance on large hydroelectric-power or petroleum-based energy systems, the multinational development banks are institutionally and legally constrained from engaging in field demonstrations of alternative technologies. Several of the activities envisioned in this program will be designed to prove the potential of selected technologies to enhance economic development and, hence, will remove the current uncertainties in this area. Second, the program design reflects the desire of the President and the Congress to increase energy assistance, to broaden the range of energy technology options for development in the less developed countries, and to encourage the use of nonnuclear technology.

The program emphasizes the utilization of renewable energy resources, decentralized generation of power, and technologies that are easy to maintain, repair, and replicate in the developing countries. Energy systems based on these concepts can play an important role in helping developing countries obtain the energy necessary for their continued progress, not only in such AID concentration areas as food and rural development but also in urban development.

Under the policy guidance of the Department of State, the program will assume close cooperation between AID and the proposed Department of Energy to succeed ERDA. AID and ERDA have already reached a formal understanding to engage in appropriate joint activities.

Three ongoing projects have laid the ground work for the proposed program. "Studies of Energy Needs in the Food System" will examine the energy requirements for increased food production and marketing in the developing countries with special attention to potential applications of renewable energy devices to meet these demands. "Training in Energy Management (I)" will develop, present, and evaluate a prototype course in energy analysis, planning, and management for policymakers in developing countries. "Field Support and Energy Assistance" will provide expert technical consultants to field missions, will field test specific existing technology in developing countries, and will examine general questions related to the interrelationships between energy and development.

New projects to start in FY 1978 will expand from this base. "Energy Analysis Techniques" will develop a set of methods to analyze and forecast

national energy needs and supplies and will apply these to two countries. Subsequently, the proven techniques will be available for use by Missions and others to prepare energy analyses for national development programs. "Energy Technology Development and Demonstration" will augment the field tests of technologies begun in the Field Support project referred to previously. Windmills and small hydropower systems will be included. The emphasis will be on proving the technical feasibility and reliability and the usefulness of the technologies for economic development. Such proven technologies can then be confidently considered by various formulators of national development plans.

The new submissions include three new projects to start in FY 1979 and the continuation of the two FY 1978 projects.

TIME FRAME AND FUNDING

Personnel Implications: During FY 1977 only a little more than one man year was available to the energy program. The result was the formulation of the program and the preparation and approval of the core projects but little project implementation occurred. The addition of one full-time energy specialist (expected in December 1977) and the assignment of the incoming chemical engineer (to arrive in July 1977) half-time to the energy cluster will provide the necessary staff to support the Base and Priority I & II programs.

The fully funded program, which was prepared as an acknowledgement of the importance of the energy area, will require the addition of one more

full-time staff member to this cluster. The manpower allocation tables assume that this person will arrive March 1978. Without this extra staff member the expanded program cannot be accommodated.

Base (minimum program need): Funding for "Energy Analysis Techniques" would be continued to support two more country-specific analyses as proof of the utility of the methodology. The full project (FY 1978-1979) would then include four country assessments. "Energy Technology Development and Demonstration" would be funded at the minimum viable level ($350,000). "Training in Energy Management (II)", a new FY 1979 project, would present, in two regional centers, the training course prepared and tested as a FY 1977 project, appropriately modified by the resultant evaluation.

Priorities: Two projects would not be changed, "Energy Analysis Techniques" and "Training in Energy Management (II)." Increased funds would be given to "Energy Technology Demonstration" which would be raised to $650,000 (Priority I) and $850,000 (Priority II). These increased funds would permit a more complete response to the Mission's desire for action in this field.

Fully Funded Program: Because of the acknowledged importance of this area, an expanded program is requested. This would include the base activities in energy analysis and training, a significantly augmented technology development and demonstration effort, and two specific projects to be started only at this level.

"Energy Technology Development and Demonstration" ($2,250,000) would encompass a wider selection of large projects, including pyrolytic conversion

techniques, wind-powered generation of electricity, an expanded effort of windmills, and small hydroelectric systems. "Energy-Food Plantation" would entail the design, creation, and operation of a pilot-scale integrated plantation to provide food and energy, through an appropriate conversion of the cultivated biomass. "Solar Power Generation" would construct and operate a large solar-energy system, such as a solar thermal-electric generator, or a total energy system for a residence complex. These two activities would be based upon the efforts of ERDA to develop related systems in the U.S.

Office TA/DST

CLUSTER No. 9952 TITLE ENERGY

Activity Coordinator J J BOSKEN

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Specific Clusters

Priority BASE 80%

Date 5/20/77

A1

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Planning and Strategizing						80					105	5		115	5		
Regional Bureau and Mission Services						24					60	5		90	10		
Project Development and Management:																	
0274 Energy Needs in Food System	271	B	1	35	500	34		589	200	200	30			15		79	9/77
1160 Training in Energy Management (I)	278	D	2	35	350	30		200	131	0	60			5		79	5/77
1053 Field Support and Energy Assist.	279	C	2	35	400	30		250	200	100	40		100	40		80	-
1217 Energy Analysis Techniques	280	B	3	35						350	40		350	40		80	10/77
1216 Energy Technology Demonstration	281	B	3	35						480	40	10	350	60	15	81	10/77
1218 Training in Energy Management (II)	282	E	4	35									300	40		80	12/78
1219 Energy Food Plantation	283	E	4	35												83	6/78
1220 Solar Power Generation	284	C	4	35												84	6/78
Total Project						94					210	10		200	15		
Total Small Activities	343				(50)	14			(70)		20		(50)	25			
Contacts with International Organs						10					30			30			
Administration and Supervision											15			15			
Grand Total					1200	222	20			1130	440	20	1100	475	30		

42

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

Office TA/OST

CLUSTER No 9952 TITLE ENERGY

Activity Coordinator JJ BOSKEN

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Specific Clusters

Priority I 100%

Date 5/20/77

A1

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Planning and Strategizing						80					105	5		115	10		
Regional Bureau and Mission Services						24					50	5		65	5		
Project Development and Management:																	
0234 Energy Needs in Food System	271	B	1	35	500	34		589	200	200	30			15		79	9/77
1160 Training in Energy Management (I)	278	D	2	35	350	30		200	131	0	60			5		79	5/77
1023 Field Support and Energy Assist.	279	C	2	35	400	30		250	200	100	40		100	40		80	-
1217 Energy Analysis Techniques	280	B	3	35						350	40		350	40		80	10/77
1216 Energy Technology Demonstration	281	B	3	35						480	50	10	650	101	15	81	10/77
1218 Training in Energy Management (II)	282	E	4	35									300	40		80	12/78
1219 Energy Food Plantation	283	E	4	35												83	3/78
1220 Solar Power Generation	284	C	4	35												84	3/78
Total Project						94					220	10		241	15		
Total Small Activities	343				(80)	14			(70)		20		(80)	15			
Contacts with International Organs						10					30			30			
Administration and Supervision											15			15			
Grand Total					1250	222	20			1130	440	20	1400	481	30		

(43)

(*) Project also has significant amount of research activity

significant amount of adaptation or application activity

Office TA/OST

CLUSTER No 9952 TITLE Energy

Activity Coordinator J J Boskey

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Specific Clusters

Priority II -120%

Date 5/20/77

A1

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Uniquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Planning and Strategizing						80					105	5		105	5		
Regional Bureau and Mission Services						24					50	5		60	10		
Project Development and Management:																	
0234 Energy Needs in Food System	271	B	1	35	500	34		589	200	200	30			15		79	9/77
1160 Training in Energy Management (I)	278	D	2	35	350	30		200	131	0	60			5		79	5/77
1083 Field Support and Energy Assist.	279	C	2	35	400	30		250	200	100	40		100	40		80	
1217 Energy Analysis Techniques	280	B	3	35						350	40		350	40		80	10/77
1216 Energy Technology Demonstration	281	B	3	35						480	50	10	850	116	15	81	10/77
1218 Training in Energy Management (II)	282	E	4	35									300	40		80	12/78
1219 Energy Food Plantation	283	E	4	35												83	3/78
1220 Solar Power Generation	284	C	4	35												84	8/78
Total Project						94					220	10		256	15		
Total Small Activities	343				(80)	14			(70)		20		(80)	15			
Contacts with International Organs						10					30			30			
Administration and Supervision											15			15			
Grand Total					1250	222	20			1130	440	20	1600	481	20		

(44)

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

Office TA/OST

CLUSTER No 9952 TITLE Energy

Activity Coordinator J J BOSKEN

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Specific Clusters

Priority PROPOSED

Date 5/20/77

A1

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Planning and Strategizing						80					120	5		145	20		
Regional Bureau and Mission Services						24					90	5		125	10		
Project Development and Management:																	
0234 Energy Needs in Food System	271	B	1	35	500	34			200	200	30			15		79	9/77
1160 Training in Energy Management (I)	278	D	2	35	350	30			131	0	60			5		79	5/77
1083 Field Support and Energy Assist.	279	C	2	35	400	30			200	100	40	10	300	50		80	
1217 Energy Analysis Techniques	280	B	3	35						350	40		350	40		80	10/77
1216 Energy Technology Demonstration	281	B	3	35						480	60	5	2350	116	20	81	10/77
1218 Training in Energy Management (II)	282	E	4	35									300	40		80	12/78
1219 Energy Food Plantation	283	E	4	35							10	5	1000	40	20	83	5/78
1220 Solar Power Generation	284	C	4	35												84	1/78
Total Project						94					240	20		306	40		
Total Small Activities	343				(80)	14				(40)	15		(40)	15			
Contacts with International Organs						10					50			50			
Administration and Supervision											25			25			
Grand Total					1250	222	20			1130	540	30	4300	666	70		
								45									

(*) Project also has significant amount of research activity

Office TA/OST

CLUSTER No 9952 TITLE ENERGY

Activity Coordinator J J BOSKEN

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Specific Clusters

Priority FULL FUND

Date 5/20/77

A1

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Planning and Strategizing						80					120	10		145	10		
Regional Bureau and Mission Services						24					85	5		115			
Project Development and Management:																	
0234 Energy Needs in Food System	271	B	1	35	500	34		589	200	200	30			15		79	9/77
1160 Training in Energy Management (I)	278	D	2	35	350	30		200	131	0	60			5		79	5/77
1083 Field Support and Energy Assist.	279	C	2	35	400	30		250	200	100	40		300	50		80	
1217 Energy Analysis Techniques	280	B	3	35						350	40		350	40		80	10/77
1216 Energy Technology Demonstration	281	B	3	35						480	60	5	2250	116	10	81	10/77
1218 Training in Energy Management (II)	282	E	4	35									300	40		80	12/78
1219 Energy Food Plantation	283	E	4	35							10	5	1000	40	20	83	5/78
1220 Solar Power Generation	284	C	4	35							10	5	1300	50	30	84	5/78
Total Project						94					250	15		356	60		
Total Small Activities	343				(80)	14				(40)	15		(40)	15			
Contacts with International Organs						10					50			50			
Administration and Supervision											25			25			
Grand Total					1250	222	20			1130	545	30	5500	706	70		

46

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 35 Type # B

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1216

6. BUREAU/OFFICE: A. SYMBOL TAB; B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Energy Technology Demonstration

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM 10 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 78; b. FINAL FY 79

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
A. AID APPROPRIATED		2730
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
TOTAL		2730

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 78 F. GRANT	E. FIRST FY 78 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	742	878		480		2730	
(2)							
(3)							
(4)							
			TOTAL	480		2730	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

The development of energy sources and sys tems needed by the LDCs in attaining their development goals.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To make available various alternative choices of energy technologies suitable for development programs in the LDCs.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

Direct-hire 1 man month

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry H. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

47

TA/OST
(FY79)
PID

ENERGY TECHNOLOGY DEMONSTRATION

J. Bosken
May 5, 1977

I. Problem

The "energy crisis" has been brought to worldwide attention through the creation of an artificial shortage in 1973-74 and the continuing rise in costs of traditional sources. These changes in realities have had a serious negative effect on the ability of the LDCs to pursue a viable development program. The full impact of energy shortages and high costs have been realized by AID Missions and they have indicated that the field of energy deserves high, and even urgent, priority for central-funding.

Multinational development banks are interested in funding development projects that would make use of new energy sources but they are legally and institutionally constrained in what they can do to develop and demonstrate new technologies. Various field missions have requested technical assistance in energy that spans the broad gulf between family-size solar water stills to solar powered generation of electricity.

II. Response

In order to fulfill these expressed needs and desires for expanded energy choices, the hardware associated with the alternatives must be designed, developed and tested. This must be done in order to provide the basic information required for analyzing the cost, need-responsive effectiveness and overall viability. At the present time this information and data base is lacking

in significant components. This is particularly true of the data required to consider integrating into LDCs development program.

TAB has constructed an energy program that is structured to be flexible and responsive to the Agency needs for energy assistance.

III. Description

The first component is the formulation of techniques to analyze energy needs in development and the testing of the methodology through an analysis of the energy situation in several selected countries. This activity will be a new start proposed for FY 78, "Energy Analysis Techniques."

The second component is a program to train LDC planners in techniques needed to analyze energy problems and formulate appropriate energy policy. A prototype training course will be developed and presented beginning FY 77 as a project "Energy Management Training: Development, Test and Evaluation." A follow-on activity of three years will begin in FY 79 with presentation of an expanded course in six regional training centers. Further continuation of the activity would be supported by other offices in AID or international organizations.

The third component is addressed by this PID - the development and demonstration in the field of specific energy technologies.

As a result of prior activities, there currently exists a sizeable list of energy technologies that could be profitably field tested to prove their reliability in LDC conditions and their utility and cost/effectiveness to development applications. These technologies can be divided into three groups: old or traditional, more recent but no longer widely used, and

emerging technologies. An example of the first would be wind-powered mills or water pumps; small hydropower systems to generate electricity would be an example of the second; various solar technologies would belong to the third group.

Many missions have requested central funding for a variety of technology demonstrations. While the demonstration would not have been fully worked into the country's development program and hence not budgeted by the mission, the mission personnel nevertheless felt that proofs of technology in the field would be a proper use of TAB funds. Those demonstrations that were successful would result in that technology being considered for integration into future mission-financed projects which would maintain their focus on country development plans and not be distracted by possible failure of unproven technology.

This role of developing or proving a technology that would have possible utility in country development programs is the essential function of TAB.

TA/OST has been able to respond to some specific mission requests for action in this area. For example we have conducted a preliminary design of a solar cooker (Haiti), funded local research and demonstration of methane generation (Nepal) and provided solar-produced mechanical power in Africa (Upper Volta). This last item has been approved and is in the process of being implemented.

We are quite confident that there will be increased pressure placed upon us to augment our capability to respond. First, the number of requests from the missions is expected to grow as the various technologies emerge from the R&D in the advanced economies. Secondly, Congress is expected to

give more emphasis to energy activities in FY 78, perhaps by earmarking substantial amounts of funds for these activities.

This project proposed here will provide a necessary response mechanism. The number of field demonstrations possible would depend upon the level of funding available. As the level increased more demonstrations of a more sophisticated and costly nature would be undertaken.

Many of these demonstrations would be undertaken in partnership with ERDA, or its successor agency. For those technologies that have potential benefit to the U.S. we would expect that joint funding arrangements would be made. For those technologies of specific use to LDCs, AID would assume the full expense. These joint activities would be undertaken as called for in the AID/ERDA Memorandum of Understanding (November 1976).

All the activities will be guided by the policy of using LDC research facilities or personnel whenever appropriate. This will assist in strengthening LDC research capability, will help to provide a cadre of trained people to service subsequent application of the technology and will accelerate adaptations to specific LDC conditions.

The activities might not be limited to AID countries. If the demonstration is best carried out in an AID-graduate country, it should be done there. Also ERDA which is expecting an augmented budget for its own international activities, might be mounting its own demonstrations in AID-graduate and middle income countries. These might prove attractive for AID supplemental funding because of their eventual applicability to AID countries.

A tentative list of technologies that would be prime candidates for field demonstrations would include:

Low Cost: (< 200K)	Solar Stills
	Solar Cookers
	Improved Wood-burning Stoves
	Improved Methane Generators
	Windmills for Irrigation Pumps
	Photovoltaic-powered Refrigerator for Remote Medical Post
Medium Cost: (200-500K)	Photovoltaic Generation of Electricity (1-10 kw)
	Small Hydropower Systems
	Pyrolytic Conversion Systems
	Wind-powered Generation of Electricity (200-500 kw)
	Various Energy Storage Schemes
High Cost: (> 500K)	Solar Irrigation Pump
	Solar Electric Generation (100-500 kw)
	Energy Plantation
	New Techniques to Locate Energy Resources

Although these are all technologies that have been tested under reasonably controlled conditions in the U.S. or other developed countries, they need to be field-proven in LDC environs before large utilization projects are mounted. It is expected that the utilization will be supported both in terms of funds and man power by the missions, or perhaps initially, by the Regional Bureaus.

The items listed as high cost, estimated at costing more than $500,000 per demonstration, would be treated as separate projects to be analyzed

according to their individual merits and documentated and approved as individual TAB projects.

The items described as low or medium cost ones would be included in this umbrella project. The field activities would be fully coordinated with the Regional Bureau and host country mission. Where necessary Project Agreements would be prepared, but each individual activity would not be processed as an individual TAB project. Those projects that would be joint AID/ERDA ones would be under the review of the Steering Group established to review the joint program.

II. Financial Requirements and Plan

Since the project is a set of technology adaptation and demonstration activities, the amount of funding necessary is not strictly fixed. More money will allow more demonstrations, less money - fewer demonstrations.

In the absence of an internal impetus to expand energy activities (in particular, Congressional earmarking of FY 78 funds), we would initiate this activity in FY 78 with $480,000 and add supplementary funds in FY 79. The amount of these supplementary funds would depend upon the size of the energy cluster in OST as indicated in the following table:

	Base	Priority I	Priority II	Full Need
FY 78	$480,000	$480,000	$480,000	$480,000
FY 79	350,000	650,000	850,000	2,250,000
Total	$830,000	$1,130,000	$1,330,000	$2,730,000

If Congress does earmark sizeable funds for FY 78, then the FY 79 activities would be started in FY 78.

III. Project Development

TA/OST, as a central member of the AID/ERDA Steering Group, has been deeply engaged in joint planning activities with ERDA. In particular we are supporting an examination of AID programs to determine the energy implic ations associated with them, while ERDA is funding an examination of emerging technologies to determine those suitable for LDC demonstration and application, This coordinated effort will result in the identification of attractive candidate demonstrations. In addition TA/OST is conducting a survey of energy usage in the food system which will identify promising applications of alternative energy technologies.

Discussions with AID field personnel and personnel from international organizations will clarify AID/W's perspective as to the type of demonstrations most desired. Consultants or contractors, IQC's or PASA, will be employed to cost out in detail the expenses involved in the types of demonstrations envisioned, and to assist in preparing the final project paper which will cover a range of desirable activities.

The project paper should be ready for approval early in FY 78 (December 1977).

IV. Issues

Coordination with the Regional Bureaus and country missions is essential to the success of individual demonstrations and to the value of the program as a whole. Since many demonstrations will be handled by this one project, some time will be saved in project documentation. But the need to manage and oversee the several activities will require significant staff time and necessitate an additional full time staff member assigned to this cluster.

V. Satisfaction of Agency Selection Criteria

Some, but not all, of the activities envisioned will have potential impacts on the environment. In particular, a system of hydropower units, even small ones, might change the flow rate or physical characteristics of the small streams where installed and this possibility must be formally addressed.

These individual examinations will be made at the time that the individual activities are formalized. They will become substantive parts of the project documentation and will be approved by the Assistant Administrator for Technical Assistance, or his designate, when he approves the individual activity.

TA/OST:JJBosken:5/11/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 35 Type # B

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1217

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: .08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Energy Analysis Techniques

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM 10 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 78; b. FINAL FY. 79

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		PASSED
A. AID APPROPRIATED		
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
	TOTAL	700

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 78 F. GRANT	E. FIRST FY 78 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	749	878		350		700	
(2)							
(3)							
(4)							
			TOTAL	350		700	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

The development of energy sources & systems needed by the LDCs in attaining their development goals

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To develop and apply to country specific situations, a technique to analyze energy supplies and demands, and predict the impact of energy availability on development sectors.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

Direct-hire 1 man month

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

56

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST
(FY79)
PID

ENERGY ANALYSIS TECHNIQUES

J. Bosken
May 5, 1977

I. Problem

The fundamental importance of energy in national development cannot be questioned. The impacts of the cost and availability of energy on LDC development prospects are pervasive and severe and worthy of greater attention than AID has given them in the past. Lack of adequate energy constrains the production of food and adversely affects employment and the general quality of life.

Even before the "oil crisis" of 1973, most LDCs faced severe energy shortages in rural areas where work is produced largely by human or animal muscle power and most of the energy consumed comes from firewood or animal dung. Moreover, in some districts cutting firewood has seriously damaged the ecological balance and caused severe erosion of food producing land.

In urban/industrial areas, the high prices paid for needed energy (especially imported petroleum) have drawn money away from developmental activities and have very adversely affected foreign exchange balances. The rising costs of hydropower systems have led to reconsideration of potential hydropower projects. Nuclear power, an often attractive alternative for large-scale centralized generation, is both expensive and politically sensitive.

In the past two years, AID missions have had two occasions to record their interest in a central program in energy. In the summer of 1975, the missions were queried on an energy strategy for the Agency. Their responses were mixed and indicated some confusion about the importance of energy to development. In effect, several missions said that the lack of energy was no obstacle to the success of their programs since their target group, the rural poor, used so little. But a later query on needed R&D in several areas (Fall 1976) showed a surprising change of opinion. Energy was frequently cited as an area of highest priority with many missions responding that it demanded urgent attention. In particular they noted that further work was necessary on small-scale devices for rural development.

The underlying importance of energy requires that it be given increased attention in formulating development programs - not as a product in its own right but as a common element contributing to all sector development goals.

II. Response

Some work has been begun in an effort to improve the understanding of the role of energy in development. In particular, AID/W has initiated a series of country-specific studies on the use of energy in the food chain. Although concentrating on food, these studies have included a brief examination of the overall energy use pattern of the countries in order to provide the proper perspective for the food sector. They will result in the identification of possible steps AID can take to increase the supply of the energy needed for this increased food production.

As a result of the dramatic increase in the cost of the traditional energy sources, significant world-wide effort is underway to develop alternate sources. A number of these efforts are directly related to identified needs of LDCs. With new sources of energy being developed for newly defined needs, it had become apparent that currently used techniques for systematic analysis and rationalization of traditional sources and uses are not applicable. A serious problem is arising in the LDCs because of this deficiency, that is leading to an inability to meet development goals. It is the purpose of this project to develop the techniques for relating energy sources to energy needs in the LDCs within the context of an LDCs development goals and programs.

III. Description

The project will involve developing one or more techniques to assess LDC energy supplies and demands and to project the future supplies and demands. The analysis will include assessments of energy needs by major economic sectors and for selected key activities or processes in these sectors. Special attention will be given to the potential impact of energy on future programs in AID's concentration sectors. On the supply side, known resources, both conventional and non-conventional, will be considered.

The techniques will be tested by application to a limited number of AID countries and evaluating the results. This part of the process will be done in the field and will necessarily require adaptation of the generalized techniques to the country specific factors.

The result of the field applications will be Energy Sector Analyses for those countries studied. These Energy Sector Analyses will provide an essential backdrop against which country and mission development plans can be properly assessed. But the principal intent of this project is to develop appropriate techniques to analyze the energy situations in LDCs. These techniques would then be available to all AID Missions, LDC governments and international donor or lending organizations to assist in formulating development strategies that take proper account of energy supplies and demands. For AID Missions in particular, the techniques would be of help in analyzing a country's development plans and preparing the mission's DAP.

The project will relate to two prior activities of TA/OST. The studies of the energy needs in the food system, already referred to, will provide essential detailed insight into specific energy consumption in LDCs and experience in conducting energy studies. A training project in energy management and analysis will result in a greater understanding of the process by which LDC energy plans might be made.

IV. Financial Requirements and Plans

Development of the methodology in the U.S. is expected to be relatively inexpensive with the greater expense incurred in applying it in the LDCs.

The prior experience of AID, as noted above, and the existence of already developed models and techniques for advanced economies using traditional energy sources will be useful in preparing the techniques. We would estimate that this phase would required $100,000 and nine months time.

We plan to conduct four country studies to test and evaluate the technique. Each country study would require about $150,000 each for a total of $600,000. These studies should be completed within six months from initiation.

The total project cost would then be $700,000 to be funded over two years. FY 78 - $350,000 FY 79 - $350,000

V. Project Development

The project will be a natural complement to the two existing AID projects: Study of Energy Needs in the Food System and Training in Energy Analysis and Management. Both of these activities are being conducted by Brookhaven National Laboratory's Energy Analysis Division through a PASA with ERDA. This group would be a logical one to develop the methodology which would assimilate much of the experience gained from their involvement in the previous projects. The field studies would probably by conducted by contractors.

The development of the methodology could easily involve the participation of one or more of the better LDC participants in the energy training project. Those countries with participants in this project would be the leading candidates for the follow-on field studies to test the methodology.

VI. Issues

No major issues are foreseen.

VII. Satisfaction of Agency Selection Criteria

Since this project is to develop and field test an analytic methodology, no environmental impact will occur.

TA/OST:JJBosken:5/11/77

61

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 35 Type No. E

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1218

6. BUREAU/OFFICE: A. SYMBOL: TAB B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Training in Energy/Management (II)

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP) B. DATE: MM 12 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: INITIAL FY 79 b. FINAL FY 79

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
A. AID APPROPRIATED		
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
TOTAL		300

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 79 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1) SD	749	878		300		300	
(2)							
(3)							
(4)							
			TOTAL	300		300	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

The development of energy sources and systems needed by LDCs in attaining their overall development goals.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To conduct a training course on the techniques of Energy Analysis and Management for LDC Development Planners and Managers.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

1 man month to prepare PP (FY 78)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

AID 1330-2 (3-76)

TA/OST
(FY79)
PID

TRAINING IN ENERGY MANAGEMENT (II)

I. Bosken
May 5, 1977

I. Problem

The "energy crisis" has been brought to worldwide attention through the creation of an artificial shortage in 1973-74 and the continuing rise in costs of traditional sources. These changes in realities have had a serious negative effect on the ability of the LDCs to pursue a viable development program. The full impact of energy shortages and high costs have been realized by AID Missions and they have indicated that the field of energy deserves high, and even urgent, priority for central funding.

Faced with a multitude of development problems that are linked to the economic availability of energy, LDC planners need to examine their multi-valued problems of energy production, supply and utilization in a systematic manner that takes proper account of the many interrelationships involved. Such a systems analysis approach to energy planning is viewed as a high priority item for both developed and developing countries and has been a central point of the international discussions on the International Energy Institute proposed by the U.S. in 1975.

II. Response

There is general agreement within the development assistance community and specifically within the United States government that, for the more

severely affected and poor oil importing countries, major new aid programs will be needed to assist these countries to acquire and provide the energy necessary for their development program. Substantial new capital investments in conventional energy production and conversion facilities will be required. New energy technologies directed both to the use of alternative energy sources (both renewable and non-renewable) and to the more efficient utilization of existing energy resources will have to be developed for use in these countries under conditions that create a minimum of disruption to the existing social and economic structure.

Because many of the fuel supply systems which offer alternatives to oil involve very different infrastructure requirements and environmental considerations, technical assistance in the design, construction and maintenance of such systems will be required. The recipient governments must be able to analyze their energy situation, to assess their technological and policy options and to incorporate energy consideration into their national development planning if these new assistance programs are to achieve their desired effect.

The difficulty that most LDCs face today is a shortage of trained cadres to perform these specialized functions and a lack of time in which to assimilate the skills through normally accessible channels. Many LDCs are in urgent need of timely training of key individuals in the analysis, planning and management of energy supply systems.

III. Description

TA/OST is already planning a prototype training project in this area. The project involves the development of a multidisciplinary course on energy

analysis planning and management, the presentation of this course on a test basis to 20 LDC participants and the evaluation of results by following the professional progress of the participants after they return to their home countries. The currently planned schedule calls for the course development to be completed in Spring 1978, the presentation to start in May 78 and be completed in January 1979 and the final evaluation due in December 1979. This test presentation will take place in the United States.

We now propose a follow-on operational program of energy training that will build upon the results of this prior test and be conducted at regional training centers in LDCs. Another possibility, to conduct the course in the U.S., has not been ruled out but appears to be the less attractive alternative due to the high per diem cost of supporting the participants and the possibility of diluting the relevance of the effort by removing the participants from their environment.

This new training program would be presented under TAE funding in six separate locales. The participants would be drawn mostly from government planning and development staffs. This should suffice to prove the utility of the approach to the Regional Bureaus and to international organizations which would then be expected to assume the costs of any continuation of the program. The proper UN organization or the International Energy Institute, if it is established, might become the appropriate body to manage and fund an ongoing program.

IV. Financial Requirements and Plans

Having developed and tested the prototype program, the costs to adapt it as necessary and present it should be relatively inexpensive. We estimate

this to be $900,000 of TAB funds. This would be mostly used to cover operating expenses and provide support to the lecturers involved. The majority of the expenses to support the participants would be expected to be borne by their home countries with perhaps supplemental funding by AID Missions. The program would continue for three years and would be funded with $300,000 in each of the three years, FY 79, FY 80 and FY 81.

V. . Project Development

The basis of the project would result from the prototype training program (FY 77/78). Additional insight into LDC energy problems would be acquired as a result of the project to develop and test techniques for energy sector analysis (initiation in FY 78) and the analysis of Energy Needs in the Food System (initiated in FY 76). All three projects involve the active participation of Brookhaven National Laboratory's Energy Analysis Division through PASA's with ERDA. This mechanism and this group would be employed to manage the conduct of this operational training program as well.

VI. Issues

The creation of a functioning International Energy Institute which might develop and conduct its own training program would reduce the need for an AID financed program. The final decision on project implementation will be made after a review of the status of such international activities.

We propose to build upon the expertise of Brookhaven National Laboratory developed during the course of their AID-financed activities in this area, though we will have to take care and not overcommit the Brookhaven resources.

VII. Satisfaction of Agency Selection Criteria

This program will be properly coordinated with a similar training program in natural resources and environment. As a training program it will have no direct environmental impact. However since its purpose is to consider the multifaceted aspects of the energy problem in LDCs, including environmental consideration, it is expected that indirect beneficial environmental impacts will result from the application of the knowledge gained by the participants.

TA/OST:JJBosken:5/11/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 35 Type # E

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1219

6. BUREAU/OFFICE: A. SYMBOL TAB; B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Energy - Food Plantation

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM 05 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 83

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
B. OTHER U.S. 2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	1850

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	749	878		950		1850	
(2)							
(3)							
(4)							
			TOTAL	950		1850	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

The development of energy sources and systems needed by LDCs in attaining their development goals.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To explore the applicability and test the feasibility of an integrated plantation as a source of both food and fuel for LDCs.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

68

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST
(FY79)
PID

ENERGY-FOOD PLANTATION

J. Bosken
May 5, 1977

I. Problem

In the face of dwindling forests, eroding land and growing populations, LDCs lack a low cost energy source, especially in the rural areas. This project suggests an alternate approach to feeding and supplying energy to the people in the developing world. The approach is to use an integrated energy-food plantation which would provide a renewable, storable supply of energy and food through conversion of sunshine into living material or "biomass"

Forests and other natural vegetation cover of LDCs is declining at an alarming rate mainly because growing populations are cutting at an increasing rate to clear land to produce more food and to provide fuel for cooking and heating. The deforestation has led to severe environmental effects on the land affecting those who live there as well as those in adjacent areas. Firewood is becoming scarce and its acquisition requires an increasing number of hours per family unit. Frequently women or children are assigned the task of collecting this wood and subsequently they have less time available for other tasks essential to maintain and improve their lifestyle.

II. Response

The concept of an energy-food plantation, as an integrated system, has especial potential to LDCs where labor and land costs are low, energy costs are high, and needs for food, energy and foreign exchange are immediate.

To illustrate the potential a simple 100,000 acre plantation (a 12.6 mile by 12.6 mile tract) could produce the energy equivalent of 500,000 tons of coal per year, 54,000 tons of corn and 60,000 tons of peanuts. A more capital - intensive plantation of the same size, but including processing plants to produce methanol, ammonia fertilizer and a thermo-electric plant could produce each year:

50,000 tons of methanol

120,000 tons of anhydrous ammonia

17,000 tons of char

12,000 tons of pyrolytic oil

80,000 kilowatt hours of electricity

These are in addition to the corn and peanuts (these figures come from a Georgia Tech paper on the utility of an energy-food plantation). The energy equivalent of this plantation would be 33% of the total energy consumption in Ghana in 1973.

Not only for LDCs but in the U.S. also there has been an upsurge of interest in the true economics of energy plantations. Last year ERDA funded two major studies on land-based biomass production and conversion. These will build on preliminary efforts and will be completed in FY 77. The results will be a recommended research and development plan for ERDA.

Initial results look very promising. For U.S. conditions, biomass production cost estimates range from $0.60 to $1.10 per million BTU's. If the biomass were to be used to generate electricity (assuming standard combustion technology), the resultant power production cost would be $0.03 to $0.045 per kilowatt-hour in the early 1980's. (Figures taken from paper presented at Bioconversion Conference, Washington, D.C. 1976).

These figures compare to $2.07 per million BTU's for petroleum priced at $12.00/42 gal barrel and a current production cost of electrical power of approximately $0.025 per kilowatt hour in the U.S. (the cost to produce electrical power in LDCs is usually much greater than this figure, frequently 10 times or even more in remote areas.)

These figures are cited only to show that the concept of a modern energy plantation is seen to be a cost effective one.

This conclusion is further evidenced by the fact that at least one New England electric utility is profitably burning wood to generate electricity.

III. Description

To gain full advantage, both economic and ecological, of a plantation, its energy production aspects should not be examined in isolation from the related benefits of food and watershed protection. A key aspect in the increasing interest in agro-forestry is the concept of integration - the idea that neither forestry nor agriculture in a rural development context should be tested as a separate, isolated activity.

This process would begin with an extensive feasibility study that would produce a full design for the energy-food plantation including com-

pilation of projected agricultural data and presentation of overall engineering data for the plantation. This task would specify the types of crops to be raised and the types of technology to be employed to harvest and process the crops. Cost/benefit analyses would be an essential ingredient.

This first phase would be a substantial undertaking involving the interaction of many economic, technical, agricultural, environmental and cultural elements. The talents of many specialists and institutions, both foreign and domestic, would be needed. As a consequence the work would require a minimum of two years for completion.

The second phase would be the pilot-scale plantation itself. This would include planting the desired crops and constructing or purchasing the necessary hardware to operate the facility. This second phase should be seen as a five year activity so that the plantation can be followed through one or two harvesting cycles. (we assume fast growing trees, the subject of ongoing NAS research, can be harvested as soon as three years from planting. This is being done already in non-controlled situations in tropical forests.)

This project must be viewed as a coordinated partner of the proposed Renewable Resource Plantation of the Natural Resource and Environment Cluster. Both projects treat the same basic subject. The emphasis of this project however (Energy-Food Plantation) is on the products to be produced by the system. The emphasis of the other project is on preservation of necessary natural resources and reduction of environmental degradation.

This project would not be initiated unless an expanded energy budget were available. The initial feasibility study is estimated to cost $350,000.

The cost of the pilot-scale plantings and construction of the plantation processing plant would naturally depend upon the scale desired. We estimate that an economic unit for a prototype would be 5000 acres (about 8 sq miles). The centrally located processing plant for the energy conversion facilities would then be within 1.5 miles of the most extreme plantings.

If the plantation can be prepared and processing facilities constructed at a cost of $300/acre, then the plantation would cost $1,500,000.

The total project cost would be $1,850,000. The cost of the land is not included in this figure.

The assumptions used in arriving at these figures are:

1) To prepare land and plant crops $140/acre (Bioconversion Conference, report on ERDA project).
2) Construction of processing facilities $160/acre (Georgia Tech Study of Pyrolytic Conversion for Ghana, assuming annual yield of 8 dry tons/acre).

The cost of operating the plant is not included in these figures but would be an LDC contribution to the project.

IV. Financial Requirements and Plan

Total project cost would be $1,850,000. In FY 79 we would need $950,000 to cover the initial feasibility and design study and the initial preparation of the plantation. In FY 80 we would need $600,000 to complete the plantation and commence process facilities design and construction. In FY 81 we would need $300,000 to complete construction.

If an expanded energy budget became available in FY 78, we could advance the activity by one year.

V. Project Development

This project relates to several other planned or proposed TA/OST activities. NAS is conducting a study of fast-growing tropical trees. A project "Wood as a Fuel Resource" is proposed for FY 78 and for FY 79 a "Renewable Resource Plantation" has been proposed.

The subject of this PID can be developed as a separate project or in combination with the "Renewable Resource Plantation". The final decision would depend upon the results of the current and FY 78 projects and the analysis contained in the feasibility study which will initiate this activity.

The magnitude of the problem is so great that it warrants a sustained effort. The possibilities of projects and sites is so plentiful that several different but related approaches can be justified.

VI. Issues

None identified at this time.

VII. Satisfaction of Agency Selection Criteria

The project will begin with a feasibility study and design of the plantation. This phase will include a full environmental examination once the specifics of the desired plantation have been determined.

The environmental impact is expected to be beneficial since one intent of the project is to provide an ecologically acceptable, renewable alternative to continued deforestation.

TA/OST:JJBosken:5/11/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 35 Type # C

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1220

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Solar Power Generation

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE: MM 08 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 79

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
B. OTHER U.S. 2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	1300

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	743	878		1300		1300	
(2)							
(3)							
(4)							
			TOTAL	1300		1300	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

The development of energy sources and systems needed by LDCs in attaining their development goals.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To develop, adapt and demonstrate the feasibility of a solar power generation concept for application to the needs of LDC development programs and goals.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

1 man month to prepare PP 50,000
Preliminary Design (Funded from FY 78 Field Support Budget)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

75

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST
(FY79)
PID

SOLAR POWER GENERATION

J. Bosken
May 5, 1977

I. Problem

The "energy crisis" has been brought to worldwide attention through the creation of an artificial shortage in 1973-74 and the continuing rise in costs of traditional sources. These changes in realities have had a serious negative effect on the ability of the LDCs to pursue a viable development program. The full impact of energy shortages and high costs have been realized by AID Missions and they have indicated that the field of energy deserves high, and even urgent, priority for central funding.

With the cost of energy in most LDCs significantly higher than it is in the U.S., some of the technologies that are the subject of extensive U.S. R&D (much of it ERDA funded) will be cost effective for LDC use at an earlier date than for U.S. applications. Many solar technologies are appropriate examples of this proposition since they require assured sunshine and large amounts of land for moderate to large scale operations. LDCs frequently have abundant sunshine (eg Sahel or Haiti) and much underutilized land that would be available for solar collectors.

The problems that exist in the LDCs have pointed up the timely need for the introduction of cost effective alternate energy sources. The economies of the LDCs cannot support the continually rising costs of the traditional

sources while maintaining a viable development program. The need for a variety of tested energy sources is urgent.

II. Response

In the U.S., generation of electricity from the sun is proceeding along several paths. For small-scale, photovoltaic arrays are seen as the prime source, generating electricity directly from the incident sunlight. The ERDA program calls for a 1985 capital cost goal of $0.50/rated watt output for the cell and a resulting cost for power produced of approximately $0.04 per kilowatt hour.

For large-scale use, solar thermal-electric generation is the preferred path. This approach would use the sun to heat a working fluid which would then drive a turbine to produce the electricity. A pilot plant to test the concept is being constructed in Barstow, California by ERDA. A field of movable mirrors will focus the sun on a central tower containing a steam boiler/turbine combination. The power output is expected to be 10 mw. The project was begun in 1977 and is scheduled for completion in 1980. Total project cost is $100,000,000.

An additional example of large ERDA - funded solar power projects is the Solar Total Energy System at Ft Hood, Texas. This system will provide a significant portion of the electricity, space heating, hot water and air conditioning for a modern, permanent residence complex for 1600 people. The precise size of the system and the energy load it will supply will be determined during the preliminary design phase. The system will employ cylindrical concentrators to vaporize a working fluid. This vapor will drive a

turbogenerator to produce electricity, the remaining heat will be used for purposes such as heating or air conditioning. Construction is expected to start in 1978 and the system is to begin operation in December 1979.

A final example is the development of solar irrigation pumps. Work is progressing on two types: a low lift unit of 25 hp and a deep well unit of 200 hp. The first unit will start operating this summer near Albuquerque, New Mexico. The entire system, including design, cost $900,000. The second unit is the current subject of preliminary design work. Three such designs are being prepared. Selection of the winner and initiation of construction will take place in Fall 1977 with the facility scheduled to begin operations in 1979. In both systems reflectors will track the sun to focus its rays onto a receiver containing the working fluid. The vapor produced drives a turbine. In the smaller pump, this turbine is mechanically coupled directly to the well pump. In the larger model, the turbine is used to generate electricity to power a conventional irrigation pump.

These examples indicate that their exist attractive large-scale applications of solar energy. Within two years the U.S. will have gained substantial experience in the design and operation of a variety of solar energy generation systems that will have immediate application to AID development programs.

III. Description

The technologies noted above will need to be tested in the LDCs in order to acquire the data and experience necessary to convey needed confidence to development planning in the LDCs and to AID Missions.

This project proposes a large scale test of an appropriate solar system. An example might be the Ft. Hood Total Solar Energy System for a new residential complex in the capital city of an AID country. Or the large irrigation pump (200 hp or 150 kwe) might be tested in an AID agricultural development project.

We have already received requests from several Missions to mount a large solar electricity generation project in their countries. Although the technology is not yet ready to be commercialized, in two years the U.S. will understand the technical limits sufficiently to begin technology demonstration of large systems in LDCs.

We have allocated $1,300,000 to this project to fund such a demonstration. We would expect that the preliminary work done by ERDA would result in a lower cost to AID for a similar activity. We also assume that supplemental funding might be forthcoming, perhaps from ERDA interest in a demonstration of the technology in other environments, perhaps as a joint venture with U.S. commercial activities or multinational assistance agencies (eg the World Bank).

IV. Financial Requirements and Plan

This project would not be initiated unless an expanded energy budget were available. We estimate a need for $1,300,000 to mount a useful effort. This would include a $300,000 design study and $1,000,000 to construct and operate the facility.

Of this total $400,000 would be funded in FY 79 and $900,000 would be funded in FY 80. If an expanded energy budget became available in FY 78, we would begin one year earlier.

V. Project Development

A technical analysis upon which a project would be based would be done with a $50,000 special project input (small activity) in FY 78 to identify the appropriate application and appropriate technology. The country would be selected during this effort and would depend heavily on USAID interest and USG foreign policy interest. This phase would identify cooperating agents if any (ERDA, private business, multilateral organizations or bilateral assistance programs). The second phase would be the design stage to begin FY 79 with construction to begin thereafter.

The economics of solar energy in LDCs is vastly different from the U.S. In the U.S. electrical power sells for about 4¢/kw hour. In many LDCs it is much higher. In Dakar Senegal for example, it costs 25¢/kw hour to produce the power which is sold for about 35¢. These figures indicate that a major effort to find alternative sources of electrical power for LDCs should be made.

VI. Issues

The demonstration would probably take place in an urgan setting rather than a rural one. As such it might be viewed as a low priority activity for the agency since it is not directed at the major rural target groups. But it would be a very high priority item for the LDCs themselves and, since it is certainly an appropriate AID project, it merits serious consideration and approval.

VII. Satisfaction of Agency Selection Criteria

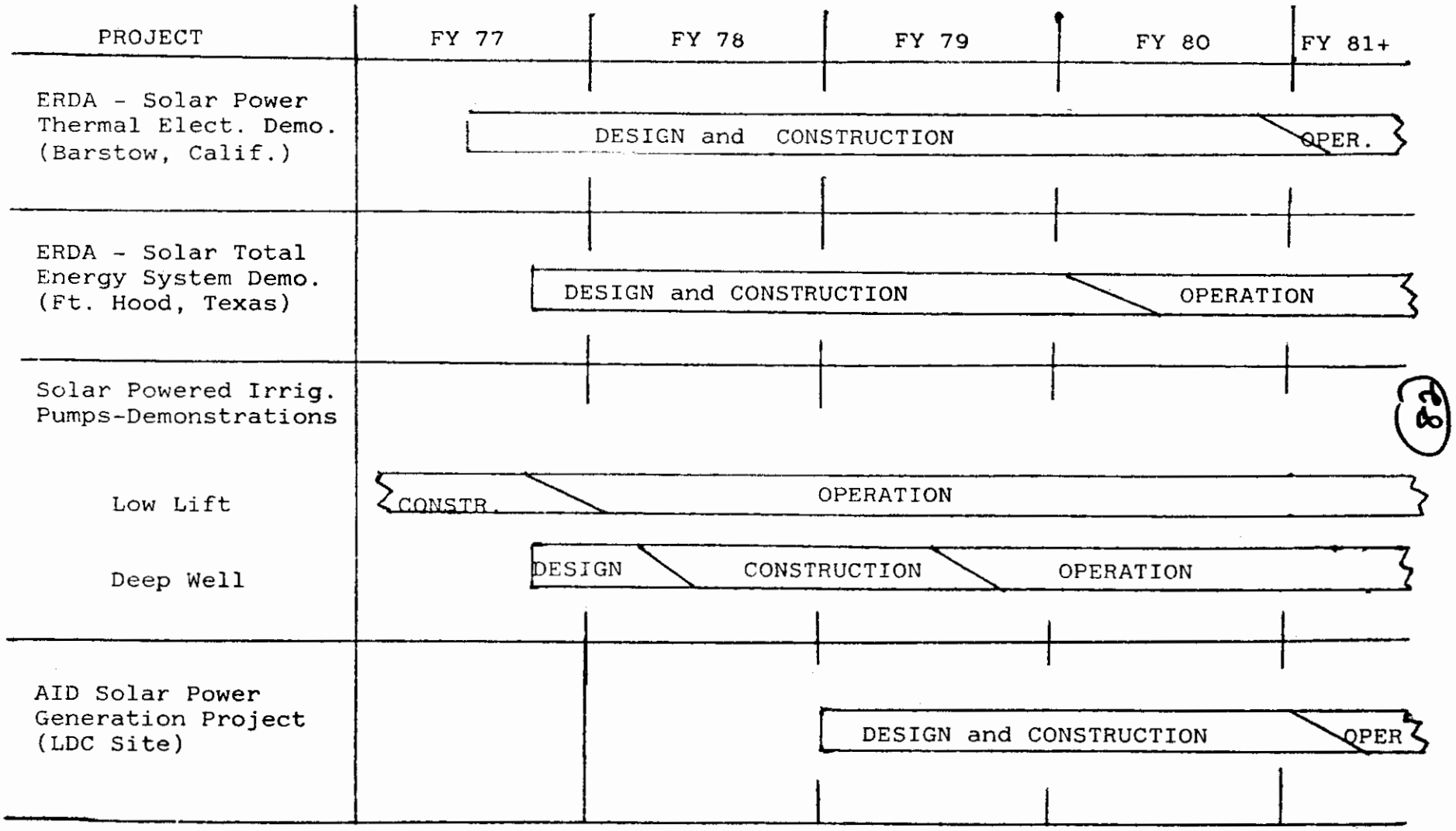
This would be a pilot project to utilize solar power. The power conversion is environmentally benign. The use of the power could have harmful effects but since alternative power sources, perhaps polluting ones, would be used to produce the same needed energy, the net results of this project would be no additional environmental impact and instead perhaps a beneficial one. As such a Negative Determination is recommended.

VI. Related Activities

This project would directly support and complement the President's high priority program to develop sources of power for developing countries which are alternative to nuclear in order to discourage proliferation of nuclear materials.

TA/OST:JJBosken:5/11/77

COMPARATIVE PROJECT SCHEDULES



9953
ENVIRONMENT/NATURAL RESOURCES

ENVIRONMENT/NATURAL RESOURCES CLUSTER (E/NR)

PROBLEM

Development activities commonly stress short-term gains, often at the expense of the environment's sustainable productivity, and neglectful of secondary effects of these activities. For developing countries, the natural resource base - their soils, waters, forests, and minerals - largely determine their economic potential. These resources must be assessed in terms of their potential for development and the possible limitations and must be managed carefully to ensure their long-term availability. Efforts must be made to upgrade rapidly deteriorating renewable resources such as forests, before they become non-renewable. Natural resources are also important because of their close relationship to the whole range of development problems and activities -- growing populations and the need for increased food production, improved human health, energy resources, and industrial development, all of which affect and depend upon the natural resource base.

The need for an integrated, multidisciplinary approach to these growing problems has been recognized by AID's regional bureaus; by Missions, which recently gave highest priority to OST's R&D activities relating to energy, natural resources and environment; and increasingly by developing countries themselves. A significant number of countries have established new national environmental agencies in the five years since the 1972 Stockholm Conference on the Human Environment. In addition, it appears likely that Congressional concerns for this area will result in amendments to the Foreign Assistance Act requiring that greater attention be given to environmental protection and natural resource management. AID clearly needs to expand its capabilities in the environment/natural resources field.

CLUSTER OBJECTIVES

The purpose of the Environment/Natural Resources Cluster is to develop an innovative, flexible program that will be responsive to Congressional interest, to AID's needs in terms of its environmental regulations and to the needs of developing country to design and implement environmentally sound, long-term economic development programs.

The U.S. has developed a "systems" approach to analyzing the effects of change on the environment, and taking the consequences of that change into account in the planning and project design process of related development activities. OST activities are aimed at adopting and transferring this technique and at providing supplemental information, technical assistance, and training.

To accomplish the objectives of this cluster, it is assumed that developing and developed countries will be able to bring the exploding population growth under control before their natural resources and environmental systems are destroyed. However, as stabilization of world population growth does not seem likely for the next 25 to 50 years, the problems facing the world in the areas of environment and natural resources are not expected to disappear quickly.

TIME PRAME

Activities initiated in FY1977 and FY1978 provided a modest beginning in training, technical assistance, and the development of appropriate information. In FY1979 activities in the E/NR cluster will be consolidated into two basic programs that will provide the maximum flexibility for developing experimental and innovation activities: (1) Institutional Support, which will combine and

expand training and technical assistance, and (2) Development of an E/NR expanded information base, which will take over the information studies started in FY1977 and FY1978. OST plans to utilize the special competence of the Environmental Protection Agency, and the Departments of State, Agriculture, (Forest Service), and Interior through a single PASA arrangement if possible. This will provide AID with the broad range of expertise needed to work effectively in this area. Further development of these activities would be done in close coordination with the Regional Bureaus and other TAB offices through the Working Group on Environment and Development.

In addition to the two basic programs, three specific activities are proposed: (1) applied research in tropical forest management as a follow-on to the 1978 Wood as a Fuel Resource in the form of a "renewable resource plantation," (2) support and research in integrated pest management, and (3) a research project looking at long-range solutions to problems of mineral exploration in LDCs recommended for AID participation by the Development Advisory Committee of the OECD.

FINANCIAL REQUIREMENTS

The E/NR cluster is relatively new. Past funding levels were low but are now being increased and will provide a framework for better attaining cluster objectives. If funding is approved at the 120 percent level, the cluster clearly should show progress in the next three to five years. This cluster should supply leadership and support for the Agency as a whole. Lack of support for an effective program could have negative implications far beyond the cluster itself.

The basic program, funded at the 80 percent level, would not include the following important activities: research and support for integrated pest management, or the OECD mineral exploration project. At the 100 percent level, the support element of the integrated pest management activity could be initiated, and a slight expansion of the renewable resource plantation and the information base would be possible. At the 120 percent level the research element of the integrated pest management activity could be enlarged slightly. The only way the OECD mineral exploration project can be undertaken would be if funds above and beyond the 120 percent level became available. The priorities for this cluster are reflected in activities outlined at each funding level.

The work power available for this cluster will be increased from two professional staff (one RSSA) in FY1977 to three professional staff beginning in FY1978. An additional direct-hire staff member is to replace the RSSA assignment in mid-FY1979. The three professional staff level will provide the work power necessary to manage all the proposed FY1978 and FY1979 activities at all funding levels. If for some reason the 1978 position is not filled, the FY1979 program for the cluster could only be handled at the 80% level and project management time would have to be increased at the expense of provision of services to regional bureaus and missions.

TA/OST:MKux/WParham:dpd - 5/20/77 86

Office [redacted]
Cluster No. [redacted] Title Environment/Natural Resources
Activity Coordinator M. Kux

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 80%
Date MAY 23, 1977

		Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing							16					24			24			
B. Regional Bureau and Mission Services							131					193			208			
C. Project Development and Management (ongoing)																		
Environmental Training (U.N.C.)	0983	276	B	1	20	0	20		39	0	0	5					78	—
Secondary Hardwoods	0607	287	A	1	20	0	44	(32)	43	0		105	(90)				78	—
U. of Arizona 211(d)	0159	288	F	1	07	0	10		635	0	0	10			20		79	—
Environmental Economics	0999	0	B	1	20	-50	12		0	—	—						77	—
NAS Firewood Study	0029	0	D	1	19	—	3		—	—	—						—	—
Projects transferred to other offices (new 1977)							10											
Environmental Field Support	1028	289	C	2	20	330	25		320	150	150	30					80	5/77
Environmental Training and Grants	1113	290	B	2	20	200	15		100	200	200	40					80	5/77
Arid Lands Information System (new 1978)	1027	291	B	2	19	120	10		120	60	60	5			5		80	6/77
Environmental Technical Assistance	1210	292	B	3	20	—	20	(15)	—	250	250	40			10		80	8/77
E/NR Expanded Information Base	1209	293	B	4	20	—	15		—	400	400	85	(15)	400	70		83	1/78
Wood as a Fuel Resource	1080	294	B	3	20	—	15		—		(250)	20					79	7/77
OLCD Mineral Exploration (new 1979)	1214	295	A	3	20	—	6		—		(200)						80	8/78
Environment; Institutional Support	1211	296	D	4	20	—			—			15	(15)	500	80		83	2/78
Renewable Resource Plantation	1213	297	B	4	20	—			—			15	(15)	300	40		83	3/78
Integrated Pest Management R & D	1212	298	B*	4	20	—			—			7					83	6/78
Small Activities		244				600	205	(47)				377	(135)	1200	225			
D. Contacts and Interactions with Internat. Or.							9					14			14			
E. Administration and Supervision							31		87			47			47			—
						600	392	(47)	1257	1060	1060	655	(135)	1200	518			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office 5 [redacted]/OST
Cluster No. [redacted] Title Environment/Natural Resources
Activity Coordinator M. Kux

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related
Priority 100%
Date MAY 23, 1977.

A-1

		Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Planning and Strategizing							16					24			24			
Regional Bureau and Mission Services							131					198			179			
Project Development and Management (ongoing)																		
Environmental Training (U.N.C.)	0983	286	B	1	20	0	20		39	0	0	5					78	—
Secondary Hardwoods	0607	287	A	1	20	0	44	(32)	43	0	—	105	(90)				78	—
U. of Arizona 211(d)	0159	288	F	1	07	0	10		635	0	0	10			20		79	—
Environmental Economics	0999	0	B	1	20	-50	12		0	—	—						77	—
NAS Firewood Study	0029	0	D	1	19	—	3		—	—	—						—	—
Projects transferred to other offices							10											
(new 1977)																		
Environmental Field Support	1028	289	C	2	20	330	25		320	150	150	30					80	5/77
Environmental Training and Grants	1173	290	B	2	20	200	15		100	200	200	40					80	5/77
Arid Lands Information System	1027	291	B	2	19	120	10		120	60	60	5			5		80	5/77
(new 1978)																		
Environmental Technical Assistance	1210	292	B	3	20	—	20	(15)	—	250	250	40			10		80	8/77
E/NR Expanded Information Base	1209	293	B	4	20	—	15		—	400	400	85	(15)	490	75		83	1/78
Wood as a Fuel Resource	1080	294	B	3	20	—	70	(55)	—		(250)	20					79	7/77
OECD-Mineral Exploration	1214	295	A	3	20	—	6		—		(200)						80	8/77
(new 1979)																		
Environment; Institutional Support	1211	296	D	4	20	—			—			15	(15)	500	80		83	3/78
Renewable Resource Plantation *	1213	297	B	4	20	—			—			15	(15)	350	40		83	3/78
Integrated Pest Management R & D	1212	298	B*	4	20	—			—			7		100	25		83	6/78
						600	260	(102)	1257			377	(135)	1440	255			
Small Activities		344																
Contacts and Interactions with Internat. Or.							9					14			14			
Administration and Supervision							31		88			47			47			—
						600	447	(102)	1257	1060	1060	660	(135)	1440	519			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

act ice v'd	Revised or New PP Due Mo/Yr
8	—
8	—
7	—
7	—
—	—
0	5/77
0	5/77
0	5/77
0	8/77
3	1/78
9	7/77
0	8/77
3	2/78
4	3/78
3	6/78
	—

Office TA/OST
Cluster No. 9953 Title Environment/Natural Resources
Activity Coordinator M. Kux

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related
Priority FULL FUND
Date MAY 23, 1977

A-1

		Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing							16					24			24			
B. Regional Bureau and Mission Services							131					173			154			
C. Project Development and Management																		
(ongoing)																		
Environmental Training (U.N.C.)	0983	286	B	1	20	0	20		39	–	–	5					78	–
Secondary Hardwoods	0607	287	A	1	20	0	44	(32)	43	–	–	105	(90)				78	–
U. of Arizona 211(d)	0159	288	F	1	07	0	10		635	–	–	10			20		79	–
Environmental Economics	0999	0	B	1	20	-50	12		–	–	–						77	–
NAS Firewood Study	0029	0	D	1	19	–	3		–	–	–						–	
Projects transferred to other offices							10											
(new 1977)																		
Environmental Field Support	1028	289	C	2	20	330	25		320	150	150	30					80	5/77
Environmental Training and Grants	1113	290	B	2	20	200	15		100	200	200	40					80	5/77
Arid Lands Information System	1027	291	B	2	19	120	10		120	60	60	5			5		80	5/77
(new 1978)																		
Environmental Technical Assistance	1210	292	B	3	20	–	20	(15)	–	250	250	40			10		80	8/77
E/NR Expanded Information Base	1209	293	B	4	20	–	15		–	400	400	85	(15)	1690	75		83	1/78
Wood as a Fuel Resource	1080	294	B	3	20	–	70	(55)	–		(250)	20					79	7/77
OECD-Mineral Exploration	1214	295	A	3	20	–	21	(15)	–		(200)	25		900	20		80	8/78
(new 1979)																		
Environment: Institutional Support	1211	296	D	4	20	–			–			15	(15)	1600	85		83	2/78
Renewable Resource Plantation *	1213	297	B	4	20	–			–			15	(15)	1550	40		83	3/78
Integrated Pest Management R & D	1212	298	B*	4	20	–			–			47	(40)	600	25		83	6/78
						600	275	(117)				442	(175)	6340	280			
Small Activities		344																
D. Contacts and Interactions with Internat. Or.							9					14			14			
E. Administration and Supervision							31		90			47			47			–
						TOTAL	462	(117)	1257	1060	1060	700	(175)	6340	519			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, PDA # 20 A

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1080

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Wood as a Fuel Resource

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE: MM 07 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 78; b. FINAL FY 78

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	$250

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 78 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1) SD	759	876			250	250	
(2)							
(3)							
(4)							
			TOTAL		250	$250	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each): 877

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH):

14. SECONDARY PURPOSE CODE:

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To analyze the potential and limitations of wood as a fuel resource in LDCs, and if results are favorable to develop a design and background data for follow on pilot renewable resource plantations at specific LDC sites.

17. PLANNING RESOURCE REQUIREMENTS (identify)

Program development funds to design base-line data collection system and prepare PP. (55 WD) $40,000

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

91

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 330-2 (3-76)

WOOD AS A FUEL RESOURCE: IMPLICATIONS FOR ENVIRONMENT AND NATURAL RESOURCES

PROBLEM: Firewood is rapidly becoming a scarce, inaccessible, and expensive fuel resource in many less developed countries For rural people, firewood is the primary energy source for basic survival needs such as cooking and heating. The market demand on the already decreasing supply of firewood is increasing because of the rising price of petroleum fuels. Rural people must make longer, time-consuming trips to gather firewood because of deforestation of wide belts of land surrounding their settlements. Those who purchase firewood at the local market find that the price has risen sharply, and they must spend a large part of their incomes on wood, leaving less money for food, clothing, and other essentials.

As the efforts of populations to produce more food and to provide more fuel surpass traditional levels, a self-defeating cycle ensues. The tropical forests and other natural vegetation cover of less developed countries are diminishing at an alarming rate from these activities. Worldwide erosion has increased to 2.3 times its natural rate. Widespread deforestation, adversely affecting those responsible for it and other people as well, has multiple effects. Soil is lost faster than it forms and food production decreases; streams and rivers are polluted by sediment damaging aquatic life; silt chokes lakes, rivers,and reservoirs, ruining the power generating capacity of dams and producing breeding places for disease vectors such as malaria mosquitos; rapid runoff causes floods on the one hand and a lowering of the ground-water table on the other; wells dry up from the falling water table and local vegetation dies; animal life disappears from the once wooded areas; animal wastes are burned as fuel instead of being returned to fertilize the soil;

permanent microclimate changes take place; plant species are eliminated without our slightest knowledge of their biologic role or potential usefulness to man.

RESPONSE: The purpose of this project is (a) to analyze the potential and the limitations of wood as a fuel resource in less developed countries, (b) to determine implications for the environment and natural resources of the accelerating rate at which this "renewable" resource is being lost, and (c) to design a plan for slowing or reversing the losses in a follow-on project. These efforts relate to one of cluster goals of improving the assessment and management of natural resources and the environment in less developed countries.

DESCRIPTION OF PROJECT: Base-line data on the rate of deforestation (devegetation) would be assembled from various ecological settings--such as mountains, and semi-arid, hot, and humid areas--in several representative lesser developed countries. Historical data and recent satellite data would be used to provide precise information on rates of deforestation change.

Case studies would be developed to study how local populations have tried to solve the problem, and to determine the successes and failures of those efforts.

To define the problem clearly and to recommend courses of action, a meeting would be held of specialists who understand the interrelationships of man's actions on forest lands in lesser developed countries. These specialists would be from lesser developed countries and the United States. The meeting would be planned to take advantage of the findings of the current study and search of the National Academy of Sciences for varieties of fast-growing, multipurpose tropical trees useful for firewood, charcoal productions, animal fodder, land reclamation, etc. These data are being assembled now, and tropical forest and botany experts will soon meet to synthesize the data

and prepare it for publication.

Several areas in the lesser developed countries would be selected for study as potential sites for follow-on pilot activities to develop integrated plans for reforestation with multipurpose trees. A proposed follow-on activity for FY 1979, "Renewable Resource Plantation," would test such plans in pilot-scale plantings in selected watersheds.

An alternative approach to developing most of the activities above might be through literature surveys only. However, deforestation is taking place so rapidly that much of the published data is already outdated. To make this project and the design of the follow-on as relevant as possible to current conditions in the lesser developed countries, it would be more useful to assemble new data by satellite imagery, by first-hand descriptions from experts, and from another research in progress.

The direct beneficiaries of these research and planning data ultimately will be the poorest populations, those who use firewood as their fuel resource. Because effects of deforestation problem are so pervasive, worldwide, any benefits growing out of this activity will have widespread effects.

This effort would be coordinated with related activities of organizations such as Food and Agricultural Organization and United Nations Development Program so that an information exchange would be facilitated among donor organizations and institutions in the less developed countries. Because representative ecological settings would be selected for the various activities, the information should be useful to regions in other countries.

FINANCIAL REQUIREMENTS: This one-year project needs $250,000. Also, during FY 1977, $40,000 of program development funds will be sought to design the base-line data collection system.

PROJECT DEVELOPMENT: This project basically is a one-year design phase of a five-year follow-on project, "Renewable Resource Plantations." As information becomes available during the next few months, from the National Academy of Sciences, study on "Firewood and Fast-Growing Trees", it would be incorporated into the design efforts. The most suitable, multi-purpose, fast-growing trees would be matched with three appropriate geographic sites for the follow-on pilot-plantation activities.

The project and the follow-on project would be implemented through PASA arrangements with the U.S. Forest Service. The activities of both projects would be closely coordinated with the proposed "Energy-Food Plantation" project (FY 1979) of the Energy Cluster to maximize the benefits and reduce overall project costs (a project paper will be prepared during July 1977). Twenty person-days of TA/OST staff-management time would be required during FY 1978, and this staff time is available.

INITIAL ENVIRONMENTAL EXAMINATION: The activities do not have a direct impact on the physical or biological environment. The main activities are to develop and transfer information about the environment and new natural resources. Any follow-on action will be designed particularly to benefit the environment. A Negative Determination, therefore, is recommended for this project.

TA/OST:W. Parham:ve:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA #20 Type # E

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1209

6. BUREAU/OFFICE: A. SYMBOL TAB; B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Env. Nat Resources: Expanded Info. Base

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM 01 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY. 83

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
B. OTHER U.S. 2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	2,900

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	759	877		1690		2900	
(2)							
(3)							
(4)							
			TOTAL	1690		2,900	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each): 876

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH):

14. SECONDARY PURPOSE CODE:

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resource

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To provide AID with a continuing information base covering a broad range of topics related to long-range resource development needed for addressing oncoming Environment/Natural Resource LDC problems.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

2-3 wks.. consultant or IQC for PP Preparation.

5

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY 96

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

PROJECT IDENTIFICATION DOCUMENT

ENVIRONMENT/NATURAL RESOURCES: EXPANDED INFORMATION BASE

PROBLEM: In FY 1977 TA/OST began a two-year activity entitled "Environmental Field Support" whose basic purpose was to provide assistance to AID/W, Missions, and developing countries to achieve environmentally sound development programs (as required by P.D. 63 on Environment and Development) through (1) evaluation and modification of the Agency's Environmental Procedures (Regulation 16), and (2) development and provision of the appropriate information and data required to make such decisions.

The funding for that initial effort was not sufficient to address the continuing problems that AID and the developing countries will face over the coming years.

Attention is urgently needed to developing basic information and resources to deal with the present environmental and natural resource problems particular to developing countries in terms of climate and geographic location, their physical resource base, the knowledge existing about these resources (their data base), and how these should be used in addressing such basic problems as rising populations, soil erosion and deforestation, need for additional agricultural production, the increasing costs and need for energy, and the need for improving health conditions. AID alone cannot solve these problems, but it is important to collect data and develop information and resources not now available to start an expanded integrated information base available to AID and developing countries.

RESPONSE: To meet the need of more and better information and resources in the Environment/Natural Resources area, TA/OST proposes an activity that would be flexible, innovative, and responsive both to AID's environmental responsibilities and to the needs of developing countries. The Expanded Information Base, starting in FY 1978, would be one of two program elements to provide services in this area. The other, E/NR Institutional Support, would start in FY 1979 and combine training and technical assistance.

PROJECT DESCRIPTION: To implement these two programs, TA/OST would utilize the combined competence of the U.S. Federal agencies that have expertise in environment and natural resources. It is proposed that a single PASA arrangement allow AID to utilize the competence of the Environmental Protection Agency (EPA) the Forest Service of the Department of Agriculture, and the Department of the Interior, under the guidance of the Department of State's Office of Environmental Affairs, OES/ENP/EN, and the Secretariat of the U.S. Committee for the Man and Biosphere program located in the Bureau of International Organization Affairs. Such an arrangement would provide AID with the wide range of expertise needed to work effectively in this area, which none of the Federal Agencies would have individually.

Activities in the Environment/Natural Resources area are relatively new to the Agency, but recognition of the need for greater emphasis is growing rapidly in the Missions, which recently gave priority to those R&D activities; in developing countries, as shown by the significant increase in new national environmental protection agencies; and in Congress, where efforts are under way to amend the Foreign Assistance Act to authorize the President to furnish assistance for programs in environment and natural resources.

This need was first recognized when a group of distinguished international scientists and planners participated in a series of AID meetings and workshops in 1971-72 to discuss the nature and scope of the role AID and TA/OST should have in the overall field of natural resources planning and management.[1] Prior to that time, U.S. assistance in this field, which is critical to sustain economic growth in developing countries, was non-existent. Two of their recommendations have been implemented: "National resource planning and management" was adopted as one of three sectors of operation for OST, and a 211(d) grant was made for planning and management of arid and semi-arid lands.

TA/OST now sees the need to develop a variety of new activities that will be responsive to previous recommendations and to the needs of Missions and developing countries. Rather than define and program these projects individually (many would fall within the "small activity" category of funding), which would require a major increase in project management time, it is proposed that an umbrella project be designed that outlines a number of needs on a priority basis. General agreement of the Regional Bureaus would be obtained regarding the types of work and level of effort. Individual projects would then be carried out through task orders under the PASA arrangement outlined above. The appropriate Federal Agency would be requested to handle the task directly or to subcontract it to appropriate consultants or universities.

The following activities described in order of priority would be recommended for funding in the first year:

(1) Humid Tropical Ecology - Most AID programs are in countries in the humid tropics; however, little research is being conducted and limited expertise is available to deal with problems of assessment, management, and proper utilization of the tropical forest environment. As early as 1971, this need was identified and recommended for AID action. It is more urgent now in view of increasing rate of tropical deforestation. A study would be made to determine how AID can support the development of resources in the humid, tropical-forest environment through existing institutions either in the U.S. or in developing countries or through the establishment of a new international or regional research and technology institute patterned after such organizations as IPRI. The study would propose a plan of action for AID.

(2) Adaptation and Development of Base-line Data Systems for Environment and Natural Resources - Natural resources are the principle economic asset to most developing countries. Wise management of resources is critical to sustain economic growth because of their direct influence on agriculture and industrial

---

1 The role of the Agency for International Development in the field of Natural Resources Planning and Management: 1972, TA/OST 72-8, 155 p.p.

development. Adaptation, application, and integration of existing technologies for gathering, processing, and synthesizing resource data is necessary for making sound decisions in development planning. Providing assistance of this type was also recommended to AID during the 1971 workshop.[1] At present, most resource surveys are for one use, such as, land appropriate for agriculture (CRIES) and forest surveys for lumbering activities, instead of for overall development purposes and planning of landuse and natural resources. Integrated approaches for managing multiple uses of resources and environmental protection have been developing rapidly in the U.S.

It is proposed that several experimental base-line data systems be adapted, applied and evaluated in three LDCs having differing environments and natural-resource bases. The systems would range from simple ones which emphasize assembling existing data on specific resources, graphically illustrating them with maps or overlays for use in land-use planning activities and for determining data gaps in the system which need to be filled. Other more advanced systems would include types like those developed by Professor Jay Forrester of M.I.T., used in the well known computer study "Limits To Growth". These could be applied to individual LDCs or regional areas and can relate resource use to potential environmental problems.

The Departments of Agriculture and Interior, NASA and EPA, among others, have expertise that can be utilized by AID in developing specific activities in this area. Certain U.S. universities like MIT could be used in these activities.

(3) Studies on the Environmental Effects of Agriculture Production - One of AID/s most pressing mandates is to help developing countries increase their production of food. Very little has been done to develop guidance for AID and developing countries on the environmental implications of agricultural development. This subject needs to be investigated from at least two points of view. First, what are the environmental effects of agro-industries? What are the natural limitations and the conditions essential for success, including the demand on other resources such as water, energy, fertilizers, and pesticides? What are the enviromental problems associated with large mono-cluture operations and what are the effects on human health and employement? Second, what are the environmental effects of small scale farming? What guidance is needed (1) on techniques that promote sustained productivity of land and improve quality of life, such as techniques for lessening reliance on chemical fertilizers and pesticides, (2) on investigations of historical agricultural methods and of new technologies for maintaining soil productivity and (3) on increasing food production while slowing soil losses. These studies will provide AID and the LDCs with information useful in recognizing and planning for the long-range environmental effects of agriculture.

(4) Development of Analytical Techniques for Quantifying the Costs of Changing or Maintaining Environmental Quality - Since the beginning of the environmental movement in the U.S., a number of economists have been developing methods for pricing environmental quality so that it can be included in economic measurements as a cost or a benefit. Sufficient progress has been made to apply these

techniques to the planning process in developing countries.[2] A study would be commissioned to demonstrate the validity of such quantification and its value as in broadening the perspective of planners on the importance of environmental considerations.

Next, priority would be given to information in the following areas:

(1) The man-made changes taking place in developing country costal zones, like the man-made changes taking place in the humid tropical and semi-arid lands, are adversely affecting the natural resource productivity. Information is needed on the types of activities negatively affecting the costal zone, and on the causes and the rates of change in order to develop wise management techniques.

(2) Countries situated in, for example, earthquake-active regions need to know the potential risk of damage to planned construction such as buildings, roads, railroads, dams, and bridges. When regional plans are being developed, simple techniques need to be designed for the construction of first-efort seismic-risk maps from any available information. Similar information related to other types of disaster zoning is also needed.

(3) Retrospective studies on the positive and negative environmental impacts of AID activities in areas such as the opening up of new lands for agriculture, disaster reconstruction, and resettlement activities are needed to provide better guidance for future AID activities.

(4) Quantitative background data on water quality is lacking for large parts of many countries. Existing, simplified measuring methods need to be adapted to developing countries field activities to produce the needed base-line data for mointoring change and determining needs for control and regulation.

(5) A case study is needed on the benefits of involving the public in environmental problem solving and decision making in LDCs.

(6) Guidelines for an integrated approach to watershed management are needed.

(7) A state-of-the art study on use of land for waste-water disposal is needed.

FINANCIAL REQUIREMENTS: It is proposed that the E/NR Expanded Information Base project be initiated as a continuing program for the next five years (and longer) due to the continuing need to provide program support to the Environmental Coordinator, and to develop guidance and information useful to AID and developing countries in evaluating existing and proposed development activities and in designing environmentally sound development programs.

The project life would cost $2,900,000, with first-year funding of $490,000. If the activity is forward-funded for three years, $1,690,000 will be required.

100

[2] "The Emergence of Ecology As a New Integrated Discipline," Science, Vol. 195, 1977.

PROJECT DEVELOPMENT: If the Regional Bureaus and the Working Group on Environment and Development accept and support the flexible programming concept proposed for this activity (an approach recommended by Regional Bureau representatives at the April OST strategy meeting), a Project Paper could be submitted for approval late in FY 1977 or early in FY 1978. Two to three weeks of consultant time would be required to prepare the project paper. Project management time for this activity is estimated at 70 WP for FY 1978.

BROAD ISSUES: This activity is directly related to commitments made by the Agency in PD 63 on Environment and Development and is essential to help the Agency improve its performance in implementing the Environmental Procedures.

INITIAL ENVIRONMENTAL EXAMINATION: This project is concerned with transferring knowledge and understanding in the environmental/natural resources field and will have no significant direct or secondary effects on the environment; this activity should, however, foster improved capabilities in developing countries to make more environmentally sound decisions regarding development and thus contribute to the protection of their environments. A negative determination is, therefore, recommended.

TA/OST:MKux:WParham:DL:mhc:5/11/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 20 D

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931 1211

6. BUREAU/OFFICE: A. SYMBOL: B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Environment: Institutional Support

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP) B. DATE: MM 02 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79 b. FINAL FY. 83

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	$2,850

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 79 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1) SD	759	877		1600		2850	
(2)							
(3)							
(4)							
			TOTAL	1600		$2,850	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each): 873 | 876

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH):

14. SECONDARY PURPOSE CODE:

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To provide environmental training and technical assistance for LDC decision-makers and other key personnel in order to increase their awareness of the environmental issues when making country decisions, and to build institutional capability.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

Project Design Type	Amount ($000)
2-3 weeks consultant or IQC for PP preparation.	5

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold (102)

Title: Directir, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

PROJECT IDENTIFICATION DOCUMENT

ENVIRONMENT - INSTITUTIONAL SUPPORT

PROBLEM: The environmental movement blossomed in 1969 in the United States but lagged far behind in the less developed countries. This situation is changing now. Developing countries are gaining a greater awareness of the need for planning environmentally sound development programs. However, institutions in developing countries that deal with the growing number of environmental problems are few, and most that do exist need strengthening if they are to be effective.

If development is to succeed in these countries, various types of environmental training and technical assistance should be started quickly to prevent further decline in their natural resource base. Furthermore, if AID is to carry out its committments outlined in P.D. 63 on "Environment And Development", it must initiate the training and technical assistance.

RESPONSE: This project will provide (a) environmental training for decision makers and other key personnel in developing countries, and (b) technical assistance to build institutional capability in environmental matters. The training will be designed to increase their awareness of environmental issues in development, and to encourage them to incorporate environmental considerations when making national and local decisions. The environmental technical assistance will be directed toward building environmental institutional capabilities, an essential element in addressing national and long-term environmental problems.

DESCRIPTION: This five-year project, "Environment: Institutional Support", combines the activities (FY1977 and 1978) of "Environmental Training" and "Environmental Technical Assistance" into one project with a broader scope

than either of the other projects. It would continue some activities started earlier and would also develop a wide variety of environmental training activities for developing countries, including: country-specific seminars for policy officials; country-specific, activity-oriented, multidisciplinary, working seminars that address specific environmental assessment program activities; various environmental training courses developed by American universities to be given in the developing countries or in the U.S.; short- or long-term training of key personnel at U.S. universities or U.S.G. agencies; and joint PVO-environmental group seminars. It is anticipated that a number of small grants would also be available to developing countries or regional institutions to implement certain types of environmental training activities.

The first priority would be to provide training for the systems approach to solving environment/development problems. The U.S. has developed a soft technology - a systems methology - for analyzing the effects of change (development), and taking the consequences of that change into account in the planning and project design process. Activities will be aimed at utilizing, adopting, and transferring this technique and at providing the supplemented information, technical assistance, and training.

The second priority would be critical environmental problem areas related directly to needs perceived by bureaus, missions, and developing countries. Critical problem areas are deforestation and water-shed management, protection and management of coastal-zone resources, and environmental geology.

Environmental technical assistance will be directed toward the development of environmental standards in developing countries, environmental regulations, and administrative arrangements among the various government agencies for

effective implementation of environmental regulations.

Increasing environment/natural resource awareness through training and technical assistance to institutions in developing countries should permeate the design of subsequent development projects as the environmental institutions gain strength. The use of American universities to implement parts of the environmental training activities in the long run may affect the content of those college courses which relate to environment/natural resources subjects resulting in greater future emphasis on the needs of developing countries.

FINANCIAL REQUIREMENTS: This five-year project will cost $500,000 for the first year and $2,850,000 over the life of the project. If the project is forwarded-funded for three years, the funds required for FY1979 will be $1,550,000. Because of the growing awareness of the relationships between environment and development, it is expected that the demand for this training and technical assistance will increase: therefore, the funding levels for years two through five are as follows:

FY1980	FY1981	FY1982	FY1983
$550,000	$550,000	$600,000	$650,000

PROJECT DEVELOPMENT: The environmental training and technical assistance activities will be carried out through PASA arrangements with other Federal Agencies and subcontractors such as the National Academy of Sciences, Brookings Institution, American Universities, The Sierra Club International, and the YMCA. A project paper will be developed in FY1978. TA/OST project management will be 80 person days in FY1979. This managerial staff time is available.

This multifaceted institutional support project obviously needs considerable flexibility in order to direct its effort toward recognized

targets as well as "Targets of Opportunity". The need for such flexibility was also suggested by some of the AID Regional Bureau representatives who attended TA/OST's Strategy Conference in March 1977. The Regional Bureaus will be consulted on project design and development. Coordination of institutional support activities of this project with those of institutional support in the Energy Cluster will be attempted whenever possible.

INITIAL ENVIRONMENTAL EXAMINATION: The activities of this project are limited to environmental training and environmental technical assistance - transfer of knowledge, information, etc., and thus will not have a significant direct effect on the physical or biologic environment. Therefore, a Negative Determination is recommended for this project.

TA/OST:W.Parham:M.Kux:dsl:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: [A] (A = ADD, C = CHANGE, D = DELETE)

2. DOCUMENT CODE: PID 1

3. COUNTRY/ENTITY: TA/CST, RDA#. Type # A&B

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1212

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Integrated Pest Management R&D

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM YY 0 6 7 8

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 7 9; b. FINAL FY 8 3

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
a. AID APPROPRIATED	
b. OTHER U.S. 1.	
2.	
c. HOST COUNTRY	
d. OTHER DONOR(S)	
TOTAL	1,300

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	750	877		200		1300	
(2)							
(3)							
(4)							
			TOTAL	200		1,300	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each): 874

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH):

14. SECONDARY PURPOSE CODE:

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve LDC capabilities for environmental protection capabilities for environmental protection and for assessing and managing their natural resources.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To provide world-wide computer data system on chemical composition of pesticides an and to initiate research on methods of non-chemical control of pests and conduct research on non-chemical control methods.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

Conference on study (40 WD) $35k

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY (107)

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

PROJECT IDENTIFICATION DOCUMENT

INTEGRATED PEST MANAGEMENT RESEARCH

PROBLEM

AID recently adopted a new policy governing all its activities related to providing assistance in pest management and pesticide procurement, the policy states, among other things, that the Agency will "place greater emphasis in all AID programs on promoting the concept of integrated pest management as the most effective long-term approach to improving human health and agricultural production through research, training and technical assistance activities."

Research related to integrated pest management presents a complex problem. There are many possibilities open to AID in both disease control and food crop production. The programmatic Environmental Impact Statement (EIS), which described and analyzed AID's pest management and pesticide activities over the past 15 years, made the following recommendations on the types of research that AID should consider funding to promote integrated pest management:

- Development of integrated pest management programs for basic food crops utilizing cultural, phycical, and mechanical control methods to the maximum possible extent and only employing chemical pesticides when absolutely necessary.

- Development of nonchemical methods for pest control, such as the use of sex-attractants, anti-feeding compounds, juvenile hormones and micro-organisms pathogenic to pests and other biological-ecological methods.

- Development of environmentally acceptable chemical means of vector control.

- Development of liquid pesticide formulations which are not readilly absorbed through the skin.

- Development of pesticide containers and of a pesticide container handling system meeting the needs of small farm pesticide users in less developed countries.

- Use of advanced technology to reduce the need for pesticide applications; and

Development of alternative disease control methods which do not focus on vectors, such as malaria immunization and schistosomocidal drugs.

The problem is to select the types of research (basic or applied), the priority areas the research should relate to, and the level of funding the Agency should devote to this aspect of its new policy. It is important to note that with increasing population and increasing crop production, vector and pest control problems will also accelerate. As chemicals lose their effectiveness and concern regarding their environmental effects grows, the need for effective nonchemical control methods will become ever more pressing.

RESPONSE

Both TA/H and TA/AGR have received proposals related to research in many of these areas, most of which cannot be funded or further explored because of other pressing priorties. TA/H will investigate alternative control methods for malaria and schistosomiasis, and TA/AGR will concentrate its research resources in areas related to implementing the new Agency regulations on assistance for the procurement of pesticides which will require local research in safety and efficacy of pesticides. This effort, an expansion of the present University of California contract into a consortium of American universities, will provide AID access to the most experienced people in applied research in integrated pest management.

However, major gaps will remain in AID's overall research program in integrated pest management. TA/OST is proposing that this gap be partially filled by support for long-range research where payoffs may not be forthcoming for a number of years. There are many research possibilities that are relevant to developing countries, particularly nonchemical methods to control pests and crops not formed in the U.S. Such research cannot be expected to provide short-term results. A minimum of five years of funding would be necessary before practical applications could be expected.

PROJECT DESCRIPTION

Possible areas of research could be as basic as isolating new insect viruses for use in biological control programs. FAO, for example, has suggested that high priority be given to the search for viruses to control desert locust, pests that attack stored grain and rice and maize stem borers. Current locust control methods depend primarily upon the use of dieldrin, which is presently banned in the U.S. for most

uses; stored grain insects are becoming resistent to malathion, the only pesticide which has been widely accepted for long-term protection of stored grain; and stem borers are particularly difficult to control by conventional methods.

Another area of applied research is field testing nonchemical control methods where basic research has been done in the U.S. and trials are needed to test the efficacy and safety of the control method.

Another alternative would be to support the expansion of research capabilities of institutions in developing countries to develop efficacy and safety data for pesticides used on crops not grown in the U.S. (millet, cacao, etc.) and for which no pesticides are registered in the U.S.

To select the type of research, it is proposed that an initial study be made or a meeting of experts be held to determine the current research efforts in the U.S. and elsewhere in nonchemical control methods for pests and disease vectors, to examine the areas where such control methods are most needed, and to recommend research priorities to AID. This could be done through the National Academy of Sciences as a follow-up to their 1970 studies of AID's pest control and pesticide programs. Such a meeting or study should be conducted in FY 1978 prior to the proposed initiation of the research in 1979.

Assumptions basic to this project are that the Agency is willing to support expanded research in nonchemical control of pests and disease vectors and that such research can provide new and important contributions to overall programs of integrated pest management.

FINANCIAL REQUIREMENTS

It is proposed that $1,000,000 be provided over a five-year period beginning in FY 1979 for research in nonchemical control of pests and disease vectors, and that FY 1978 project design funds be used for the study (or conference) to provide AID with guidance on priority areas for such research.

PROJECT DEVELOPMENT

It is suggested that TA/H, TA/AGR, and TA/OST jointly sponsor a study (or conference) early in FY 1978 which would become the basis for developing a Project Paper in the latter part of FY 1978. Its purpose would be to identify the long-range research needs, to determine where related research is

being done, and to recommend the most useful areas for AID participation and/or support. The needs could conceiveably be to expand existing relevant research conducted in the U.S. or to apply existing research to other pests or disease vectors. Research in these areas is presently underway in government agencies, universities, and private firms, and any one of these could be selected as the most promising.

BROAD ISSUES

The proposed activity is directly related to implementing the new AID policy on pest management activities and the environmental procedures. While AID has not specifically promised to undertake an extensive long-range research program, it did make general commitments in the research area. The Agency could wait for others (mainly international organizations) to take the lead in this area, but judging by past performance, others are not likely to do so. They have more than enough to do in obtaining general agreement on much more basic issues. The U.S. (and AID) have indicated that they will assume a leadership role in environmental protection. Such leadership can best be shown by backing up pronouncements with activities which look to the future.

EFFECT ON ENVIRONMENT

A research project in nonchemical control of pests or disease vectors which is purely investigative, confined to small areas, and carefully monitored, does not usually require further environmental analysis. Such research would have to address, however, the possible environmental implications of whatever technique was being investigated. It is therefore recommended that the Threshold Decision be made after the specific research has been selected and prior to preparation of a Project Paper.

TA/OST:MKux:fkj:5/10/77

PROJECT IDENTIFICATION DOCUMENT

INTEGRATED PEST MANAGEMENT SUPPORT

PROBLEM

As the result of an indepth analysis of AID's programs over the past 15 years for assistance in pest management and pesticide procurement (Environmental Impact Statement (EIS) on the AID Pest Management Program), the Agency has adopted a new policy which promotes the concept of integrated pest management, requires careful environmental analysis of all pesticides before decisions are made regarding their use, and emphasizes building the capabilities of developing countries to manage pests and pesticides regardless of the source of funding.

For AID and the developing countries to properly analyze pesticides and evaluate their possible environmental impact, additional data are necessary. Currently, the Environmental Protection Agency (EPA) maintains a computer data system (used by AID) that stores information on all pesticides registered for use in the U.S., their active ingredients, the uses for which they are registered (crops, etc.), and the pests they are meant to control. This information already covers about 75-85 percent of the chemicals used worldwide for crop protection and disease vector control.

However, the EPA computer system does not contain information on pesticides <u>not</u> registered in the U.S. It is common

practice for pesticide manufacturers to use different trade names of pesticide formulations in different countries, making it extremely difficult to determine their composition. This presents problems for AID's Commodity Office when asked for approval for procurement of such pesticides and will present even greater difficulties in evaluating pesticides before they are approved for inclusion in future bilateral projects. There is no worldwide data system on pesticides. Federal Agricultural Organization (FAO) does attempt to compile figures on world pesticide usage, but these statistics are estimated to have only 20% accuracy because of the difficulties in obtaining accurate reporting figures.

RESPONSE

To assist AID, the developing countries, and the concerned international organizations (FAO, World Health Organization (WHO), and United Nations Environment Programme (UNEP)), it is proposed that the Office of Science and Technologu fund a PASA with EPA to broaden its computer base to cover all pesticides and toxic substances in use worldwide, to obtain information on their active ingredients, and to make this information available to AID, other countries, and international organizations as needed. It is suggested that SER/COM assign a technical expert to help EPA design and carry out this activity.

FINANCIAL REQUIREMENTS

It is anticipated that two years of AID funding would be necessary--$100,000 for the first year, $200,000 for the

second year--and that EPA would take over the routine maintenance of the system once it was established in line with their responsibilities to cooperate in international efforts to develop improved research and regulations relating to pesticides.

Initial discussions have been held with staff members of EPA regarding this activity and they are interested in exploring the project further.

PROJECT DEVELOPMENT

The concept for this project emanated from the preparation of the EIS and the concerns of SER/COM, TA/AGR and TA/OST in obtaining the basic information necessary to make Agency decisions regarding assistance for pesticides.

A project paper will be prepared in close cooperation with the relevant technical offices and with EPA. The project paper will outline the types of information needed, such as names of pesticides, chemical composition, and uses, and how this information can be obtained. Because the success of the project depends upon the ability to obtain the necessary information, the means of obtaining it will have to be thoroughly investigated. A major assumption is that host countries will recognize the value of this activity and will cooperate by providing as much information as they have available on pesticides being used in their countries.

There are sufficient resources within AID for preparation of the Project Paper if staff time is available from other offices such as TA/AGR, and SER/COM to work on it. Otherwise,

two to three weeks of consultant or contract time will be required.

The Project Paper should be prepared early in FY 1978 so that funding can be made as early as possible in FY 1979.

BROAD ISSUES

This activity is directly related to implementation of the new AID policy on pest management activities and the environmental procedures.

EFFECT ON ENVIRONMENT

This project is concerned with transferring knowledge and understanding in the environmental field and hence will have no significant direct or secondary effects on the environment. For the foreseeable future this activity should, however, foster improved capabilities in developing countries to make more environmentally sound decisions regarding development and thus contribute to the protection of the environment. A negative determination is, therefore, recommended.

TA/OST:MKux:fkj:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA #20 Type # B

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1213

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Renewable Resource Plantation

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM YY: 03 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY. 83

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	2750

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	752	876		1550		2750	
(2)							
(3)							
(4)							
			TOTAL	1550		2750	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each): 877

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH):

14. SECONDARY PURPOSE CODE:

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To determine the feasibility and nature of renewable resource plantations to provide firewood, fooder, food and building materials, and to stabilize watersheds under typical LDC conditions.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

2-3 wks., consultant or IQC for PP Preparation

5

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnolds

Title: Director, TA/OST

Date Signed: MM DD YY

116

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

RENEWABLE RESOURCE PLANATION

PROBLEM: The tropical forests and other natural vegetation cover of less developed countries are diminishing at an alarming rate mainly because of man's activities to produce food and to provide himself with fuel for cooking and heating. Widespread deforestation, which adversely affects those responsible for it and other people as well, has multiple effects. Worldwide erosion has increased to 2.3 times its natural rate. Soil is lost faster than it forms and food production decreases; streams and rivers are polluted by sediment damaging aquatic life; silt chokes lakes, rivers, and reservoirs, ruining the power generating capacity of dams and producing breeding places for disease vectors such as malaria mosquitos; rapid runoff causes floods on the one hand and a lowering of the ground-water table on the other; wells dry up from the falling watertable and local vegetation dies; animal life disappears from the once-wooded areas; animal wastes are burned as fuel instead of being returned to fertilize the soil; permanent microclimate changes take place; plant species are eliminated without even our slightest knowledge of their biologic role or potential usefulness to man.

Firewood is rapidly becoming a scarce fuel resource in many lesser developed countries. Because of deforestation of wide belts of land surrounding settlements, people must make increasingly longer trips to collect firewood for family cooking and heating. Consequently, the price of firewood has risen sharply at the local market, and a larger part of each person's income or time is

spent on the purchase of wood, leaving less money for food, clothing, and other essentials. The continuing rise in petroleum fuels has driven more of the poor to use firewood, further increasing the demand for a diminishing supply.

If we are to slow or halt the severe environmental degradation in less developed countries, and if we are to improve the environmental quality, the renewable-resource base, and the long-term quality of life of the poorest people, we must find ways soon to halt the accelerated deforestation and erosion in these countries. This project is an experimental approach which, together with other measures, has a good chance of helping mankind achieve that objective.

The timing for this proposed activity seems right. TAB's recent survey of mission suggestions for research and development in Science and Technology strongly indicates that deforestation and related problems are a main concern of both missions and lesser developed countries.

RESPONSE: If deforestation and its disastrous effects are to be arrested, an alternative must be found to meet the poor people's need for wood. The approach that has been selected is to investigate various means of establishing fast-growing tree plantations in treeless areas in order to relieve further pressure on the areas' natural forests. The rural poor would be the direct beneficiaries of the proposed activities; however, if this approach proved successful, the same techniques could be applied to areas near urban centers.

PROJECT DESCRIPTION: This five-year project would initiate pilot studies on the development of renewable resource plantations and would be based on a previously commissioned study by the National Academy of Sciences on "Firewood and Fast-Growing Trees" and on the proposed project (FY 1978) "Wood as a Fuel Resource."

New techniques of growing closely spaced, fast growing trees to increase total biomass production have been under investigation by the U.S. Forest Service in experimental stations. These techniques would be tested at pilot sites in less developed countries. Three, small, devastated watersheds in different ecological settings would be selected as planting sites -- humid tropical. semi-arid tropical, and high-altitude. Harvesting is possible after as few as three years; once established, repeated cutting for poles, firewood, and charcoal is possible at shorter intervals. Emphasis would be given to developing the most efficient mix of local or exotic trees and other vegetation to provide a broad base of different renewable resources. Trees that coppice (resprout after cutting) would be likely candidates for firewood, charcoal, and poles. Some would be nitrogen-fixing varieties that improve soil fertility through leaf fall. Some would be deep-rooted trees that bring nutrients to the surface and improve highly weathered surface soils.

Training activities on development of nursery stock through selective cuttings and seed propagation would parallel the planting. Protection measures of new plantings would be empahsized. Measurements of water quality and quantity from the watersheds would be monitored to provide base line data and projections of

water-resource improvement.

Outputs:

Financial Requirements: To initiate the first year's work in FY 1979, $350,000 is required. For each of the succeeding four years, $600,000 would be required. Even though $350,000 for the first year's activities in three separate areas is small, it is important to initiate the study as soon as possible because of the lag time between planting and first harvest. A follow-on funding level of $600,000/year for each subsequent year would be needed to carry out one or two cycles of harvesting. If the project were forward-funding for the first three years, the funds needed in FY 1979 would be $1,550,000.

Project Development: The project development will become specific with the general availability of data from the "Firewood and Fast-Growing Tree Study" in the next few months. Design and project development will become better defined as project "Wood As A Fuel Resource" project (FY 1978) is implemented and begins to provide needed data on site selection, etc. Nevertheless, it is likely that the project work would be carried out under a PASA arrangement with the U.S. Forest Service (Office of International Forestry and the Institute of Tropical Forestry). This project will be closely coordinated with the "Energy-Food Plantation Project" (FY 1979) of the Energy Cluster to maximize the benefits and to reduce overall project costs. Forty person-days of TA/OST staff time would be needed for project management in FY 1979 and this managerial time is available. These activities would be coordinated with other donors participating in forestry projects such as FAO

and the World Bank. Because the techniques would be focused on specific ecological settings, it is likely that the results could be transferred to similar ecological settings in other countries.

Initial Environmental Examination: This project is intended to improve the physical and biological environment of a few, small devastated watersheds while developing a pilot-scale, renewable resource base for a rural population. As the renewable resource plantations develop, some pressure on the area's natural vegetation will be relieved, thereby slowing its further destruction. The water systems and plant growth will be monitored from the start to look for unexpected benefits or troubles in the plantation concept. This is a small-scale, carefully controlled experiment; the pilot test areas will be small and the once-forested lands will be reforested. Therefore, a Negative Determination is recommended for this project.

TA/OST:W. Parham:mc:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

[X] A = ADD C = CHANGE D = DELETE

PID

2. DOCUMENT CODE 1

3. COUNTRY/ENTITY

TA/OST RDA # 20 Type # A

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS) 931-1214

6. BUREAU/OFFICE A. SYMBOL TAB B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS) Mineral Exploration - OECD

8. PROPOSED NEXT DOCUMENT

A. 3 (2 = PRP, 3 = PP)

B. DATE MM YY 0 8 7 7

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION

a. INITIAL FY 7 8 b. FINAL FY 7 9

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
A. AID APPROPRIATED		
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
	TOTAL	1,100

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 78 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1) SD	751	876		200		1,100	
(2)							
(3)							
(4)							
			TOTAL	200		1,100	

SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

to determine effective geological, geophysical, and geochemical methods for identifying metallic mineral deposits in tropical LDCs where the land-surface characteristics have norman exploration techniques less effective than in temperate countries.

PLANNING RESOURCE REQUIREMENTS (staff/funds)

2-3 weeks consultant or IQC for PP preparation. $5,000

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

122

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION

MM DD YY

AID 1330-2 (3-76)

PROJECT IDENTIFICATION DOCUMENT

OECD - MINERAL EXPLORATION

PROBLEM

Economic development is frequently constrained by insufficient availability of foreign exchange. As countries depart from the low equilibrium level of pre-modern conditions, their growing demand for imports typically outruns their new means of paying for them.

Mineral development in capital-short developing countries is an attractive approach to the problem because of its export potential. Traditionally, mining companies have exploited ore bodies close to consuming markets because of the greater security of operating on home ground, and the expense of transporting heavy low-value cargo. Consequently, many of the mineral resources of developing countries are relatively little exploited and little known. Meanwhile, the rapid increase in world population and the significant advances in economic development will rapidly escalate the demand on the world's mineral resources. The stage is thus set for accelerated exploration and exploitation of mineral resources in developing countries. The problem is to establish conditions that will favor realization of this potential on terms favorable to the developing countries.

To locate the mineral resources in the developing world, geologic investigations are badly needed. However, whereas geologic techniques are well-established and systematized for temperate zones, they are less established in their application under tropical conditions. The geology of humid tropical areas typically presents deeply-weathered surfaces where conventional techniques give less conclusive results than in temperate zones; similar problems exist in arid regions where bedrock is covered by a thick layer of sand. Severe

logistic problems place special limitations on such operations, often in remote areas. There is a pressing need to adapt, test and modify existing mineral exploration technology for these conditions and locations.

It might be argued that these obstacles are not overwhelming, since mining companies have the financial and technical backing to overcome them; however, this may not solve the problem from the point of view of the developing countries. A material obstacle to expanded mining activity in developing countries is that there is no adequate information base from which to approach potential investors. Uncertain of the value of their own resources, officials are in a poor position to negotiate the conditions under which prospecting, exploration, and eventually mining, processing, and exporting can take place in their countries. This not only may handicap them in obtaining due advantage from the bargaining process, but it may also prompt unrealistic demands or lead to contracts that are vulnerable to later controversy.

RESPONSE

To address the difficult problems of mineral exploration in arid and humid tropical countries, OECD is promoting a program among member nations to investigate the benefit of using integrated geological, geochemical and geophysical (remote sensing) exploration techniques as a method for locating metallic mineral deposits. Though some of the techniques are well established for use in temperate areas, they have not received adequate testing in arid and humid tropical environments.

The project designed by the U.S. Geological Survey for Southeast Colombia is one of five selected at a February 1977 meeting by the OECD expert panel on

mineral exploration as being well designed to address mineral exploration problems in developing countries. The problem is a difficult one and probably will not be solved quickly. This project is a first step in solving a long-range problem, however, it will provide some needed basic information which is critically needed. The official OECD report on that meeting states: "The technologic advances to be expected will be directly applicable to the search, largely unsuccessful in the past, for deposits of copper and the wide variety of associated metals along the entire section of the porphry belt that should exist in the northern part of South America and in Central America. In combination with the Upper Volta and Papua New Guinea projects, the joint technology should stimulate exploration world-wide and increase the likelihood of success."

DESCRIPTION

This two-year project would test and relate a series of geologic, geochemical, and geophysical parameters to a known body of mineralized rocks. In the larger geologic setting, it would evaluate and demonstrate a wide variety of geophysical (remote sensing) and geochemical techniques for their cost effectiveness and adaptation to conditions encountered in tropical settings.

Four complementary projects designed by experts from Germany, France, United Kingdom, Australia, were also selected by the OECD expert panel. The coordinated projects are expected to benefit greatly from an exchange of data. The projects would be conducted in close collaboration with the national geologic institutions of the host countries, and are expected to have a significant training value.

This is a centrally funded, exploratory project intended to provide generally useful knowledge to many developing countries. The information from the five coordinated projects will be disseminated widely throughout the countries

and multinational organizations. Benefical results to developing countries in the very long run would include increased availability of needed minerals, improved trade balances, and increased employment in rural areas. Although not an objective, the U.S. project in Colombia may have an immediate beneficial impact on the Colombian economy should the deposits prove to be economically exploitable.

The results of each study will be assembled and synthesized by participants from OECD and the developing countries and will be prepared for presentation and publication at the 1980 International Geological Congress.

FINANCIAL REQUIREMENTS

The cost of the overall U.S. Geological Survey Project for the Colombia investigation will be $1,100,000. The coordinated start-up date for all five projects is Fall of 1977, but it is essential that individual projects start no later than January or February of 1978. To synchronize this activity with the four others called for in the OECD plans, reprogramming of funds for FY1977 would be necessary. The funding options are given in the chart.

	THOUSANDS $	
FY1977	FY1978	FY1979
(1) $ -	$200	$900
(2) $200	300	600

PROJECT DEVELOPMENT

The U.S. Geological Survey activities for the OECD Mineral Exploration Project cover participation of geologists, geophysicists, and technicians, for a total of 110 person-months over two years, allocated as in the chart.

Activity	Timing in Project	Field	Office
Regional geologic mapping	Early Phase	1	2
Detailed geologic mapping	Early Phase	1	2
Topical geologic studies	Late Phase	6	19
Regional geochemical surveys	Middle Phase	9	12
Detailed geochemical surveys	Middle Phase	8	6
Geophysical investigations	All Phases	14	24
	TOTAL	45	65

INITIAL ENVIRONMENTAL EXAMINATION

The project calls for normal field and laboratory activities of a geologic exploration team and it is not expected to have a significant effect on the environment. Some of the area will be viewed from the air, some will be mapped on the ground, and some small rock and water samples will be collected. A few shallow holes with a maximum depth of 50 meters will be drilled during sample collection. These minor drilling operations are not the sort that normally cause significant environmental effects. Therefore, a Negative Determination is recommended for this project.

TA/OST:WParham:dpd 5/23/77

9954
TECHNOLOGY TRANSFER AND DEVELOPMENT

TECHNOLOGY TRANSFER AND DEVELOPMENT CLUSTER NARRATIVE

PROBLEM DESCRIPTION

Developing countries are aware of the crucial role that technology can play in the development of their countries and have become increasingly vociferous in their demands for preferential access to the technology of industrialized nations. These demands are heard particularly in the current North/South dialogs.

The needs most often expressed fall into three general categories:

(1) To strengthen their capabilities to identify, select, and bargain for foreign technology.

(2) To adapt imported technology to their particular situations and resources and to ensure that this contributes to their overall development goals and policies.

(3) To develop their capabilities to generate their own technology.

These needs, and others, will undoubtedly be presented at the United Nations Conference on Science and Technology for Development scheduled for 1979. Developing mechanisms and institutions to make possible a reasonable and timely response by the United States to developing countries legitimate needs is a problem worthy of significant effort to solve.

OBJECTIVES

The activities in this cluster addressing these needs have four general objectives:

(1) To facilitate the transfer and adaptation of appropriate technology.

(2) To increase the capability of institutions in developing countries to generate indigenous technology and to adapt existing technology.

(3) To increase off-farm employment through stimulation of small-scale industry.

(4) To involve the private sector, particularly small and medium size enterprises, in the transfer and adaptation of appropriate technology to the developing countries.

RELATION OF CURRENT AND PROPOSED PROJECTS TO CLUSTER OBJECTIVES

During the past five years AID has used several American universities, research institutes and other U.S. government agencies to implement its projects to achieve these objectives by strengthening the capabilities of several types of institutions in developing countries, primarily through management and technical training and technical assistance, and by providing technological information. These services have been accomplished most successfully by establishing linkages between American institutions with industrial research institutions, and technical universities in developing countries. Assistance has also been provided to government agencies to improve their effectiveness on standardization, quality control, and measurement services. A brief description of some of the current projects related to the above objectives follows.

Project 0097 - "Development of LDC Industrial Research Institute Effectiveness

This three-year project was initiated in July 1976 to provide management as well as technical training, technical assistance, and small grants to industrial research institutes to improve and increase their participation in the development activities of their countries. Administered under a $1,445,000 contract with the Denver Research Institute (DRI), it incorporates the successful experience from two earlier projects conducted under contract with DRI.

The first project, "Training Research Managers," developed, tested, and institutionalized, in selected countries, short-term management training programs designed to improve the technical and management abilities of the senior staff of industrial research institutes. The second, "Coupling with Industry," demonstrated to industrial research institutes in developing countries new approaches to commercializing the products of their research and their services, and to coupling their programs with industrial development interests. This project directly supports objectives (1) and (2).

Project 0149 - "Employment Generation Through Stimulation of Small Industries"

This five-year project is being conducted by the Georgia Institute of Technology under a section 211(d) grant of $800,000. It has strengthened the university's capabilities for providing industrial education and technical assistance to developing countries related to technological choice of increasing employment and national productivity. The project is generating improved understanding of employment effects of various technologies, technological innovations that can stimulate off-farm employment in rural areas (objective (3) above), and technologies for increasing value-added locally to national products.

Project 0990 - "Small Industry Grants"

This five-year project began in FY 1974 with an estimated total cost of $850,000. It provides for financial grants from the Georgia Institute of Technology to linkage institutions in Brazil, Nigeria, the Philippines, and Korea. The grants demonstrate alternative approaches to small industry through various kinds of technical assistance to off-farm employment that generates small industry, particularly in rural areas. This project supports objectives (1), (2), (3), and (4).

Project 0243 - "Standardization in LDCs"

This three-year $640,000 project was initiated in 1976 by a PASA with the National Bureau of Standards as a follow-on to an earlier project, "Industrial Standards." In at least 10 standards institutions in developing countries, the project is increasing the effectiveness of efforts for standardization and measurement services that benefit small farmers as well as small industry in both rural and urban areas. It provides for surveys, workshops, advisory services, and training in professional collaboration with the standards institutions. These efforts are expected to produce (1) more highly trained institution staffs, (2) plans for improving the effectiveness of national standards, (3) guidance on national standards planning and implementation, (4) improved quality control, and (5) better decisions about instrument and equipment investment. This project supports objectives (1), (2) and (4).

Project 1114- "Science and Technological Information Transfer"

This project is designed to improve access of developing countries to scientific and technical information resulting primarily from research and development. This information controlled by the United States Government is available through the National Technical Information Service (NTIS). NTIS also provides access to similar results and technological developments in other countries and to a growing body of American private sector technological information.

This project is one of two AID projects with NTIS, each with the same goals and purpose (objective (1)) and both evolving from an earlier OST pilot project. The other project has a Latin American setting, and is separately funded by the Latin American Bureau. There are no conflicts or dependencies between the two. Cooperation and elaboration with the Latin American bureau has been, and will continue to be, maintained to optimize the results of the two projects.

Project 1075 - "Small Industry Implementation"

The purpose of this project is to provide increased exposure of developing countries and AID missions to the methods and capabilities developed by Georgia Tech under two projects (discussed above) for generating off-farm employment in developing countries through stimulation of small-scale industries.

Georgia Tech's services are of great potential value to countries not presently involved in the project. The interrelated fields of expertise involved are rural development, small industry expansion and diversification, appropriate technology adaptation and transfer, and industry-related energy

technology. This project will improve and enlarge the application of these capabilities and demonstrate their effectiveness to addtional countries until these capabilities can be sustained by continuing service to LDC institutions and AID Missions in those countries without OST support.

Project 1079 - "Patents and Industrial Property Rights Assistance"

This project addresses the problem of the limitations developing countries have in opportunity for choice and effective utilization of proprietary appropriate technology. It does so by strengthening the protective environment for industrial property rights, including patents and trademarks, licensing, and know-how. It thereby stimulates the application of innovative foreign and domestic technology and increases productivity.

Successful project development in each country will produce two basic outputs which fulfill the project purpose: (1) formulating or reformulating an appropriate national policy for industrial property rights in project countries, and (2) establishing a national industrial property office as a principal instrument for implementing policy. This project supports objectives (1) and (4).

Project 1088 - "Involving the Private Sector - Small Enterprise"

The U.S. effort to assist development in developing countries faces the problem of how to obtain greater involvement of the U.S. private sector, particularly the talent and technology of small business. The proposed project would help solve this problem by establishing a system through which small business will be informed of opportunities for technology transfer to developing countries and of the transfer methodology. The project would

also devise a system for providing loans, insurance, and marketing aids as incentives for small businessmen to take advantage of these opportunities. This project supports objectives (1) and (4).

Project 1207 - "Technology Information Transfer System"

The increased capability to identify and select foreign technology is one of the major goals enunciated by the developing countries in the North/South dialogue. This proposed project would help solve this problem by increasing the developing countries' access to U.S. science and technology information in the public domain. The project would develop a system for making available, through a single operating center, the large quantities of technological information presently held in numerous large collections. The operating center would identify the available technology from all sources and act as a central order point for the specific information request. This project supports objective (1).

Project 1208 - "Technology Development Corporation-Feasibility Study"

Although there is a great quantity of technological information available in the U.S. public domain, it is generally recognized that the private sector in the U.S. unquestionably controls the largest and most broadly applicable source of technology appropriate to the development goals of the developing countries. This project proposes a study of the feasibility of one method for making this information and know-how available to assist the developing countries. The project would attempt to involve a broad range of institutions in the feasibility study itself. These would include

multinational corporations, relevant U.S. government agencies, private development institutions, and international development banks. The feasibility study would determine such factors as scope, location, specific objectives, operational methods and limitations, inter-institutional relationships and implementation criteria and methods. The corporation is viewed as an entity to identify opportunities and to provide venture analyses, partial investment requirements and operational know-how. This project supports objectives (1), (3) and (4).

Project 1205 - "Development Center - Feasibility Study"

The problem of how to assist developing country rural sectors to initiate new or expand existing small enterprises has been addressed in other projects, such as "Small Industry Grants" and "Small Industry Implementation". From these and other projects has come the impetus and concept for this proposed project. The development of off-farm employment opportunities, particularly for women, is a difficult and complex task that requires a centralized source of varied expertise. The project proposes examining the feasibility of a center for small enterprise development. This center would assemble the know-how, facilities and documentation within an organization dedicated to utilizing these resources to assist in the development of off-farm employment in the developing countries. This project supports objectives (1), (3) and (4).

Project 1206 -"LDC-Industrial Research Institute Contract Research Network"

Economic development strains the capacity of developing countries to provide well-founded guidance to productive enterprises and public institutions.

This proposed project tests the postulate that industrial research institutes in developing countries can pool their resources to offer a wider range of useful services to clients within their countries, become more competitive with international consulting firms, tap a wider market for their services, and so receive the benefits enjoyed by successful contract research firms. The location selected for this project is the ASEAN countries of Southeast Asia. The project will facilitate and strengthen steps toward collaboration and will provide in-service training of institute management and staff, particularly in project proposal preparation and marketing. This project supports objectives (1) and (2).

In addition to the above projects, several cluster-related small activities have been conducted. The Assistant Secretary of State (OES) requested the Technical Assistance Bureau to conduct a design study for the Technology Corps proposed by the Secretary of State in several speeches before international organizations. TA/OST has contracted from this study which could lead to a pilot project in FY 1978 and possibly to an operational program in FY 1979.

U.S. industry has long been recognized as a reservior of technology and talent which remains largely untapped in bilateral technical assistance programs. There is a definite need to identify the opportunities for and constraints to engaging the private sector in development and to establish operational mechanisms for industry participation. The nonprofit Entrepreneurship Institute has submitted a joint proposal to AID and the IBRD to help sponsor a program to encourage the private small business sector in

industrialized countries to take a more active role in the development of small-scale and medium-scale enterprises in the developing countries. This project would be highlighted by a World Conference on Small Business Development in 1979. TA/OST is supporting a feasibility study on this project.

Another activity involves a contract with Georgia Tech to utilize its small industry development capabilities to publish and distribute a "Small-Industry Development Network" quarterly newsletter. Its objectives are (1) to promote the development of small-scale industries in the developing countries through a worldwide intercommunications network to foster the interchange of pertinent information among organizations engaged in small industry development, (2) to stimulate utilization of research results, and (3) to prevent duplication of research effort.

RELATIVE PRIORITY OF PROJECTS

The above projects, both in progress and proposed, have been listed in their order of priority in achieving the cluster objectives. Funds listed in the FY 1978 Redistributed C.P. will allow the continuation of ongoing base projects at their approved levels. It will also allow initiation of the three highest priority new projects at an adequate funding level for Phase I of each project.

FY 1979 base level funding at the assigned 80% level would permit continuation of all projects underway or initiated in FY 1978, but at substantially reduced levels than those approved initially for the onging projects or planned and recommended for the new projects. While these projects would still be worth completing at this reduced level of funding, cluster objective achievement would be delayed and might be jeopardized.

Funding at the 100% level assigned for FY 1979 would allow continuation of all FY 1978 projects at viable levels although somewhat below the most cost effective and desired levels. It would also be adequate to fund Phase I of a highly desirable project addressing one of the key issues in the North/South dialog, Technological Information Transfer.

The proposed program for FY 1979, at a funding level of only 14% over the FY 1978 C.P. level, would permit initiation of three additional new projects at either full funding (two - 1 year projects) or through a desired Phase I.

PERSONNEL

This cluster is being managed during FY 1977 by a new direct-hire to replace the former manager who resigned in September 1976. Because of the scope and number of ongoing projects, there has been inadequate time available to develop several new projects approved for FY 1977 and 1978 as well as several additional worthwhile projects for FY 1979. A foreign service officer, who became available in January for temporary duty, was assigned part-time to help develop some of these projects. A newly recruited direct-hire staff member reported in mid-April and has begun taking over development of several new projects, thereby freeing the cluster manager to allocate more time to management and supervision of the Energy Cluster also assigned to him. This staffing level will be adequate to develop and manage this cluster at the approved FY 1978 level and the proposed FY 1979 level, 114% of FY 1978 level, as well as provide reasonable support to the Regional Bureaus and Missions for establishing and maintaining contact with international and professional organizations so essential to the most effective operation of this cluster.

Office Science & Technology
Cluster No. 9954 Title Technology Transfer & Development

Activity Coordinator W. D. Roseborough

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority BASE
Date 5-20-77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
Total						40					35			45			
Total Small Activities					( )	(30)			( )	( )	(25)		( )	(25)			
B. Regional Bureau & Mission Services																	
Total					XXXX	40		XXXX	XXXX	XXXX	55		XXXX	70		XXXX	XXXX
C. Project Development & Management																	
931-0097 LDC-IRI Effectiveness	299	D	1	36	0	37	12	510	250	250	37	12	45	37	12	79	
931-0138 Adaptation of Technology	300	F	1	36	0	4		0	-	-	2					77	
931-0149 Employ. Gen. Small-Scale Indus.	301	F	1	36	-	10		26	0	0	5					78	
931-0990 Small Industry Grants	302	D	1	36	0	5		50	175	175	8			10	9	79	
931-0243 Standardization in LDCs	303	D	1	36	100	9		0	200	200	25		55	20	9	79	
931-1114 Science & Tech Info Transfer	304	D	1	36	120	39		120	200	200	15		50	15	9	79	5-77
931-1075 Small Indust. Implementation	305	B	3	36	-	10		-		100	15		50	10	6	80	7-77
931-1079 Patents & Ind.Prop.Rights Assist.	306	D	3	36	-	15		-		200	35		50	35	9	80	7-77
931-1088 Involving Private Sector	0	B	3	36	-	20		-	400	100	44	9	50	44	9	82	8-77
931-1076 Techno/Industrial Policies	307			36	500			-									
931-1207 Tech. Info. Transfer System	308	D	4	36	-	17		-								80	7-77
931-1208 Tech. Dev. Corp. Feasib. Study	309	A	4	36	-	12		-								79	9-77
931-1205 Develop. Ctr.-Feasib. Study	310	B	4	36	-	7		-								79	7-77
931-1206 LDC-IRI Contract Res. Network	311	D	4	36	-	7		-								83	9-77
Total					720	192	12		1225	1225	186	21	300	213	63		
Total Small Activities	345				(127)				(140)	(140)			(140)				
D. Contacts & Interaction-Internat'l Organiza.																	
1. United Nations Industrial Devel. Organ. (UNIDO)																	
2. Int'l. Committee Scientific Unions (ICSU)																	
3. Appropriate Technology International (ATI)																	
4. National Academy of Science (NAS)																	
5. National Academy of Engineering (NAE)																	
Total					XXXX	14	2	XXXX	XXXX	XXXX	15		XXXX	15		XXXX	XXXX
E. Administration & Supervision - Total						27					25			25			
GRAND TOTAL					XXXX	313	14	XXXX	XXXX	XXXX	316	21	XXXX	368	63	XXXX	XXXX

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

139

Office Science & Technology
Cluster No. 9954 Title Technology Transfer & Development

Activity Coordinator W. D. Roseborough

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 100%
Date 5-20-77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
Total						40					35			40			
Total Small Activities					( )	(30)			( )	( )	(25)		( )	(25)			
B. Regional Bureau & Mission Services																	
Total					XXXX	40		XXXX	XXXX	XXXX	55		XXXX	70		XXXX	XXXX
C. Project Development & Management																	
931-0097 LDC-IRI Effectiveness	299	D	1	36	0	37	12	510	250	250	37	12	45	25	12	79	
931-0138 Adaptation of Technology	300	F	1	36	0	4		0	-	-	2					77	
931-0149 Employ. Gen. Small-Scale Indus.	301	F	1	36	-	10		26	0	0	5					78	
931-0990 Small Industry Grants	302	D	1	36	0	5		50	175	175	8			19	9	79	
931-0243 Standardization in LDCs	303	D	1	36	100	9		0	200	200	25		155	29	9	79	
931-1114 Science & Tech Info Transfer	304	D	1	36	120	39		120	200	200	15		100	24	9	79	5-77
931-1075 Small Indust. Implementation	305	B	3	36	-	10		-		100	15		75	16	6	80	7-77
931-1079 Patents & Ind.Prop.Rights Assist.	306	D	3	36	-	15		-		200	35		125	34	9	80	7-77
931-1088 Involving Private Sector	0	B	3	36	-	20		-	400	100	44	9	100	39	9	82	8-77
931-1076 Techno/Industrial Policies	307			36	500			-									
931-1207 Tech. Info. Transfer System	308	D	4	36	-	17		-					100	29	9	80	7-77
931-1208 Tech. Dev. Corp. Feasib. Study	309	A	4	36	-	12		-								79	9-77
931-1205 Develop. Ctr. Feasib. Study	310	B	4	36		7										79	7-77
931-1206 LDC-IRI Contract Res. Network	311	D	4	36		7										83	9-77
Total					720	192	12		1225	1225	186	21	700	227	72		
Total Small Activities	345				(127)				(140)	(140)			(140)				
D. Contacts & Interaction-Internat'l Organiza.																	
1. United Nations Industrial Devel.Organ.(UNIDO)																	
2. Int'l. Committee Scientific Unions (ICSU)																	
3. Appropriate Technology International (ATI)																	
4. National Academy of Science (NAS)																	
5. National Academy of Engineering (NAE)																	
Total					XXXX	14	2	XXXX	XXXX	XXXX	15		XXXX	45		XXXX	XXXX
E. Administration & Supervision - Total						27					25			25			
GRAND TOTAL					XXXX	313	14	XXXX	XXXX	XXXX	316	21	XXXX	387	72	XXXX	XXXX

140

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office Science & Technology
Cluster No. 9934 Title Technology Transfer & Development
Activity Coordinator W. D. Roseborough

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority Proposed
Date 5-20-77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Total	FY 1977 Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Total	FY 1978 Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Total	FY 1979 Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
Total						40					35			30			
Total Small Activities					( )	(30)			( )	( )	(25)		( )	(20)			
B. Regional Bureau & Mission Services																	
Total					XXXX	40		XXXX	XXXX	XXXX	55		XXXX	70		XXXX	XXXX
C. Project Development & Management																	
931-0097 LDC-IRI Effectiveness	299	D	1	36	0	37	12	510	250	250	37	12	45	32	12	79	
931-0138 Adaptation of Technology	300	F	1	36	0	4		0	-	-	2					77	
931-0149 Employ. Gen. Small-Scale Indus.	301	F	1	36	-	10		26	0	0	5					78	
931-0990 Small Industry Grants	302	D	1	36	0	5		50	175	175	8			14	9	79	
931-0243 Standardization in LDCs	303	D	1	36	100	9		0	200	200	25		200	19	9	79	
931-1114 Science & Tech Info Transfer	304	D	1	36	120	39		120	200	200	15		200	18	9	79	5-77
931-1075 Small Indust. Implementation	305	B	3	36	-	10		-		100	15		75	16	6	80	7-77
931-1079 Patents & Ind.Prop.Rights Assist.	306	D	3	36	-	15		-		200	35		200	34	9	80	7-77
931-1088 Involving Private Sector	0	B	3	36	-	20		-	400	100	44	9	100	39	9	82	8-77
931-1076 Techno/Industrial Policies	307			36	500			-									
931-1207 Tech. Info. Transfer System	308	D	4	36	-	17		-					100	29	9	80	7-77
931-1208 Tech. Dev. Corp. Feasib. Study	309	A	4	36	-	12		-					190	10	3	79	9-77
931-1205 Develop. Ctr.-Feasib. Study	310	B	4	36	-	7		-					75	13	6	79	7-77
931-1206 LDC-IRI Contract Res. Network	311	D	4	36	-	7		-					210	16	9	83	9-77
Total					720	192	12		1225	1225	186	21	1395	240	90		
Total Small Activities	345				(127)				(140)	(140)			(140)				
D. Contacts & Interaction-Internat'l Organiza.																	
1. United Nations Industrial Devel.Organ.(UNIDO)																	
2. Int'l. Committee Scientific Unions (ICSU)																	
3. Appropriate Technology International (ATI)																	
4. National Academy of Science (NAS)																	
5. National Academy of Engineering (NAE)																	
Total					XXXX	14	2	XXXX	XXXX	XXXX	15		XXXX	15		XXXX	XXXX
E. Administration & Supervision - Total						27					25			25			
GRAND TOTAL					XXXX	313	14	XXXX	XXXX	XXXX	316	21	XXXX	380	90	XXXX	XXXX

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

141

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 36 Type No. 10

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1075

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Small Industry Implementation

8. PROPOSED NEXT DOCUMENT: A. 2 = PRP, 3 = PP; B. DATE MM YY: 07 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 78; b. FINAL FY 80

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
A. AID APPROPRIATED		225
B. OTHER U.S.	1. Foreign Tech.	225
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
	TOTAL	550

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY ____ F. GRANT	E. FIRST FY ____ G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1)	269	870		100		225	
(2)							
(3)							
(4)							
			TOTAL	100		225	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

Off-farm employment generation through stimulation of small-scale industry and and through transfer and management of appropriate technology.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

Improve and enlarge the applications of the capabilities of Georgia Tech & demonstrate their effectiveness to additional LDCs and U.S. AID Missions to a point where those capabilities can be viably sustained by continuing service to institutions in the LDCs without AID support.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

142

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST (FY78)
R. Moeller PID

SMALL INDUSTRY IMPLEMENTATION

PROBLEM

Generating employment in the developing countries is complicated by many complex problems - high unemployment rates, burgeoning populations, low per-capita incomes with inequitable distribution, pooly developed infrastructure, foreign exchange difficulties, and rural-to-urban migration. The situation in rural areas is especially critical.

These problems have led many nations to experiment with varied approaches. Export programs, import substitution schemes, financial incentives, infrastructure development projects, large-scale industry programs, and agricultural development activities have all been tried with mixed results. Because of limited resources of most developing countries, many activities have been inadequately financed, not sustained in time, and understaffed in terms of competent, experienced people.

RESPONSE

Only long-term, multifaceted, systematic approaches seem to hold much promise. The basic question developing countries must answer is -- "what combination of approaches will optimize employment generation within the social, cultural, and economic framework of the country?"

The Georgia Institute of Technology, under a 211(d) grant and a contract that provides small grants and assistance to developing countries, has been developing in-house skills in counterpart institutions for stimulating small-scale, labor-intensive industries in 11 developing countries. Georgia Tech has successfully created a staff knowledgeable and experienced in training institutions in the developing countries in the methods of assisting small-scale industry and providing useful inputs to local industries.

The 211(d) grant to Georgia Tech expires in February 1978. The small-scale industry project, designed to help four institutions establish small-industry outreach activities, will be completed in January 1979. Georgia Tech can provide services of potential value to many more developing countries and AID Missions than can be reached under the existing grant and contract. Widespread distribution of publications describing Tech activities has been, and will continue to be, an important part of these projects. However, experience has shown that reports and brochures are of limited use in generating demand for services. The need is for more instructive and demonstrative techniques to focus the attention of interested countries and AID Missions on Georgia Tech capabilities.

DESCRIPTION

The interrelated fields of expertise are emphasized at Georgia Tech with respect to international development are as follows:

- Rural Development
- Small Industry Expansion and Diversification
- Appropriate Technology Adaptation and Transfer
- Industry Related Energy Technology
- Off Farm Employment Generation

The purpose of this project is to expand the application of these capabilities and demonstrate their effectiveness to more developing countries until those capabilities can be sustained by continuing service from Georgia Tech to institutions in the countries without further AID support.

The proposed project would provide three years of decreasing funding to Georgia Tech for the purpose of providing introductory services to interested developing countries upon request. This would be done through the following project elements.

Counterpart Relationships

Additional, limited-scope relationships will be developed with counterpart organizations that have ongoing development programs for small industry. The current network of counterpart organizations will be expanded during the project from 11 to 18 to 20 organizations. The number of active network organizations will depend upon a survey of additional countries and organizations and on the interest in counterpart arrangements encountered.

The nature of the limited counterpart relationships will be determined on a case-by-case basis, but might include provisions for technological information and technical assistance, interchange training visits, and involvement of counterpart personnel in conferences and seminars of small industry development.

Temporary Duty Teams

Temporary duty teams will be provided in the areas of small-scale industry, rural and urban development, technology transfer, and employment generation. These teams will be provided on request from AID/Washington and AID Missions to assist AID Missions and host governments in planning development programs that include a small industry function. These teams will be prepared to discuss and demonstrate alternative methods and techniques in the contract subject areas.

Professional Staff Development

Professional development of government officials and counterpart staffs in developing countries is a continuing need. By acquainting these personnel

with a broad spectrum of alternative approaches to problem solving in small industry, the professional development of these individuals will be enhanced. Staff development of government officials and counterpart personnel will be provided by Georgia Tech either in the countries or at the Georgia Institute of Technology. The staff development program will include technological information transfer, case histories, audio-visual examples, plant visits, and other appropriate techniques for demonstrating assistance methods for small industry.

Regional or Country Seminars

Regional or country seminars by Georgia Tech personnel will be presented to interested personnel in developing countries in conjunction with temporary duty or other field trips. These seminars will focus on the interrelationship of science and technology and on small industry development and national planning, and will discuss the major issues in the participating country. Participant involvement will be encouraged in the search for alternative solutions appropriate to the country.

Pre-paid Consulting

To make the services of Georgia Tech available to host countries and AID Missions on a request basis, limited prepaid consulting services would be provided under the contract. A total of six person weeks of staff time would be available for response to requests for assistance in the field of expertise noted above. Requests for short-term assistance would be honored within budgeting limitation of the contract. Extended consultation and assistance requests would probably require supplementary or alternative funds. Specific requests would be handled on a quick response basis.

Audio-visual Documentation

Many development activities are discussed in the literature, but few have been described adequately by audio-visual documentation. Audio-visual project documentation in both black-and-white and color photographs, slides, 8mm and 16mm films, and video-tapes, provides graphic depiction of development principles and methods as well as case histories.

On-site audio-visual documentation of small industry development projects, principles, techniques, and successful as well as unsuccessful attempts will be prepared by Georgia Tech. These media presentations will be available on request by AID Missions, host countries, and counterpart organizations. They will be useful in promoting new ideas, in training, in conferences and seminars, and in small industry problem solving.

The following major assumptions have been made:

Additional contacts will result in a significant increase in requests for trial assistance.

Trial assistance will lead to sustained field demand.

AID investment in Georgia Tech will further specific AID priorities.

A network of 18 to 20 small-industry oriented counterpart organizations will be established.

Project funding for Georgia Tech programs from sources other than AID will be forthcoming.

The above assumptions are, in part, based on the general assurance that Georgia Tech will continue to effectively and aggressively market its skills.

An alternative to the proposed project would be to rely on mailings of literature describing the current projects and on word-of-mouth promotion by AID/W or Missions with which Georgia Tech currently has contact. The success probability of this latter approach cannot be directly evaluated but appears to be low. The value of Georgia Tech's capabilities, developed at considerable cost to the U.S. government, and AID's desire to seek mechanisms which transfer centrally funded activities to the field strongly favor the proposed project.

The major direct beneficiaries of this project will be the developing country institutions and Georgia Tech. Small-scale industry and enterprises in the host countries will receive increased development assistance from counterpart institutions. The success of this project will be recognized by the expansion of services of participating institutions and the spread of the successful techniques and methods to other similar institutions.

FINANCIAL REQUIREMENTS AND PLANS

A three-year disbursement period with declining AID funding is proposed. An initial funding of $100,000 in FY 1978 with subsequent inputs of $75,000 in FY 1979 and $50,000 in FY 1980 is proposed.

DEVELOPMENT OF THE PROJECT

This project is based upon activities in progress. Project development effort will be nominal. Detailed costing of the individual services and a strategy for approaching new countries will be required. The objective is maximum exposure leading to a balanced array of services provided, consistent with available resources.

Three person-weeks of TA/OST staff effort should be adequate for preparing a project paper, internal review functions, and preparing the PIO/T. The project paper is scheduled for submission in July 1977 to permit project implementation as early in FY 1978 as practicable.

ISSUES

There are no presently identified major issues associated with this project.

SATISFACTION OF AGENCY SELECTION CRITERIA

This project will have little or no direct environmental effect. However, the provision of technical guidance to small-scale industry may include specific recommendations on how to reduce the environmental impact of the particular industry. One benefit that may accrue to the successful development of off-farm, small-scale employment is an increase in employment opportunities for women in more formal situations.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. [A] A = ADD = CHANGE = DELETE

PID

2. DOCUMENT CODE 1

3. COUNTRY/ENTITY
TA/OST, RDA # 36 Type No. D

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS)
931-1079

6. BUREAU/OFFICE
A. SYMBOL TAB
B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS)
Industrial Property Rights Assistance

8. PROPOSED NEXT DOCUMENT
A. 3 2 = PRP 3 = PP
B. DATE MM 07 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
a. INITIAL FY 78 b. FINAL FY 78

10. ESTIMATED COSTS
($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
A. AID APPROPRIATED		550
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		50
D. OTHER DONOR(S)		
	TOTAL	600

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1)	759	870		200		550	
(2)							
(3)							
(4)							
			TOTAL	200		550	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

Provide LDCs with greater opportunity for choice, transfer & effective utilization of appropriate technology through improvement of environment for employment of proprietary technology.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To develop & test in 3 LDCs a viable system for protection of industrial property rights, formulation of an appropriate industrial property rights protection policy, and establishment of an industrial property office.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature
Henry A. Arnold

148

Title
Director, TA/OST

Date Signed MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM DD YY

AID 1330-2 (3-76)

TA/OST (FY 78)
N. Getsinger

Patents and Industrial Property Rights Assistance

PROBLEM

The project addresses the problem of the limitations on LDC opportunity for choice and effective utilization of appropriate proprietary technology. This technology, the fruits of research applied to production problems, is most appropriate. Yet it is generally denied to LDCs unwilling or unable to provide the degree of protection for proprietary rights which is the price of its availability. In those cases where proprietary technology is transferred to these LDCs, the price is set at a level high enough to compensate for the high risk to the supplier.

RESPONSE

This project will provide for strengthening the protective environment for employment of industrial property rights including patents and trademarks, licensing and know-how. It thereby stimulates the application of innovative technology transferred from abroad or originated domestically and increases productivity.

The project also provides one of the few opportunities for AID to increase the interest of the U.S. private sector in making resources available for development.

AID will implement the project by a PASA with the United States Patent and Trademark Office of the United States Department of Commerce (USPTO) which has the capability but not the budget or authority for foreign operations of the type envisaged.

DESCRIPTION

Successful development of the project in each country will produce two basic outputs which fulfill the project purpose: (1) formulation, or reformulation, of an appropriate national industrial property rights protection policy in project countries, and (2) establishment of a national industrial property office as a principal instrument for implementation of the formulated policy.

As a pilot project, it will be developed in three developing countries to serve as regional models. A three-year project period will be required to select project countries and implement the project.

Assumptions

There are three major assumptions pertinent to project success: (1) That adequate industrial property rights protection is of basic importance to obtaining the technology, imported from abroad or originated domestically, which is required for rapid development, (2) that LDCs recognize this importance and are willing to accept U.S. assistance in this politically sensitive area, and (3) that willing LDCs will have the capacity to adapt the project-provided technical assistance to their national circumstances in such a way as to establish an effective industrial property rights protection system.

Involvement of International Organizations

The importance of industrial property rights protection to development has been given basic expression in the policies and programs of the World Intellectual Property Organizations (WIPO), an international organization which takes industrial property rights protection as a principal concern. WIPO has conducted limited programs for improvement of industrial property rights protection in a number of LDCs and is currently involved in a long term project in Brazil. In carrying out these projects WIPO has been able to use personnel and funds contributed by the Federal Republic of Germany. WIPO member countries recognize that the LDCs will not receive the full benefit of foreign or indigenous technology unless the owners are assured that their rights will be respected and they will receive adequate compensation.

Host Country Involvement

Establishment of industrial property rights protection is a matter of national law and regulation which depends, in turn, on national attitudes. Although protection is required to encourage the utilization of domestic invention, most of the technology to be applied in LDCs will be foreign technology. In accepting the project, the host country is accepting foreign (U.S.) advice on the establishment of conditions for the import of foreign (primarily U.S.) technology. Furthermore, the alleged threat of foreign capital exploitation is frequently linked by LDCs with technological transfer issues. Selection of project countries will require careful consideration of the degree to which inherent nationalism, within and without the government, would eventually limit involvement in the project.

Another difficulty in the selection of project countries is that of identifying three countries at a level of economic and political development that will permit translation of a willingness to accept the project into effective action to implement it. The countries selected must have reached the stage of economic development at which they can

obtain enough benefit from an input of proprietary technology to make the project worthwhile. Their political system will have to be such that there is assurance of passage, within a reasonable time, of the legislation required to establish the system.

Relationship to Other AID Activities

The project relates to the AID project for standardization and the establishment of standards institutes in LDCs, as well as to the project for establishing LDC agencies for the transfer of technical information. All of these projects contribute to the creation of an environment which enhances the application of technology. The project also complements the AID projects for small industry development by providing for greater access to appropriate industrial technology.

Alternatives

The alternative to building a protective LDC environment for industrial property rights through AID bilateral agreements is the contribution of U.S. resources to WIPO to be incorporated in WIPO directed programs. Bilateral programs of industrial property rights assistance with AID countries provide for greater U.S. control, more U.S. identification, and additional project contributions in countries where the U.S. is striving to achieve a development effect. Direct involvement in a property rights pilot project will also provide valuable information to assist the formulation of the overall U.S. approach to problems and possibilities of technology transfer.

Channeling assistance through WIPO would substantially deny the political benefits cited in the section on "Non-Program Benefits" below. On the other hand, coordination of AID sponsored bilateral programs with WIPO will provide most of the advantage to be obtained by acting through WIPO. Furthermore, if AID is unable to continue support of the project after the project period has expired, project countries will presumably be in a position to turn to WIPO for support in completion of the program.

Benefits to Project Countries

The project will provide a major incentive (i.e., a legal right to exclude competition) to encourage local scientists, inventors, innovators and entrepreneurs to disclose and invest new products and processes useful in the economy. It thereby reduces dependence on costly imported technology and promotes the growth of indigenous technological contributions to development.

At the same time the project provides a legitimate, protected and controlled LDC environment for importation and employment of appropriate proprietary technology available within the private sector of the U.S. and other developed countries. An essential element for rapid development, proprietary technology could be obtained sooner and at a reduced cost because of reduced risk to the supplier.

Direct benefit from application of additional domestic or foreign technology will be obtained by entrepreneurs in the sectors where the technology is applied. The benefit will be proportional to the increase in technological availabilities stimulated by the project. Benefit will not be limited to the manufacturing sector but will involve other sectors of AID interest such as agriculture, energy and health.

Employment and income benefits arising from application of new technology to increase productivity will spread through the economy. Elevation of the level of technological development will provide long-run improvement in living standards.

Non-Program Project Benefits

The project involves technology transfer issues with beneficial political and economic implications for U.S. interests which lie outside AID's immediate program concerns. Among other things, the project will benefit:

The overall U.S. position in the North/South dialogue. Besides directly benefiting the LDCs involved, the project will attract favorable attention among LDCs generally because it is a significant new high-visibility technical assistance program in an area of recognized need where the U.S. can make a significant contribution.

The USG position at the 1978 U.S. National Conference and the 1979 UN Conference on Science and Technology. A successfully launched project of industrial property rights assistance can be pointed to with pride as an important exploratory USAID effort to resolve a major problem of technology transfer. The private sector at the U.S. National Conference will view it as an AID effort to improve the environment for U.S. technology exports. The LDCs at the U.N. Conference may see it as a U.S. effort to establish protection for LDCs against developed technological exploitation.

U.S. negotiation on a "Code of Conduct." The U.S. favors a guidance code for transnational behavior together with the

establishment of rational individual national systems for licensing and control of technology transfer. The model systems to be developed by the project provide practical examples of the feasibility of the U.S. approach.

The U.S. reputation for cooperation with international agencies concerned with development. Step-by-step coordination with WIPO in project development will insure full credit for a concerted approach, and strengthen the position of the U.S. within WIPO.

The U.S. Leadership Position Among Developed Countries. Industrial property rights protection assistance is one of the few categories of development activity where the U.S. has been forced to take a back seat - in this case to the Germans.

The U.S. Interest in Obtaining Greater U.S. Business Involvement in the LDCs. Protection for proprietary technology reduces the risk of foreign activity to U.S. business and permits greater business involvement in support of the development effort.

FINANCIAL REQUIREMENTS

Total A.I.D. cost for the three-year project is estimated at $550,000 in grant funding through a PASA with USPTO. The first year cost of $150,000 will cover activity related to the selection of three project countries and to collaborative planning. The second and third year costs are estimated at $200,000 each year to cover project implementation. Expenditures will be made for staff time and travel. The former is estimated at three man-years for USPTO and three man-months of project supervision for AID.

It is expected that, at the end of the third year, the USPTO team will have completed its work and AID support will no longer be needed. The project will leave behind a viable system of laws and institutions sustained by an appreciation of the need for adequate property rights protection and supported in part by payment of fees for local registration of proprietary technology.

After selection, the project countries will be expected to contribute local costs for USPTO teams involved in project implementation.

DEVELOPMENT OF PROJECT

Role of USPTO

The number of project countries to be included depends on the

personnel resources of USPTO and the preliminary project development plan relates to these resources. The initial year of country selection and project preliminaries will involve much less foreign travel than the second and third years.

In the initial year much of the work will be performed at USPTO in Washington with the workload widely distributed. Officers will visit WIPO in Geneva and subsequently carry out a six-week survey of a group of selected LDCs to determine the status of industrial property rights protection and its relationship to national attitudes and national development. After examination of the results of the initial visit, a second six-week visit is planned, this time to the three identified projects countries to obtain reliable assurances that the host governments understand what is expected of them and are making appropriate preparations for project implementation.

In project year two and project year three, the USPTO teams will make two, one-month implementation visits to each of the three project countries for a total of six months travel each year.

Role of AID

A.I.D. Regional Bureaus and Missions will have to be closely involved. Not only will they assist the USPTO survey teams to render judgments on the suitability of proposed project countries, but they will also provide follow up on project problems between USPTO visits. Project outputs in the form of moderation of national attitudes, the drafting of new legislation and the forming of new institutions will evolve over time and will require tending. USAID Missions in project countries will need to assign an officer who can devote approximately 12 man-days/yr. to monitoring the project and acting as a project point of contact between the host country, AID/W and USPTO.

ISSUES

While it is difficult to relate industrial property rights protection to specific provisions in AID's congressional mandate, the project directly serves the overall U.S. interest in stimulating technology transfer and the involvement of the private sector in the process. In fact, issues involving the transfer of proprietary technology are so tightly bound into the North-South dialogue that a positive USG effort of the nature of this project is justified despite the difficulties indicated in the project's assumptions.

The question might be asked as to whether AID is leaning too heavily on the presumed expertese of another government agency to carry

out overseas a difficult project of a type with which that agency is normally not involved.

Yet the limitations implied by the title - U.S. Patent and Trademarks Office - are misleading, since USPTO offices have long been concerned with issues across the whole range of industrial property rights and not just those related to patents and trademarks. Furthermore, the USPTO officers who will be involved in the project have had field experience under various auspices and are familiar with the general problems and possibilities of LDC utilization of proprietary technology. These officers inherit the accumulated experience of the world's oldest and largest industrial property rights protection agency, and the expertise they bring to technical assistance relates to a system which has contributed importantly to U.S. technological supremacy.

SATISFACTION OF AGENCY SELECTION CRITERIA

The project has been determined to have no environment impact. New production facilities stimulated by the project will offer new opportunities for the employment of women. In addition, the establishment of a new or improved system of industrial property rights protection with related institutions will provide an opportunity to give emphasis to the role of women as inventors, entrepreneurs and administrators.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. ACTION CODE: A = ADD, C = CHANGE, D = DELETE

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST EDA # 36 D

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS): [illegible]-1088

6. BUREAU/OFFICE: a. SYMBOL: TAB; b. CODE: 03

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Involving the Private Sector

8. PROPOSED NEXT DOCUMENT

A. 3 — 2 = PRP, 3 = PP

B. DATE: MM 0 5 YY 7 7

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION

a. INITIAL FY 7 8 b. FINAL FY 8 2

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =

FUNDING SOURCE	$ AMOUNT
a. AID APPROPRIATED	$800
OTHER U.S. 1.	
OTHER U.S. 2.	
c. HOST COUNTRY	
d. OTHER DONOR(S)	
TOTAL	$800

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE: C. GRANT	D. LOAN	D. FIRST FY 1978: F. GRANT	G. LOAN	LIFE OF PROJECT: H. GRANT	I. LOAN
(1)	750	870		$100		$300	
(2)							
(3)							
(4)							
			TOTAL	$100		$300	

SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To facilitate and encourage involvement of LDC and US private sectors in economic development of LDCs through technology transfer.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

Obtain greater involvement of private sector, particularly small enterprises, by establishing tested methods and mechanisms to: 1) Create greater awareness by US small enterprises of opportunities for technology transfer to LDCs. 2) Provide basic information to US small businesses concerning the LDC's technology transfer methodology. 3) Provide incentives for US small business involvement.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

156

AID 1330-2 (3-76)

TA/OST (FY 79)
R. Moeller

P.I.D.

INVOLVING THE PRIVATE SECTOR

PROBLEM

The United States government would like for the private sector to become more involved in using its significant and, to some extent, unique resources to meet the development goals of the developing countries. This sector resists involvement because of a preoccupation with present markets and opportunities, a general perception of unacceptably high risk, and a lack of information and knowledge concerning the multiple facets of international entrepreneurship.

For operational purposes, the Overseas Private Investment Corporation (OPIC) treats small business as any business not on the "Fortune 1,000" list. That definition is valid for purposes of this project. Unlike big business, such as the U.S. based multinationals that operate overseas and in developing countries for reasons of market strategy and production optimization, small business has little immediate incentive to go abroad. Small business has neither the manpower nor the money to devote to the expensive and difficult task of developing business abroad, especially when operations at home in the world's largest market seem to provide the best risk/benefit opportunity.

From a development standpoint, the situation is unfortunate. Small business has historically provided the flexibility and initiative needed to devise solutions to the problems of a developing economy. The collective resources of the small business sector in the U.S. are immense, and because of its diversity, are more likely to be an appropriate source of technology for transfer to developing countries. Furthermore, small business resources are likely to be more welcome in developing countries than large businesses because they do not represent the threatening economic power of corporate giants.

RESPONSE

The proposed project would help solve the problem by establishing a system through which small business will be informed of opportunities for technology transfer to developing countries and of the transfer methodology of the countries. The project would also establish a system for bringing to bear an array of loans, insurance and marketing aids as incentives for small businessmen to take advantage of these opportunities. Aside from a trickle of "import opportunities" appearing in international trade publications, or through dispersed efforts of their investment offices, developing countries have few ways to communicate to potential U.S. suppliers their widespread technology requirements. This project calls for a study of how a computer-based information system could solve this problem and for the creation and testing of such a system.

DESCRIPTION

Inputs of technology opportunity and transfer methodology would be channeled through existing institutions in developing countries. These institutions would charge a fee that would eventually sustain the function but would be subsidized with project funds during a start-up period. Identified opportunities would be stored in a U.S. computer facility leased or owned by public sector entities such as the Appropriate Technology International or the National Technical Information Service (NTIS), or by private corporations such as the Control Data Corporation. Small business seeking to market technology would pay for retrieval of the computerized opportunities at a price designed to cover operational costs.

Initially, and to prove technology market capabilities, the existing system operated by the Department of Commerce for collecting computerized trade opportunities from foreign service posts could be broadened to cover technology opportunities. The information, which is collected on World Trade Directory forms, would include basic data on technology requirements and basic data on the local firm involved. The study would include a method of spreading knowledge of the technology transfer market among potential users, both buyers and sellers. Those who are seeking technology for recognized development purposes would be specifically encouraged to establish access to the system.

The inclination of United States small business not to become involved in technology transfer abroad arises from its perception of an array of disincentives and obstacles. Closing the knowledge gap will provide for some increased transfer, but many potential participants will continue to stay out of the market until they receive further inducements. There are, in fact, a number of applicable incentives already in existence, but they are scattered among various assistance agencies, such as OPIC, Export-Import Bank (EXIM), the Commerce Department, World Bank, and regional development banks. According to these agencies most small businesses are not even aware of these incentives.

The study would determine a way of classifying and gathering the incentives as an attachment to the readout on individual technology opportunities available to the technology seller. The readout would also indicate incentives provided by developing countries for foreign participation in particular areas of technology. The study would also utilize information gained in the previous phase to develop suggestions for incentive rectifications that would be especially applicable to small business and which would fall within the scope of the authority of existing agencies. The final phase of the study would consider how the operations of such agencies as the Appropriate Technology International, the International Executive Service Corps, and the proposed International Industrial Institute and Technology Corps might become sources for yet other incentives for private sector involvement.

Project Phases

The study of technology marketing information could be carried out as Phase I of the project in the first year. The marketing aids study would be accomplished as Phase II in the second year. These

studies would be followed by Phase III, a three-year test application of the systems in one country in each AID region to provide dispersion and maintain regional interest. Certain features of the systems would probably need to be modified and others added as a result of the testing operation.

Assumptions

The major assumptions pertinent to the success of this project are: (1) Small business possesses an important portion of the technology resources of the private sector, many of which are appropriate to the needs of AID supported countries. (2) Technology needs in developing countries can be collected and computerized for access by U.S. small business. (3) If small business becomes aware of genuine opportunities for involvement in technology transfer, businessmen will want to take advantage of them. (4) Development institutions have authority to provide sufficient inducement in the form of credit, insurance and marketing aids to persuade a significant number of small businesses to transfer technology.

Host Country Government Activities

The government of the host country would collect, classify and enter into computers the information about technology opportunities. Given the manifest desire of developing countries to acquire appropriate technology on reasonable terms, the host government can be expected to cooperate with a project designed to enhance the possibility of this occurring. Government endorsement should ensure local industry cooperation in achieving the purposes of the study. During the subsequent test period, the host government would be expected to assign an agency, either public or private, with the responsibility of spreading knowledge about the possibility of obtaining technology, and of gathering the required information from potential technology users whose requirements lie in the designated development categories.

AID Related Projects

The project's purpose of increasing a market for small business technology relates to other AID efforts to increase technology transfer. It was indicated above that the project interest in increasing incentives is relevant to the goals of development institutions receiving AID support, such as Appropriate Technology International. It also relates to current AID projects such as (1) the project with NTIS to provide technology information to developing countries, (2) the project to establish Small Enterprise Development, (3) the project with the National Bureau of Standards to increase the effectiveness of Standards Institutions, and to the new proposed projects for Industrial Property Rights Protection and a world conference on small business development. In addition, this project supports AID's general strategy of encouraging agriculture-associated businesses and of promoting off-farm employment.

Project Alternatives

The project approaches the problem of building a commercial technology exchange from both sides of the market--supply and demand, but it makes no

effort to directly influence the market environment in developing countries. It is obviously important to establish a good climate for foreign participation in developing countries. Lack of a good climate is the largest single obstacle to private sector involvement. Creation of a favorable climate is a long range goal to be pursued through many channels with modification of national legislation and national attitudes. This project, on the other hand, seeks to establish systems by using existing techniques and operating largely within the constraints of existing organizations.

The purpose of this project is to establish effective mechanisms for attracting United States small business to apply their resources in the development process in developing countries. Other alternatives considered are more traditional advertising techniques in general and specialized publications, government sponsored information bulletins and other less systematic methods. When the criteria of easy access, quick response, complete information bank, reasonable cost, and potential for broad technological and geographical coverage are combined, the proposed project appears to be the superior alternative.

Major Beneficiaries

When U.S. based multinationals choose a partner in developing countries for a joint venture or license, they invariably select from among the largest indigenous enterprises. This project aims at the smaller enterprises which would normally have difficulty establishing connections with U.S. technology suppliers. Successful involvement of U.S. small business should be a strong development tactic with secondary benefits to the entire economy of a developing country.

If the project is successful in creating an enlarged technology exchange between the most technologically advanced nation and some of the least developed, the project techniques can be applied widely elsewhere between the developed and developing countries. If the project studies are well advanced early in 1979, the project could be included on the list of efforts the U.S. will take to the U.N. conference on Science and Technology scheduled for 1979.

FINANCE REQUIREMENTS AND PLANS

Based on the cost of previous studies, the first and second year study is estimated at $100,000 in each year. The initial AID expenditure totaling $200,000 would take place in FY 1978-79 as Phase I of the project. The succeeding three-year pilot project, Phase II, is estimated at $200,000 a year for three years (FY 1980-82).

At this time the pilot project cost figures are not firm. If the condition of AID funding requires, the scope of this pilot project could be reduced. Host countries can be expected to support local costs of study team visits and the cost of establishing an agency for marketing technology opportunity.

If the initial phase of the study shows promise, it might be possible to obtain additional funding for portions of the later phase from other donors such as the development banks.

DEVELOPMENT OF THE PROJECT

The two proposed studies are closely related but not interdependent. The studies would probably be done by a university or an independent research institute with applicable experience. The study of a technology marketing information system study would involve accumulation of material both in the U.S. and in developing countries. In the U.S., contacts would include the U.S. information industry and government agencies as sources for information systems design. U.S. business firms and organizations would be approached for judgments on the utility of the information systems. In the developing countries, contact would be made with government and private organizations, and with individuals potentially involved in supplying technology requirements. The assistance and advice of AID Missions and Foreign Service personnel would also be sought.

Since the scope of possible technology exchange is very wide, the study of actual system utilization potential would concentrate on a single area of AID concern, such as agribusiness and support technology. Business community contacts would focus on, but not be limited to, buyers and sellers of agribusiness and support technology, and their reaction to the proposed system would be carefully monitored.

The study of incentives would take place mostly within the U.S. since it is concerned with motivating U.S. participants. In addition to development institutions, the study would include a review of AID experience in its investment and industry programs. Some travel would be involved to investigate possible incentives to be provided by regional development institutions and by the governments of developing countries.

The study of the effectiveness of a given group of incentives in stimulating small business activity in technology transfer would also concentrate on a particular technology transfer area. A useful area would be one known to be of interest to the developing countries; namely, the manufacture and export of products not considered generally competitive with production in the U.S. and admissible to the U.S. without duty. The list of products would be drawn from the U.S. General and Specialized Preference List which has been designed to permit growth of exports from developing countries.

Phase I of the project would involve above normal supervision by the AID project manager who would conduct an extensive quarterly review with the contractor to examine methodology and results and to determine possible modifications in the study pattern.

Phase I results would be carefully evaluated and a determination made to continue or terminate the project.

ISSUES

There are no identifiable major issues associated with this project.

SATISFACTION OF CRITERIA

As a study and information transfer program, this project will have little or no direct environmental impact. A successfully developed efficient technology transfer mechanism could also be applied to the transfer of environmental control technology.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 36 Type No. D

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1205

6. BUREAU/OFFICE: SYMBOL TAB; B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Dev Center - Feasibility Study

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM 07 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 79

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	75
B. OTHER U.S. 1.	
B. OTHER U.S. 2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	75

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	750	890		75		75	
(2)							
(3)							
(4)							
			TOTAL	75		75	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To determine feasibility of establishing a Center for Small Enterprise and Rural Development to support AID programs.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To examine the need for a (center to promote better understanding of the process of establishing and nurturing small enterprises primarily in the rural environment. Such a Center would be concerned with the generation of employment among the "poor majority" through prog rams of research, assistance, information, and training.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry H. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

163

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST (FY 79)
R. Moeller PID

Development Center - Feasibility Center

PROBLEM: Expanded small industry and enhanced rural development are two of the most pervasive needs of the developing countries. In most developing countries, small enterprises make up the bulk of industrial enterprises. The magnitude of the small enterprise sector in any country can be measured in terms of the number of small-scale plants, number of employees, capital investments, value added by manufacture, and by other criteria. In the Philippines, about 90% of all industries are small enterprise, in Colombia, only 20% to 25% of workers are in enterprises employing over 100 workers; and a survey in Nigeria, revealed more than 30,000 small enterprises in five states. In rural areas, the preponderance of these activities are closely related to the agricultural sector, including food processing, agro-industries, and supporting service enterprises.

Small size and limited resources are the most common characteristics of agricultural enterprises and other industries in developing countries, especially in the rural areas. These characteristics inhibit problem solving, growth, current awareness of changing market and price factors, new processes and procedures, advances in technology, and many other factors on which enterprise success ultimately depends. Assistance must be provided from some external source if these barriers are to be overcome.

RESPONSE: AID has specific activity foci -- agriculture, health, education, and population -- within an overall framework of assisting the poor majority. Although the poor in developing countries are in both rural and urban areas, the majority live in rural areas at the minimal subsistance level. They have few options, except perhaps to move to the urban centers in hope of finding some sort of employment there.

How can the lot of the poor majority in the rural areas of developing countries be improved? The approaches are not simple because rural sectors are part of a complex economic system with many interrelated problems.

One basic approach to rural development should focus on developing employment opportunities in that sector. With increased employment will come more and better distributed income. The rural areas are largely agricultural and increased employment

opportunities must stem largely from this base and branch out to related manufacturing, processing, repair, trade, and service activities necessary to round out a rural economy.

The External Advisory Committee (See attached membership list) associated with the Georgia Tech 211(d) grant has recommended that a Center for Small Enterprise and Rural Development be established which would build upon the considerable expertise already developed at Georgia Tech through AID funding. Such a center might serve AID and other organizations concerned with using appropriate technology to help the poor majority in rural areas of the developing countries.

A preliminary examination of this suggestion has brought out a concept and objectives. Under this concept, the Center for Small Enterprise and Rural Development would deal with the problems of establishing small rural enterprises and would help enterprises expand and diversify, thereby increasing employment. It would concern itself with principles and alternative methodologies for rural development. It would be primarily oriented to action programs and results, but would also focus on better understanding the processes by which enterprise and rural development can, in time, improve the income and employment conditions of the poor majority. It would implement programs of research, assistance, information, and training. It would work with a worldwide network of cooperating and communicating organizations to ensure diffusion and widespread application of technology.

The objectives associated with this concept are:

1. To better understand the processes of establishing and nurturing small enterprises through research and development, and to establish a body of knowledge on the subject.

2. To respond to the needs and interests of developing countries for small enterprise and rural development.

3. To promote employment and improve income distribution for the poor majority.

4. To support AID programs in developing countries through a flexible response mechanism.

5. To provide continuity of programs to substantially increase rural development and small enterprise.

6. To augment and have available a highly qualified and motivated staff with consultant organizations available on call.

7. To accumulate, disseminate, and utilize technology for small industry and rural development.

8. To disseminate curriculum development and training programs utilizing experience gained at the Center.

9. To more effectively utilize the AID investment in U.S. institutional capabilities in small enterprise and rural development in developing countries.

These objectives would be met by engaging in various combinations of research, technical assistance, training, information dissemination, and management activities in the areas of marketing, finance, personnel, economics, production, and distribution. These general activities would be performed as specific tasks and services provided to enterprises and government agencies.

The feasibility of such a concept needs to be explored from the viewpoint of the need for such a Center, the support such a Center could provide AID and other organizations, how it might function, the nature of the Center's activities, and the results which the Center might achieve.

DESCRIPTION: This project consists of a one year feasibility study, and would be conducted in three phases:

A study of the needs of developing countries in the area of small enterprise development and off-farm employment generation. Input from AID Missions will be required along with recently reported experience in this field from U.S. and international sources.

A feasibility study of a Center to assist in supplying the identified needs. This part will consider such matters as concept functions, organization, required resources, potential clients, location and operational methods. The principal inputs would consist of AID Mission advice and specific, recently acquired experience from current projects.

A set of preliminary recommendations to be formulated from the results of phases 1 and 2 of the studies. These recommendations would be reviewed by a panel, such as the External Advisory Committee referred to above, convened to study the results and advise the study team on final recommendations.

It is assumed that the number and complexities of problems associated with small enterprise and rural development are not amenable to quick resolution. It is also assumed that a centralized accumulation of knowledge and experience by a multidisciplinary staff could provide support to the isolated projects now being conducted in many locations by many organizations. The feasibility study will examine, among other aspects, the validity of these assumptions.

No direct participation by developing countries is anticipated in the feasibility study except as possible information sources. Two alternatives to the suggested feasibility study are to do nothing or to launch directly into the creation of a Center. The preliminary conceptual examination of the External Review Committee recommendation indicates sufficient merit to warrant a more detailed and formal examination. The complex interrelationships that are involved must be more broadly understood, documented, and disseminated before the success of a Center for Small Enterprise and Rural Development can be reasonably assured.

FINANCIAL REQUIREMENTS: A one-year budget of $75,000 in FY 1979 is proposed. This should provide a comprehensive analysis of the project feasibility and potential impact. If the project appears feasible, additional funding from other international organizations may be desirable to establish the Center.

PROJECT DEVELOPMENT: This project is based upon the present capabilities developed under existing AID projects involving a worldwide network of organizations that cooperate with U.S. institutions. As a result, project development effort would be nominal. A more detailed costing of the feasibility study will be required as well as a finer delineation of the project scope, activities, and end products.

ISSUES: No major issues have been identified.

SATISFACTION OF AGENCY SELECTION CRITERIA: This project would assist the off-farm employment of the rural poor majority in developing countries by fostering small enterprises with a low capital/labor ratio. By increasing off-farm employment opportunities in rural areas, it is expected to specifically increase the formal employment opportunities for women.

This project consists of a feasibility study and hence will have no direct impact on the environment. A negative determination on environmental impact is recommended.

EXTERNAL ADVISORY COMMITTEE

A.I.D. 211(d) Grant

Members	Alternates
Henry Arnold Director Office of Science and Technology Agency for International Development Department of State Washington, D. C. 20523	
E. T. Cranch, Dean of Engineering Cornell University Ithaca, New York 14850	Franklin J. Ahimaz Cornell University Ithaca, New York 14850
Vernon Crawford Vice President for Academic Affairs Georgia Institute of Technology Atlanta, Georgia 30332	Walter Bloom Assoc. V.P. for Academic Affairs Georgia Institute of Technology Atlanta, Georgia 30332
Ross W. Hammond, Director Economic Development Laboratory Engineering Experiment Station Georgia Institute of Technology Atlanta, Georgia 30332	Nelson Wall, Chief International Programs Div. (EDL) Engineering Experiment Station Georgia Institute of Technology Atlanta, Georgia 30332
Hahn Been Lee 111 Daishin Dong Seoul, Korea 120	Louis J. Goodman Technology and Development Institu The East-West Center Honolulu, Hawaii 96822
William Roseborough Office of Science and Technology Agency for International Development Department of State Washington, D. C. 20523	
Ted Davis International Bank for Reconstruction and Development 1818 H Street, N. W. Washington, D. C. 20433	
Hugh Miller National Academy of Engineering 2100 Pennsylvania Avenue Washington, D. C. 20418	
Joseph M. Pettit, President Georgia Institute of Technology Atlanta, Georgia 30332	
Jack Johnson University of Arizona Tucson, Arizona 85719	

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A = ADD, C = CHANGE, D = DELETE — A

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 36 Type No.

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1206

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): LDC-IRI Contract Research Network

8. PROPOSED NEXT DOCUMENT

A. 3 — 2 = PRP, 3 = PP

B. DATE: MM 09 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION

a. INITIAL FY 79 b. FINAL FY 83

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	2100
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	2100

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 79 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1) SD	750	870		210		2100	
(2)							
(3)							
(4)							
			TOTAL	210		2100	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

Strengthen capability of LDCs to meet technological needs associated with their developing economics.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

Verify that LDC-Industrial Research Institute can serve country and regional needs more effectively through regional networks sharing resources on a contractual basis, and assist in creation of a viable contract research capability in the South East Asian region.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENT DATE OF DISTRIBUTION: MM DD YY

169

AID 1330-2 (3-76)

TA/OST (FY 79)
R. Moeller PID

LDC-INDUSTRIAL RESEARCH INSTITUTE CONTRACT RESEARCH NETWORK

PROBLEM

Economic development strains the capacity of developing countries to provide well-founded guidance to productive enterprises and public institutions. These countries frequently are obliged to turn to the developed world or to international institutions for investigation of technical options, for feasibility studies, project design, market surveys, etc. Their institutions are capable of performing many of these services themselves, but most do not have the full range of capabilities. In particular, the capacity to organize research projects that use services subcontracted from various instututions is poorly developed; hence most broadly based major studies required for the development of the countries are performed by consultants from the developed world. With the best paid consulting work drained off by established firms based in the industrialized countries, industrial research institutes in developing countries remain largely dependent on government subsidies. They have little experience in consulting work as an economically viable activity, and therefore miss the opportunity to develop their range of services in response to economic incentives.

RESPONSE

This project tests the hypothesis that industrial research institutes in developing countries can pool their resources to offer a wider range of useful services to clients within their countries, become more competitive with international consulting firms, to tap a wider market for their product, and so receive the benefits enjoyed by successful contract research firms. These benefits are expected to provide the incentive and the means for further improvement of the services offered by participating research institutes. The location selected for the project is the ASEAN countries of Southeast Asia (Indonesia, Malaysia, the Philippines, Singapore and Thailand).

DESCRIPTION

The project assists participating research institutes in two principal ways: (1) by facilitating and strengthening their steps toward collaboration, and (2) by in-service training of institute management and staff, particularly in project and proposal preparation which has been a severe constraint to their becoming more competitive with outside consulting firms. The project should leave participating institutes with substantially strengthened marketing skills, ties with clients and potential clients, familiarity with

and ability to draw on the capabilities of other ASEAN institutes which complement their own, and ability to perform on contracts. At the conclusion of the project, participating institutes should have established procedures for calling on each other in joint research ventures. The network should have generated a record of appropriate technologies successfully applied to local problems.

The Thai industrial research insititute ASRCT now acts as secretariat for the collaborative network among ASEAN institutes. During this AID-supported project, each of the five ASEAN countries would provide administrative support to the network coordinator's office for one year. Thereby, each insitute would have a heightened opportunity, commensurate with the level of staff support it provided to the coordinator's office, to train and orient personnel who could subsequently direct their contract research activities.

ASEAN is attractive as the site of this first test because of the political climate favoring cooperation among institutions of the member countries. Also the stage and pace of development of member countries assures healthy growth in demand for the services these institutes offer. The proposed network is free of serious imbalances among the partners and the potentially participating institutes can collectively offer a reasonable spectrum of quality services, although they lack the managerial experience to assemble projects from subcontracted parts. They also lack the experience to prepare proposals, to market their services effectively, and to guide collaborative projects to completion. This project can remedy these weaknesses at reasonable cost.

Other approaches to strengthening the capabilities of industrial research institutes have been tried and some are in progress. This approach differs from the others in that it reaches toward an incentive mechanism which promises to couple the growth of these institutes with the technical needs of their countries. This mechanism is simply the economic incentive of a fee for service. Once the participating institutes, through collaborative effort, have reached a level at which they can compete for contracts, the prospect of financial viability would carry them on to greater technical capability. By combining their resources on a regional basis, the institutes will offer greater services than possible by any single institute.

The spread effects sought from this project are to substantially strengthen all systems of consulting services in the member countries i.e., to support both the private and public sectors in analysis of technical and managerial problems, feasibility studies, project design, and in economic, social, and technical research. Additionally the project should stimulate cooperation among ASEAN countries.

FINANCIAL REQUIREMENTS

The financial requirements of this project, budgeted at $2,122,348 over the 5-year life of the project, are solely related to the services provided by U.S. professionals to support the coordinator's office--their support at project headquarters, travel and related expense, insurance, and so on. The 5-year budget amounts to an annual assistance level averaging $85,000 for each of the five participating countries. It is expected that the host countries will administratively support the coordinator's office in their turn.

PROJECT DEVELOPMENT

This project concept developed out of discussions with the top management of the ASEAN-based research institutes which are the potential charter members of the network. All government-sponsored, they participated in earlier projects. In hosting a symposium for research institute managers in September 1976 the Thai introduced the concept of collaborative contract research as a major topic for consideration. It won general approval and a Thai commitment to provide initial facilities for the network coordinator.

The proposed project requires two full-time professionals attached to the network coordinator's office for each of the project's five years, and a half-time professional and 1.5 months of secretarial services at the contractor's headquarters for the same period, together with administrative support services.

ISSUES

The projects in the technology transfer cluster fall outside the principal target area the Agency has identified as central to the problems of the poor majority. As such, they command a lower level of Agency resources than health, nutrition, and population programs. However, like others in the cluster, this project has been selected for compelling reasons. First, some level of industrial development is appropriate and necessary even in rural-based development strategies that emphasize agriculture and labor-intensive technologies, and foreign assistance can help developing countries direct their industries into a constructive role. This project would strengthen the institutions that can help optimize the return from resources devoted to industrial development. Second, the project responds to a need perceived by the countries receiving aid. At the political level, many of them are expressing this need as a demand for technology transfer. Nothing is more important in nurturing confidence in the AID program as a whole than that the Agency heed these unmistakably sincere cries not just for technical, but also for technological assistance. Finally, it should be noted that the impact of the project is by no means limited to the industrial sector mentioned above. The role sought for the industrial research institutes participating in the proposed project is that of a broad-gauge consulting firm

in the developed world. Thus the expertise they accumulate will ultimately be brought to bear on all sectors of the economy to increase overall development.

SATISFACTION OF AGENCY SELECTION CRITERIA

TA/OST currently supports another project that contributes directly to strengthening industrial research institutes . As a follow-on to a short-term training project for research institute managers, it provides technical assistance and small grants to institutes to upgrade their services and to focus more effectively on the development needs of their countries. The present project builds on this foundation to prepare research institutes that are ready for the vital step into self-sustaining growth through contract work.

Because this project is concerned with transferring knowledge and skills, it will have no direct effect on the environment. Rather, it is to be expected that the improved availability of indigenous consulting services will increase the capacity of the participating countries to measure environmental impact along with other aspects in the course of evaluating development projects. Thus, the activity should foster improved capability in reaching environmentally sound decisions regarding development. A negative determination is recommended.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

2. DOCUMENT CODE: PID 1

3. COUNTRY/ENTITY: /OST, RDA # 36 : Type # 10

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1207

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Tech. Info. Transfer System

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE: MM 07 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 81

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	$000
A. AID APPROPRIATED	500
B. OTHER U.S. 1.	
B. OTHER U.S. 2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	500

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
SD	750	874		100		500	
			TOTAL	100		500	

SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

PROJECT GOAL (MAXIMUM 240 CHARACTERS)

Provide LDCs with greater opportunity to choose and transfer appropriate technology through increased access to US S&T and through adaptation of advanced technology to Info Transfer (STI).

PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

1. Increase opportunity for LDC choice of appropriate STI by developing a system for centralized LDC access to STI in the US public domain but not in NTIS data base. 2. Facilitiate and expedite STI transfer by assisting LDCs to adopt advanced information techniques to their handling of STI. This project will support US policy on North-South dialog.

PLANNING RESOURCE REQUIREMENTS (in man/months)

18. ORIGINATING OFFICE CLEARANCE

Name: Henry A. Arnold

Director, TA/OST

Date Signed: MM DD YY

174

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

1330-2 (3-76)

TA/OST (FY 79)
N. Getsinger - PID

TECHNOLOGY INFORMATION TRANSFER SYSTEM

PROBLEM

Developing countries need greater opportunity to select, obtain and adapt available appropriate technology to assist in their development and to improve the quality of life of their poor majority.

RESPONSE

The problem can be approached by increasing developing countries access to U.S. Science and Technology Information (STI) and by applying advanced information handling technology to its transfer. The project would fulfill a basic principle in the declaration of the "Programme of Action" adopted at the Sixth Special Session of the UN General Assembly which calls for "access of developing countries to the achievements of modern science and technology, promotion of the transfer of technology and creation of indigenous technology for the benefit of the developing countries." The project is also a logical first step toward satisfying the UN objective of a worldwide technical information exchange and it strengthens the US position in the continuing North-South dialogue.

DESCRIPTION

A current AID pilot project with the National Technical Information Service (NTIS) provides developing countries access to the large collection of STI stored by NTIS, mostly the result of US Government research and development. One output of the project would be to broaden the STI available to developing countries by identifying and making accessible the large amount of appropriate STI which lies in the public domain but outside the NTIS collection. This includes the Smithsonian Institute Science Information Exchange, covering research in progress, and Department of Agriculture information on rural development. Useful non-proprietary STI in the private sector, unlisted with NTIS, includes information products of business institutions, nonprofit organizations and universities. The survey would be conducted by a PASA with NTIS or a contract with one of the private sector STI companies.

A second output would be a tested operating Center to serve as an intermediary for access to STI collections established in the first phase. The Center would be established by a PASA with NTIS which, in addition to operating an information system supplying some STI to developing countries, would maintain a unique position as a nonprofit, cost-recovery dispenser of STI. The NTIS data base would be expanded to incorporate indices of all appropriate,

available STI collections. No attempt will be made initially to incorporate the additional STI itself in the NTIS data base. The Center would accept orders for all items, charge the developing country drawing account, send mailing instructions to the appropriate supplying agency and credit the supplier's account with the Center. The Center would also report electronically on document searches and document summaries to information centers with on-line terminals.

The third output would be established utilization by national or regional information centers of advanced technology for access, storage, retrieval, and reproduction of STI. This would result from a study of technical information requirements in developing countries. The study's recommendations for installing information handling equipment representing the current state of the art would be implemented. Emphasis would be placed upon using on-line access to the U.S. Center, microforms for document reproduction, and computers for storage of appropriate imported portions of STI data bases.

Developing countries selected for the study must have demonstrated strong needs for STI. A properly equipped country could act as a regional center capable of storing STI elements commonly used in its own data base. The UN-supported regional technical information center in Bangkok is an obvious candidate for a regional technical information center under this project. India would be a region in itself, with access to the U.S. Center through a central terminal in New Delhi connected to subterminals in Calcutta, Bombay and Madras.

The study is expected to demonstrate that the cost of applying technology to technology information transfer in developing countries is not prohibitive if the STI demand is enough to ensure a high usage rate for the equipment. The cost of equipment which substitutes electronic and microform information for airmailed hard copy would be largely offset by savings from speedy delivery of STI for production planning and by savings on postage. Local computer storage of items on high demand would also represent savings.

Phases

This 3-year project contains three successive phases, each a year's duration. The phases are interrelated but not interdependent. Each individually supports the project's purposes and contributes to the project's objective. Disbursement would be by three annual contracts.

Assumptions

The major assumptions pertinent to the success of the project are: (1) In the United States there is a mass of untapped, appropriate STI that can be made centrally accessible to developing countries. (2) Developing countries can use advanced information-handling technology to expedite the transfer of appropriate STI and thereby accelerate the development process.

United Nations

For two years the United Nations, through a Task Force of its Office of Science and Technology, has been struggling to implement a General Assembly mandate to prepare a plan for the establishment of a worldwide network for the exchange of technological information. The General Assembly further directed (XXXI - 31/183) that this preparation be carried out by: (1) ascertaining capabilities at national, regional and international levels in terms of information sources, means of access to information and information-related services; and (2) identifying deficiencies that might inhibit setting up the network. The Task Force noted that its preparation will have to take into account(1) efforts underway to establish UNIDO's Industrial Technological Information Banks, and (2) the role of regional centers being established by UNCTAD for transfer and development of technology.

Unfortunately the UN effort has too broad a purpose and too little funding. Fortunately the proposed project coincides with the purpose at a practical level of achievement. The project would be implemented in coordination with whatever UN efforts are underway at the time of project execution.

It would be advantageous if the project could demonstrate some accomplishment prior to presentation of the U.S. position at the UN Conference on Science and Technology in Development scheduled for 1979. Item 2(c) of its agenda calls for a discussion of "Mechanisms for the exchange of scientific and technical information and experiences significant to development."

Host Country Participation

Host country activities will relate only to the project's third phase. It is expected that both the host governments and the information agencies now cooperating with NTIS in STI distribution will welcome and facilitate a survey of their technical information-handling systems with a view to obtaining recommendations for technical improvements. The survey and recommendations are a logical follow-on to the AID NTIS project which provided the developing countries with their first organized, but more limited, access to STI.

Alternatives

The only alternative to establishing a centralized index point for processing STI orders is to let the buyer find the suppliers by random encounter, or to encourage the individual suppliers and their brokers to conduct a market investigation. Neither is a practical alternative to the project method.

Direct benefits through employment and income will be obtained by project countries to the extent that the technology information is used to increase production-either industrial or agricultural. Substitution of imported

technical information for that which could be obtained from domestic R&D represents a domestic resource saving. Elevation of the national technological standard through absorption of transferred technical information will give rise to further demands for higher level technology with resultant economic growth.

Technology information in reproducible form would be widely dispersed in contrast to technical information in the head of a technical advisor. Because it provides the widest possible range of choice and much more timely delivery of technical information required by the developing country, this project provides the best guarantee for the transfer of appropriate technology.

FINANCIAL REQUIREMENTS AND PLANS

The three distinct 1-year phases of the project are estimated to cost $100,000, $200,000, and $200,000 respectively. Actual costs for the first two phases may be less because no foreign travel is involved. Adequate coverage of the third phase may be more expensive. Information technology will advance rapidly during the first two years of the project and success may make it desirable to spread the increased access capability of the third phase over a much larger group of developing countries.

The $500,000 total represents only AID grant expenditures. In the third phase, the developing countries will be expected to pay local costs for the equipment survey teams. The success of the third phase will also depend on the willingness of the project countries to pay for the technical equipment recommended to them.

DEVELOPMENT OF THE PROJECT

The first phase survey of available appropriate technology is open-ended to the extent that there is no information on the total number or location of possibly appropriate STI collections in the United States. Determination of the degree to which each collection, once identified, is appropriate, will require close examination of the collection contents and establishment of guidelines of appropriateness based on STI transfer experience to data.

The second phase, with its establishment of a reference center providing access to the STI identified in phase one, will require intensive planning and some trial-and-error processes for handling of orders, document search and central accounting. This phase is less complex than either of the others because it involves refining and modifying, within a single agency, procedures such as those now used in the AID/NTIS project for the transfer of technical information.

The third phase, with its technical assistance in the upgrading of information handling in project countries, is the most demanding in terms of the competence of contract personnel. Contract personnel will have to combine technical skill and experience with an ability to relate to the emerging problems of the developing communicators, plus a personal persuasiveness which will insure the purchase of equipment appropriate to the project.

The third phase is not closely dependent on the information availability and access established in the first two phases. It is possible that the information needs in one or two potential project countries are, or soon will be, ready for economic application of more advanced information equipment. Beginning this phase earlier would prevent a wider gap in information handling techniques and permit phased application of scarce technical skills.

The third phase will require coordination with regional bureaus and missions in selecting project countries and coordinating field visits.

BROAD ISSUES

It would not be possible to achieve the project purpose without involving NTIS, at least in establishing the STI Center. Congress has given NTIS the responsibility for collecting and disseminating information generated by U.S. Government R&D. NTIS maintains the world's largest collection of STI and has already been involved for four years in a project to resolve the problems of providing developing countries access to that collection. No other U.S. entity has any considerable experience in this type of operation. Any other U.S. agency that would undertake phase two would have to work through NTIS.

The same restriction on freedom of choice of contractors does not apply to phases one and three. NTIS experience would be helpful in determining appropriateness of, and establishing access to, STI identified in phase one, but it is not essential.

NTIS would also act effectively in phase three because it has already established the network of cooperating agencies for STI transfer to developing countries which would be involved in this phase. Moreover, NTIS operations are facilitated in these countries because NTIS is a non-exploitive, non-profit US Government agency involved in the politically sensitive area of technology transfer. There is some advantage, however, in AID's obtaining the benefit of a fresh view on the problems of technical information transfer which could be obtained from a systems specialist such as Control Data Corporation or Systems Development Corporation.

ISSUES

There are no presently identified major issues associated with this project.

SATISFACTION OF AGENCY SELECTION CRITERIA

This project will have no adverse environmental effect. It is particularly appropriate for advancing the role of women. It involves library science and information handling systems, both of which employ women extensively. Contracts and PASAs associated with the project will emphasize AID's interest in developing this aspect of project performance both in the U.S. and abroad.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA #-36 Type No. 10

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1208

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Tech. Dev. Corp. Feasibility Study

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM YY 0 9 7 7

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 7 9; b. FINAL FY 7 9

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	190

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	750	870		190		190	
(2)							
(3)							
(4)							
			TOTAL	190		190	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To facilitate & encourage involvement of LDC & US private sectors in economic development of LDCs through technology transfer

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

Make a feasibility study of the concept of the Technology Development Corp., an institution to be created to aid in development & application of technology in LDCs, incorporating direct participation by US private sector, & possibly by other developed countries.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold (181)

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST (FY 79)
N. Getsinger-PID

TECHNOLOGY DEVELOPMENT CORPORATION FEASIBILITY STUDY

PROBLEM

Developing countries need greater opportunity to obtain appropriate technology through technology-related investment by the private sector of developed countries.

RESPONSE

This project would be a study to establish the feasibility of a Technology Development Corporation (TDC), an institution to be created to aid in the development and application of technology in developing countries, to mobilize private capital, in combination with lending institutions, for technology-related investment in developing countries. The study would also determine the procedures necessary for formation of the TDC.

DESCRIPTION

The first phase would be a pre-feasibility study in which reactions to the concept of a TDC would be obtained from several banks and multinational corporations (MNC) and from relevant U.S. government agencies. On the basis of their reactions an adjusted concept would be prepared. Agencies surveyed in Phase I would be resurveyed in Phase II. Phase II would obtain the opinions of a much wider group of public and private entities, including MNCs, in both the U.S. and Europe, which have investment experience in developing countries. Opinions would also be sought from international lending institutions, including regional development banks, and private development institutions such as the Latin-American privately financed investment consortium, ADELA, and the German Development Company (DEG).

Assumptions

Although the desirability of increased involvement of the developed country private sector through investment in the developing countries has long been known, it is assumed that MNCs are now more interested in enhancing their international reputation by association with the establishing of a Technology Development Corporation which would assist the transfer of much-needed appropriate technology. A related assumption is that a US-based TDC, financed by the MNCs, coordinating with domestic and foreign lending institutions, and enjoying the support and incentives provided by home and host governments, will be able to find profitable opportunities for technology-related pilot investments in developing countries. Investment in a joint venture, bringing both managerial and production skills, is the most desirable vehicle for technology transfer.

In order to develop a clear relationship between the TDC concept and AID mandated areas, Phase I and II studies would try to determine the feasibility of TDC pilot investments in technology transfer involving health, nutrition, education, rural employment, and economic welfare. Since the project is concerned with feasibility of an investment mechanism which would invest across the whole spectrum of technology transfer, it is impossible to determine the most probable beneficiaries with any precision. However, the TDC operation would have a spread effect insofar as it involves pilot investments which introduce technology new to the host country.

FINANCIAL REQUIREMENTS AND PLANS

The Phase I pre-feasibility study would require approximately six months and $60,000. The Phase II full-feasibility study would require a year and approximately $190,000. While AID would assume funding for Phase I, co-sponsorship of Phase II with others, presumably interested in the study, such as OPIC, the World Bank and the multinationals, would be sought. Their involvement would improve the prospect for a favorable outcome. Host countries in Phase II would be expected to support a substantial portion of local expense for the survey team.

DEVELOPMENT OF PROJECT

The pre-feasibility and full-feasibility studies would require a highly qualified, prestigious contractor with a strong background in business, experience with developing country problems, and entrepreneurial imagination to conceptualize a TDC which can play a new role in technology transfer.

The most feasible way to develop and test the TDC concept is to use the technique of selective interviewing. AID sponsorship will help to open the doors through which the contractor must pass. Approval of the TDC concept by those interviewed would, in some cases, indicate the possibility of financial interest and help to establish the basis for recommendations on ways and means to organize the TDC.

Five developing countries would be visited in Phase II. Under sponsorship of AID Missions, the study group would contact public and private sector individuals and organizations interested in technology-related foreign investment. In addition to obtaining host country reactions to the TDC concept, the study group would be expected to obtain indications of the categories and types of investment required.

ISSUES

Sponsorship of projects to involve the private sector raises questions of propriety in relation to AID's traditional role. AID is directly involved in the process of technology transfer and quite properly concerned with sponsoring projects which explore new approaches to technology transfer. The sooner the business community can be involved in technology transfer, the earlier AID can reallocate its resources to assist other, probably poorer, countries.

The TDC concept may well be an idea whose time has come but it requires an organization with the authority of AID to conduct an investigation that would give it form and substance. Achievement of the project goal would support the U.S. government position on one of the most important issues in the North-South dialogue because TDC will provide a discreet channel for US private sector involvement in technology transfer.

The question arises as to AID's role after the study has established the feasibility of TDC. The study opens the possibility of a second project, a logical follow-on, in which AID, and perhaps State or the World Bank, could play a supportive role in the actual formation of a TDC. The U.S. government has an interest in assisting in establishing a partner in development which can assist the government (including AID) in carrying out its goals in developing countries. However, the lead role in a TDC formation would be assumed by the combination of corporate enterprises which would be expected to share responsibility.

SATISFACTION OF AGENCY SELECTION CRITERIA

This project consists of a feasibility study and hence will have no direct impact on the environment.

9957
BUILDING SCIENTIFIC AND
TECHNOLOGICAL INFRASTRUCTURE

NARRATIVE

BUILDING SCIENTIFIC AND TECHNOLOGICAL INFRASTRUCTURE

The transfer and development of technology has become an increasingly significant issue in North-South political and economic relationships. Developing countries contend that access to the technology of industrialized nations under preferential terms is essential if they are to leapfrog the evolutionary steps historically associated with economic growth. The U.S. is severely constrained by the fact that most of its technology is proprietary and therefore it cannot regulate the terms and conditions of industrial property transfer. Partly to offset this constraint, high priority is attached to technology development in the LDC's. By helping to build a scientific and technological infrastructure, the U.S. can enable a country to make informed choices in securing, adapting and utilizing known technologies and gradually to generate technologies which reduce foreign dependence.

Our cluster objective thus is to support empirically tested methods of building an infrastructure of sound scientific and technological institutions appropriate to each developing country's development goals and requirements. These institutions should be competent to analyze national problems, devise strategies employing technological resources to solve them, and formulate coherent national science policies.

It is assumed that of the more than 20 new U.S. Government technological initiatives addressed to LDC technology development proposed during 1976 a number will be implemented by TAB or other Federal agencies, some under regional or international auspices.

Other industrialized countries, such as Britain, West Germany, Canada and Swedeh, also are assisting developing nations with this task. Their efforts will accelerate during the preparatory period for the U.N. Conference on Science, Technology and Development in 1979.

For more than 12 years AID has made a sustained effort to address this objective through the National Academy of Sciences program in more than 30 countries. Remarkable progress in creating productive scientific and technological infrastructure is evident in AID "graduates" as Korea, Republic of China, Brazil, Colombia, Argentina, and Israel. Decades not years of continuous effort are required to build scientific establishments in LDC's. Current progress toward this objective is seen through new programs in Egypt, Tuhisia, Indonesia, Ghana, Jordan, and to a lesser extent in Thailand, the Philippines, Pakistan, Keyna and the Central American states of the Dominican Republic and Haiti. There are expressions of interest in building technology transfer capabilities in other countries such as Portugal, Zaire, Sudan, Peru, Bolibia and Upper Volta.

The National Academies of Science and Engineering continue to serve as AID's principal resource in helping developing countries strengthen scientific institutions, formulate national science policies, create linkages between science and economic planning bodies and to analyze needs for R&D, funding and research facilities. Support at $1,250,000 for FY 1978 will enable NAS/NAE to continue its program of bilateral workshops, study groups, advisory studies and technology innovation reports. All serve to strengthen LDC scientific capabilities.

Endeavors of the Academies are complemented by a newer Cornell University program which applies an interdisciplinary approach to issues of public policy relevant to the application of science and technology to LDC problems. Cornell offers training, consultation and longer-term research support through activities such as summer institutes for mid-career science administrators, science policy research in small LDC's and in-country studies that cannot be provided by the Academies.

AID evaluations in late 1975 of the projects administered by the Academy and Cornell confirmed they are succeeding in their objectives and merit continued support at the levels of funding projected for the next three-years. However, the strong new national policy emphasis on technology transfer and development demands a correspondingly increased response by AID in several areas which heretofore have not received sufficient attention. They are: (1) concentration on the improvement of technology transfer mechanisms as a means of improving LDC capability to accelerate development through an infrastructure of technology institutions, (2) help leading LDC policy planners and leaders better understand ways in which science institutions and technological capability can solve priority development problems and consequently allocate increased resources for this purpose, and (3) match increases in AID funding for energy, environment and natural resources programs with activities designed to better equip LDC decision-makers to generate national policies for research, development and programming in these fields. A proposed White House Summer Study on Science Policy, to be sponsored in collaboration with the National Science Foundation, and a new project funding workshops to deal with the interrelated energy,

environment and resources issues address these new priorities.

The Scientists and Engineers in Economic Development (SEED) project has proved successful as a person-to-person activity, currently funded at $400,000 a year through FY 78. However, the program clearly is more suited to the requirements of Middle Income and AID Graduate countries with established scientific communities. Recognizing that Congress is urging NSF to assume a more significant role in strengthening the scientific enterprise in LDC's, an effort is being made to persuade NSF, which administers the SEED project, to assume funding responsibility for it effective FY 1979. OST assistance for the UN Conference also will be phasing out in FY 1979. Whether there is a follow-on to the study analyzing the interaction of science and technology with developing country societies, a project funded at $200,000 in FY 1978, will depend upon the nature of findings in the initial inquiry. This represents our lowest priority.

High priority is assigned to the two new projects in this cluster--the White House Summer Study on Science Policy and the Workshops dealing with Energy, Resources and Environmental Policies for LDC's. While only one such regional workshop could be included within funding priorities I and II, the pressing need to have LDC leaders thoroughly conversant with policy alternatives for new energy and resources activities and the emerging U.S. response compells us to request that three regional workshops on these subjects be funded during FY 1979. Such action will necessitate adjusting the requested ceiling for this cluster from $1.6

million to $1.8 million. Providing funds are available, it would be desirable to forward fund one additional regional workshop to be conducted each year in FY 1980 and FY 1981, and provide a similar commitment to the organizers of the White House Summer Study on Science Policy (studies at $110,000 each for FY 1980 and 1981). This would cause an elevation of the ceiling to $2.17 million.

The seven projects in this cluster, listed in priority order for FY 1979, are:

1)	0029	Enhancing S&T Capabilities of LDC's	$ 1250
2)	1085	LDC Planning for U.N. Conference on S&T	20
3)		Regional Workshop(s) on Energy, Resources and Environmental Policies	70
4)		White House Summer Study on Science Policy	110
5)	1086	Seminars on S&T Policy	120
6)	1129	Science Policy in a Small LDC	100
7)	1089	Interaction of S&T and LDC Cultures	
		Priority I and II Levels	1670
		2 Additional Regional Workshops	140
		First Need Level	1810
		Forward funding for Items 3&4	360
		Second Need Level	2170

This cluster is managed by the Deputy Director, who provides oversight and policy guidance. He will have full-time support for project management from the science policy specialist scheduled for recruitment effective October, 1977. This will enable the Deputy to significantly increase the amount of time devoted to assisting and supervising new professional staff members, nearly all of whom are outside recruitments. He will also focus more effort on technology innovation activities. This management team will be adequate to service the proposed program at the $2170 level.

Office TA/OST
Cluster No. [illegible] Title Building S&T Infrastructure
Activity Coordinator W. L. Eilers

Technical Assistance Bureau Program Rev
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority BASE
Date May, 1977 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unlequidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru FY	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
R&D Priorities, country priorities re TA programs.																	
Science Institution Building																	
Total						17					21			34			
Total Small Activities	346																
B. Regional Bureaus (all) & Missions (all) Services.						51					131			133			
C. Project Development and Management																	
0020 Strengthening S&T Capabilities	313	D	1	19	500	5		0	(1125)	0	—			—		77	
1085 LDC Planning for [illegible] Conference	314	D	2	19	200	5		50	0	0	1[illegible]			15		[illegible]	[illegible]
1222 Workshops on Energy, Environment & Resources	315	D	4	19	—	—		—	—	—	—		70	45		82	[illegible]
1221 White House Science Policy Summer Study	316	C	4	19	—	—		—	—	—	—			—		82	[illegible]
1086 Seminars on S&T Policy	317	D	2	19	75	5		70	200	200	15		80	30		82	[illegible]
1129 Science Policy in a Small Developing Country	318	B	2	19	40	10		40	0	0	1[illegible]		100	30		80	[illegible]
1089 Interaction of S&T and LDC Cultures	319	B	3	[illegible]	—			—	200	200	25					[illegible]	[illegible]
1223 Enhancing the S&T Capabilities of LDCs	320	D	2	19	1000	75		917	1125	1125	50		1300	67		[illegible]	[illegible]
D. Contacts & Interaction with Numerous International, Regional, National & Professional Organizations Worldwide						32					16			[illegible]			

*) Project also has significant amount of research activity

**) Project also has significant amount of adaptation or application activity

191

Office TA/OST
Cluster No. 9957 Title Building S&T Infrastructure
Activity Coordinator Wm. L. Eilers

Technical Assistance Bureau Program Review
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority [illegible]
Date 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revise or New PP Do Mo/Yr
E. Administration and Supervision						32					50			[illegible]			
Grand Total						232					316		1500	409			
						342					[illegible]			[illegible]			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity

192

Cluster Related A-1

[illegible] Title Building S&T Infrastructure

Technical Assistance Bureau Program Review

Priority I

Activity Coordinator W. L. Eilers

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Date May, 1977 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru FY	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
R&D Priorities, country priorities re TA programs.																	
Science Institution Building																	
Total						17					21			34			
Total Small Activities	346					—					—						
B. Regional Bureaus (all) & Missions (all) Services.						36					128			132			
C. Project Development and Management																	
0029 Strengthening S&T Capabilities	313	D	1	19	500	5		0	(1125)	0	—			—		77	
[illegible] Planning for UN Conference	314	D	2	19	[illegible]	5		[illegible]	[illegible]	[illegible]	10		20	15		[illegible]	[illegible]
1222 Workshops on Energy, Environment & Resources	315	D	4	19	—	—		—	—	—	—			—		82	[illegible]
1221 White House Science Policy Summer Study	316	C	4	19	—	—		—	—	—	—		110	50		82	9/78
1086 Seminars on S&T Policy	317	D	2	19	75	5		90	200	200	11		120	22		82	6/77
1129 Science Policy in a Small Developing Country	318	B	2	19	90	10		40	0	0	7		100	20		80	6/77
1089 Interaction of S&T and LDC Cultures	319	[illegible]	3	[illegible]	—	—		—	200	200	25		1250	7		[illegible]	[illegible]
1223 Enhancing the S&T Capabilities of LDCs	320	D	2	19	1000	75		[illegible]	1125	1125	48			42		[illegible]	[illegible]
D. Contacts & Interaction with Numerous International, Regional, National & Professional Organizations Worldwide						32					16			23			

Project also has significant amount of research activity

Project also has significant amount of adaptation or application activity

[illegible] significant field service element

(193)

Cluster Related A-1

ster No. 005/ Title Building S&T Infrastructure / Technical Assistance Bureau Program Review

Priority I

ivity Coordinator Wm. L. Eilers

Office Summary of Proposed Obligations by Cluster

($ in Thousands)

Date 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised CYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
E. Administration and Supervision						27					45			55			
Grand Total						212					311		1600	400			

Project also has significant amount of research activity

Project also has significant amount of adaptation or application activity

field service element

194

Cluster Related A-1

[illegible] Infrastructure

Technical Assistance Bureau Program Review

Priority [illegible]

vity Coordinator W. L. Filers

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Date May, 1977 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru FY	Revised or New PP Due Mo/Yr
. Planning & Strategizing																	
R&D Priorities, country priorities re TA programs.																	
Science Institution Building																	
Total						17					21			34			
Total Small Activities	346					—					—						
Regional Bureaus (all) & Missions (all) Services.						56					131			132			
Project Development and Management																	
0939 Strengthening S&T Capabilities	313	D	1	19	500	5		0	(1125)	0	—			—		77	
1035 LDC Planning for UN Conference	314	D	2	19	200	5		50	0	0	10		20	15		80	6/77
1222 Workshops on Energy, Environment & Resources	315	D	4	19	—	—		—	—	—	—			—		82	7/78
1221 White House Science Policy Summer Study	316	C	4	19		—		—	—	—	—		110	50		82	7/78
1086 Seminars on S&T Policy	317	D	2	19	75	0		90	200	200	13		120	22		82	6/77
1129 Science Policy in a Small Developing Country	318	B	2	19	90	10		40	0	0	7		100	20		80	6/77
1089 Interaction of S&T and LDC Cultures	319	B	2	19	—	5		—	[illegible]	[illegible]	25		1250	7		[illegible]	[illegible]
1223 Enhancing the S&T Capabilities of LDCs	320	D	2	19	[illegible]	75		[illegible]	1125	1125	52			45		[illegible]	[illegible]
Contacts & Interaction with Numerous International, Regional, National & Professional Organizations [illegible]						32					14			20			
									195								

ject also has significant amount of research activity

ject also has significant amount of adaptation or application activity

[illegible] significant field service element

Cluster Related A-1

Cluster No. 005/ Title Building S&T Infrastructure

Activity Coordinator Mr. L. Filers

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Priority II

Date 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
E. Administration and Supervision						32					50			55			
Grand Total						237					309		1600	400			

Project also has significant amount of research activity

Project also has significant amount of adaptation or application activity

field service element

196

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

[ ] A = ADD C = CHANGE D = DELETE

PID

2. DOCUMENT CODE 1

3. COUNTRY/ENTITY
TA/OST, RDA # 19

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS) 931-1089

6. BUREAU/OFFICE A. SYMBOL TAB B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS) Interaction of S&T and LDC Cultures

8. PROPOSED NEXT DOCUMENT A. 3 (2 = PRP, 3 = PP) B. DATE MM 02 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION a. INITIAL FY 78 b. FINAL FY 78

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
A. AID APPROPRIATED		200
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
	TOTAL	200

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 78 F. GRANT	E. FIRST FY 78 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	751	871		200		200	
(2)							
(3)							
(4)							
			TOTAL	200		200	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

873 | 870

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

Strengthen LDC capability to solve priority development probelms by creating, improving and making more effective use of scientific and technological institutions.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To study and analyze technology transfer and adaptation processes in the context of the recipient culture, and to arrive at findings and recommendations designed to accelerate the adaptation, acceptability and integration of appropriate to meet LDC development requirements.

17. PLANNING RESOURCE REQUIREMENTS (in staff days)

20 man/days (TA/OST staff)

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

197

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS DATE OF DISTRIBUTION

MM DD YY

AID 1330-2 (3-76)

Project Implementation Document (PID)

Interaction of Science and Technology on the Culture of the LDCs

A. Summary of the Problem to be addressed and the Proposed Response

Introducing Science and Technology in its various forms for the development of the rural population in LDCs has met with marginal success in countries where it was seen as conflicting with the cultural patterns existing in the rural areas. Understanding existing cultural practices and their likely reaction to the introduction of various patterns and forms of science and technology will enable planners to bring about development without completely disrupting the existing cultural patters.

Thus, understanding the interaction of science and technology on the culture of LDCs is a vital prelude to initiating science and technology programs in LDCs. This project seeks to study, analyze and document from field experience the interaction of science and technology on rural culture in a selected group of LDCs.

Science and technology for the rural area appears in such important forms as:

--energy (electrification, mobile energy resources, renewable and non-renewable energy, mechanization of agricultural processes(
--health care,
--water supply, irrigation and sanitary systems,
--communications, and
--science and technology in education.

LDC cultural aspects which may be influenced by the impact of science and technology include:

--the role of women and children in society,
--the family structure, self-identity,
--concepts of community identity and opportunity,
--values (religious, individual freedom),
--land use and control,
--population (mobility, size, distribution),
--concepts of security,
--employment (crafts, village, industrial), and
--equality of opportunities.

This project suggests selecting two or three science and technology topics such as energy, communications, or health care, and studying and analyzing their interactions with at least three cultural topics, such as the role of women, family structure, population and equality of opportunity. In each of these projects, relations will be established with institutions and individuals in the host country, striving for equal participation in the joint efforts so that results will be comparative

The countries selected will reflect two different cultural settings, i.e. a Moslem culture, and an African and/or Latin American culture. At the end of the study, a conference will be held at Cornell when the findings from the different projects will be presented and discussed. Reports of the studies and analyses, and the conference, will be the final products.

B. Financial Requirements and Plans

Approximately $200,000 is required in FY78 for a one year effort.

C. Development of the Project

(No further detail available at this time/other than described in Section A,above)

D. Issues of a Policy or Programmatic Nature

No issues perceived.

E. Environmental Assessment

As an analytical and education study, this project will have no effect upon the environment. It may, however, provide new insights on environmental matters which interrelate with LDC cultures.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

[A] A = ADD / C = CHANGE / D = DELETE

PID DOCUMENT CODE 1

1. COUNTRY/ENTITY: TA/OST, RDA # 19 Type # C

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1221

6. BUREAU/OFFICE: A. SYMBOL TAB; B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): White House Sum Study on Science Policy

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM 09 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 81

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
a. AID APPROPRIATED		355
b. OTHER U.S.	1.	
	2.	
c. HOST COUNTRY		
d. OTHER DONOR(S)		
TOTAL		355

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	750	871		110		355	
(2)							
(3)							
(4)							
			TOTAL	110		355	

SECONDARY TECHNICAL CODES (maximum six codes of three positions each): 873 | 710

SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH): PVOL | TECH | $

14. SECONDARY PURPOSE CODE:

PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To strengthen LDC capability to solve priority development problems by creating, improving and making more effective use of scientific and Technological institution.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

By helping LDC policy planners better understand how science capabilities and institutions can solve development problems, persuade them to increase resources for science & technology, involve scientists and engineers in national planning and decision-making, and focus on technology transfer and the generation of technology to accelerate economic development.

PLANNING RESOURCE REQUIREMENTS (staff/funds)

20 man-days of TA/OST time to prepare documentation and PIO/T, manage the project through completion of the initial workshop.

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

200

AID 1330-2 (3-76)

PROJECT IDENTIFICATION DOCUMENT (PID)

WHITE HOUSE SUMMER STUDY ON SCIENCE POLICY

A. SUMMARY OF THE PROBLEM TO BE ADDRESSED AND THE PROPOSED RESPONSE

The transfer and development of technology has become an increasingly contentious issue in North/South economic relationships. Developing countries regard access to advanced technologies from industrialized nations under preferential terms as vital to their industrialization and economic growth. Because most U.S. technology is proprietary, the concessions they demand, calling for regulation of the terms of technology transfer, impose severe problems. It is in the U.S. national interest to expand markets abroad, assure continuing access to labor and scarce resources in LDC's and maintain a sound investment and trade climate. Existing U.S. policy therefore supports international technology transfer on the part of the private sector and urges that indigenous scientific and technological capabilities of LDC's be developed by the U.S. public and academic sectors. High priority is attached to promoting technical R&D programs in LDC's training, information and building of sound technological infrastructures because the USG possesses a far greater potential for action in these areas.

The Group of 77 leaders who are pressing industrial countries to share their technology under highly favorable terms are in most cases LDC policy-makers who are in a position to allocate fiscal, manpower and physical resources for development. It is essential these leaders better understand in rather explicit terms how scientific capabilities and institutions can accelerate development

in order that they will provide the resources necessary to build an effective scientific and technical infrastructure and involve scientists in national decision-making. There is growing concern with policy problems of science and technology in LDC institutions concerned with national-level problems--economic planning agencies, sectoral ministries and councils concerned with research, science and technology. At the same time administrators responsible for universities, R&D institutions, extension systems, industrial firms or rural development agencies have taken an increasingly strong interest in the problems of how best to manage activities in which science and technology are significantly involved.

It is proposed that a Summer Study on Science Policy be conducted under the auspices of the Office of Science and Technology Policy in the White House. The study would center on national science policy and program issues of mutual interest to both developed and developing countries. U.S. leaders responsible for science policy matters would join with senior decision-makers from middle income and AID graduate countries as well as the roughly 50 countries where AID is active in candid, free-ranging dicusssions conducted in a seminar/workshop framework. Participant dicusssions would be oriented around three purposes:

-- to share existing knowledge on particular problem areas and draw whatever may be relevant to their own policy concerns.

-- to identify gaps and inadequacies in known and selected areas where research and analysis will be relevant for defining and choosing between policy options.

-- to choose relevant methods for conducting research in this area, including the design of practical research project, concepts and methods of research and communicating policy-relevant research results.

The Study would be conducted at a convenient site in the vicinity of the District of Columbia with a total of about 60 participants. Additional U.S. guest speakers will be invited from time to time. White House sponsorship is proposed and is designed to serve two purposes: (1) to convey to other countries the significance that the U.S. attaches to the formulation of its own national policies for science and technology and this nation's genuine concern with the technology transfer and the application of science to development in LDC's, and (2) to assure that suitable high-level leaders are attracted from developing countries for an exchange of experience and views on these issues.

An idea of the scope of subject matter and issues to be covered follows below:

-- Institutions and Mechanisms for Formulating and Implementing Science and Technology Policy: rationale for s&t policy institutions; related social and economic strategies employing science.

-- Analysis of Emerging S&T: the generation of new technology and innovations; organization and functions of R&D institutions; functioning of patent systems; allocation of the R&D budget related to economic objectives; technological dependence; local technology and its relations to inter-

national trade in technology.

-- The Use of Technology and Generation of Technical Change: technical change at the enterprise level.

-- Managing the Process of Innovation.

-- Policy Aspects of Energy, Environment and Natural Resources.

-- Alternative Techniques and the Problem of Choice: "appropriate" and "intermediate technologies"; technical choice and employment objectives; technology assessment; economic policies and the pattern of technical development; criteria for selecting foreign technologies.

-- Technology Transfer: mechanisms of international technology transfer; development of indigenous technological capabilities and the role of foreign technology in this process; the absorbtion and diffusion of imported technology; administrative systems to control technology imports; the ownership of technology.

-- Scientific and Technological Manpower: future demands; "brain drain" -internal and external; incentives and performance.

-- Investment in Scientific and Technological Training: technical and vocational training; research and scientific education.

-- Sector Policy and Planning for Science and Technology; e.g. minerals extraction and processing, agricultural development, energy, chemicals, food processing, industrial processes related to resource endowment.

Multiple copies of the summary findings and recommendations produced in the Summer Study will be provided to each participant for distribution to colleagues. Case studies covering issues of common interest will be invited from selected participants as a basis for the analysis of policy alternatives. The operating philosophy behind the Summer Study is invite developing country policy-makers to meet with American counterparts as equals in a mutual exploration of science policy alternatives for their countries. Too often the scientifically and industrially advanced countries seek to influence LDC development policies by sending experts or teams of consultants to prescribe solutions rather than joining in a mutual quest for viable solutions among a number of options.

Interest in this project has been expressed by the International Affairs Division of the National Science Foundation. A specific recommendation is included in a report on the NSF Workshop on New Initiatives in International Science and Technology, held at Keystone, Colorado, April 13-16, 1977. The report recommends NSF split the expenses of the Summer Study with AID. In order to achieve the Summer Study purpose for AID, it will be necessary to carefully select participants from among those senior policy makers in AID countries who are likely to remain in influential positions. Individuals must be prepared to attend the entire study and have interests that are sufficiently deep to transfer what they have learned into active policy formulation in their own countries. Since it is assumed the project should be conducted on an annual basis, funding is requested for an initial

three-year period.

U.S. participants would be drawn from the following sources: NSF Division of Policy Research and Analysis, State Department (OES), Science Policy Division of CRS, Office of Technology Assessment, National Academies of Science and Engineering, university programs in science policy, science advisers to departments and agencies of the Federal Government, relevant Congressional staffs, the Industrial Research Institute, Fund for Multinational Management Education, and related private associations with known science policy concerns.

Throughout the Summer Study emphasis can be placed upon ways in which the transfer of technology and growth of a sound scientific and technological infrastructure can, through promotion of industrialization and jobs, offer maximum benefits to the greatest number of people, particularly the jobless and poorest segments of LDC populations.

B. FINANCIAL REQUIREMENTS AND PLANS

Ideally, the project should be started in FY 1978 in order that Summer Studies during the summers of both 1978 and 1979 can provide a highly desireable input into the U.N. Conference on Science, Technology and Development in the Fall of 1979.

The schedule and financial requirements would be as follows, assuming for now the initial Summer Study is to be held in FY 1979:

PP: due October 1, 1978

Contract: due December 1978

FY 1979 Funds: $110,000 for AID's Contribution to Summer 1979 Study.

FY 1980 Funds: $120,000 for AID's Contribution to Summer 1980 Study.

FY 1981 Funds: $125,000 for AID's Contribution to Summer 1981 Study.

Matching funds of $110,000 for FY 1979 are expected from the National Science Foundation. A White House contribution toward funding of the Study is not anticipated.

The salaries of U.S. participants from other agencies are expected to be covered by their respective organizations during the period of their attendance.

C. DEVELOPMENT OF THE PROJECT

Assuming the Office of Science and Technology Policy in the White House agrees to hold the Summer Study under its auspices, a staff director will be selected from the ranks of U.S. senior science policy specialists who are well known in the science community and experienced in developing country science matters. In organizing the Summer Study he would draw upon the experience of the science policy working groups at NSF, those in the Foreign Secretary's Office of the National Academy of Sciences, (who are conducting science workshops in LDC's), the Science Policy Research Unit at the University of Sussex, (which conducts research workshops on LDC science and technology policy problems), and U.S. universities such as Cornell and Washington University in St. Louis that are unknowlegeable in this field. Host governments would be asked to nominate participants and whose qualifications would be assessed by AID Missions in those countries to assure that outstanding candidates are nominated. Science attachés or science reporting officers

in Middle Income and AID Graduate countries would be invited to review the credentials of nominees.

D. ISSUES OF A POLICY OR PROGRAMMATIC NATURE

The issue of international technology transfer is central to the North/South confrontation; it will be with us for many years to come. The 20 or so "technological initiatives" announced by the United States at the 7th Special Session of the United Nations and at UNCTAB IV in Nairobi during the last two years address this problem. None, however, demonstrate White House interest in the Group of 77 proposals. The proposed Summer Study, financed jointly by AID and NSF would be interpreted as a new iniative in response to the Group of 77 pressure upon industrialized nations, a tangible manifestation of concern at the U.S. highest level with these issues.

A fundamental issue for AID which emerged from the 20 earlier technological issues was that the Agency has been directed by Congress to make expenditures in the main not for industrial technology, but for agriculture, nutrition, health, population planning, rural development and education, aimed at the poorest segements of the population of the poorest LDC's. This limitation of authority under the Congressional mandate restricts the USG in carrying out a broad program of industrial technology transfer to LDC's, particularly in helping to build technology infrastructure in the middle income and AID graduate countries. The proposed Summer Study offers one approach to overcoming this difficulty.

E. ENVIRONMENTAL ASSESSMENT

As a study, this project will pose no adverse environmental consequences. In fact, one of the science policy issues to be considered will be the environmental question.

TA/OST:WEilers:mhc:4/29/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

[A] A = ADD C = CHANGE D = DELETE

PID

2. DOCUMENT CODE 1

3. COUNTRY/ENTITY
TA/OST, RDA # 19 Type No. D

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS) 931-1222

6. BUREAU/OFFICE A. SYMBOL TAB B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS) Regional Workshops on Energy, Resources & Environment

8. PROPOSED NEXT DOCUMENT
A. 3 (2 = PRP, 3 = PP) B. DATE MM 03 YY 78

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
a. INITIAL FY 79 b. FINAL FY 81

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		LIFE OF PROJECT
a. AID APPROPRIATED		490
b. OTHER U.S.	1.	
	2.	
c. HOST COUNTRY		
d. OTHER DONOR(S)		
TOTAL		490

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	753	871		70		490	
(2)							
(3)							
(4)							
			TOTAL	70		490	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)
878 | 876 | 878 | 851 | 859 | 920

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)
ENV | PVOL

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)
Strengthen LDC capability to solve priority development problems by creating, improving and making more effective use of scientific and technological institutions

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)
Improve the capability of LDC leaders to make sound policies for assessing, developing, managing and protecting their energy supplies and needs and their natural resources within the context of effective environmental protection measures.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)
15 man days (TA/OST staff) $130/day x 5 = $650.00
5 consultant days

18. ORIGINATING OFFICE CLEARANCE
Signature: Henry A. Arnold (210)
Title: Director
Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM DD YY

AID 1330-2 (3-76)

TA/OST (FY 79)
W. Eilers PID

REGIONAL WORKSHOPS ON ENERGY, RESOURCES, AND THE ENVIRONMENT

PROBLEM: Last year balance of payments deficits of the developing nations that do not produce oil amounted to more than $25 billion. The wildly fluctuating revenues these nations receive from selling commodities on the world market are in most instances not enough to cover their oil bills. Open to grave question, therefore, is whether it will be possible to sustain even present levels of marginal existence for the poor plurality in countries where poverty is endemic. Economic gains not immediately wiped out by soaring energy costs subsequently may be nullified by swelling populations and corresponding food requirements that no longer can be satisfied by domestic producers. To earn foreign exchange for energy and agricultural imports, nations have no option but to accelerate the plunder of both renewable and non-renewable resources, usually with irreversible environmental consequences.

Are there practical ways to reverse this downward spiral? The key lies in viable alternative energy technologies and a slowdown of mindless land abuse. Fortunately, Congress has become aware of the problem and is moving on two fronts. Initiatives recently introduced would significantly enlarge U.S. energy assistance to developing countries, partly as a result of concern with nuclear proliferation. Amended legislation also may authorize for the first time funding to assist LDC's in preserving natural resources on grounds that resources are central to sustained development.

As these new U.S. resources become available, it is important that we improve the ability of leaders in LDC's to realize the greatest returns from this assistance. They must be equipped to make sound policies for assessing, developing, managing and protecting their energy supplies and natural resources. They must not only have a working knowledge of promising energy and environmental technologies, but a clear picture of relative costs, benefits and drawbacks in adapting them to their country's particular needs. For this purpose they would benefit from participating in neutral forums where, in the company of LDC colleagues who face similar problems, they can analyze the issues and consider policy options free of domestic political pressure and their administrative workloads. In this gathering, they can draw upon technical expertise from leading U.S. specialists in these fields.

It is proposed that AID's response to this need consist of a series of one-week workshops on energy, environment and resources policy that will be conducted in each of the Agency's geographical regions.

PROJECT DESCRIPTION: At each workshop it is expected that 25 to 30 developing country decision-makers would receive pertinent background on the worldwide energy and raw materials situation that will enable them to erect a framework of national policy suited to the resource endowments and priorities of their nations. Through this process the institutions they represent would be strengthened in their capacity to solve important development problems. Hopefully, their leaders would recognize that scientific and technological organizations both in their countries and in the United States could contribute with respect to the technology components of the issues under consideration.

Each workshop would involve the participation, for example, of a U.S. panel of experts in fields such as renewable energy resources and alternative technologies such as wind energy, hydropower, photovoltaic devices, geothermal energy, energy storage, and microbiological conversion of plant materials to liquid fuels. On environmental and resources policy, issues might include ways of tapping tropical resources with minimal adverse ecological consequences such as soil erosion, flooding, siltation of dams and barrages, and destruction of water supplies and wildlife. Ecologists and environmental scientists would take up broader issues such as methods of extracting minerals from tropical rainforests or arid regions that will minimize adverse environmental impacts. The workshops would be under the auspices of a suitable regional host organization, preferably a planning or development body or a suitable scientific or technological institution. A total of roughly 10 U.S. specialists for each workshop is planned.

An initial three-year project is proposed. Workshops are suggested for Africa, Latin America, and Asia. The fact that over the years influential LDC leaders and technical specialists have been willing to gather in regional conferences dealing with policy issues involving significant scientific and technological components augurs well for our assumption that senior decision-makers will be prepared to invest the full week required for the workshops. One must assume that the increasingly critical character of these problems coupled with an increase in U.S. resources available to LDC's for this purpose will attract leaders in key policy positions. It is expected that U.S. experts will contribute their services as others have on other science policy topics in recent years.

It is anticipated that the amenities that by tradition are offered by host governments for regional and international conferences will be extended for these meetings by the appropriate nations in each region that offer to host the workshops. This assumes the offer of workshop facilities and the usual type of conference support activities.

Other approaches might be employed to assure that those LDC executives charged with the application of foreign assistance to energy problems and improved resources management consider broader dimensions of these issues and the range of choices open to them. Pertinent background data could be supplied, but few LDC leaders who carry heavy administrative loads find time for study. Most would not set aside time to attend courses on these subjects. The depth of understanding and expertise required to make considered decisions on many of these issues cannot be gained by participation in negotiations. Of course the process of preparing and serving as delegates to conferences dealing with these matters could provide leaders with some working knowledge of the subject, but it would not offer an opportunity for them to probe the consequences of policy alternatives both with colleagues who face similar problems and with technical experts participating in the workshop.

One workshop focus will be upon the issue of paramount concern to AID: to what extent will assistance for new programs in energy, environment and resources development be invested by LDC's so as to optimize benefits for peoples subsisting in poverty. Issues of special relevance in this regard are: (1) what technologies with power capabilities in the range of 10-100 kilowatts can be identified that are suitable for application at village levels? What R&D efforts are essential in both LDC's and industrialized nations to make intermediate term energy applications feasible where such advances offer promise? With reference to resource exploitation, attention should be directed to question such as how mineral and forestry reserves can be extracted with least damage to the land under cultivation?

FINANCIAL REQUIREMENTS: This 3-year project preferably should be started before FY 1979 for developing countries currently are confronted with policy turning points on energy and resources which could commit them to less productive program directions. Should funds become available, it would be desirable to organize one or more workshops during FY 1978 in order to begin building a cadre of leaders thoroughly versed in the policy aspects of problems which have assumed new significance in development planning.

A workshop budget is projected at roughly $70,000, as follows:

1.	Travel and per diem of LDC leader participants:	
	Based on 30 participants	$18,000
2.	U.S. Panel Members: (travel and per diem)	29,600
3.	Staff support, including travel, per diem, salaries, misc. costs	20,600
4.	Contingencies	1,800

One would expect that the regional co-sponsoring institutions would negotiate with the country host in each workshop for contribution of workshop facilities, secretarial and logistical support, transportation, suitable representation, and space for exhibits of new technical advances in the energy and environmental protection fields.

DEVELOPMENT OF THE PROJECT: For more than ten years the National Academy of Sciences has conducted successful regional workshops in specific problem areas such as water resources and the environment (Singapore) agricultural research (Africa), and Environment and Development (Central America). In contrast with symposia, colloquia, and conferences, workshops are structured along informal lines without papers or lectures. The emphasis is upon frank, off-the-record problem-solving through exchange of experience and probing the special experience of invited experts. Logically, the Academy probably be asked to organize the regional workshops contemplated in this project in recognition of its experience and the expertise reflected in its Boards on Energy Studies. Environmental Studies, Energy and the Environment, Mineral Resources, and Renewable Resources. It is quite possible, however, that other organizations, such as the National Science Foundation, ERDA or its successor agency, or a major university with research programs in these areas would offer advantages over the Academy. Therefore, no recommendation is made with regard to sponsor or contractor pending further exploration. It is assumed that, as with Academy practice, technical and policy experts would be asked to contribute their services without change.

In light of the urgency of this new activity, planning for workshops should be initiated immediately after AID's FY-1979 appropriation is approved. Therefore, if at all possible, the Project Paper will be prepared during July-August, 1978. If FY-1977 or FY-1978 funds can be identified earlier to accelerate the implementation of this activity, so much the better.

214

The Project Paper can be completed in 7 working days, including consultation time with a prospective contractor.

ISSUES OF A POLICY OR PROGRAMMATIC NATURE: Are high-level discussions among an elite group of policy-makers likely to lead to a genuine impact upon the fundamental needs of the rural and urban poor in Fourth World countries? It is hoped that through workshop deliberations leaders will identify practical means to supply low-cost energy from sources other than imported oil to the poorest segments of their populations and select methods by which resources can be extracted with least damage to the environment and to the income-earning resources of the poor.

Whenever industrialized nations take up the issue of environmental policies for developing countries, they are frequently exposed to the charge of trying to impose their own newly discovered environmental values upon other societies. Many LDC's assert they are prepared to accept some degree of pollution and related degradation of their environments providing these are necessary costs they must pay for development. Brazil and Mexico, by way of example, were outspoken advocates of this position at the 1972 Stockholm U.N. Conference on the Environment. It is entirely possible, though currently less likely, that similar views will be advanced by leaders from certain LDC's at regional workshops, particularly since one U.S. aim will be to help these countries to formulate sound environmental policy guidelines for development activity. If or when the issue is raised, it can be explained that in nearly all cases many choices of technologies and methods are available to achieve specific development objectives and it is possible to select actions which will least affect the environment.

SATISFACTION OF AID SELECTION CRITERIA: This project has close links to OST clusters dealing with Energy, and Environment and Natural Resources for it is designed quite specifically to nurture rational decision-making on the part of LDC leaders that will govern development of new and imaginative activities, a significant portion of which may be financed from AID or other foreign sources. Since these are issues of public administration policy, it will be important to coordinate workshop planning with TA/DA with special reference to criteria for selection of leaders and the conceptualization of issues.

In many LDC's women have assumed leadership roles in national environmental movements. Therefore, regional workshops dealing with environmental policy issues offer an unusual opportunity to draw upon this leadership, which is often synonymous with that of national women's movements in these countries.

The activities proposed, being workshops, not only are free of negative environmental consequences, but since protection of the environment is one of three new subjects areas under discussion a positive impact is anticipated.

With respect to Section 117, it is expected that LDC leaders will analyze technically feasible ways in which rural energy needs can be satisfied, and in so doing poor couples will begin to perceive that with the introduction of alternative sources of energy at affordable cost there will be less need for large families to satisfy energy requirements that have been met traditionally through consumption of human calories.

TA/OST
WEilers:bh
5/10/77

9958
REMOTE SENSING AND
SATELLITE TECHNOLOGY

NARRATIVE

REMOTE SENSING CLUSTER

PROBLEMS AND OBJECTIVES

The goal of the projects in this cluster is to improve resource and land utilization in developing countries through assistance in the use of remote sensing and other related technologies. There is a recognized shortage of resource information worldwide and this shortage is particularly acute in developing countries. At the same time there is a need to expedite development planning in order to maximize returns from land and natural resources. Thus, information on the suitability of land for various agricultural activities, and on the kind, quantity, location, and distribution or resources is needed.

Remote sensing technology offers the potential to help fill this gap, but a substantial amount of training and other assistance is needed before developing countries can utilize this technology effectively. AID has developed an assistance program based on past experience in training, project support, and a recently completed study by the National Academy of Sciences on remote sensing in development.

The immediate objectives are to promote training and institutional development and to continue to identify, adapt, and demonstrate new procedures and techniques that are appropriate for developing countries. Institutional development would be supported primarily by training, grants, and technical assistance administered through AID-sponsored regional remote-sensing centers. These centers could also become the focal points for all remote-sensing activities within the region, including those sponsored by AID regional bureaus and other interested donors. In

addition, they could become focal points for the development of networks and linkages between developing countries that use technology and information sources such as NASA and the USGS. Training will be in the form of seminars, workshops, and on-the-job instruction and will take place both at the centers and in the participating countries. Practical applications to high priority needs such as agriculture and grazing would be emphasized.

AID also recognizes the need for continued research of new applications that are of particular interest to developing countries such as in tropical agriculture, cartography, disease control, and desertification. There is also a need to determine more clearly the type of information that is most beneficial to the planners and decision makers of developing countries, and the formats in which this information should be presented. Recognizing that remote sensing can involve the use of highly sophisticated technology, AID needs to keep abreast of new developments in computers and sensors and to determine which are the most appropriate for developing countries.

Many developing countries are interested in the application of Landsat imagery in mineral prospecting. This is one of the most highly developed applications of Landsat technology and known techniques will be passed on to developing countries through training courses and technical assistance. Since these techniques are the same whether used in developed or developing countries, we do not see a strong need for AID-sponsored research in this area.

NON-TAB EFFORTS

The regional bureaus have recognized the benefits of this technology and are developing programs complementary to those of TA/OST. In addition to various resource and land use assessments in Africa and Latin America where Landsat imagery is being used as an operational tool, plans are underway for the development of regional training and user assistance centers in Africa, Asia, Central and South America. National centers are also proposed or under development in Egypt, Tunisia, Zaire, and Thailand. The Economic Commission for Africa, with the support of AFR and TAB, has taken a leading role in the development and coordination of an Africa-wide remote sensing program. The Economic and Social Council for Asia and the Pacific is meeting in June to discuss a similar program and the LA Bureau is considering a major program in cooperation with the Andean Pact countries. There are also several bilateral donors and international organizations providing assistance in remote sensing. The AID-sponsored regional centers will monitor all remote sensing activities in their respective regions and will cooperate with other organizations in order to avoid gaps and duplication. In addition, AID will continue to work closely with NASA and other U.S. government agencies responsible for defining guidelines for the development of a Landsat follow-on and other natural resource oriented satellite programs.

PROGRESS

In FY 1976, TA/OST carried on a modest remote-sensing program designed to test various training methods, to identify new applications of importance

to developing countries, and to validate the applicability of Landsat imagery for various resource applications. The results so far have been positive and have indicated a need to greatly expand these efforts and make the technology available to all AID countries. The AIDSAT Demonstration, which was held during August and September of 1976, substantially increased the level of awareness of the benefits of this technology. In FY 1977, a follow-on program was developed to satisfy the expectations raised during the AIDSAT Demonstration and make the benefits of this technology more widely available. This follow-on program will be continued through FY 1979. Because this technology is changing rapidly, with new satellite and data processing systems being developed regularly, it is expected that there will be a continuing need for the type of activities included within this cluster. The emphasis will shift from training in basic interpretation techniques to the development of comprehensive resource data systems and the integration of data from many different sources to provide comprehensive and systematic sources of resource information.

RESOURCES REQUIRED

The availability of technically qualified personnel will be one of the critical factors in the development of this cluster. The technology of remote sensing is changing rapidly and vigilant attention is required of any organization offering technical assistance in order to insure that the latest and most appropriate techniques are being employed. Technical decisions are required constantly and there must be sufficient staff on board to both manage the program and keep current on the technology. Three remote-sensing positions presently authorized and one more will be added in FY 1978. This should be sufficient for managing the program

up to the 120 percent level and at the "requested" level. If additional projects are authorized at the needed level, there will be a need for one more person. The personnel situation will be improved considerably when the proposed regional centers are developed. Each center will have at least one direct hire and two or three PASA or contract staff members who are technically qualified in remote sensing. This will relieve some of the field support and project identification responsibilities from the TA/OST staff.

The proposed budget levels are $1.8 million at the 80% level, $2.3 million at the 100% level, $2.8 million at the 120% level, and $6.9 million at the greater than 120% level. $3.4 million is being requested. The large increase in the latter figure is due to the inclusion of a portable ground station which we feel is needed and which will be discussed in a separate issues paper. There is no minimum figure below which it is not worth continuing the program, because even a samll amount of technical assistance in remote sensing could be used. We feel that the budget figure reflected in the 100% level is the minimum needed to satisfactorily carry out an AIDSAT follow-on program. This figure, however, does not adequately provide for the additional research and pilot activities needed to relate the technology more directly to developing country needs. Therefore the highest level is highly recommended with the portable ground station being taken up as a separate issue. If only the 80% level is authorized, our efforts would concentrate on training and technical assistance in order to satisfy commitments already made rather than to investigate new applications.

Because of the constant changes in the technologies of remote sensing and resource data analysis, there will be a continuing need for assistance in this area. By the mid 1980's, however, the first objective of providing training and technical assistance to all interested AID countries should be achieved.

TA/OST:MWConitz:ep:5/11/77

Office TA/OST
Cluster No. [illegible] Title Remote Sensing
Activity Coordinator M. Conitz

Technical Assistance Bureau Program Review
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 80%
Date May 11, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revis or Nu PP D Mo/Yr
A. Planning and Strategizing						44					80			92			
B. Regional Bureau and Missions Services						103					219			268			
C. Project Development and Management						184					317			320			
(Ongoing)																	
0902 Remote Sensing Applications	321	B	1	07	—	(11)		199	—	—	(14)					78	—
0997 Remote Sensing Census	326	B	1	12	—	(7)		90	—	—	(10)					78	—
(New FY 77)																	
1166 Remote Sensing for Resource Assessment ***	331	B	2	07	1,075	(166)		300	2,300	2,300	(293)		1,800	(320)		79	6/
(New FY 79)																	
1224 Remote Sensing in Agriculture	337	B	4	07	—			—	—	—						83	10/
1225 Remote Sensing in Cartography	338	A	4	07	—			—	—	—						82	10/
1226 Computer Applications	339	B	4	07	—			—	—	—						82	10/
1227 Earth Resources Data Systems	340	B	4	07	—			—	—	—						82	10/
1228 [illegible]	341																
D. Contacts with International Organizations						23					43			48			
E. Administration and Supervision (Incl. An. Leave)						130					240			268			
Total Consultants							10					60			30		
Total Small Activities	347				(30)				(60)				(90)				
Grand Total					1,075	484			2,300	2,300	899		1,800	496			

/ Cluster 1201

223

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office TA/OST
Cluster No. [illegible] Title Remote Sensing
Activity Coordinator M. Conitz

Technical Assistance Bureau Program Review
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 100%
Date May 11, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revis or No PP D Mo/Yr
A. Planning and Strategizing						44					80			92			
B. Regional Bureau and Missions Services						103					219			232			
C. Project Development and Management						184					317			368			
(Ongoing)																	
0900 Remote Sensing Applications	321	B	1	07	—	(11)		199	—	—	(14)			—		78	—
0997 Remote Sensing Census	326	B	1	12	—	(7)		90	—	—	(10)			—		78	—
(New FY 77)																	
1166 Remote Sensing for Resource Assessment***	331	B	2	07	1,075	(166)		300	2,300	2,300	(293)		1,800	(320)		79	6/7
(New FY 79)																	
1224 Remote Sensing in Agriculture*	337	B	4	07	—			—	—	—			500	(48)		83	10/
1225 Remote Sensing in Cartography*	338	A	4	07	—			—	—	—						82	10/
1225 Computer Applications**	339	B	4	07	—			—	—	—						82	10/
1227 Earth Resources Data Systems**	340	B	4	07	—			—	—	—						82	10/
1226 Portable Ground Station**	341																
D. Contacts with International Organizations						23					43			36			
E. Administration and Supervision (Incl Annual Lv.)						130					240			268			
Total Consultants							10					60			60		
Total Small Activities	347				(30)				(60)				(90)				
Grand Total					1,075	484			2,300	2,300	899		2,300	996			
Cluster 1201								224									

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office TA/CST
Cluster No. [illegible] Title Remote Sensing

Activity Coordinator M. Conitz

Tech[illegible]al Assistance Bureau Program [illegible]ew

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority 120%
Date May 11, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revis or No PP D: Mo/Yr
A. Planning and Strategizing						44					60			92			
B. Regional Bureau and Missions Services						103					219			190			
C. Project Development and Management						184					317			416			
(Ongoing)																	
0996 Remote Sensing Applications	321	B	1	07	—	(11)		199	—	—	(14)					78	—
0997 Remote Sensing Census	326	B	1	12	—	(7)		90	—	—	(10)					78	—
(New FY 77)																	
1166 Remote Sensing for Resource Assessment**	331	B	2	07	1,075	(166)		300	2,300	2,300	(293)		1,800	(320)		79	6/
(New FY 79)																	
1224 Remote Sensing in Agriculture*	337	B	4	07	—			—	—	—			500	(48)		83	10/
1225 Remote Sensing in Cartography*	338	B	4	07	—			—	—	—			500	(48)		82	10/
1226 Computer Applications	339	B	4	07	—			—	—	—						82	10/
1227 Earth Resources Data Systems	340	B	4	07	—			—	—	—						82	10/
1228 Portable Ground Station	341																
D. Contacts with International Organizations						23					43			48			
E. Administration and Supervision (Incl Annual Lv.)						130					240			268			
Total Consultants							10					60			90		
Total Small Activities	347				(30)				(60)				(90)				
Grand Total					1,075	484			2,300	2,300	899		2,800	1,014			

Cluster 1201

225

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office [illegible]
Cluster No. [illegible] Remote Sensing
Activity Coordinator M. Conitz

Tech[illegible]al Assistance Bureau Program [illegible]iew
Office Summary of Proposed Obligations by Cluster
($ in thousands)

Cluster Related A-1
Priority REQUESTED
Date May 11, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revis or N PP D Mo/Yr
A. Planning and Strategizing						44					80			92			
B. Regional Bureau and Missions Services						103					219			190			
C. Project Development and Management						184					317			436			
(Ongoing)																	
0902 Remote Sensing Applications	321	B	1	07	—	(11)		199	—	—	(14)					78	—
0997 Remote Sensing Census	326	B	1	12	—	(7)		90	—	—	(10)					78	—
(New FY 77)																	
1166 Remote Sensing for Resource Assessment xxx	331	B	2	07	1,075	(166)		300	2,300	2,300	(293)		2,300	(340)		79	6/
(New FY 79)																	
1224 Remote Sensing in Agriculture	337	B	4	07	—			—	—	—			600	(48)		83	10/
1815 Remote Sensing in Cartography	338	B	4	07	—			—	—	—			500	(48)		82	10/
1816 Computer Applications	339	B	4	07	—			—	—	—						82	10/
1817 Earth Resources Data Systems	340	B	4	07	—			—	—	—						82	10/
1818 Durable Ground Station	341																
D. Contacts with International Organizations						23					43			48			
E. Administration and Supervision (Incl Annual Lv.)						130					248			248			
Total consultants							10					60			90		
Total small activities	347				(30)				(60)				(90)				
~~Grand Total~~					1,075	484			2,300	2,300	899		3,400	1,014			
Cluster 1201							226										

(*) Project also has significant amount of research activity

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA #7 Type # A

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1215

6. BUREAU/OFFICE: SYMBOL TAB; B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Remote Sensing in Cartography

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE MM YY 10 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY. 81

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	PA65E86
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	1,100

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 79 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
1) SD	751			500		1,100	
2)							
3)							
4)							
			TOTAL	500		1,100	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve development planning and land utilization in developing countries through assistance in the use of landsat imagery.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To identify appropriate Landsat mapping techniques and adapt them for use in developing countries.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

15 workdays of DH staff

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold

Title: Director, TA/OST

Date Signed: MM DD YY

227

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

TA/OST (FY 79)
M. W. Conitz

REMOTE SENSING APPLICATION IN CARTOGRAPHY

PROBLEM

Accurate and up-to-date maps are one of the most fundamental requirements for development planning in agriculture, land use, range management, and all resource sectors, yet most developing countries lack this essential planning tool.

RESPONSE

Landsat imagery can satisfy this need rapidly and inexpensively. Because of the high altitude and relative stability of the satellite platform, standard Landsat image products available through the EROS Data Center are often used as map substitutes. Additional cartographic techniques can convert these into image maps at scales as large as 1/200,000 which nearly meet U.S. map accuracy standards. What is needed is better knowledge about the geometric characteristics of the imagery and the control requirements for rectifying these images and producing accurate annotated mosaics. A research project in cartography could provide this information along with guidelines explaining how cartographers, with the facilities available in typical developing countries, could produce image maps in their own laboratories.

DESCRIPTION

The project would begin with a review of existing Landsat mapping techniques. For example, the U.S. Geological Survey has studied the geometric characteristics of Landsat imagery and has produced experimental image maps of several areas in the U.S. The characteristics of these products would be analyzed to determine their suitability for developing countries. The techniques used to produce the experimental maps would also be analyzed to determine their suitability for developing countries given the limitations of equipment and technical skills likely to be found there. Ground control requirements would be assessed to determine the most feasible means for providing control in areas where geodetic control is lacking. For example, doppler positioning based on data readout by portable receivers from navigational satellites appears to be practical and inexpensive means of providing supplemental control.

Based on these analyses, a tentative method would be developed for producing Landsat image maps in developing countries. This method would be tested in at least two developing countries, one with a relatively well-developed mapping capability and the other with little such capability.

The necessary outputs would be tested and evaluated mapping techniques using Landsat imagery and guidelines for constructing accurate maps from Landsat imagery in countries where there is little or no capability for conventional photogrammetric mapping.

The technical and physical resources required are a contractor with (1) experience in photogrammetric mapping, aerotringulation, and the extension of geodetic control, (2) expertise in doppler positioning techniques based on navigational satellite data, (3) access to the equipment required for the direct readout of these satellites.

The project would last three years and would include pilot projects in at least two countries as indicated above. Demonstrations and dissemination of the results would be made in up to 10 more countries.

The major assumptions pertinent to the success of the project are that improved mapping can lead to improved planning and land use and that maps can be constructed more rapidly and economically with Landsat imagery. It is also assumed that current mapping progress in most developing countries is inadequate for their needs and that the capability for mapping with Landsat imagery can be developed rapidly. Finally, it is assumed that developing countries will cooperate in this project and that organizations and personnel can be made available for this project and follow-on activites.

It is expected that the cartographic agencies of the host governments will participate actively in this project by providing personnel, transportation, access to existing mapping facilities, and other logistical support. The Director of the Service Cartographique in Tunisia has already expressed a strong interest in participating in this project.

The only alternative to this approach is to continue to use conventional photogrammetric mapping techniques which, for medium- and small-sclae mapping, are more costly, slower, and require more sophisticated technology and more ground control. Because of its high altitude and relative stability, Landsat produces images of larger areas--up to 185 km square--which are near orthographic representations of the earth's surface. A single aerial photograph, on the other hand, can only cover a fraction of this area--perhaps 40 km square when taken from very high altitudes--and is basically a perspective view of the terrain which must be rectified and tied together with other photographs during the mapping process. This process requires more sophisticated and more expensive equipment than mapping from Landsat imagery requires. Conventional photogrammetric mapping, however, is superior for large-scale mapping and essential for topographic mapping.

Substantial spread effects are possible if a host country takes advantage of this project to produce pilot maps and continues beyond the test areas required for the project.

FINANCIAL REQUIREMENTS

The cost of the project would be $1,100,000 for three years, with $500,000 budgeted for FY 1979. The value of the host country participation is estimated at $200,000.

PROJECT DEVELOPMENT

An unsolicited proposal has been received from DBA Systems, Inc., a consulting firm specializing in geodesy and photogrammetry. This proposal contains much of the technical detail required for the project paper. Since the subject matter is rather specialized, the draft project paper will be circulated to recognized experts in this area in the Geological Survey, the Defense Mapping Agency, and universities for review of its technical feasibility. If the results of this review are positive, the project paper will be submitted for R&DC and RAC reviews. Approximately 15 workdays are required to develop the project paper and the necessary reviews.

ISSUES

Beyond the assumptions already listed, there are no particular issues to be raised at this time.

SATISFACTION OF AGENCY SELECTION CRITERIA

This research project is of indirect benefit to the poor majority in that improved mapping should result in improved decisions in agriculture, land use, and resource development. The poor, along with the balance of the population, should benefit from the improved management of these resources.

Mapping involves the collection of data by remote sensing and has no direct impact on the environment. The purpose of this project is to improve resource management, thus, it is inherently beneficial to the environment in both the long- and short-term. A negative determination is, therefore, recommended.

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA # 7 Type # B

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1224

6. BUREAU/OFFICE: A. SYMBOL: TA3; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Remote Sensing in Agriculture

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE (MM YY): 10 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY. 82

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
a. AID APPROPRIATED	
b. OTHER U.S. 1.	
OTHER U.S. 2.	
c. HOST COUNTRY	
d. OTHER DONOR(S)	
TOTAL	1,800

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) SD	751			600		1,800	
(2)							
(3)							
(4)							
			TOTAL	600		1,800	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve agricultural land utilization and crop forecasting in LDCs through assistance in the use of remote sensing and related technologies.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To identify existing remote sensing monitoring techniques in agriculture and adapt them for use in developing countries and tropical conditions.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

Consultant's study completed during FY 1977 will provide data needed for PP. Approximately 15 DH workdays required to develop PP

18. ORIGINATING OFFICE CLEARANCE

Signature: Henry A. Arnold (231)

Title: Director, TA/OST

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

PROJECT IMPLEMENTATION DOCUMENT

REMOTE SENSING APPLICATIONS IN AGRICULTURE

PROBLEM

The lack of food resources for the poor results from three basic factors: (1) the soil and terrain conditions are of too poor a quality to support existing agriculture; (2) pre-harvest crop production estimates that the governments project are full of errors resulting in commodity speculators bidding up prices too high for the poor to afford or so low that supply eventually falls critically behind demand; (3) transportation systems are inadequate for rapid distribution of food commodities to the needy.

RESPONSE

To a limited technical degree, remote sensing can and does alleviate all three problems. Remote sensing technology is capable in certain non-vegetated areas of disciminating soil types. Existing erosional features and water content of the soil are measurable by this technology. Over very large areas, satellite remote sensing can describe acreages and conditions of various crops, and supplemental aircraft radar data can describe crop water content necessary to derive yield factors. The product of acreage and yield gives production, which, when coupled with meteorological data, allows crop forecasting. Accurate crop forecasting and its subsequent stabilizing of food price fluctuations is a cause-effect relationship being advanced by agricultural economists. Remote sensing also allows intelligent route selections, for example, for roads in localities where remote sensing reveals rich gravel deposits for concrete mixtures.

PROJECT DESCRIPTION

The outputs of this research project will be improved crop measurements, especially for small field sizes in developing countries. The marginal improvements in acreage measurements as a result of higher resolution satellite sensors such as the Thematic Mapper of Landsat D (1981) will be tabulated. General soil types for various developing countries will be discriminated and listed. The percentage of water moisture in various plant fibres will be ascertained via microwave and radar research. All of these research product outputs--crop acreages, yield, plant moisture, and soil type-- will be modeled to improve crop forecasts and understand where agriculture should be intensified in developing countries.

Most of the research will be supported in U.S. institutions, with several field applications in two tropical developing countries. The physical resources required are digital processing capabilities with photo interpreters experienced in agricultural patterns in developing countries. For demonstration in developing countries, the transfer of the technology to at least two regional training centers will be attempted.

This transfer should parallel the development of the computerized image processing and information systems described in the Project Implementation Documents "Computer Applications in Remote Sensing" and "Earth Resources Information Systems." For the technical and physical resources necessary for host country transfer, ten agricultural specialists in each of the two regional training centers will be required, in addition to the computer facility for digital image processing. Fifty to one hundred field survey personnel are needed in each country. The Earth Resources Information System would be an ideal management tool for the agricultural forecasting model, but is not absolutely necessary to carry out this agricultural project.

This project is expected to last three years, from FY 1979 through FY 1981.

The assumptions pertinent to the project success include the cooperation of two developing countries with AID in carrying out the technology transfer and the willingness of U.S. contractors to conduct the research necessary to apply remote sensing to the mensuration of small tropical fields. A regional remote sensing center with at least a limited capability to digitally analyze Landsat scenes is assumed.

The host countries will participate by assigning ten agricultural specialists from each country for training in the regional centers on agricultural applications stemming from the research carried out in the U.S. Their developed digital processing system and Earth Resources Information System will also be used for image analysis and agricultural crop forecasting, respectively. In addition, it is estimated that the agricultural specalists will need to employ 50 to 100 field personnel (or they can use existing farmers) for ground truth efforts.

An alternative approach to this procedure is to simply rely on the many agricultural applications sponsored by NASA (most notably, the joint NASA/USDA Large Area Crop Inventory Experiment - LACIE). Although elements of LACIE are certainly useful to this project, LACIE does not fulfill the needs of the problem described here. LACIE is a global monitoring experiment to sample specific crops (to date, wheat only) in order to more accurately forecast total wheat harvest in the world for the purpose of stabilizing wheat price fluctuations. The economic benefit accrues to the U.S. commodity speculators, exporters, and grain inventory holders. LACIE does not address the requirements of small tropical field yield and harvest predictions in and for developing countries. Another alternative is to rely on Landsat Principal Investigator research, wherein NASA-designated researchers in developing countries are supported by in-country agencies to work on agricultural and other resource problems using remote sensing as a tool. The problem here is that the researcher in the past has had poorly defined government support and visibility and, although his work was institutionally supported at his place of work, there was generally no incentive in his institution or in NASA to see that the fruits of his endeavor were communicated to the agricultural misistries of his government. As a result, research results were deadended and did not become part of

the government's normal mode of operations by which it could benefit the poor majority. Another alternative would be to transfer the technology to an agricultural ministry in a tropical country facing severe agricultural problems but one in which no regional training center exists. This is a possible approach if care is taken to ensure the adequate dissemination of the application to the poor.

FINANCIAL REQUIREMENTS

The run out cost of this project is expected to total $1,600,000, starting with $600,000 in FY 1979, then $500,000 each in FY 1980 and FY 1981. A.I.D. would contract most of this amount to U.S. contractors to support research into the measurement of tropical agriculture by remote sensing and a methodology to transfer it to two regional centers or a needy tropical country. Some grant money to the host countries would undoubtedly be needed for training; however, this money would be a small percent of the total cost (around 10 percent). The host country would be expected to fund the salaries of the ten agricultural specialists, the ground truth teams, and the housing facility for the training. The agricultural training would be conducted only a small number of times (perhaps once), then the application would be expected to be self-perpetuating in the regional remote sensing center and integrated into their agricultural inventories.

PROJECT DEVELOPMENT

Presently AID/OST has a contract with the University of California - Santa Barbara to identify the agricultural needs of the tropical developing countries. This contract is presently being concluded. It is envisioned that a second small contract for about 15 work days will be let for a contractor to use the results of the UCSB contract to write up a Project Paper. One A.I.D. agricultural economist knowledgeable of the two selected tropical countries will be required for 15 days to consult on aspects of this Project Paper. In addition, 48 work days of one of the two presently authorized remote-sensing scientists will be required to manage this project each year of its existence.

BROAD ISSUES

The remote sensing of agriculture from satellites has had sufficient experience (over 15 years) and economic analysis associated with it, so there hardly appears to be any necessity to justify its worthiness as a topic for continued research and applications. The key issue as far as tropical developing countries are concerned is its incorporation into the ongoing operations of planning ministries responsible for food production and distribution. For this reason, transferring the agricultural application into an existing (1979) regional remote sensing center would verify its potential benefit by providing sufficient staff time to extend the technology to the field.

The second issue is the assumption that improved agricultural information from remote sensing will result in decision making which will provide more and better food to the poor. Although rigorous economic analysis in the U.S. has verified the benefits to grain speculators having improved crop forecasts, there is as yet no verification that better crop information from remote sensing will directly benefit the hungry in developing nations.

AGENCY SELECTION CRITERIA

The agricultural applications of remote sensing have direct benefit to the poor majority. If the application is integrated properly into the agricultural inventories of the developing country, this remote sensing inventory may well be the only feasible method to predict a crop shortfall and allow the government to take corrective action to decrease the human anguish and suffering associated with mass crop losses.

The agricultural applications are directly related to TA/AGR Central American remote sensing programs and other Mission Bureau programs. For example, the agricultural application might best fit initially into the Remote Sensing Center in Nairobi, Kenya, sponsored by the Africa Bureau.

Because of the extensive ground truth data needed to verify the remote sensing crop inventories, it will be necessary for each host country to employ as many as 50 to 100 ground survey personnel, in addition to the 10 agricultural specialists. Although remote sensing does require relatively high capital outlays for digital processing ($30,000 to $500,000), the agricultural applications require considerable ground truth data on a continuing basis, with its associated high labor demand.

This project is concerned with transferring knowledge and understanding in the environmental field and hence will have no direct significant impact on the environment. Nor will the secondary impacts. For the foreseeable future this activity should, however, foster improved LDC capabilities in making more environmentally sound decisions regarding development and thus contribute to the protection of their own environment. A negative determination is, therefore, recommended.

TA/OST:CKPaul:ep:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

1. TRANSACTION CODE: A (A = ADD, C = CHANGE, D = DELETE)

PID

2. DOCUMENT CODE: 1

3. COUNTRY/ENTITY: TA/OST, RDA #7 Type #b

4. DOCUMENT REVISION NUMBER:

5. PROJECT NUMBER (7 DIGITS): 931-1225

6. BUREAU/OFFICE: A. SYMBOL: TAB; B. CODE: 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS): Computer Applications in Remote Sensing

8. PROPOSED NEXT DOCUMENT: A. 3 (2 = PRP, 3 = PP); B. DATE: MM 10, YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION: a. INITIAL FY 79; b. FINAL FY 81

10. ESTIMATED COSTS ($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
B. OTHER U.S. 2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	1,500

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) FN	752			500		1,500	
(2)							
(3)							
(4)							
			TOTAL	500		1,500	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve development planning and land utilization in LDCs through assistance in the use of Landsat digital data for natural resource identification and management.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To assess current computer processing techniques and match them with identified existing and potential LDC capabilities.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

18. ORIGINATING OFFICE CLEARANCE

Signature: HENRY A. ARNOLD

236

Title: DIRECTOR, TA/OST.

Date Signed: MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM DD YY

AID 1330-2 (3-76)

PROJECT IMPLEMENTATION DOCUMENT

COMPUTER APPLICATIONS IN REMOTE SENSING

PROBLEM

As remote sensing technology begins to take hold in developing countries for development planning and land utilization, initial demonstrations of the technology via visual analysis of imagery will lack the repeatability and accuracy necessary to provide reliable resource information. In addition, the time required to manually analyze imagery for a multitude of applications, such as environmental assessments of land planning, will result in image volume backup and, subsequently, shoddy or careless interpretation that will preclude adequate planning for the development of resources.

RESPONSE

Digital image processing, with the resource manager working in conjunction with a computerized image enhancer and land use classifier, permits consistent results in image analysis and requires only minutes instead of hours and days associated with visual analysis only. The technique frees the image interpreter to perform the job the human being does best, that is, to correlate the machine (computer) classified land units with the capability of the units to support agriculture, settlement, or whatever. Machine classification simply forms into homogeneous clusters the millions of picture elements contained in one remote sensing image, thereby providing a scene-to-scene, consistently-derived, land-use pattern.

PROJECT DESCRIPTION

For a selected area, the output products necessary to ensure successful completion of the project would be various computer classified maps of existing land uses (cultural) and natural resources (as well as soil types). The maps should have a variety of forms for evaluation, for example, line printer choropleth and proximal maps, and alphameric character plots for subsequent coloring. A limited capability for color reproduction would be provided.

The technical resources required are personnel intimately familiar with the geomorphology and resources of the area in which the computer classification is to be demonstrated. Foresters, rangeland managers, agricultural extension agents, and soils experts from the host country are required. In addition, computer programmers, operations research specialists, and electronic technicians from the host country must be provided or trained to work closely with U.S. contractors installing the computer hardware and software. The physical resources for the computer system would ideally be

situated in part of a regional remote-sensing center, and would consist of minicomputers (about 16-50 kilobytes of memory), with associated peripheral input and output devices, line printer, and film recorder.

The project duration of this research and demonstration effort would be three years, beginning in FY 1979.

The assumptions relating to the successful completion of this project are that there exists a regional remote-sensing center or similar facility that provides training in remote sensing on its physical premises, and that the facility can house and maintain a limited number of computer components. U.S. contractors must be encouraged to work with the computer operators from developing countries, and computer classification programs can be cleared for use in the developing countries.

Host country participation includes an ongoing, active, remote-sensing training program with sufficient experience in human visual analysis and its limitations to appreciate the advantages of automatic machine classification techniques. The interaction of host country resource managers and planners with the computer technology is mandatory before the computer classifications can even begin to approach reasonable accuracy. In other words, the participation of host country trainees familiar with the terrain to be classified is necessary to assure that the computer classifiers can even function properly in this setting.

Alternative approaches to this project would include utilizing more and more human interpreters to try to keep up with the volume of imagery necessary to plan resource utilization, or contracting the computer processing to U.S. contractors, as is presently done. More interpreters alone generally does not overcome the accuracy limitations of human interpretation since the correlation of interpreted land units among hundreds of satellite scenes being analyzed by scores of interpreters cannot be adequately managed. In addition, the present method of contracting piecemeal each remote sensing project to a U.S. contractor is unsatisfactory for continuous remote-sensing programs because costs are prohibitive, U.S. contractors are generally less familiar with the land than are host country resource planners, and a reduction in a positive balance of payments results for the country involved.

There is a spread effect in utilizing computer classification for resource inventories. The training required to service the computers and to modify and rewrite software programs to be compatible with these computers would upgrade the job skills and possibly the income of host country technicians. In addition, more rapid and timely information about crop inventory and condition could improve decisions regarding cropping practices and harvest times, with potential benefits to the poor and hungry.

FINANCIAL REQUIREMENTS

The project would cost $1,500,000 over three years, with $500,000 to be spent in FY 1979. AID would expect to pay this amount for grants and support

to U.S. contractors. The host country would be expected to provide the housing, operations, and maintenance costs of the computer facilities. Since this project is self-perpetuating, the recurring maintenance costs would be handled by host country training centers in remote sensing.

PROJECT DEVELOPMENT

The project will be developed in conjunction with and as an addition to a regional training center for remote sensing. The training center selected will be in an interested developing country that has made some initial efforts to obtain digital processing software. Many activities using visual interpretation of satellite imagery in developing countries indicate the need for more consistent and rapid analysis capability associated with digital computer processing.

The project paper will be submitted in FY 1978 and will require one AID remote-sensing scientist in addition to the two authorized for FY 1979. Thirty person days are required in FY 1979 to manage this project with an AID obligation of $500,000. Limited consulting services would be required to carry out the analysis necessary in writing a project review paper, such as the computer hardware and software which would be most compatible with existing facilities in the host country.

ISSUES

The ability of a host country to proceed to digital analysis depends on its thorough acceptance and understanding of the limitations and applications of visual analysis. Most developing countries have neither the technical background nor the support facilities to make use of computerized processing of remote sensing imagery. A more serious issue is the ability of a host country to glean information from imagery which adjacent countries cannot glean because they do not have this technology, which raises the issue of one country having a strategic advantage because it better understands other countries' resources than those countries themselves. The issue is similar to that raised by the developing countries when Landsat-1 was first launched, in that the U.S. had resource information for the rest of the world, information which the developing countries had a difficult problem obtaining.

SATISFACTION OF AGENCY SELECTION CRITERIA

Digital computer analysis of satellite imagery permits more accurate mensuration of smaller agricultural field sizes found in many developing countries (especially South East Asia) than does visual analysis. Since these measurements of field size and yield allow better agricultural management and production estimates, the benefits of improved food distribution can accrue to the poor majority. For example, digital processing of imagery of small fields and crop diseases allows better crop forecasting, permitting agricultural planners time to purchase food elsewhere if crop failures seems imminent, or to encourage lowering of food prices for the poor if a bumper crop seems likely.

ISSUES

The development of each of the digital processing and information systems is complex in its own right. The successful mating of the two is many times more complex and sensitive to perturbations in each. For management of natural resources, it has very seldom been successful in the developed countries. Perhaps in the developing countries, where management of resources is so critical and of such keen interest, the fruition of the mating of these systems holds greater promise. The key issue is whether accurate and timely technical data of any type will have any significant impact on political decison making to warrant the expenditure of funds.

SATISFACTION OF AGENCY SELECTION CRITERIA

Better manipulative control of many types of data has the possibility of inducing resource planners to make decisions resulting in food relief to the poor majority. One criticism of equitable distribution of needed commodities has been that many factors affecting this distribution have not been taken into account. For example, lands may have been designated for future agriculture because census data indicates (1) that populations are concentrated nearby and that farming is traditional to their way of life and (2) that present wells indicate that an underground aquifer is present for water. Remote sensing data may reveal soils of such poor quality or erosion susceptibility that farming would be a poor use of this land. The information system allows the proper weighting of many of these variables affecting the agricultural potential of the land, thereby conceivably benefitting the poor and hungry.

This project is compatible with and fills many of the project requirements of TA/AGR and the various Bureaus.

EFFECT ON ENVIRONMENT

This project is concerned with transferring knowledge and understanding in the environmental field and hence will have no direct significant impact on the environment. Nor will the secondary impacts. For the foreseeable future this activity should, however, foster improved LDC capabilities in making more environmentally sound decisions regarding development and thus contribute to the protection of their own environment. A negative determination is, therefore, recommended.

TA/OST:CKPaul:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

[A] A = ADD C = CHANGE D = DELETE

PID

2. DOCUMENT CODE 1

1. COUNTRY/ENTITY
TA/OST, RDA 7 Type # C

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS)
931-1226

6. BUREAU/OFFICE
A. SYMBOL TAB
B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS)
Portable Ground Stations

8. PROPOSED NEXT DOCUMENT
A. 3 2 = PRP 3 = PP
B. DATE MM YY 10 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
a. INITIAL FY 79 b. FINAL FY 83

10. ESTIMATED COSTS
($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE	LIFE OF PROJECT
A. AID APPROPRIATED	
B. OTHER U.S. 1.	
2.	
C. HOST COUNTRY	
D. OTHER DONOR(S)	
TOTAL	4,500

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	D. LOAN	E. FIRST FY 79 F. GRANT	G. LOAN	LIFE OF PROJECT H. GRANT	I. LOAN
(1) FN	752			2,500		4,500	
(2)							
(3)							
(4)							
			TOTAL	2,500		4,500	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)

To improve development planning and land utilization in developing countries through ensuring the acquisition of Landsat data in a temporary Landsat receiving station based in LDCs.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)

To provide Landsat data to LDCs when desired for the purpose of both providing resource data and to permit LDCs to critically evaluate the utility of eventually contructing permanent stations.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)

15 DH workdays required for development of project.
Cooperation of NASA technical personnel is anticipated.

18. ORIGINATING OFFICE CLEARANCE

Signature
HENRY A. ARNOLD

Title
DIRECTOR, TA/OST

Date Signed MM DD YY
241

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION
MM DD YY

AID 1330-2 (3-76)

PROJECT IDENTIFICATION DOCUMENT

PORTABLE GROUND STATIONS

PROBLEM:

There are presently no continuous Landsat data for most of the World. Some developing countries have had no imagery of their areas for several years. This is due to two conditions: (1) existing permanent ground stations capable of receiving Landsat data can receive data limited in coverage to North America, the central portion of South America, southern Europe, and the very northern portions of Africa. Any imagery acquired over other portions of the world (which include almost all of the developing countries) must be stored on Landsat tape recorders and dumped to an existing permanent station in the U.S., Canada, Brazil, or Italy. However, of the dual recorders on each of Landsat 1 and Landsat 2, only one recorder is now operating on Landsat 2. This recorder has, at most, 100 operating hours remaining in its expected life, and almost all of this time is obligated to a joint NASA-USDA crop inventory experiment. Although permanent ground stations are being planned for Argentina, Iran, and Zaire, they will not provide coverage for very many developing countries. If tape recorder priorities remain the same for Landsat C to be launched next year as they have for Landsats 1 and 2, it appears that the developing countries will simply have no future sources of Landsat data. Thus, remote sensing training for and utilization by these countries must resort to Landsat data already several years old, if they exist at all. In those few cases

where they do exist, cultural features have probably changed and natural features, such as forests and rivers, have undoubtedly varied.

RESPONSE:

The method proposed to ensure Landsat data for selected developing countries is the portable ground station. The methodology consists of setting up one of these relatively temporary Landsat receiving stations in a centralized site in a developing country, such as the capital of the country or an existing or developing regional remote sensing center. A lease arrangement would be negotiated whereby the host country would have sole access to Landsat data from this portable station for a period of time.

PROJECT DESCRIPTION:

The outputs of the portable station should consist of high density digital tapes (HDDT), quick look capability such as thermofax or datafax images to assess amount of cloud cover, and a limited amount of radiometric and geometric correction capability for black-and-white 70-mm film chips.

The technical resources consist of U.S. contractor technicians who will deliver, install, operate, and dismantle the portable ground station. They will also assist host country participants in producing film products from Landsat data. It would be ideal to erect the station adjacent to a regional remote sensing training center, but this is not mandatory, and political factors such as immediate demonstration to government administrators in the capital may dictate the selection of the station site. Imagery from the

station can always be mailed to the training center. Physical resources to accommodate the station would consist of a continuous supply of electrical power, housing for receiver equipment, and limiting or eliminating surrounding interference sources to the antenna.

This project is expected to last five years, although various communication strategies presently envisioned by NASA for Landsat D in 1980 might alleviate the tape recorder problem and obviate the need for portable ground stations after one year into this project.

The basic assumption of this project is that the tape recorder flown on Landsat C (to be launched in March 1978) will remain so committed to supporting U.S. agency programs that very little time will be allotted to image data storage of developing countries. Even if more recorder storage is allocated to developing countries, this concept of permitting a country to experiment with a portable receiving station before deciding to construct a permanent station has merit. If after a trial lease period a country sees no benefits deriving from Landsat, it can give up the station with no further maintenance and operating costs associated with a permanent station.

Host country participation consists of assessing the value of the imagery products derived from the portable ground station in relation to the decision to acquire a permanent station or support a regional Landsat receiving station covering their country. The country must also provide the space and electrical power for the station and encourage government officials to visit the stations and evaluate the products.

The alternative approaches to getting current Landsat data to the developing countries between the present and 1981 are none. Unless considerable pressure can be brought to bear on NASA for priority scheduling of the tape recorder on Landsat C for the benefit of the developing countries, only random and very infrequent images of perhaps a handful of developing countries will ever be taken. After 1980, however, NASA is contemplating a communications relay satellite system (called Tracking and Data Relay Satellite System TDRSS) which may assure global data for all countries, but indeed may not eliminate the desire by developing countries to possess the autonomy associated with a Landsat receiving station in receiving Landsat data at will.

If the project is successful in demonstrating the value of Landsat data reception in a host country, it is conceivable that other countries may wish to have it demonstrated in their regions. The importance of the spread effect is the inability of the U.S. suppliers to provide portable ground stations to many developing countries; however, the effect could result in an increased demand for permanent stations in countries which have witnessed the portable station in operation in another developing country.

FINANCIAL REQUIREMENTS:

The needed funding for this project is $2,500,000 in FY 1979, $500,000 for each of FY 1980 and FY 1981, and $1,000,000 for the remaining two years, for a total of $5,500,000. These costs are all for station equipment and contractor support. Host country share of the total cost would be for building lease and electric utility costs for the placement of the portable station. The use

of the portable station itself is expected to terminate at the end of the lease period.

PROJECT DEVELOPMENT:

A portable ground station is presently in operation in Pakistan. A second has been stored at the NASA Goddard Space Flight Center. Before this project would begin in FY 1979, the Pakistan experience will be assessed and further discussions with NASA and other agencies and developing countries will be conducted to determine interest in the portable station stored at Goddard. A Project Plan will probably be submitted in FY 1978 after consultation with the portable ground station contractor. It is doubtful that AID personnel outside of OST will be required, but a third OST remote-sensing scientist will be needed for 32 days in FY 1979 to manage this project, in addition to the Computer Applications project and the information system.

It is contemplated that a successful first year demonstration of Landsat data reception via a portable ground station station would require one protable ground station for 6 months in each of two developing countries. If the demonstrations result in sufficient interest that the countries decide to either build permanent stations or buy the portable one, and further Landsat data is still difficult to receive in the post 1980 time period, then eventually three portable ground stations will be rotated in interested countries in the Far East, Africa, and South America. AID support for these stations should be supplemented by other sources.

BROAD ISSUES

The main issue is the availability, in some form, of continuing data in NASA's Landsat program. At this time it appears that the

portable ground station fills a vital role in supplying data to developing countries. By 1980, the need for portable stations may disappear. Thus, it is difficult to entice U.S. private investors to build portable stations with NASA's programs presently so uncertain. The portable station in storage at Goddard is one discouraging indicator of either the lack of demand for the portable station, or its prohibitive lease costs, or other reasons which must be investigated prior to the project date. Also, the degradation of the products from the portable station relative to those from a permanent station and their resulting utulity must be ascertained in this project.

The issue of a host country deciding it would like to permanently keep the portable station, at the expense of other countries waiting in line, must be weighed against the U.S. company's perceived risk in building a new one to serve these countries.

SATISFACTION OF AGENCY SELECTION CRITERIA

The regional bureaus of AID program $4 to $5 million annually for the projects which are dependent upon the use of Landsat imagery. For example, the Africa Bureau is planning to develop training centers in Upper Volta and Zaire and is funding resource inventories and land use plans in several countries including Tanzania, Mali, Ghana, Upper Volta and Benin. Resource inventories and land use plans, in particular, require up-to-date information and are often based on the assumption that it will be available. A portable ground station could also fit into a larger network of ground stations and

training centers. For example, the Economic Commission for Africa, in cooperation with AID and other bilateral donors, has proposed an Africa-wide remote sensing program made up of five training centers and three ground stations coordinated by an ECA-sponsored council. The Economic and Social Council for Asia and the Pacific is interested in a similar regional network as are the ROCAP countries of Central America. Thus one or more portable ground stations would benefit not only AID projects but would fill important gaps in regional data acquisition schemes.

This project is concerned with transferring knowledge and understanding in the environmental field and hence will have no direct significant impact on the environment. Nor will the secondary impacts. For the foreseeable future this activity should, however, foster improved LDC capabilities in making more environmentally sound decisions regarding development and thus contribute to the protection of their own environment. A negative determination is, therefore, recommended.

TA/OST:CPAUL:mhc:5/10/77

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IDENTIFICATION DOCUMENT FACESHEET

TO BE COMPLETED BY ORIGINATING OFFICE

[A] A = ADD C = CHANGE D = DELETE

PID

2. DOCUMENT CODE 1

3. COUNTRY/ENTITY
TA/OST, RDA # 7 Type # B

4. DOCUMENT REVISION NUMBER

5. PROJECT NUMBER (7 DIGITS) 931-1227

6. BUREAU/OFFICE A. SYMBOL TAB B. CODE 08

7. PROJECT TITLE (MAXIMUM 40 CHARACTERS) Earth Resources Information Systems

8. PROPOSED NEXT DOCUMENT
A. 3 (2 = PRP, 3 = PP) B. DATE MM 10 YY 77

9. ESTIMATED FY OF AUTHORIZATION/OBLIGATION
a. INITIAL FY 79 b. FINAL FY 81

10. ESTIMATED COSTS
($000 OR EQUIVALENT, $1 =)

FUNDING SOURCE		DATE OF PAGE 27
A. AID APPROPRIATED		1,500
B. OTHER U.S.	1.	
	2.	
C. HOST COUNTRY		
D. OTHER DONOR(S)		
	TOTAL	1,500

11. PROPOSED BUDGET AID APPROPRIATED FUNDS ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	PRIMARY TECH. CODE C. GRANT	PRIMARY TECH. CODE D. LOAN	E. FIRST FY 79 F. GRANT	E. FIRST FY 79 G. LOAN	LIFE OF PROJECT H. GRANT	LIFE OF PROJECT I. LOAN
(1) FN	752			500		1,500	
(2)							
(3)							
(4)							
			TOTAL	500		1,500	

12. SECONDARY TECHNICAL CODES (maximum six codes of three positions each)

13. SPECIAL CONCERNS CODES (MAXIMUM SIX CODES OF FOUR POSITIONS EACH)

14. SECONDARY PURPOSE CODE

15. PROJECT GOAL (MAXIMUM 240 CHARACTERS)
To improve development planning and land utilization in developing countries through assistance in the use of information systems including remote sensing derived data.

16. PROJECT PURPOSE (MAXIMUM 480 CHARACTERS)
To modify and adapt existing or conceived information systems to address the agricultural and natural resource systems available to LDCs.

17. PLANNING RESOURCE REQUIREMENTS (staff/funds)
15 DH workdays required for development of PP.
Assistance from USGS is anticipated.

18. ORIGINATING OFFICE CLEARANCE

Signature HENRY A. ARNOLD (249)

Title DIRECTOR, TA/OST

Date Signed MM DD YY

19. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS DATE OF DISTRIBUTION MM DD YY

AID 1330-2 (3-76)

PROJECT IMPLEMENTATION DOCUMENT

EARTH RESOURCES INFORMATION SYSTEMS

PROBLEM

Although remote sensing data are valuable inputs to improve resource management, in themselves they are insufficient for development decision making. Remote sensing data, which are ordinal in the sense that they are spatial by nature and can easily be geodetically related to each other, must be correlated to socio-economic and political data before synergistic relationships can be developed. These latter data types are termed nominal data, in that they are referenced by names, for example, street names, political subdivisions, town names, and ranch names. The problem is relating remote sensing ordinal data and nominal data routinely collected by many developing countries for effective decision making.

RESPONSE

Information system technology, normally computerized, is the means for integrating ordinal and nominal data. The prevailing philosophy is to (a) convert some characteristic of nominal data to an ordinal descriptor, (b) correlate the literally millions of descriptors and remote sensing data items, (c) perform aggregates and summaries of interest to the decision maker, who then will (c) mentally convert these summaries back to the nominal domain where the human being feels more comfortable in political settings. The purpose of this project is to assess this process by supporting research to transfer adequate data correlation procedures to developing countries so that they can manage resources effectively.

PROJECT DESCRIPTION

Information systems capable of correlating remote sensing and other data sources would be developed, tested, and evaluated in three developing countries. The systems will be capable of summarizing remote sensing data and data acquired in the host country, and of producing outputs that reflect these summaries. The forms of these outputs will vary, depending on the level of funds and interest of the host country, but might conceivably consist of choropleth and proximal line-printer maps, alphameric computer-generated maps, colored maps, and statistical tabulations by political subdivision.

Technical personnel required by each host country are one operations research analyst, one systems level programmer, one procedure level programmer, and one remote-sensing digital expert. These personnel should be trained simultaneously with those learning the digital processing of imagery described in the PID, "Computer Applications in Remote Sensing." A. U.S. contractor

would be involved in the training and computer development. The computerized system could optimally be designed around the same system developed for image analysis, but the storage requirements for the information system might necessitate additional memory units. Again, the information system should be in the same facility as an ongoing, regional remote-sensing center.

The project is expected to last three years, beginning in FY 1979.

The assumptions necessary for project success include the existence of an ongoing regional training center in remote sensing with facilities and supporting maintenance for a computer system. The collection of relevant data necessary for resource planning and modelling, or at least the realization of the need for and an intention to collect data, is assumed on the part of the host country. The availability and interest of competent U.S. contractors are also assumed.

The host government will provide housing and maintenance of computer hardware in the training center and personnel who will eventually take over and operate the information system. Every effort will be made to encourage all government agencies interested in development planning to become familiar with and utilize the information system centralized in the regional remote-sensing system. The success of these efforts will ensure the dissemination of remote sensing technology as well as improved management of the country's resources.

Alternative approaches range from independent collection of various data about the status of a developing country's resources with no correlation of these data (as is too frequently done in developed countries) to providing the summaries by manually overlaying various data in transparent map form over a light table. The consequences of decision making with single source inputs, for example, geology maps only or census data only, are poor land use compatibility, long court suits, citizen protest, environmental degradation, and sometimes catastrophic property damage and loss of life. Manual overlay techniques suffer from the lack of ability of the human analyst to physically perceive the unions and intersections of various mapped data and to correlate the many combinations of these data.

The spread effect of information systems and their associated improvements in resource management is the ability to plan alternatives in supplying the hungry with food and water. Remote sensing and information systems are technical tools in an array of other technical and socio-economic tools for alleviating the misery of the very poor; however, the spatial analysis capability facilitates better commodity marketing practices and improved transportation facilities to carry these commodities to the needy.

By developing information systems of various complexities in three developing countries of different technical abilities, it is hoped that three models will be created to cover most political and technical environments found

throughout the developing world. In this way the diffusion of the technology to other developing countries will be enhanced by the suitability of one of the three models to the situation.

FINANCIAL REQUIREMENTS

The project would cost $1,500,000 over three years, from FY 1979 - FY 1981, with $500,000 budgeted fy FY 1979. This cost to AID will be in the form of grants to host countries and support of research and development of computerized information systems by U.S. contractors. The host countries would be expected to provide the housing facility, the maintenance and operating cost of the computer hardware, and the salaries of personnel being trained to operate and manage the information system. The project is expected to be self-perpetuating through adequate training in the associated, regional remote-sensing center.

PROJECT DEVELOPMENT

The project will be an extension and expansion of the CRIES information system development supported by TA/AGR for Central America. This project is presently transferring existing computer information systems to various developing countries; however, more research is necessary to advance the capability of information systems to relate various data sources, and to understand how these systems fit into developing country infrastructures. Various NASA Centers and NASA-supported university programs are assessing these needs in the U.S., and the development of this project would continue the research and establish three demonstration projects in developing countries.

The Project Paper for this project would be submitted in FY 1978. One person other than the two authorized for FY 1979 would be required (the same person required to manage the "Computer Applications in Remote Sensing" project) for about 30 work days.

Consulting services of a U.S. contractor would be required in preparing the analysis necessary to prepare a Project Review Paper. The contractor would ideally be the same contractor analyzing requirements for the computer system for digital processing of imagery. However, since each type of system requires specialized knowledge, perhaps two different contractors will have to be closely coordinated in the endeavor to integrate the digital remote-sensing input products to the information system.

At this integration stage, an AID Mission person would be required for approximately four person months. Also, one consultant and one temporary duty person from the Office of Science and Technology would be required on site for one month each.

ISSUES

The development of each of the digital processing and information systems is complex in its own right. The successful mating of the two is many times more complex and sensitive to perturbations in each. For management of natural resources, it has very seldom been successful in the developed countries. Perhaps in the developing countries, where management of resources is so critical and of such keen interest, the fruition of the mating of these systems holds greater promise. The key issue is whether accurate and timely technical data of any type will have any significant impact on political decison making to warrant the expenditure of funds.

SATISFACTION OF AGENCY SELECTION CRITERIA

Better manipulative control of many types of data has the possibility of inducing resource planners to make decisions resulting in food relief to the poor majority. One criticism of equitable distribution of needed commodities has been that many factors affecting this distribution have not been taken into account. For example, lands may have been designated for future agriculture because census data indicates (1) that populations are concentrated nearby and that farming is traditional to their way of life and (2) that present wells indicate that an underground aquifer is present for water. Remote sensing data may reveal soils of such poor quality or erosion susceptibility that farming would be a poor use of this land. The information system allows the proper weighting of many of these variables affecting the agricultural potential of the land, thereby conceivably benefitting the poor and hungry.

This project is compatible with and fills many of the project requirements of TA/AGR and the various Bureaus.

EFFECT ON ENVIRONMENT

This project is concerned with transferring knowledge and understanding in the environmental field and hence will have no direct significant impact on the environment. Nor will the secondary impacts. For the foreseeable future this activity should, however, foster improved LDC capabilities in making more environmentally sound decisions regarding development and thus contribute to the protection of their own environment. A negative determination is, therefore, recommended.

TA/OST:CKPaul:5/10/77

A-2 TABLES

Office TA/OST

Activities which cannot be attributed to Specific Clusters A-2

Activity Coordinator John Daly

Priority

Date

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						20	-		-	-	47		-	46			
B. RB and Mission Services					-	-	-		-	-	-		-	-			
C. Project Development and Management					-	-	-		-	-	8		-	8			
D. Contacts with International Organizations					-	13	-		-	-	36		-	58			
E. Administration and Supervision					-	49	-		-	-	177		-	203			
GRAND TOTAL						82					268			313			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

254

Office TA/OST

Activity Coordinator JJ Bosken

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority BASE

Date 5/30/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Office - TAB Meetings						33					58			65			
ABS, CP, OYB Preparation																	
Inquiries						15					20			20			
Training											15			20			
Annual Leave						12					21			25			
Grand Total for Non-Cluster						60		255			114			130			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity

Office TA/OST

Activity Coordinator [illegible]

Activities which cannot be attributed to Specific Clusters — A-2

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Priority I

Date [illegible]

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Office - TAB Meetings						33					58			65			
ABS, CP, OYB Preparation																	
Inquiries						15					20			20			
Training											15			20			
Annual Leave						12					21			25			
Grand Total for Non-Cluster						60		256			114			130			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity

Office TA/OST

Activity Coordinator J.J. Bosken

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority II

Date 5/20/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Office - TAB Meetings						33					58			65			
AES, CP, OYB Preparation																	
Inquiries						15					20			20			
Training											15			20			
Annual Leave						12					21			25			
Grand Total for Non-Cluster						60		257			114			130			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity

Office TA/OST

Activity Coordinator J.J. BOSKEN

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority PROPOSED

Date 5/20/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Office - TAB Meetings						33					70			90			
ABS, CP, OYB Preparation																	
Inquiries						15					25			25			
Training											20			25			
Annual Leave						12					26			35			
Grand Total for Non-Cluster						60					141			175			
								258									

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

Office TA/OST

Activity Coordinator JJ Boskin

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority Full Fund

Date 5/20/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
Office - TAB Meetings						33					70			90			
ABS, CP, OYB Preparation						20					30			40			
Inquiries						15					25			25			
Training											20			25			
Annual Leave						12					26			35			
Grand Total for Non-Cluster						60		259			141			175			

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

Office TA/OST

Cluster No. 9953 Title: Environment/Natural Resources

Activity Coordinator M. KUX

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Activities which cannot be attributed to Specific Clusters A-2

Priority 80%

Date MAY 20, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Total	FY 1977 Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Total	FY 1978 Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Total	FY 1979 Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. PLANNING AND STRATEGIZING																	
ABS; PREPARATION, REVIEW & APPROVAL						9					14			14			
CP " " "						9					14			14			
OYB " " "						10					15			15			
TOTAL						28					43			43			
SMALL ACTIVITIES TOTAL																	
B. REGIONAL BUREAU AND MISSIONS SERVICES																	
TOTAL																	
C. PROJECT DEVELOPMENT AND MANAGEMENT																	
TOTAL																	
SMALL ACTIVITIES TOTAL																	
D. CONTACTS + INTERACTIONS WITH INTERAGT. ORG. ETC.						14					21			21			
TOTAL						14					21			21			
E. ADMINISTRATION AND SUPERVISION						94					145			145			
TOTAL						94					145			145			
GRAND TOTAL					600	524	(47)	1257	1060	1060	863	(135)	1200	728			

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

(***) Project also has significant field service element

260

Office TA/CST

Cluster No. 9953 Title: Environment/Natural Resourc

Activity Coordinator M. KUX

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority 1002

Date MAY 20, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. PLANNING AND STRATEGIZING																	
ABS PREPARATION, REVIEW + APPROVAL						9					14			14			
CP, " " "						9					14			14			
OYB " " "						10					15			15			
TOTAL						28					43			43			
SMALL ACTIVITIES TOTAL																	
B. RESOURCE BUREAU AND MISSIONS SERVICES																	
TOTAL																	
C. PROJECT DEVELOPMENT AND MANAGEMENT																	
TOTAL																	
SMALL ACTIVITIES TOTAL																	
D. CONTACTS + INTERACTIONS WITH INTERNT. ORG. ETC.						14					21			21			
TOTAL						14					21			21			
E. ADMINISTRATION AND SUPERVISION						90					139			145			
TOTAL						90					139			145			
GRAND TOTAL					600	579	(102)	1257	1060	1060	863	(135)	1440	728			

261

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

(***) Project also has significant field service element

Office TA/CST

Activity Coordinator M. KUX

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority 120%

Date MAY 12, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. PLANNING AND STRATEGIZING																	
ABS, PREPARATION, REVIEW & APPROVAL						9					14			14			
CP, " " "						9					14			14			
OYB. " " "						10					15			15			
TOTAL						28					43			43			
SUBTOTAL ACTIVITIES TOTAL																	
B. REGIONAL BUREAU AND MISSIONS SERVICES																	
TOTAL																	
C. PROJECT DEVELOPMENT AND MANAGEMENT																	
TOTAL																	
SUBTOTAL ACTIVITIES TOTAL																	
D. CONTACTS + INTERACTIONS WITH INTERAGT. OR. ETC.						14					21			21			
TOTAL						14					21			21			
E. ADMINISTRATION AND SUPERVISION						100					139			145			
TOTAL						100					139			145			
GRAND TOTAL					600	579	(102)	1257	1060	1060	863	(135)	1600	728			

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

(***) Project also has significant field service element

262

Office TA/OST

Cluster No. 9953 Title: Environment/Natural Resources

Activity Coordinator M. KUX

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Activities which cannot be attributed to Specific Clusters A-2

Priority FULL FUND
Date MAY 20, 1977

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. PLANNING AND STRATEGIZING																	
ABS, PREPARATION, REVIEW & APPROVAL						9					14			14			
CP " " "						9					14			14			
OYB " " "						10					15			15			
TOTAL						28					43			43			
SMALL ACTIVITIES TOTAL																	
B. REGIONAL BUREAU AND MISSIONS SERVICES																	
TOTAL																	
C. PROJECT DEVELOPMENT AND MANAGEMENT																	
TOTAL																	
SMALL ACTIVITIES TOTAL																	
D. CONTACTS & INTERACTIONS WITH INTERNAT. OR. ETC.						14					21			21			
TOTAL						14					21			21			
E. ADMINISTRATION AND SUPERVISION						90					142			145			
TOTAL						90					142			145			
GRAND TOTAL						594	(117)				903	(175)		728			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

263

Office Science and Technology

Activity Coordinator W. D. Rossborough

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority BASE
Date 5-20-77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Uniliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
Total						46					26			26			
Total Small Activities					( )			( )	( )	( )			( )				
B. Regional Bureau & Mission Support																	
Total					XXXX	35		XXXX	XXXX	XXXX	55		XXXX	55		XXXX	XXXX
C. Project Development & Management																	
Total																	
Total Small Activities					( )			( )	( )	( )			( )				
D. Contacts & Interaction with Int'l. Organizations, etc.																	
Total					XXXX	11		XXXX	XXXX	XXXX	30		XXXX	30		XXXX	XXXX
E. Administration and Supervision																	
Total					XXXX	58		XXXX	XXXX	XXXX	64		XXXX	54		XXXX	XXXX
GRAND TOTAL						150					175			165			

264

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

Office Science and Technology

Activity Coordinator W. D. Roseborough

Activities which cannot be attributed to Specific Clusters — A-2

Priority 100%

Date 5-20-77

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
Total						46					26			26			
Total Small Activities					( )	( )		( )	( )	( )			( )				
B. Regional Bureau & Mission Support																	
Total					XXXX	35		XXXX	XXXX	XXXX	55		XXXX	55		XXXX	XXXX
C. Project Development & Management																	
Total																	
Total Small Activities					( )			( )	( )	( )			( )				
D. Contacts & Interaction with Int'l. Organizations, etc.																	
Total					XXXX	11		XXXX	XXXX	XXXX	30		XXXX	30		XXXX	XXXX
E. Administration and Supervision																	
Total					XXXX	58		XXXX	XXXX	XXXX	64		XXXX	54		XXXX	XXXX
GRAND TOTAL						150					175			165			

265

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

(***) Project also has significant field service element

Office Science and Technology

Activity Coordinator W. D. Roseborough

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster

($ in thousands)

Activities which cannot be attributed to Specific Clusters

A-2

Priority Proposed

Date 5-20-77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning & Strategizing																	
Total						46					26			26			
Total Small Activities					( )	(		( )	( )	( )			( )				
B. Regional Bureau & Mission Support																	
Total					XXXX	35		XXXX	XXXX	XXXX	55		XXXX	55		XXXX	XXXX
C. Project Development & Management																	
Total																	
Total Small Activities					( )			( )	( )	( )			( )				
D. Contacts & Interaction with Int'l. Organizations, etc.																	
Total					XXXX	11		XXXX	XXXX	XXXX	30		XXXX	30		XXXX	XXXX
E. Administration and Supervision																	
Total					XXXX	58		XXXX	XXXX	XXXX	64		XXXX	54		XXXX	XXXX
GRAND TOTAL						150					175			165			

266

(*) Project also has significant amount of research activity

(**) Project also has significant amount of adaptation or application activity

(***) Project also has significant field service element

Activities which cannot be attributed to Specific Clusters

A-2

Activity Coordinator Wm. L. Eilers

Technical Assistance Bureau Program Review

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Priority BASE
Date 5/18/88

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Total	FY 1977 Days Consultants	FY 1977 Unliquidated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Total	FY 1978 Days Consultants	FY 1979 Reqst'd Amount	FY 1979 Work Total	FY 1979 Days Consultants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						49					109			120			
Total Small Activities						—					—			—			
B. Regional Bureaus (all) and Missions (All) Services						—					—			—			
C. Project Development and Management						—					—			—			
Total Small Activities						—					—			—			
D. Contacts & Interaction with Numerous International, Regional & National Development & Professional Organizations Worldwide						18					25			35			
E. Administration & Supervision						43					188			210			
Grand Total						110					322			365			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

267

Activities which cannot be attributed to Specific Clusters

A-2

Activity Coordinator Wm. L. Eilers

Tech Assistance Bureau Program R

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Priority I
Date 5/18/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						49					111			113			
Total Small Activities						—					—			—			
B. Regional Bureaus (all) and Missions (All) Services						—					—			—			
C. Project Development and Management						—					—			—			
Total Small Activities						—					—			—			
D. Contacts & Interaction with Numerous International, Regional & National Development & Professional Organizations Worldwide						14					25			30			
E. Administration & Supervision						43					171			220			
Grand Total						110					307			363			

(*) Project also has significant amount of research activity
(**) Project also has significant amount of adaptation or application activity
(***) Project also has significant field service element

268

Activities which cannot be attributed to Specific Clusters A-2

Activity Coordinator Wm. L. Eilers

Tech l Assistance Bureau Program r w

Office Summary of Proposed Obligations by Cluster
($ in thousands)

Priority II
Date 5/19/77

	Page in ABS	Des. Cat.	Obl. Stat.	RDA	FY 1977 Revised OYB	FY 1977 Work Days Total	FY 1977 Work Days Consul-tants	FY 1977 Unliqui-dated 9/30/77	FY 1978 C. P.	FY 1978 C.P. Redist	FY 1978 Work Days Total	FY 1978 Work Days Consul-tants	FY 1979 Reqst'd Amount	FY 1979 Work Days Total	FY 1979 Work Days Consul-tants	Project Service Apprv'd Thru	Revised or New PP Due Mo/Yr
A. Planning and Strategizing						49					71			110			
Total Small Activities						—					—			—			
B. Regional Bureaus (all) and Missions (All) Services						—					—			—			
C. Project Development and Management						—					—			—			
Total Small Activities						—					—			—			
D. Contacts & Interaction with Numerous International, Regional & National Development & Professional Organizations Worldwide						18					26			35			
E. Administration & Supervision						43					187			230			
Grand Total						110			269		284			375			

* Project also has significant amount of research activity
Project also has significant amount of adaptation or application activity
Project also has significant field service element

F TABLES
(FISCAL DATA)

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification
1. Cluster #9951 Title Exploratory New Applications of Science and Technology
2. RDA # 19 Title: Science and Technology Institution Development
3. Project # 1138 4. Code
5. Project Title Exploratory New Applications of Science and Technology
6. Contractor: Undetermined
7. Contract No.
8. Project Manager John Daly
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 1,000	FY
2. Service:	FY 77	FY *	FY
3. LOP Costs:		FY	$

C. Countries

D. Project Documentation Status Date
1. Date Current Approval
2. New/Revised PP due TA/PPU 5/25/77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

	1977	78	79
Technology Assessments	7	8	9
Pilot Activities	3	3	4

2. Progress in Achieving Outputs/Est. Completion Date

None to date

*To be determined

3. Purpose of Project/Anticipated Achievement Date

To identify and analyze new applications of science and technology of potential importance to LDC's.

To test and demonstrate important new applications expeditiously

4. Project Change Requiring Revised PP and/or PAF

Not Applicable

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	160		-	-	160
1978	764	-	-	-	764
1979	979	-	-	-	979

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	1,000						1,000	400	600		Technology assessments and pilot
3. Est. FY 1978	1,200						1,200	1000	800		studies
4. Proposed FY 1979	1,450						1,450	1400	850		
5. Proposed FY 1980	1,450						1,450				
6. Proposed FY 1981	1,450						1,450				
7. All other							*		270		

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification
1. Cluster # 9952 Title Energy
2. RDA # 95 Title ~~Natural Resource Assessment and Management~~ Energy
3. Project # 0234 4. Code 740
5. Project Title Energy Needs in the Food System
6. Contractor: Various (F3 - A Thru F)
7. Contract No. Various
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 76	FY 77	FY 78
2. Service:	FY 76	FY 79	FY 79
3. LOP Costs:		~~FY~~ XX 1100	$ 1100

C. Countries
Haiti
Nepal
Upper Volta
Senegal
Pakistan
Other

D. Project Documentation Status Data
1. Date Current Approval 5/21/76
2. New/Revised PP due TA/PPU 9/77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 12/77
In-depth Evaluation 12/77
Terminal Evaluation 11/79
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

3 Country Reports on Usage of Energy in Food System

3 Field Studies of Specific Energy Intervention

Summary Report

2. Progress in Achieving Outputs/Est. Completion Date

2 Field Activities Underway, 1 in Planning Stage

Overview Technical Support for Country Studies Acquired

Countries Selected for 2 Studies

Proposals Sought from Contractors

3. Purpose of Project/Anticipated Achievement Date

Identify Steps to Improve Energy Usage in Food System

Identify Approach to Increase Rural Energy

4. Project Change Requiring Revised PP and/or PAF

Spread Out Budgeting into FY 78.
Reduce Number of Countries by 1.
Extend Project Life by 8 months.
No Budget Increase

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	34				34
1978	30				30
1979	15				15

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	294						94	5	289	1/79	Field Activities & Analytic Overview
2. Est. FY 1977	500						500	300	539	1/79	Two Country Studies
3. Est. FY 1978	200						200	295	244	11/79	One Country Study
4. Proposed FY 1979								244			
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	994						994	994			

271

SUB-PROJECT FISCAL DATA SHEET F-3

1. Cluster # 9952 Title Energy
2. RDA # ~~40~~ 35 Title ~~Natural Resource Assessment and Management~~ Energy 88
3. Project # 0234 (A) 4. Code 742
5. Project Title Energy Needs in Food System
6. Contractor: Florida Institute of Technology
7. Contract No. TA-C-1333
8. Project Manager J J Bosken
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY	FY	FY
2. Service:	FY	FY	FY
3. LOP Costs:		FY	$

C. Countries
Haiti

D. Project Documentation Status Data
1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval,
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

Design of Solar Cooker for Haiti

2. Progress in Achieving Outputs/Est. Completion Date

Field Trip to Haiti Completed

Purchase & Construction of Solar Cookers Completed

Preliminary Evaluation Completed

3. Purpose of Project/Anticipated Achievement Date

Design Solar Cooker / 6/77

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	15				15
1978					
1979					

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	36				3		39	5	34	6/77	Design Solar Cooker
2. Est. FY 1977								34	0		
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	36				3		39	39			

272

1. Cluster # 9952 Title Energy
2. RDA # ~~20~~ 35-[illegible] Title ~~Natural Resource Assessment and Management~~
3. Project # 0234 (B) 4. Code 740
5. Project Title Energy Needs In Food System
6. Contractor: Pro Ag - Nepal
7. Contract No. Pro Ag
8. Project Manager J J Bosken
9. Appropriation 6 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY ____	FY ____	FY ____
2. Service:	FY ____	FY ____	FY ____
3. LOP Costs:		FY ____	$ ____

C. Countries
Nepal

D. Project Documentation Status Data
1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

Train 20 Nepalis and 3 Peace Corp Volunteers

Review State of Existing Generators

Construct Demonstration Facilities

Conduct Applied Research

2. Progress in Achieving Outputs/Est. Completion Date

Community Latrine Generator Constructed

Training Completed (3 Peace Corps plus 10 Nepalis)

80 Digesters Analyzed

3. Purpose of Project/Anticipated Achievement Date

To Conduct Research and Demonstration of Methane Generation / 12/78

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	2				2
1978	2				2
1979					

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	13				17		30	0		12/78	Methane Research and Demonstration
2. Est. FY 1977								10	20		
3. Est. FY 1978								20	0		
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	13				17		30			273	

ONGOING PROJECT FISCAL DATA SHEET F- 1

A. Project Identification

1. Cluster # 9952 Title Energy
2. RDA # ~~20~~ 35 Title: ~~Natural Resource Assessment and Management~~ Energy
3. Project 0234 (C) 4. Code 749
5. Project Title: Energy Needs in the Food System
6. Contractor: Pro Ag - Upper Volta
7. Contract No. Pro Ag
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY	FY	FY
2. Service:	FY	FY	FY
3. LOP Costs:		FY	$

C. Countries

Upper Volta

D. Project Documentation Status Data

1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

Provision & installation of power sources and implements in two villages.

Work-time studies of impact of usage on women.

2. Progress in Achieving Outputs/Est. Completion Date

1. Field trip to collect basic design data completed.
2. Discussions held with ERDA on desirability of using as test bed for photovoltaic technology.
3. Final decision on extent of ERDA involvement due by 5/30/77

3. Purpose of Project/Anticipated Achievement Date

To investigate impact of energy availability. 12/78

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	10		10		20
1978	10		20		30
1979					

F. Other Donors

NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76	35				40		75	0	75	12	78	Provide Power, Investigate Social Impact
2. Est. FY 1977								20	55			
3. Est. FY 1978								55	0			
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	35				40		75	75				

274

A. Project Identification

1. Cluster # 9952 Title Energy
2. RDA # ~~20~~ 35 Title ~~Natural Resource Assessment and Management~~ Energy
3. Project # 0234 (D) 4. Code 749
5. Project Title Energy Needs in Food System
6. Contractor: Michigan State Univ
7. Contract No. ta-C-147-576
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category B

ONGOING PROJECT FISCAL DATA SHEET F-1

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY	FY	FY
2. Service:	FY	FY	FY
3. LOP Costs:		FY	$

C. Countries

D. Project Documentation Status Data
1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

Bibliography of Energy in Agriculture

2. Progress in Achieving Outputs/Est. Completion Date

Researchers have begun compiling and organizing data.

Interim report due 6/77.

3. Purpose of Project/Anticipated Achievement Date

To prepare review of energy use in agriculture worldwide.

4. Project Change Requiring Revised PP and/or PAF

None

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	2				2
1978	2				2
1979					

F. Other Donors

NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977	9	2					9	6	3	1	78	State of Art Study
3. Est. FY 1978								3	0			
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	9						9	9				

275

A. Project Identification
1. Cluster # 9952 Title Energy
2. RDA # ~~20~~ 35 Title ~~Natural Resource Assessment and Management~~ Energy
3. Project # 0234 (E) 4. Code 749
5. Project Title Energy Needs in the Food System
6. Contractor: PASA (ERDA)
7. Contract No. Various
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category B

ONGOING PROJECT FISCAL DATA SHEET F- 1

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY	FY	FY
2. Service:	FY	FY	FY
3. LOP Costs:		FY	$

C. Countries
Senegal
Pakistan
Other

D. Project Documentation Status Data
1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

Summary Study

Overview Technical Monitoring

2. Progress in Achieving Outputs/Est. Completion Date

Prepared RFP structuring country studies

Will advise in contractor selection 5-8/77

3. Purpose of Project/Anticipated Achievement Date

To coordinate and monitor individual country studies. 12/78

4. Project Change Requiring Revised PP and/or PAF

None

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	2				2
1979					

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76	150						150	0	150	1	79	Coordination of Country Studies
2. Est. FY 1977								100	50			
3. Est. FY 1978								50	0			
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	150						150	150				

276

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster # 9952 Title Energy
2. RDA # ~~26~~ 35 Title: ~~Natural Resource Assessment and Management~~ Energy
3. Project # 0234 (F) 4. Code 749
5. Project Title: Energy Needs in the Food System
6. Contractor: To be Determined
7. Contract No.
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY	FY	FY
2. Service:	FY	FY	FY
3. LOP Costs:		FY	$

C. Countries

Senegal
Pakistan
Other

D. Project Documentation Status Data

1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

Three country studies

2. Progress in Achieving Outputs/Est. Completion Date

RFP to be issued 5/77

Contractors for 2 studies to be selected 8/77

3. Purpose of Project/Anticipated Achievement Date

To identify usage of energy in food system.

To identify approaches to increase rural energy.

4. Project Change Requiring Revised PP and/or PAF

Spread out budgeting into FY78.
Reduce country by 1.
extend project life.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	5				5
1978	14				14
1979	15				15

F. Other Donors

NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977	491	100					491	50	441	12	'78	2 Country Study
3. Est. FY 1978	200	50					200	541	100	11	'79	1 Country Study
4. Proposed FY 1979								100	0			
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other	691						691	691				

277

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification
1. Cluster # 9952 Title Energy
2. RDA # 35 Title: Energy
3. Project # 931-1160 4. Code 749
5. Project Title: Training in Energy Management (I)
6. Contractor: PASA (ERDA)
7. Contract No.
8. Project Manager J. J. Bosken
9. Appropriation: 6 10 Category d

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 77	FY
2. Service:	FY 77	FY 77	FY
3. LOP Costs:		~~FY~~ $350	$

C. Countries
To be Determined

D. Project Documentation Status Date
1. Date Current Approval
2. New/Revised PP due TA/PPU 5/77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

Prototype training course including course materials and procedures for follow-on program.

2. Progress in Achieving Outputs/Est. Completion Date

Project paper to be submitted for FY 77 funding.

3. Purpose of Project/Anticipated Achievement Date

To develop, test and evaluate training course in energy analysis and management.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	30				30
1978	60				60
1979	5				5

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	350	80					350	150	200	8/79	Develop Coure, Present, Evaluate
3. Est. FY 1978								150	50		
4. Proposed FY 1979								50	0		
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other							350	350			

278

Project Identification
Cluster # 9952 Title Energy
RDA # 35 Title: Energy
Project # 931-1083 4. Code 742
Project Title: Field Support and Energy Assistance
Contractor: To be Determined
Contract No.
Project Manager J. J. Bosken
Appropriation 6 10 Category C

ONGOING PROJECT FISCAL DATA SHEET #1

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 79	FY
2. Service:	FY 77	FY 80	FY
3. LOP Costs:		~~XX~~$800	$

C. Countries
Worldwise

D. Project Documentation Status Data
1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

Field tests of ERDA - developed technologies technologies.

Project planning assistance to missions for future energy activities.

2. Progress in Achieving Outputs/Est. Completion Date

AID/ERDA LDC program plan developed (4/77)

3. Purpose of Project/Anticipated Achievement Date

To respond to mission requests for specific technical assistance in energy, to facilitate mission use of ERDA and other available energy technology

4. Project Change Requiring Revised PP and/or PAR

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	30				30
1978	40				40
1979	50				50

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month	(10) Services Funded Thru Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977	300	60			100		400	150	250			Multiple Contracts for Various Services
3. Est. FY 1978	100	20					100	200	150			as Needed Including PASA with ERDA
4. Proposed FY 1979	300	60					300	300	150			
5. Proposed FY 1980								150	0	8	80	
6. Proposed FY 1981												
7. All other												
8. Total	700	140			100		800	800				

279

PROJECT FISCAL DATA SHEET P-2

A. Project Identification

1. Cluster # [illegible] Title Energy
2. PDA #35 Title Energy
3. Project # 931-1217 4. Code 779
5. Project Title Energy Analysis Techniques
6. Contractor: PASA (ERDA)
7. Contract No.
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 79
2. Service:	FY 78	FY	FY 80
3. LOP Costs:		$	$ 700

C. Countries

To be Selected

D. Project Documentation Status Data

1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

The development of energy sources & systems needed by the LDCs in attaining their development goals

PROJECT PURPOSE(S) (stay within brackets)

To develop and apply to country specific situations, a technique to analyze energy supplies and demands, and predict the impact of energy availability on development sectors.

PLANNING RESOURCE REQUIREMENTS (identified) Project Design

Type	Amount ($000)
Direct-hire	1. man month

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	40				40
1979	40				40

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	(10) Services Funded Thru Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977												
3. Est. FY 1978	350	70					350	100	250			Develop Methodology
4. Proposed FY 1979	350	60					350	450	150			Apply to Country Studies
5. Proposed FY 1980								150	0	8	80	
6. Proposed FY 1981												
7. All other							$ 700	$ 700			280	
TOTAL	700	130					700	700				

1. Cluster # 9952 Title Energy
2. RDA # 35 Title Energy
3. Project # 931-1216 4. Code 742
5. Project Title Energy Technology Demonstration
6. Contractor: To be Determined
7. Contract No.
8. Project Manager J. J. Boshen
9. Appropriation 6 10 Category B

PROJECT FISCAL DATA SHEET F-2

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 79
2. Service:	FY 78	FY	FY 81
3. LOP Costs:		$	$ 2730

C. Countries
Worldwide

D. Project Documentation Status Data
1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

The development of energy sources and systems needed by the LDCs in attaining their development goals.

PROJECT PURPOSE(S) (stay within brackets)

To make available various alternative choices of energy technologies suitable for development programs in the LDCs.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
Direct-hire 1 man month	

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	60		5		65
1979	116		10		126

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	280	40			200		480	300	180	10/80	Set of Technology Demonstrations
4. Proposed FY 1979	1050	150			1200		2250	700	1730	10/81	"
5. Proposed FY 1980								900	830		
6. Proposed FY 1981								830	0		
7. All other											
8. TOTAL	1330	190			1400		2730	2730			

281

A. Project Identification
1. Cluster # 9952 Title Energy
2. RDA # 35 Title: Energy
3. Project # 931-1218 4. Code 749
5. Project Title Training in Energy/ Management (II)
6. Contractor: To be Selected
7. Contract No.
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category E

PROJECT FISCAL DATA SHEET F-2

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 79
2. Service:	FY 79	FY	FY 80
3. LOP Costs:		$	$ 300

C. Countries To be Selected

D. Project Documentation Status Data
1. Date of Current PID Approval 3/77
2. Draft Project Paper due TA/PPU 12/78

E. Project Description

PROJECT GOAL (stay within brackets)

The development of energy sources and systems needed by the LDCs in attaining their overall development goals.

PROJECT PURPOSE(S) (stay within brackets)

To conduct a training course on the techniques of Energy Analysis and Management for LDC Development Planners and Managers.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
1 man month to prepare PP (FY 78)	

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	40				40

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	300	40					300	150	150	10/80	Conduct Course Twice
5. Proposed FY 1980								150	150		
6. Proposed FY 1981											
7. All other											
8. TOTAL	300	40					300	300			

282

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 9952 Title Energy
2. RDA # 35 Title Energy
3. Project # 931-1219 4. Code 749
5. Project Title Energy - Food Plantation
6. Contractor: To be Selected
7. Contract No.
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category E

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 81
2. Service:	FY 79	FY	FY 93
3. LOP Costs:		$	$ 1850

C. Countries

To be Selected

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 5/78

E. Project Description

PROJECT GOAL (stay within brackets)

The development of energy sources and systems needed by LDCs in attaining their development goals.

PROJECT PURPOSE(S) (stay within brackets)

To explore the applicability and test the feasibility of an integrated plantation as a source of both food and fuel for LDCs.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
1 man month to prepare PP (FY 78)	

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	10		5		15
1979	40		20		60

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	950	120					950	200	750	12/83	Feasibility Designs, Initiation & Plantation
5. Proposed FY 1980								600	150		
6. Proposed FY 1981	900						900	600	450	10/83	Completion of Plantation and Facilities
7. All other								450	0	283	
8. TOTAL	1850	120					1850	1850			

PROJECT FISCAL DATA SHEET F-2

A. Project Identification
1. Cluster # 0057 Title Energy
2. RDA # 35 Title: Energy
3. Project # 931-1220 4. Code 743
5. Project Title: Solar Power Generation
6. Contractor: To be Selected
7. Contract No.
8. Project Manager J. J. Bosken
9. Appropriation 6 10 Category C

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 79
2. Service:	FY 79	FY	FY 84
3. LOP Costs:		$	$ 1300

C. Countries To be Selected

D. Project Documentation Status Data
1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 8/78

E. Project Description

PROJECT GOAL (stay within brackets)

The development of energy sources and systems needed by LDCs in attaining their development goals.

PROJECT PURPOSE(S) (stay within brackets)

To develop, adapt and demonstrate the feasibility of a solar power generation concept for application to the needs of LDC development programs and goals.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
1 man month to prepare PP	
Preliminary Design (Funded from FY 78 Field Support Budget)	50,000

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	10		5		15
1979	50		30		80

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) Ind FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	1300	160					1300	300	1000	10/84	Final Design, Installation & Initial
5. Proposed FY 1980								300	700		Operation of Demonstration Unit.
6. Proposed FY 1981								300	400		
7. All other								400	0		
8. TOTAL	1300	160					1300	1300			

284

ONGOING PROJECT FISCAL DATA SHEET F- 1

A. Project Identification

1. Cluster #9953 Title Environment/Natural Resources
2. RDA # 20 Title: Natural Resrouces Assessment and Management
3. Project # 931-0228 4. Code
5. Project Title EIS on Pesticides
6. Contractor: Midwest Research Institute
7. Contract No. AID/ca-C-1302
8. Project Manager Albert Printz
9. Appropriation 6 10 Category E

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 76	FY 76	FY
2. Service:	FY 77	FY 77	FY
3. LOP Costs:		$267	$

C. Countries

Worldwide

D. Project Documentation Status Data

1. Date Current Approval 11-75
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 6-77
   In-depth Evaluation
   Terminal Evaluation X
   Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

1. Detailed work plan by May 7, 1976.
2. Draft Environment Impact Statement (EIS) on AIDs Pest Management Programs including the use of pesticides by Aug. 15, 1976.
3. Final EIS by May 13, 1977.

2. Progress in Achieving Outputs/Est. Completion Date

Final EIS received 5-13-77

3. Purpose of Project/Anticipated Achievement Date

Final EIS on AID Pest Management 5-13-77

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors

NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	(10) Services Funded Thru Year	(11) Description of Funding
1. Cum. Thru 9/30/76	267						267	211	56	5	77	
2. Est. FY 1977		11						56	0			
3. Est. FY 1978												
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	267						267	267	285			

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification
1. Cluster # 9953 Title Environment/Natural Resources
2. RDA # 20 Title: Natural Resources Assessment and Management
3. Project # 931-0983 4. Code
5. Project Title: Environmental Training Grants
6. Contractor: University of No. Carolina
7. Contract No. AID/ta-C-1127
8. Project Manager Molly Kux
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 76	FY
2. Service:	FY 73	FY 78	FY
3 LOP Costs:		$373	$

C. Countries
Guatemala
Costa Rica
El Salvador
Honduras
Ghana
Kenya
Egypt

D. Project Documentation Status Date
1. Date Current Approval 5/25/76
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 1/78
In-depth Evaluation
Terminal Evaluation X
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

1. Training methodologies, curriculum and resources developed, tested and evaluated.
2. Increased number of LDC planners, managers and educators trained in environmental aspects of industrial development.
3. Development of U.S. expertise.
4. Evaluation of feasibility of this type of training.
5. Design of LDC seminars.
6. Training materials ready for LDC and international organization use.

2. Progress in Achieving Outputs/Est. Completion Date

1. Preparation and compilation of final training materials completed. 12-77
2. Three courses at UNC completed 79 LDC policymakers trained. 6-77
3. Increased capability and involvement of UNC faculty in UNC and overseas seminars. 12-77
4. Follow-on seminars presented in seven Central American, African, and Near East countries for over 200 policy level officials. 12-77
5. Training manual and materials utilized in short course prepared, tested and available for utilization by others. 12-77

3. Purpose of Project/Anticipated Achievement Date

To train LDC policy - workers, planners, managers and educators in techniques of predicting, evaluating and controlling environmental problems associated with various types of industrialization. 12-77

4. Project Change Requiring Revised PP and/or PAF
Small activity funds may be requested for follow-on project to maintain contact and provide information to course graduates.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	20				20
1978	5				5
1979					

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76							376	237	139			3 UNC and 3 overseas seminars
2. Est. FY 1977	376	20						100	39			4 overseas seminars
3. Est. FY 1978		8						39	0	12	77	
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other										286		
8. TOTAL	376						376	376				

Ongoing PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster # 9953 Title Environment/ Natural Resources
2. RDA # 20 Title Natural Resources Assessment and Management
3. Project # 0607 4. Code 751
5. Project Title: Secondary Woods Utilization
6. Contractor: USAD-Forest Products Lab.
7. Contract No. PASA-AG/TA[illegible]-3-75
8. Project Manager Walter Parham, TA/OST
9. Appropriation 6 10 Category A

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 75	FY TQ	FY
2. Service:	FY 75	FY 78	FY
3. LOP Costs:		FY $735	$

C. Countries

Philippines
Ghana
Colombia

D. Project Documentation Status Data

1. Date Current Approval 12/3/74
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR 5/76
5. Next Evaluation 6/77
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation X
6. Period

E. Project Description

1 Planned Outputs

1. Develop a feasible and appropriate system to utilize secondary species of trees from tropical forests for the production of pulp, paper, paperboard, fiberboard, and particleboard.
2. Test wood and system for forest areas of Africa, Asia and Latin America.
3. Pilot-plant testing.
4. Design pre-investment package for use by LDCs.
5. Publication of results of investigation.
6. Hold 3 regional and one international seminars on research findings.

2. Progress in Achieving Outputs/Est. Completion Date

1. Mixed-tropical hardwoods collected from Ghana, Colombia and Philippines, and tested in pilot plant.
2. Research well advanced and results show that mixed-tropical hardwoods from all localities tested produce satisfactory paper products.
3. Nine technical publications on test results and research complete; one publication on the environmental aspects of increased utilization of tropical forests complete.
4. Design and pre-investment economic study underway.
5. Arrangements underway for international meeting and regional seminars.

Estimated completion date Sept., 1978.

3. Purpose of Project/Anticipated Achievement Date

To promote utilization of presently unutilized mixed tropical hardwoods for useful products as well as to create employment in LDCs.

Anticipated Achievement date 1981.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	12		32		44
1978	15		90		105
1979	-		-		-

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	717				2		717	474	243		
2. Est. FY 1977		40						200	43		Pilot Plant Research
3. Est. FY 1978		9						43	0	Sept. 1978	International Meeting; Regional Seminars
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	717				2		717	717			

287

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification
1. Cluster # 9993 Title Environmental Natural Resources
2. RDA # 7 Title Natural Resources for Agriculture
3. Project # 931-0159 4. Code 55
5. Project Title Natural Resources - Semi-Arid Lands
6. Contractor: University of Arizona
7. Contract No. AID/ta-G-1111
8. Project Manager Walter Parham, CA/OST
9. Appropriation I 10 Category F

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 74	FY79	FY
2. Service:	FY 75	FY79	FY
3. LOP Costs:		$1045	$

C. Countries
Ghana
Peru
Niger
Upper Volta
Mali

D. Project Documentation Status Data
1. Date Current Approval 5/31/74
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR 4/6/76
5. Next Evaluation
In-depth Evaluation
Terminal Evaluation
Special Evaluation 11/78
6. Period

E. Project Description

1 Planned Outputs

Develop institutional linkages.
Develop advisory capability on Arid/Semi-Arid Lands.
Increase educational and training capability.
Increase knowledge and research capability.
Develop information system on Arid/Semi-Arid Lands.

2. Progress in Achieving Outputs/Est. Completion Date

(1) Formal institutional linkages established with Peru, Ghana, Niger; other informal linkages with UNEP, FAO, & inst., in Aghanistan, Algeria, Costa Rica, Egypt, Guatemala, Mali, Upper Volta. (2) Advisory capability on Arid lands expanded to US Dept. of State for 1977 Desertification Conf. (3) New programs established at U. of Arizona in mineral economics, remote sensing, seminar series. Ghana information workshop & West Afr., Conf., held. (4) Research capability expanded in such areas as natural resources, remote sensing, ecology, women in development. (5) Arid Lands Info., System added 1000 new abstracts; reference document collection expanded by 800 sources; Arid Lands newsletter Nos. 2 and 3 published.

Estimated completion date 1979.

3. Purpose of Project/Anticipated Achievement Date

To assist the University of Arizona establish a response capability in the area of multiple-use planning and management of natural resources in arid and semi-arid regions of developing countries.

Anticipated achievement date 1979

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	10				10
1978	10				10
1979	20				20

F. Other Donors
NAME $000/Yr.
NONE

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/77	1045						1045	410	635		211(d)
2. Est. FY 1977		76						380	255		
3. Est. FY 1978		30						150	105		
4. Proposed FY 1979		21						105	0	May 1979	
5. Proposed FY 198[illegible]											
6. Proposed FY 198[illegible]											
7. All other											
8. TOTAL	1045						1045	1045			

288

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster # 9953 Title Env/Natural Resources
2. RDA # 20 Title Natural Resources
3. Project # 931-1028 4. Code 750
5. Project Title Environmental Field Support
6. Contractor:
7. Contract No.
8. Project Manager Molly Kux
9. Appropriation 6 10 Category C

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 77	FY
2. Service:	FY 77	FY 80	FY
3. LOP Costs:		FY $480	$

C. Countries

Inter-regional

D. Project Documentation Status Data

1. Date Current Approval
2. New/Revised PP due TA/PPU 5-77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation X
6. Period

E. Project Description

1. Planned Outputs

Mechanisms and information for improving implementation of AID's environmental procedures and policies including:

1. analysis of agency performance;
2. refinement of procedures and guidance;
3. preparation of useful information necessary to carry out procedures;
4. liaison with external groups, US and international;
5. Technical Assistance Roster and provision of assistance

2. Progress in Achieving Outputs/Est. Completion Date

NONE

3. Purpose of Project/Anticipated Achievement Date

To improve implementation of AID's environmental policy and procedures (PD 63) 6-79

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	25				25
1978	30				30
1979					

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	(10) Services Funded Thru Year	(11) Description of Funding
1. Cum. Thru 9/30/76							330	10	320	12	79	
2. Est. FY 1977	330	2					150	300	170			Studies, Analyses and Conferences.
3. Est. FY 1978	150	60					-	170	-	12	79	(cont'd.)
4. Proposed FY 1979		34										(cont'd.)
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	480						480	480	-			

289

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster #9953 Title Env/Natural Resources
2. RDA #20 Title Natural Resources
3. Project # 931-1113 4. Code 750
5. Project Title Environmental Training and Grants
6. Contractor: Undetermined
7. Contract No.
8. Project Manager Molly Kux
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 77	FY
2. Service:	FY 77	FY 79	FY
3. LOP Costs:		FY $400	$

C. Countries

Inter-regional

D. Project Documentation Status Date

1. Date Current Approval
2. New/Revised PP due TA/PPU 5-77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation X
6. Period

E. Project Description

1. Planned Outputs

1. Training courses both in US and overseas designed, tested and evaluated.
2. Increased number of LDC planners, managers and educators trained in environmental aspects of economic development.
3. US expertise and resources developed.
4. Training materials available for LDC and international organization use.

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

To train LDC policy-makers, planners and educators in techniques of predicting, evaluating and controlling environmental problems assosicated with economic development.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	15				15
1978	40				40
1979					

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76							200	100	100		
2. Est. FY 1977	200	40					200	200	100		Training Courses & Materials
3. Est. FY 1978	200	40						100	-	12 / 79	(cont'd.)
4. Proposed FY 1979											(cont'd.)
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other										290	
8. TOTAL	400						400	400			

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster # 9993 Title Environment/ Natural Resources
2. RDA # 19 Title Natural Resource For Agriculture
3. Project #931-1027 4. Code 750
5. Project Title Arid Lands Information System (ALIS)
6. Contractor: University of Arizona
7. Contract No.
8. Project Manager Walter Parham TA/OST
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY77	FY 78	FY
2. Service:	FY 77	FY 80	FY
3. LOP Costs:		$180	$

C. Countries

All Arid/ Semi-Arid LDCs

D. Project Documentation Status Data

1. Date Current Approval
2. New/Revised PP due TA/PPU 6/20/77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation 3/79
   Terminal Evaluation
   Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

1. Interim operational maintenance of Arid Lands Information System.
2. Arid/Semi-Arid Lands Information gathering, screening, editing and input onto magnetic tapes.
3. A general plan showing how 211(d) information systems can become institutionalized without AID funding.

2. Progress in Achieving Outputs/Est. Completion Date

NONE.

3. Purpose of Project/Anticipated Achievement Date

To institutionalize an independently funded Arid Lands Information System at the University of Arizona.

Anticipated achievement date - 1979.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	10				10
1978	5				5
1979	5				5

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	120	4					120	20	100	Sept. 79	Maintenance of ALIS
3. Est. FY 1978	60	12					60	60	100	Sept. 80	Phase-out of AID Funding
4. Proposed FY 1979		12						60	40		
5. Proposed FY 1980								40	0		
6. Proposed FY 1981											
7. All other											
8. TOTAL	180						180	180	0		

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 9953 Title Env./Natural Resources
2. RDA # 20 Title Natural Resources Assessment and Management
3. Project # 931-1210 4. Code 750
5. Project Title Environmental Technical Assistance
6. Contractor: Undetermined
7. Contract No.
8. Project Manager M. Kux
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 79
2. Service:	FY 78	FY	FY 80
3. LOP Costs:		$	$ 500

C. Countries

Interregional

D. Project Documentation Status Data

1. Date of Current PID Approval 11/75
2. Draft Project Paper due TA/PPU 8/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve LDC capabilities for environmental protection and for assessing and managing their natural resources both renewable and non-renewable.

PROJECT PURPOSE(S) (stay within brackets)

To increase capability of LDC institutions to address environmental protection problems through provision of technical advisory services.

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	5				5
1978	40				40
1979	10				10

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
Contract to prepare PP 2-3 Weeks	5

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	250	40					250	200	50		Technical Assistance to LDCs
4. Proposed FY 1979	250	40					250	200	100	Dec. 1979	" " " (cont'd)
5. Proposed FY 1980								100			" " "
6. Proposed FY 1981											
7. All other											
8. TOTAL	500						500	500			

192

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 9953 Title Environment/Natural Resources
2. PDA # 20 Title Natural Resources Assessment and Management
3. Project # 931-1209 4. Code 759
5. Project Title Environment/Natural Resources: Expanded Information Base
6. Contractor: Undetermined
7. Contract No.
8. Project Manager M.Kux/W. Parham
9. Appropriation 6 10 Category E

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 83
2. Service:	FY 78	FY	FY 83
3. LOP Costs:		$	$ 2,900

C. Countries

D. Project Documentation Status Data

1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 1/78

E. Project Description

PROJECT GOAL (stay within brackets)

[To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.]

PROJECT PURPOSE(S) (stay within brackets)

[To provide AID with a continuing information base covering a broad range of topics related to long-range resource development needed for addressing oncoming LDC Environment/Natural Resource problems.]

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	15				15
1978	70				70
1979	75				75

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	1,690	98					1,690	490	1,200		(3 yr. forward funding) tropical ecology
4. Proposed FY 1979		120						600	600		center support, and E/NR base-line data
5. Proposed FY 1980								600	0		development.
6. Proposed FY 1981	1,210						1,210	600	610		" " " "
7. All other	–							610	0		" " " " "
8. TOTAL	2,900						2,900	2,900		Sept. 1983	

293

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster #9953 Title Environment/Natural Resources
2. RDA # 20 Title Natural Resources
3. Project # 931-1080 4. Code 759
5. Project Title Wood as a Fuel Resource
6. Contractor: Undetermined
7. Contract No.
8. Project Manager W. Parham
9. Appropriation 6 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 78
2. Service:	FY 78	FY	FY 79
3. LOP Costs:		$	$ 250

C. Countries

D. Project Documentation Status Data

1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 7/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

PROJECT PURPOSE(S) (stay within brackets)

To analyze the potential and limitations of wood as a fuel resource in LDCs, and if results are favorable to develop a design and background data for followon pilot renewable resource plantations at specific LDC sites.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
Program development funds to design base-line data collection system and prepare PP. (55 WM)	$40,000

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	15				15
1978	20				20
1979					

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	250	50					250	250	0	Sept. 1979	Background data generation, international conference, plantation design.
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	250						250	250			

294

A. Project Identification

1. Cluster # 9953 Title Environment/Natural Resources
2. RDA # 20 Title: Natural Resources Assessment & Management
3. Project # 931-1214 4. Code 751
5. Project Title OECD - Mineral Exploration
6. Contractor: U.S. Geological Survey
7. Contract No.
8. Project Manager W. Parham
9. Appropriation 6 10 Category A

PROJECT FISCAL DATA SHEET F-2

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 79
2. Service:	FY 78	FY	FY 80
3. LOP Costs:		$	$ 1,100

C. Countries

Columbia

D. Project Documentation Status Data

1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 8/77

E. Project Description

PROJECT GOAL (stay within brackets)

[To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.]

PROJECT PURPOSE(S) (stay within brackets)

[To determine effective geological, geophysical, and geochemical methods for identifying metallic mineral deposits in tropical LDCs where the land-surface characteristics have normal exploration techniques less effective than in temperate countries.]

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
2-3 weeks consultant time to prepare PP.	5

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	6				6
1978	25				25
1979	20				20

F. Other Donors

NAME	$000/Yr.
France, U.K., Australia, Germany	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											Gravity, geological and geochemical
3. Est. FY 1978	200	30					200	200	0		mapping geophysical surveys, special
4. Proposed FY 1979	900	80					900	900	0	Dec. 1980	studies, further mapping lab analyses,
5. Proposed FY 1980											geophysics surveys.
6. Proposed FY 1981											
7. All other											
8. TOTAL	1,100						1,100	1,100			

295

PROJECT FISCAL DATA SHEET F-2

A. Project Identification
1. Cluster # 9953 Title Environment/Natural Resources
2. RDA # 20 Title Natural Resources Assessment and Management
3. Project # 931-1211 4. Code 759
5. Project Title Environment: Institutional Support
6. Contractor: Undetermined
7. Contract No.
8. Project Manager M. Kux/W. Parham
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 83
2. Service:	FY 79	FY	FY 83
3. LOP Costs:		$	$2,850

C. Countries
Interregional
Interregional

D. Project Documentation Status Data
1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 2/78

E. Project Description

PROJECT GOAL (stay within brackets)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

PROJECT PURPOSE(S) (stay within brackets)

To provide environmental training and technical assistance for LDC decision-makers and other key personnel in order to increase their awareness of the environmental issues when making country decisions, and to build institutional capability.

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	85				85

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
2-3 weeks consultant or IQC for PP preparation.	5

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	1,600	100					1,600	500	1,100		(3-yr. forward funding) Training and
5. Proposed FY 1980								550	550		T.A. Training & Technical Assistance (con't)
6. Proposed FY 1981								550	0		" " " "
7. All other	1,250						1,250	1,250	0		" " " "
8. TOTAL	2,850						2,850	2,850		Sept. 1983	

296

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 9953 Title Environment/Natural Resources
2. RDA # 20 Title Natural Resources Assessment and Management
3. Project # 931-1213 4. Code 752
5. Project Title Renewable Resource Plantation
6. Contractor: Undetermined
7. Contract No.
8. Project Manager W. Parham
9. Appropriation 6 10 Category R

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 83
2. Service:	FY 79	FY	FY 83
3. LOP Costs:		$	$ 2750

C. Countries

Haiti
Nepal
Paraguay

D. Project Documentation Status Data

1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 3/78

E. Project Description

PROJECT GOAL (stay within brackets)

To improve LDC capabilities for environmental protection and for assessing and managing their renewable and non-renewable resources.

PROJECT PURPOSE(S) (stay within brackets)

To determine the feasibility and nature of renewable resource plantations to provide firewood, fooder, food and building materials, and to stabilize watersheds under typical LDC conditions.

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	40				40

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
2-3 wks., consultant or TOC for PP Preparation	5

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	525	105	75	400	950		1550	350	1200		(3 yr. forward funding) experimental
5. Proposed FY 1980	-		-		-			600	600		planting. Instrumentation, training,
6. Proposed FY 1981	-		-		-			600	0		nursery development.
7. All other	600		100		500		1,200	1,200	0		
8. TOTAL	1,125		175		1,450		2,750	2,750		Sept. 1983	

297

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 9953 Title Environmental/Natural Resources
2. RDA # 20 Title Natural Resources Assessment & Management
3. Project # 931-1212 4. Code 750
5. Project Title Integrated Pest Management R&D
6. Contractor: Undetermined
7. Contract No.
8. Project Manager M. Kux
9. Appropriation 10 Category A&B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 83
2. Service:	FY 79	FY	FY 83
3. LOP Costs:		$	$ 1,300

C. Countries

Interregional

D. Project Documentation Status Data

1. Date of Current PID Approval
2. Draft Project Paper due TA/PPU 6/78

E. Project Description

PROJECT GOAL (stay within brackets)

To improve LDC capabilities for environmental protection and for assessing and managing their natural resources.

PROJECT PURPOSE(S) (stay within brackets)

To provide world-wide computer data system on chemical composition of pesticides and to initiate research on methods of non-chemical control of pests and conduct research on non-chemical control methods.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
Conference or study (40 WD)	35

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	7				7
1979	25				25

F. Other Donors

NAME	$000/Yr.
NONE	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	200	36					200	200	0		Research & support for non-chemical pest control
5. Proposed FY 1980	300						300	300	0		Research & support for non-chemical pest control
6. Proposed FY 1981	300						300	300	0		Research & support for non-chemical pest control
7. All other	500						500	500	0	Sept. 1983	Research & support for non-chemical pest control
8. TOTAL	1,300						1300	1,300			

298

ONGOING PROJECT FISCAL DATA SHEET F- 1 (5-26-77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title Industrial Technology
3. Project # 931-0097 4. Code 750
5. Project Title LDC Industrial Research Institute Effectiveness
6. Contractor Denver Research Inst.
7. Contract No. AID/TA C- 1337
8. Project Manager WD Roseborough
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 76	FY 79	FY
2. Service:	FY 76	FY 79	FY
3. LOP Costs:		$ 1445	$

C. Countries

Pakistan
Thailand
Indonesia
Guatemala
Colombia
Bolivia
Chile
Tunisia
Jordan

D. Project Documentation Status Data

1. Date Current Approval 5/10/76
2. New/Revised PP due TA/PPU
3. Date Last Eval. 1/77
4. Date of Current PAR 6-77
5. Next Evaluation 1 78
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period 1/77 - 1 78

E. Project Description

1 Planned Outputs

(a) IRI personnel trained in marketing project selection, techno-economic analysis and project management.
(b) Handbooks and training materials for use by LDC institutes.
(c) Established linkages with LDC institutes
(d) Appropriate technologies applied to a set of local problems.
(e) Grant awards to IRIs to promote effective integration with the R&D user community

2. Progress in Achieving Outputs/Est. Completion Date

(a) Regional workshops conducted in Tunisia in 7/76 and in Thailand in 9/76. In residence training at DRI for IRI directors from PCSIR & IIT. — Continuing; 10/76
(b) First draft of handbook to assist the conduct of research management training activities by LDC institutes submitted in 6/76 — 6/77
(c) Established linkage with ASRCT (Thailand) in 12/76 — Continuing
(e) Conducted informal discussions with potential grantees in South America (Colombia, Ecuador, Peru, Bolivia, Uruguay, & Chile), and in Ghana, Tunisia and Jordan, and in Guatemala, Haiti, Santo Domingo and Trinidad, — 2/77; 3/77; 5/77

3. Purpose of Project/Anticipated Achievement Date

Assist selected LDC industrial research institutions in improving organizational management, marketing, and technical skills toward increased participation in country development to disseminate the results to IRI's wordwide. — Continuing

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	25		12		37
1978	25		12		37
1979	20		12		32

F. Other Donors

NAME	$000/Yr.
LDC's	$550,000

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76	1150						1150	97	1053	6	78	
2. Est. FY 1977		150						543	610	6	78	
3. Est. FY 1978	250	145					250	600	260			Tranche
4. Proposed FY 1979	45	140					45	305	0			Final tranche
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	1445	435					1445	1445				

399

ONGOING PROJECT FISCAL DATA SHEET F- 1 (5/10/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title Industrial Technology
3. Project # 931-0138 4. Code 750
5. Project Title Adaptation of Technology
6. Contractor: Massachusetts Institute of Tech
7. Contract No. AID/csd-3360
8. Project Manager W. D. Roseborough
9. Appropriation 6 10 Category F.

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 72	FY 72	FY
2. Service:	FY 72	FY 77	FY
3. LOP Costs:		$900	$

C. Countries

Colombia
Korea
Nepal
Egypt

D. Project Documentation Status Data

1. Date Current Approval 6/9/76
2. New/Revised PP due TA/PPU
3. Date Last Eval, 8/75
4. Date of Current PAR 3/76
5. Next Evaluation 6-77
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period 8/75 - 6/77

E. Project Description

1 Planned Outputs

(1) Revised curricula
(2) Seminars, workshops & fact-finding missions
(3) Reports and papers
(4) Theses, papers and reports on development problems
(5) Faculty involvement
(6) Research & collaborative projects with LDC counterparts

2. Progress in Achieving Outputs/Est. Completion Date

(1) 20 LDC relevant courses plus M.S. degree in technology adaptation — 5/77
(2) 40 carried out — 5/77
(3) 50 published — 5/77
(4) 35 graduate theses accepted — 5/77
(5) 30 faculty & 30 graduate students engaged in teaching & research — 5/77
(6) collaborative project with University of Cairo initiated with US AID/Cairo support.
(6) 6 collaborative research projects underway in Colombia — 5/77

3. Purpose of Project/Anticipated Achievement Date

To allow MIT to develop a unique multidisciplinary program of education and research in the field of technology and development which will be an internationally recognized focal point for relating industrial technology to needs of LDCs. — 9/77

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	4				4
1978	2				2
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76	900						900	811	89	8	77	211(d) grant
2. Est. FY 1977		55						89	0			
3. Est. FY 1978												
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other										300		
8. TOTAL	900	55					900	900				

ONGOING PROJECT FISCAL DATA SHEET F- 1 (5/20/77)

A. Project Identification

1. Cluster #9954 Title Technology Transfer and Development
2. RDA # 36 Title Industrial Technology
3. Project # 931-0149 4. Code 750
5. Project Title Employment Generation thru Small Scale Industry
6. Contractor: Georgia Institute of Technology
7. Contract No. AID-CM/Ca-C-73-18
8. Project Manager W. D. Roseborough
9. Appropriation 6 10 Category F

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 73	FY
2. Service:	FY 73	FY 78	FY
3 LOP Costs:		$ 800	$

C. Countries

D. Project Documentation Status Data

1. Date Current Approval 2/73
2. New/Revised PP due TA/PPU
3. Date Last Eval. Jan 77
4. Date of Current PAR 6-77
5. Next Evaluation 12-77
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period 1/77 - 12/77

E. Project Description

1 Planned Outputs

(1) Industry profiles
(2) Economic analyses
(3) Guidelines for Industrial Extension Personnel
(4) Pictorial monographs
(5) Expansion of Int'l Develop Data Center Documents
(6) Increased enroll. M.S. Industrial Program
(7) Support to grad. students in program
(8) Present new course in M.S. Program
(9) On-site testing of new training program
(10) 6 seminars by invited lecturers
(11) Participation in seminars, workshops
(12) Int'l. develop. mini-conference
(13) Counterpart communications & field trips
(14) Involve counterparts in asso. programs

2. Progress in Achieving Outputs/Est. Completion Date

(1) 3 profiles in 1976	Cont.
(2) 1 for Nigeria	5/77
(3) Guideline #16	2/77
(4) Monograph No. 2 -- "Solar Energy"	2/77
(5) 33% increase (to 4,100 items) in '76	Cont.
(6) 80% increase in '76 (now 18)	Cont.
(7) Assistantships supported - 6	Cont.
(8)	Fall '77
(9)	2/78
(10) 6 presented	Cont.
(11) Staff participation in 16	
(12) Conference in Manila, Philippines	5/76
(13) Communication - Avg 2/mo, 13 field trips	Cont.
(14) 2 in related contracts in '76	

3. Purpose of Project/Anticipated Achievement Date

Strengthen capability of Georgia Inst. of Technology to develop small-scale industries in LDCs. 2/78

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	10				10
1978	5				5
1979					

F. Other Donors

NAME	$000/Yr.
Georgia Tech -	$60

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	800						800	551	249	2 - 78	211 (d)
2. Est. FY 1977		100						167	82		
3. Est. FY 1978		50						82	0		
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other										301	
8. TOTAL	800	150					800	800			

ONGOING PROJECT FISCAL DATA SHEET F-1 (5/20/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title: Industrial Technology
3. Project # 931-0990 4. Code 750
5. Project Title: Small Industry Grants
6. Contractor: Georgia Inst. of Tech.
7. Contract No. AID/ta-C-1062
8. Project Manager W. D. Roseborough
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 74	FY 79	FY
2. Service:	FY 74	FY 79	FY 79
3. LOP Costs:		825	$

C. Countries

Korea
Nigeria
Philippines
Brazil

D. Project Documentation Status Data

1. Date Current Approval 1/22/73
2. New/Revised PP due TA/PPU
3. Date Last Eval. 1-77
4. Date of Current PAR 6-77
5. Next Evaluation 12-77
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period 1/77 - 12/77

E. Project Description

1. Planned Outputs (a) Increased job opportunities in four countries.
(b) Increased viability of indigenously owned enterprises.
(c) Improved capability of four developing country institutions to serve small industry.
(d) Tested methodologies for strengthening developing country institutions involved in support of small industry with particular attention to the necessity for adjusting approaches as economic development proceeds.
(e) Evaluation reports on successes and failures in assisting small industry

2. Progress in Achieving Outputs/Est. Completion Date
1. Brazil Institute in 1976 (3rd year of grant)
(a) Created 996 new jobs in industries supported.
(b) Increased sales by 74 million cruzeiros.
(c) Provided technical-management assistance to 80 enterprizes. Sponsored 19 industrial training programs, and conducted 14 conferences and seminars.
(d) Completed 4 feasibility studies, 24 new manufacturing opportunity reports, 2 management guidelines and one industrial case history.
2. Philippines Institute, in 1976 (1st year of grant) initiated 14 industrial extension service programs, serviced 15 technical assist. requests, conducted a survey of entrepreneur train ing needs, established linkages with 7 government development agencies, and designed and constructed appropriate technology equipment.

3. Purpose of Project/Anticipated Achievement Date
(a) Strengthen capabilities of four developing country institutions to provide technical assistance to employment-generating small-industry.
(b) Demonstrate and document the impact of alternative technical assistance approaches to small industry. (c) Infuse an employment consciousness into educational, industrial and financial sectors in four countries.

4. Project Change Requiring Revised PP and/or PAP

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	5				5
1978	8				8
1979	5		9		14

F. Other Donors

NAME	$000/Yr.
(1) Brazil-FESSC	$103
(2) Korea (a) Industry-University Coop. Foundation	$6
(b) Soong Jun Univ	$11
(3) Nigeria-Univ of Ife	$65

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76	650						650	332	318	12	77	
2. Est. FY 1977		110						268	50	12	77	
3. Est. FY 1978	175	105					175	225	0			Final tranche
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	825	215					825	825				

300

ONGOING PROJECT FISCAL DATA SHEET F-1 (5/20/77)

A. Project Identification
1. Cluster # 9954 Title: Technology Transfer and Development
2. RDA # 36 Title: Industrial Technology
3. Project # 931-0243 4. Code 750
5. Project Title: Standardization in LDCs
6. Contractor: National Bureau of Standards
7. Contract No. PASA-COM/NBC-1-75
8. Project Manager: William Roseborough
9. Appropriation: 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 71	FY 79	FY
2. Service:	FY 71	FY 79	FY
3. LOP Costs:		$1275	$

C. Countries
Indonesia
Guyana
~~Philippines~~
Korea
~~Brazil~~
~~Ecuador~~
Egypt
Jordan
Turkey

D. Project Documentation Status Date
1. Date Current Approval 6/15/76
2. New/Revised PP due TA/PPU
3. Date Last Eval. 5/74
4. Date of Current PAR 5/5/75
5. Next Evaluation 7/77
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period 7/76 - 6/77

E. Project Description

1 Planned Outputs

1. Trained national standards leaders from 10-15 national standards institutions.
2. Plans for improving national standards effectiveness in 3 countries.
3. Guidance on national standards planning and implementation in 10 countries.
4. Trained standards supervisors and staff - 60 experts
5. Improved instrumentation procurement decisions.

2. Progress in Achieving Outputs/Est. Completion Date

1. Conducted workshop in US for 15 leaders from 14 institutions. 10/76
2. Completed and published evaluation of standards surveys conducted in Philippines in 5/75 6/76
and in Guyana in 7/76 and in 2/77
Thailand in 1973 2/77
Survey in Indonesia planned and scheduled for 6/77 9/77
6 surveys completed to date

3. Purpose of Project/Anticipated Achievement Date

To increase the effectiveness of 10-15 LDC standards institutions; including significant efforts by those institutions on standarization and measurement services which benefit small farmers and urban & rural workers.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	9				9
1978	25				25
1979	10		9		19

F. Other Donors

NAME	$000/Yr.
LDCs	$200/yr

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	775						775	674	101	3 - 77	
2. Est. FY 1977	100	60					100	201	0	9 - 77	Tranche
3. Est. FY 1978	200	120					200	200	0		Tranche
4. Proposed FY 1979	200	115					200	200	0		Tranche
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	1275	295					1275	1275		303	

ONGOING PROJECT FISCAL DATA SHEET F- 1

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 3 6 Title Industrial Technology
3. Project # 931-1114 4. Code 759
5. Project Title Science & Technology Information Transfer
6. Contractor: NTIS
7. Contract No. PASA
8. Project Manager W. D. Roseborough
9. Appropriation 6 10 Category D

B. Project Approval Status ($000) 20

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 79	FY
2. Service:	FY 77	FY 79	FY
3. LOP Costs:		$520	$

C. Countries

Asia
Africa
Near East

D. Project Documentation Status Date

1. Date Current Approval Est 5/77
2. New/Revised PP due TA/PPU 5-77
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 3/78
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period 5/77 - 3/78

E. Project Description

1 Planned Outputs

(a) 5 current LDC cooperating agencies provided with additional training and continuing support for their operations.

(b) 9 new cooperating agency agreements negotiated in 9 LDCs.

(c) 9 new LDC cooperating agencies oriented, trained and providing local services

2. Progress in Achieving Outputs/Est. Completion Date

PP prepared 5/77

(c) Training workshop for representatives of 6 cooperating agencies conducted in Washington, DC, and Atlanta 5/77

3. Purpose of Project/Anticipated Achievement Date

To expand the S&T information transfer network in Asia, Africa and the Near East from 5 to 14 countries and to strengthen local service of cooperating agencies.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	27				27
1978	15				15
1979	9		9		18

F. Other Donors

NAME	$000/Yr.
LDCs - 150	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977	120	72					120	120		9	77	Phase I
3. Est. FY 1978	200	140					200	200		9	78	Phase II
4. Proposed FY 1979	200	138					200	200	0	9	79	Phase III
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	520	350					520	520				

304

PROJECT FISCAL DATA SHEET F-2 (5/20/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title Industrial Technology
3. Project # 931-1075 4. Code 750
5. Project Title Small Industry Implementation
6. Contractor: Georgia Tech.
7. Contract No.
8. Project Manager Roger Moeller
9. Appropriation 6 10 Category 10

B. Project Approval Status ($000)

Item	Initial	Final: Approved	Final: Requested
1. Obligation:	FY 78	FY	FY 80
2. Service:	FY 78	FY	FY 80
3. LOP Costs:		$	$ 225

C. Countries

Asia
Africa
Near East
Latin America

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 7777

E. Project Description

PROJECT GOAL (stay within brackets)

Off-farm employment generation through stimulation of small-scale industry and through transfer and management of appropriate technology.

PROJECT PURPOSE(S) (stay within brackets)

Improve and enlarge the applications of the capabilities of Georgia Tech & demonstrate their effectiveness to additional LDCs and U.S. AID Missions to a point where those capabilities can be viably sustained by continuing service to institutions in the LDCs without AID support

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	10				10
1978	15				15
1979	10		6		16

F. Other Donors

NAME	$000/Yr.
Georgia Tech	.75

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	100	70					100	100	0		Phase I
4. Proposed FY 1979	75	55					75	75	0		Phase II
5. Proposed FY 1980	50						50	50	0		Phase III
6. Proposed FY 1981											
7. All other											305
8. TOTAL	225	125					225	225			

PROJECT FISCAL DATA SHEET F-2 (5/20/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title: Industrial Technology
3. Project # 931-1079 4. Code 759
5. Project Title Industrial Property Rights Assistance
6. Contractor: U.S. P&TMO
7. Contract No. PASA
8. Project Manager Norman G etsinger
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY ___	FY 78
2. Service:	FY 78	FY ___	FY 80
3. LOP Costs:		$ ___	$ 550

C. Countries

Asia
Africa
Near East
Latin America

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 7/77

E. Project Description

PROJECT GOAL (stay within brackets)

Provide LDCs with greater opportunity for choice, transfer & effective utilization of appropriate technology through improvement of environment for employment of proprietary technology.

PROJECT PURPOSE(S) (stay within brackets)

To develop & test in 3 LDCs a viable system for protection of industrial property rights, formulation of an appropriate industrial property rights protection policy, and establishment of an industrial property office.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	15				15
1978	35				35
1979	25		9		34

F. Other Donors

NAME	$000/Yr.
USPTMO	150

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	200	120					200	200	0		Phase I
5. Proposed FY 1980	200						200	200			Phase II
6. Proposed FY 1981	150						150	150	0		Phase III
7. All other											
8. TOTAL	550						550	550			306

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title: Industrial Technology
3. Project # 731 1088 4. Code 750
5. Project Title Involve the Private Sector
6. Contractor: Various
7. Contract No.
8. Project Manager Roger Moeller
9. Appropriation 6 10 Category D

PROJECT FISCAL DATA SHEET F-2 (5/20/77)

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 78
2. Service:	FY 78	FY	FY 82
3. LOP Costs:		$	$ 800

C. Countries

Asia
Africa
Near East
Latin America

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 8/77

E. Project Description

PROJECT GOAL (stay within brackets)

[To facilitate and encourage involvement of LDC and US private sectors in economic development of LDCs through technology transfer.]

PROJECT PURPOSE(S) (stay within brackets)

[Obtain greater involvement of private sector, particularly small enterprises, by establishing tested methods and mechanisms to: 1) Create greater awareness by US small enterprises of opportunities for technology transfer to LDCs. 2) Provide basic information to US small businesses concerning the LDC's technology transfer methodology. 3) Provide incentives for US small business involvement.]

PLANNING RESOURCE REQUIREMENTS (staff/funds) **Project Design**

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	20				20
1978	35		9		44
1979	30		9		39

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977												
3. Est. FY 1978	100	75					100	100	0	9	78	Phase I
4. Proposed FY 1979	100	75					100	100	0	9	79	Phase I
5. Proposed FY 1980	200						200	200	0	9	80	Phase II
6. Proposed FY 1981	200						200	200	0	9	81	Phase II
7. All other	200						200	200	0	9	82	Phase II
8. TOTAL	800	225					800	800				307

PROJECT FISCAL DATA SHEET F-2 (5/20/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title: Industrial Technology
3. Project # 931-1207 4. Code 759
5. Project Title Technology Information Transfer System
6. Contractor: To be determined
7. Contract No.
8. Project Manager Norman Getsinger
9. Appropriation 6 10 Category 10

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 79
2. Service:	FY 79	FY	FY 80
3. LOP Costs:		$	$ 500

C. Countries

Asia
Africa
Near East
Latin America

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 7/77

E. Project Description

PROJECT GOAL (stay within brackets)

Provide LDCs with greater opportunity to choose and transfer appropriate technology through increased access to US S&T and through adaptation of advanced technology to Info.Transfer (STI).

PROJECT PURPOSE(S) (stay within brackets)

1. Increase opportunity for LDC choice of appropriate STI by developing a system for centralized LDC access to STI in the US public domain but nit in NTIS data base. 2. Facilitiate and expedite STI transfer by assisting LDCs to adopt advanced information techniques to their handling of STI. This project will support US policy on North-South dialog.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	17				17
1978					
1979	20		9		29

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) WM	(3) Participants Dollars	(4) WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977												
3. Est. FY 1978												
4. Proposed FY 1979	100	60					100	100	0	9	79	Phase I
5. Proposed FY 1980	200						200	200	0	9	80	Phase II
6. Proposed FY 1981	200						200	200	0	9	81	Phase III
7. All other												
8. TOTAL	500	60					500	500				308

PROJECT FISCAL DATA SHEET F-2 (5/20/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title Industrial Technology
3. Project # 931-1208 4. Code 750
5. Project Title Technology Development Corporation-Feasibility Study
6. Contractor: To be determined
7. Contract No.
8. Project Manager Norman Getsinger
9. Appropriation 6 10 Category 10

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 79
2. Service:	FY 79	FY	FY 79
3 LOP Costs:		$	$ 190

C. Countries

Indonesia
Pakistan
Jord n
Ghana
Guatemala
Colombia

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 9/77

E. Project Description

PROJECT GOAL (stay within brackets)

[To facilitate & encourage involvement of LDC & US private sectors in economic development of LDCs through technology transfer.]

PROJECT PURPOSE(S) (stay within brackets)

[Make a feasibility study of the concept of the Technology Development Corp., an institution to be created to aid in development & application of technology in LDCs, incorporating direct participation by US private sector & possibly by other developed countries.]

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	12				12
1978					
1979	7		3		10

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76												
2. Est. FY 1977												
3. Est. FY 1978												
4. Proposed FY 1979	190	48					190	190	0	9	79	Feasibility Study
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	190	48					190	190				309

PROJECT FISCAL DATA SHEET F-2 (5/20/71)

A. Project Identification

1. Cluster #9954 Title Technology Transfer and Development
2. RDA # 36 Title: Industrial Technology
3. Project # 931-1205 4. Code 750
5. Project Title: Development Center - Feasibility Study
6. Contractor: To be determined
7. Contract No.
8. Project Manager Roger Moeller
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial FY	Final Approved FY	Final Requested FY
1. Obligation:	FY 79	FY	FY 79
2. Service:	FY 79	FY	FY 79
3. LOP Costs:		$	$ 75

C. Countries

Asia
~~Africa~~
Near East
Latin America

D. Project Documentation Status Date

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 7/77

E. Project Description

PROJECT GOAL (stay within brackets)

[To determine feasibility of establishing a Center for Small Enterprise and Rural Development to support AID programs.]

PROJECT PURPOSE(S) (stay within brackets)

[To examine the need for a Center to promote better understanding of the process of establishing and nurturing small enterprises primarily in the rural environment. Such a Center would be concerned with the generation of employment among the "poor majority" through programs of research, assistance, information, and training.]

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	7				7
1978					
1979	7		6		18

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	75	24					75	75	0		Feasibility Study
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	75	24					75	75			

310

PROJECT FISCAL DATA SHEET F-2 (5/20/77)

A. Project Identification

1. Cluster # 9954 Title Technology Transfer and Development
2. RDA # 36 Title Industrial Technology
3. Project # 931-1206 4. Code 750
5. Project Title LDC-IRI Contract Research Network
6. Contractor: To be determined
7. Contract No.
8. Project Manager Roger Moeller
9. Appropriation 6 10 Category 10

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 79
2. Service:	FY 79	FY	FY 83
3. LOP Costs:		$	$ 2100

C. Countries

Thailand
Pakistan
Philippines
Malaysia
Singapore

D. Project Documentation Status Data

1. Date of Current PID Approval 5/77
2. Draft Project Paper due TA/PPU 9/77

E. Project Description

PROJECT GOAL (stay within brackets)

[Strength & capability of LDCs to meet technological needs associated with their developing economies.]

PROJECT PURPOSE(S) (stay within brackets)

[Verify that LDC-IRIs can serve country & regional needs more effectively through regional networks sharing resources on a contractual basis, and assist in creation of a viable contract research capability in the South East Asian region.]

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977	7				7
1978					
1979	7		9		16

F. Other Donors

NAME	$000/Yr.
LDCs - 400	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	240	36					240	240	0		Phase I
5. Proposed FY 1980	400						400	400	0		Phase II
6. Proposed FY 1981	450						450	450	0		Phase III
7. All other	910						910	910	0		Phase III
8. TOTAL	2100	36					2100	2100			

311

A. Project Identification
1. Cluster # 1701 Title Higher Education
2. RDA # 17 Title Higher Education
3. Project # 931-0720 4. Code 751
5. Project Title Scientists and Engineers in Economic Development (SEED)
6. Contractor: National Science Foundation
7. Contract No. PASA NO NSF/TAB 962-06-72
8. Project Manager William L. Ellers
9. Appropriation 6 10 Category D

ONGOING PROJECT FISCAL DATA SHEET F-1.

Project Approval Status ($000)

Item	Initial	Approved	Requested
1. Obligation:	FY 72	FY 79	FY
2. Service:	FY 72	FY 79	FY
3. LOP Costs:		FY 1778	$

C. Countries
Interregional

D. Project Documentation Status Data
1. Date Current Approval 10/10/75
2. New/Revised PP due TA/PPU N
3. Date Last Eval. May 1975
4. Date of Current PAR June 1975
5. Next Evaluation October 1977
In-depth Evaluation xx
Terminal Evaluation
Special Evaluation
6. Period Oct. 1975-October 1977.

E. Project Description

1 Planned Outputs

1. LDC scientists & engineers gain experience in field research through collaboration with visiting U.S. scientists
2. Specific research problems are solved, for example, new methods of arresting coffee rust in Brazil, better spacing of coffee plants for otimum production.
3. U.S. scientists & engineers contribute in specific ways to LDC problems-solving & broaden their own experience in so doing.
4. New permanent research links between LDC & U.S. institutions are forged.
5. LDC science & engineering graduates are oriented to identification and solution of indigenous probmes in research applied to their priority national needs.
6. Increased U.S. research resources are directed to LDC institutions and problems in accordance with UN recommendations.

2. Progress in Achieving Outputs/Est. Completion Date

1. Objectives achieved in Phase 1, with socres of U.S. scientists and engineers engaged or having completed LDC collaborative research projects. annual
2. Expanded program at $400,000/level approved, based on May 1975 evaluation.
3. U.S. researchers become involved in LDC's heretofore not participating in the program.
4. Effort will be made to have NSF assume responsibility for funding the program, effective FY 1979.

3. Purpose of Project/Anticipated Achievement Date

Improve quality of LDC research and researchers by stimulating individual U.S. scientists and engineers to develop and executre joint research projects on specific scientific and technical problems in LDC's.

4. Project Change Requiring Revised PP and/or PAF

It is proposed to have NSF, which has administered this project under a PASA since its inception, assume funding responsibiklity effective FY 1979. This proposed policy change is in line with Congressional interest in having NSF assume greater LDC role.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	2.0				2.0
1978	2.0				2.0
1979	0				0

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month	Year	(11) Description of Funding
1. Cum. Thru 9/30/76	1778						1778	1066	712			END OF PROJECT
2. Est. FY 1977		10						472	240	9	77	[illegible]
3. Est. FY 1978		10						240	0	9	78	[illegible]
4. Proposed FY 1979		0										
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	1778						1778	1778	0			

312

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster # 9957 Title Science & Technology Institutional Development
2. RDA # 10 Title / Science & Technology Institutional Development
3. Project # 931-0029 4. Code 750
5. Project Title Strengthening the S&T Capabilities of LDC's
6. Contractor: National Academy of Sciences
7. Contract No. AID/csd-2534 T.O. #1
8. Project Manager William L. Filers
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 70	FY 77	FY
2. Service:	FY 70	FY 77	FY
3. LOP Costs:		$5600	$

C. Countries

Interregional

D. Project Documentation Status Data

1. Date Current Approval
2. New/Revised PP due TA/PPU May 16, 1977
3. Date Last Eval, April 1975
4. Date of Current PAR May 1977
5. Next Evaluation
   - In-depth Evaluation
   - Terminal Evaluation
   - Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

1. More effective use of limited LDC technical resources.
2. Increased understanding of technological opportunities and benefits from science in development as well as barriers to the application of science & technology to development problems.
3. Methodologies and techniques for increasing effectiveness of scientific infrastructure in LDC's.
4. REports on specific technologies and other subjects of interest to many LDC's.
5. Improved communication between components of the S&T infrastructure in each LDC.

2. Progress in Achieving Outputs/Est. Completion Date

1. Significant demand for advisory reports on technological innovation and specific bilateral workshop activities from third countries.
2. Improved attention to follow-up and utilization functions resulting from P&D pamphlet output from NAS.
3. Increase utilization of the Academy by other AID offices, Bureaus and Missions.
4. Comprehensive evaluation completed, with recommendation to fund an additional 3-year contract continuation, effective 1 Sept 1977, following extensions totalling 21 months.
5. Estimate completion date of proposed new contract will be August 31, 1980. However, it is hoped to be able to sustain this level of activity by the Academy, which has proved effective with AID support for the past 12 years.

3. Purpose of Project/Anticipated Achievement Date

Strengthen the capability of LDC insitutions to apply science and technology resources to solve development problems and to assist AID and LDC's in utilizing improved techiques to adapt technological advancements in the U.S. and other industrialized countries to the solution of development problems.

4. Project Change Requiring Revised PP and/or PAF

June 1975 evaluation recommended 50 modifications and new actions for the project. All are reflected in the revised PP, which is presently under review.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	80				80
1978	70				70
1979	80				80

F. Other Donors

NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	5100						5100	4574	526		
2. Est. FY 1977	500						500	1026	0	8/77	T.O. 1 extended 6 mos. until 1 Sept. 77
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	5600						5600	5600			

313

A. Project Identification
1. Cluster # 9957 Title Building Scientific & Technological Infrastructure
2. RDA # 19 Title: Science & Technology Institutional Development
3. Project # 931-1085 4. Code 750
5. Project Title U.N. Conference on Science, Technology and Development in 1979
6. Contractor: Cornell University
7. Contract No.
8. Project Manager William L. Eilers
9. Appropriation 6 10 Category D

ONGOING PROJECT FISCAL DATA SHEET F-1

B. Project Approval Status ($00

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 79	FY
2. Service:	FY 77	FY 80	FY
3. LOP Costs:		FY 220	$

C. Countries
Interregional

D. Project Documentation Status Data
1. Date Current Approval Pending
2. New/Revised PP due TA/PPU 6/77
3. Date Last Eval. November 1975
4. Date of Current PAR December 1976
5. Next Evaluation July 1979
In-depth Evaluation xx
Terminal Evaluation
Special Evaluation
6. Period July 1977-June 1979

E. Project Description

1 Planned Outputs

1. Science and Technology planners & policy-makers in 10 to 12 LDC's will be assisted in preparing their country's national paper for the Conference by Cornell science policy experts.
2. Through the above process the LDC will re-assess its science and technology infrastructure and policies and consider recommendations to strengthen it and orient it toward national development objectives.
3. National science and technology organization plans will be prepared for 10 to 12 LDC's.

2. Progress in Achieving Outputs/Est. Completion Date

1. TA/OST and Cornell University officials have met with UN Conference Officials, Dept. of State coordinators for the Conference, and participated on the preparatory meetings of the UN Committee on Science & Technology for Development, the Conference preparatory committee.
2. All AID Missions and Embassies have been advised to AID's willingness to provide through Cornell science policy experts to assist LDC's in preparing country papers for the Conference.
3. Estimate that experts will have completed their advisory services to LDC's desiring assistance by June 30, 1978, unless the Conference is postponed until 1980.

3. Purpose of Project/Anticipated Achievement Date

Assist LDC's identify their priority problems in science and technology and propose alternative solutions, reflecting this analysis in their national papers for the U.N. Conference. It is agreed by all that the preparatory process for the Conference constitutes the most important element.

4. Project Change Requiring Revised PP and/or PAR

It is possible that the Conference date may be postponed until 1980 because of UN difficulties.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	20				20
1978	5				5
1979	20				20

F. Other Donors
NAME $000/Yr.
Contractor will contribute salaries of senior faculty who conduct summer advisory services in LDCs.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	200	4					200	150	50	12/78	Expenses of sending Cornell faculty to LDCs
3. Est. FY 1978								50		12/79	
4. Proposed FY 1979	20	1					20	20	0	12/80	
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	220						220	220			

3/4

A. Project Identification

1. Cluster # 9997 Title Building Scientific and Technological Infrastructure
2. RDA # 19 Title Science and Technology Institutional Development
3. Project # 921 - 1222 4. Code 753
5. Project Title Regional Workshops on Energy, Environment and Resources
6. Contractor: Undetermined
7. Contract No.
8. Project Manager William L. Eilers
9. Appropriation B 6 10 Category D

PROJECT FISCAL DATA SHEET F-2

Project Approval Status ($000)

Item	Initial	Approved	Requested
1. Obligation:	FY 77	FY	FY 81
2. Service:	FY 79	FY	FY 82
3. LOP Costs:		$	$ 490

C. Countries to be determined

D. Project Documentation Status Date

1. Date of Current PID Approval Pending
2. Draft Project Paper due TA/PPU 3/78

E. Project Description

PROJECT GOAL (stay within brackets)

Strengthen LDC capability to solve priority development problems by creating, improving and making moreeffective use of scientific and technological institutions.

PROJECT PURPOSE(S) (stay within brackets)

Improve the capability of LDC leaders to make sound policies for assessing, developing, managing and protecting their energy supplies and needs and their natural resources within the context of effective environmental protection measures.

PLANNING RESOURCE REQUIREMENTS (identified) Project Design

Type	Amount ($000)
15 man days (TA/OST staff)	
5 consultant days	$130/day x 5 =$650.00

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	20	5	5		30

F. Other Donors

NAME	$000/Yr.
Host country & regional institution will contribute facilities & services est. at $10,000. for each workshop.	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	70	15					70	50	20	8/79	SERVICES EXPENSE 1 YEAR [illegible]
5. Proposed FY 1980	210						210	180	50	8/80	-do-
6. Proposed FY 1981	210						210	210	50	8/81	315 -do-
7. All other								50	0	8/82	
8. TOTAL	490						490	[illegible]			

PROJECT FISCAL DATA SHEET F-2

A. Project Identification
1. Cluster # 0057 Title Building Scientific & Technological Infrastructure
2. RDA # 19 Title Science & Technology Inst. Dev.
3. Project # 931-1221 4. Code
5. Project Title White House Summer Study on Science Policy
6. Contractor: Not selected or identified
7. Contract No.
8. Project Manager William L. Milers
9. Appropriation 0 10 Category C

B. Project Fiscal Data (000)

Item	Initial	Approved	Requested
1. Obligation:	FY 79	FY	FY 81
2. Service:	FY 79	FY	FY 82
3. LOP Costs:		$	$ 355

C. Countries

D. Project Documentation Status Data
1. Date of Current PID Approval Pending
2. Draft Project Paper due TA/PPC 9/1/78

E. Project Description

PROJECT GOAL (stay within brackets)

To strengthen LDC capability to solve priority development problems by creating, improving and making more effective use of scientific and technological institution.

PROJECT PURPOSE(S) (stay within brackets)

By helping LDC policy planners better understand how science capabilities and institutions can solve development problems, persuade them to increase resources for science & technology, involve scientists and engineers in national planning & decision-making, and focus on technology transfer and the generation of technology to accelerate economic development.

Technical Office Support to Manage Project (in work days)

FY	DH	TPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	-30	-10			40

PLANNING RESOURCE REQUIREMENTS (dollars/funds) Project Design

Type	Amount ($000)
20 man days of TA/OST time to prepare documentation and PIO/T, manage the project through completion of the initial workshop.	

F. Other Donors

NAME	$000/Yr.
NSF	$110.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) WM	(3) Participants Dollars	(4) WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											to fund White House staff on PASA
2. Est. FY 1977											do
3. Est. FY 1978											do
4. Proposed FY 1979			110	32			110	90	20	Sept. 79	
5. Proposed FY 1980			120	32			120	90	50	Sept. 80	
6. Proposed FY 1981			125	32			125	95	80	Sept. 81	316
7. All other								80	0	Mar. 82	
8. TOTAL			355	96			355	355			

ONGOING PROJECT FISCAL DATA SHEET F.

A. Project Identification

1. Cluster # 0957 Title Building Scientific & Technological Infrastructure
2. RDA # 19 Title Science & Technology Institutional Development
3. Project # 931-1086 4. Code 753
5. Project Title Institute Series on Science & Technology Policy
6. Contractor: Cornell University
7. Contract No.
8. Project Manager William L. Filers
9. Appropriation 6 10 Category D

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 80	FY
2. Service:	FY 77	FY 82	FY
3. LOP Costs:		FY 525	$

C. Countries

Interregional

D. Project Documentation Status Date

1. Date Current Approval Pending
2. New/Revised PP due TA/PPU 6/77
3. Date Last Eval, November 1975
4. Date of Current PAR December 1975
5. Next Evaluation July 1979
   In-depth Evaluation XX
   Terminal Evaluation
   Special Evaluation
6. Period July 1977-June 1979

E. Project Description

1 Planned Outputs

1. 30 LDC mid-career administrators, planners & scientists receive through a one-month intensive series of seminars, case studies, study group sessions and individual research assignments an in-depth experience in problem-solving of science/technology policy issues related to national development.
2. Permanent links between LDC institutions and Cornell University are created four purposes of continuing consultation, technology transfer, and manpower development.
3. U.S. specialists on LDC science policy and institution gain valuable updating and exchange of experience in dealing with wide scope of LDC science policy issues, e.g. application of remote sensing technologies, energy policy, etc.

2. Progress in Achieving Outputs/Est. Completion Date

1. Initial institute is scheduled for Summer 1978 since project was not completed in time for an institute to be scheduled for 1977.
2. First institute will be completed by Aug. 31,78/ Two institutes to be conducted at overseas sites during each of the following years: 1979, 1980. Final reports on institues due 1981June)

3. Purpose of Project/Anticipated Achievement Date

Improve LDC capability for making technological choice encouraging technological adaptation, developing scientific and technological manpower, building new S&T institutions.

4. Project Change Requiring Revised PP and/or PAF

November 1975 evaluation proposed that future summer institutes b held on a regional basis at an overseas site instead of at Cornell. The two institutes proposed in the PP reflect this recommendation, although location has not been decided.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	5				5
1978	10				10
1979	10	5			15

F. Other Donors

NAME	$000/Yr.
Cornell will contribute services of senior faculty and grad. students for seminars, meeting facilities, etc.	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	75	5					75	5	70	8/78	Conduct Summer Institutes on regional basis
3. Est. FY 1978	200	10					200	170	100	8/79	at selected sites abroad.
4. Proposed FY 1979	120	15					120	180	40	8/80	
5. Proposed FY 1980	130						130	120	50	8/81	
6. Proposed FY 1981								50		8/82	
7. All other											
8. TOTAL	525						525	525			

319

ONGOING PROJECT FISCAL DATA SHEET F- 1

A. Project Identification

1. Cluster # 9057 Title Building Scientific and Technological Infrastructure
2. RDA # 19 Title: Science & Technology Institutional Development
3. Project # 931-1129 4. Code 751
5. Project Title Science Policy for a Small Developing Country
6. Contractor: Cornell University
7. Contract No.
8. Project Manager William L. Eilers
9. Appropriation F 10 Category 7

B. Project Approval Status ($00)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 79	FY
2. Service:	FY 77	FY 80	FY
3. LOP Costs:		$190	$

C. Countries

Interregional

D. Project Documentation Status Data

1. Date Current Approval Pending
2. New/Revised PP due TA/PPU 6/77
3. Date Last Eval, November 1975
4. Date of Current PAR December 1975
5. Next Evaluation July 1979
   In-depth Evaluation XX
   Terminal Evaluation
   Special Evaluation
6. Period July 1977 - June 1979

E. Project Description

1 Planned Outputs

1. Two collaborative studies on university education in science and technology planning and provincial planning for development of natural resources.
2. Analysis of approaches and studies for evaluation of methodology that was developed by Cornell to study and make recommendations on development of science policies in a small developing nation.
3. Dissemination of conclusions to appropriate small LDC's with similar problems of organizing science and technology institutions.
4. A body of LDC specialists trained in this type of rigorous analysis by virtue of having participated in the study: estimate of 20 individuals per country for 2 countries.

2. Progress in Achieving Outputs/Est. Completion Date

1. Project has not really got underway. Under study and exploration are possible studies in Sri Lanka, Liberia, Sudan, Somalia, Tunis & Syria.

3. Purpose of Project/Anticipated Achievement Date

To make recommendations for the appropriate structure and functions of an emerging scientific community in a small developing country which has need for only a modest capability in technology through a joint study conducted with the assistance of graduate students from the country.

4. Project Change Requiring Revised PP and/or PAF

November 1975 evaluation of this projectactivity under Cornell's 211(d) grant recommended a continuation of this type of activity under a contract.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	10				10
1978	0				0
1979	10				10

F. Other Donors

NAME	$000/Yr.
Cornell will contribute staff time of senior faculty and grad. students for studies inLDC.	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum.Thru 9/30/76											
2. Est. FY 1977	90	40					90	50	40	9/78	Sri Lanka, Sudan or Somalia Study
3. Est. FY 1978	0	0						40	0	9/79	
4. Proposed FY 1979	100	40					100	50	50	9/80	Syria, Tunis, Liberia Study. (One of these
5. Proposed FY 1980								50	0	9/81	
6. Proposed FY 1981											
7. All other											
8. TOTAL	190						190	190			

318

A. Project Identification
1. Cluster # 995/ Title Building Scientific & Technological Infrastructure
2. RDA # 19 Title: Science & Technology Institutional Development
3. Project # 931-1089 4. Code 751
5. Project Title Interaction of S&T and LDC Cultures
6. Contractor: Cornell University (?)
7. Contract No.
8. Project Manager William L. Filers
9. Appropriation 6 10 Category D

PROJECT FISCAL DATA SHEET F-2

Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 78	FY	FY 78
2. Service:	FY 78	FY	FY 79
3. LOP Costs:		$	$ 200

C. Countries
Interregional

D. Project Documentation Status
1. Date of Current PID Approval Pending
2. Draft Project Paper due TA/PPU 2/78

E. Project Description

PROJECT GOAL (stay within brackets)

Strengthen LDC capability to solve priority development problems by creating, improving and making more effective use of scientific and technological institutions.

PROJECT PURPOSE(S) (stay within brackets)

To study and analyze technology transfer and adaptation processes in the context of the recipient culture, and to arrive at findings and recommendations designed to accelerate the adaptation, acceptability and integration of appropriate to meet LDC development requirements.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
20 man/days (TA/OST staff)	

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978	25	5			30
1979	7	3			10

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	200	30					200	150	50	12/79	Life of project funding
4. Proposed FY 1979								50	0		
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	200	30					200	200			

319

ONGOING PROJECT FISCAL DATA SHEET F-1

1. Cluster # [illegible] Title Building Scientific and Technological Infrastructure
2. RDA # [illegible] Title Science & Technology Institutional Development
3. Project # 931-1223 4. Code 750
5. Project Title: Enhancing S&T Capabilities in Developing Countries
6. Contractor: National Academy of Sciences
7. Contract No.
8. Project Manager William J. Filers
9. Appropriation 6 10 Category n

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 79	FY
2. Service:	FY 77	FY 80	FY
3. LOP Costs:		FY 3375	$

C. Countries
Interregional

D. Project Documentation Status Data
1. Date Current Approval Pending
2. New/Revised PP due TA/PPU May 76
3. Date Last Eval. June 1975
4. Date of Current PAR May 1977
5. Next Evaluation September 1979
In-depth Evaluation XX
Terminal Evaluation
Special Evaluation
6. Period September 1, 1977-Aug. 31, 1979

E. Project Description

1. Planned Outputs

1. Specific technological innovations are proposed for application to LDC's.
2. Recommendations are made to specific LDC's by NAS advisory missions on science policy and programs.
3. Recommendations for AID action are made in NAS advisory studies.
4. New LDC organizations are created to carry out national science policies and programs.
5. New mechanisms for the exchange of scientific information are established in LDC's.
6. New and different kinds of linkages are formed between scientific institutions and personnel in the U.S. and LDC's.

2. Progress in Achieving Outputs/Est. Completion Date

1. New contract will becomeeffective September 1 1977.

2. The outputs are part of a continuing process in strengthening the scientific and technological communities of LDC's in order to contribute more effectively to development targets. Therefore, it is not possible to think in terms of finite completion dates for any of the projected outputs.

3. Purpose of Project/Anticipated Achievement Date

To strengthen the capability of LDC institutions to apply science and technology resources to solve economic development problems and to assist AID and LDC's in utilizing improved techniques to adapt scientific and technological advancements in the U.S. and other industrial countries to the solution of specific development problems.

4. Project Change Requiring Revised PP and/or PAF

Evaluation completed in July 1975 proposed 50 significant modifications and new directions for this project which are reflected fully in revised PP and PAF.

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	5			5	10
1978	70				70
1979	60	20	2		82

F. Other Donors

NAME	$000/Yr.
NAS scientists & engineers contribute their services which is equivalent to $80,000/year.	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	1000	20					1000	83	917	9/77	New 3-yr. contract effect. Sept. 1, 1977:
3. Est. FY 1978	1125	240					1125	1007	1035	9/78	Supports workshops, advis. studies, technol
4. Proposed FY 1979	1250	240					1250	1135	1150	9/79	innovation.
5. Proposed FY 1980								1150	0	9/80	
6. Proposed FY 1981											
7. All other											
8. TOTAL	3375						3375	3375			

320

ONGOING PROJECT FISCAL DATA SHEET F-1

A. Project Identification

1. Cluster # 995A Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 931-0902 4. Code 752
5. Project Title: Remote Sensing-Applications
6. Contractor: Multiple
7. Contract No.
8. Project Manager Merrill Conitz
9. Appropriation: 1 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 71	FY TQ	FY
2. Service:	FY 71	FY 78	FY
3. LOP Costs:		FY $1122	$

C. Countries

Pakistan
Bangladesh
Thailand
Bolivia
Kenya
Others

D. Project Documentation Status Data

1. Date Current Approval 9/75
2. New/Revised PP due TA/PPU -
3. Date Last Eval. 7/75
4. Date of Current PAR 7/75
5. Next Evaluation 9/15/77
   In-depth Evaluation
   Terminal Evaluation X
   Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

1. Established methodologies for implementing low cost aircraft multispectral surveys and ERTS analysis programs in developing countries.

2. Broader understanding within LDCs of advantages and limitations of remote sensing.

3. Grants awarded to strengthen institutional capabilities and stimulate local initiatives through support for research and pilot projects.

4. Cost benefit assessment of usefulness of ERTS imagery for development purposes.

2. Progress in Achieving Outputs/Est. Completion Date

1. Techniques for low cost multispectral aircraft surveys have been tested and evaluated in Indonesia.
2. Training s been the largest component of this project and has contributed significantly to broadening the understanding of the advantages and limitations of remote sensing in developing countries. Two international and four regional workshops have been held and approximately 180 developing country technicians and resource managers trained.
3. Ten grants awarded to provide financial and technical assistance in variety of resource applications. Institutional capabilities strengthened.
4. Benefit assessment study completed and distributed to all AID missions and other interested organizations.

Completion Date 1978.

3. Purpose of Project/Anticipated Achievement Date

To broaden understanding of remote sensing technology and identify requirements and methods for efficient use of remote sensing in LDCs, as well as to assess usefulness of remote sensing in agriculture, hydrological, geological, oceanographic and related earth resource applications in selected LDCs.
Anticipated achievement date - 1990.

4. Project Change Requiring Revised PP and/or PAF

N/A

5. Technical Office Support: (In work days)

F.Y.	OH	IPA	CONSULT	RSSA	TOTAL
1977	11		4		15
1978	14				14
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	1096					10	1106	907	199	2/78	
2. Est. FY 1977								199			
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other	1,096					10	1,106	1,106	199		

32

A. Project Identification

1. Cluster # 9958 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources
3. Project # 0902 4. Code 752
5. Project Title Remote Sensing Applications
6. Contractor: South Dakota State University
7. Contract No. AID/ta-C-1334
8. Project Manager Merrill Conitz
9. Appropriation 1 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 71	FY TQ	FY
2. Service:	FY 71	FY 78	FY
3. LOP Costs:		FY 596	$

C. Countries

Nepal

D. Project Documentation Status Data

1. Date Current Approval 9/75
2. New/Revised PP due TA/PPU -
3. Date Last Eval. -
4. Date of Current PAR -
5. Next Evaluation 8/15/77
   In-depth Evaluation
   Terminal Evaluation X
   Special Evaluation
6. Period 6/30/76 - 8/15/77

E. Project Description

1. Planned Outputs

1. Intermediate level training course in remote sensing developed and tested.

2. Up to 30 host country and neighboring country resource managers trained in the analysis of Landsat imagery.

2. Progress in Achieving Outputs/Est. Completion Date

1. Training course outline developed and preliminary image processing completed.

2. First host country visit scheduled for May 1977.

Estimated Completion date 2/78.

3. Purpose of Project/Anticipated Achievement Date

To broaden the understanding of remote sensing technology and determine appropriate methodology for intermediate level training.

Anticipated achievement date is 3/78.

4. Project Change Requiring Revised PP and/or PAF

None

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	8				8
1978	8				8
1979	-				-

F. Other Donors

NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	96						96	41	55	2/78	
2. Est. FY 1977								55			
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	96						96	96			

322

SUB-PROJECT FISCAL DATA SHEET F-3

Remote Sensing &

4. Code

te Sensing Applications

S

10 Category

B. Project Approval Status ($000)

Item	Initial	Final: Approved	Final: Requested
1. Obligation:	FY	FY	FY
2. Service:	FY	FY	FY
3. LOP Costs:		FY	$

C. Countries

D. Project Documentation Status Data
1. Date Current Approval
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period

E. Project Description

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	OH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

udget Summary n ($000) and ork Months - WM	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
um. Thru 9/30/76	356				10	-	366	366	-	6/74	
st. FY 1977											
st. FY 1978											
roposed FY 1979											
roposed FY 1980											
roposed FY 1981											
All other											
TOTAL	356		-		10	-	366	366			

323

A. Project Identification

1. Cluster # 9058 Title Remote Sensing & Satellite Technology
2. RDA # ____ Title: ____
3. Project # 931-0902 4. Code ____
5. Project Title Remote Sensing Applications
6. Contractor: DOD
7. Contract No. ____
8. Project Manager ____
9. Appropriation ____ 10 Category ____

SUB-PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY____	FY____	FY____
2. Service:	FY____	FY____	FY____
3. LOP Costs:		FY____	$____

C. Countries

D. Project Documentation Status Data
1. Date Current Approval ____
2. New/Revised PP due TA/PPU ____
3. Date Last Eval. ____
4. Date of Current PAR ____
5. Next Evaluation ____
In-depth Evaluation ____
Terminal Evaluation ____
Special Evaluation ____
6. Period ____

E. Project Description

1 Planned Outputs

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month	(10) Services Funded Thru Year	(11) Description of Funding
1. Cum. Thru 9/30/76	45		-		-	-	45	45	-			
2. Est. FY 1977												
3. Est. FY 1978												
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
8. TOTAL	45		-		-	-	45	45				

324

A. Project Identification

1. Cluster # 9958 Title Remote Sensing & Satellite Technology
2. RDA # ____ Title: ____
3. Project # 931-0902 4. Code ____
5. Project Title Remote Sensing Applications
6. Contractor: ERIM
7. Contract No. ____
8. Project Manager ____
9. Appropriation ____ 10 Category ____

SUB-. JECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY____	FY____	FY____
2. Service:	FY____	FY____	FY____
3. LOP Costs:		FY____	$____

C. Countries

D. Project Documentation Status Data
1. Date Current Approval ____
2. New/Revised PP due TA/PPU ____
3. Date Last Eval, ____
4. Date of Current PAR ____
5. Next Evaluation ____
   In-depth Evaluation ____
   Terminal Evaluation ____
   Special Evaluation ____
6. Period ____

E. Project Description

1 Planned Outputs

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	434				10	145	589	558	81		
2. Est. FY 1977								31		2/78	
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	434		-		10	145	589	589			

325

Project Identification
. Cluster # 1201 Title Health Planning
. RDA # 12 Title: Health Planning
. Project # 931-0997 4. Code 751
5. Project Title: Remote Sensing Census
6. Contractor: Multiple - see F-3 forms
7. Contract No. Multiple - see F-3 forms
8. Project Manager Merrill Conitz
9. Appropriation: 4 10 Category B

ONGOING PROJECT FISCAL DATA SHEET F-1

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 77	FY
2. Service:	FY 73	FY 78	FY
3. LOP Costs:		FY $622	$

C. Countries
Kenya
Bolivia
Afghanistan
Ethiopia

D. Project Documentation Status Data
1. Date Current Approval 2/22/73
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 11/77
In-depth Evaluation
Terminal Evaluation X
Special Evaluation
6. Period

E. Project Description

1 Planned Outputs

1. Maps for census planning, operations and reporting in Kenya and Bolivia.

2. Evaluation of usefulness of LANDSAT imagery in reducing the cost and increasing the timeliness and/or quality of census operations, including inter-census estimates of population change in rural and urban areas.

2. Progress in Achieving Outputs/Est. Completion Date

1. Bolivian studies being finalized. Dissemination conference scheduled for 11/77.

2. Kenya interpretations to be completed and final report submitted by 6/30/77.

3. Purpose of Project/Anticipated Achievement Date

Test usefulness of satellite remote sensing imagery (ERTS) in preparing for, implementing, and reporting census operations in LDCs. Strengthen existing institution's capabilities in LDCs to utilize remote sensing data.

Anticipated achievement date 12/77.

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	7				
1978	10				10
1979					

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month	(10) Services Funded Thru Year	(11) Description of Funding
1. Cum. Thru 9/30/76	585		13		24		622	468	154			
2. Est. FY 1977								64	90			
3. Est. FY 1978								90	0			
4. Proposed FY 1979												
5. Proposed FY 1980												
6. Proposed FY 1981												
7. All other												
Total	585		13		24		622	622				

326

A. Project Identification

1. Cluster # 1201 Title Health Planning
2. RDA # 12 Title: Health Planning
3. Project # 0997 4. Code 751
5. Project Title: Remote Sensing Census
6. Contractor: PROAG - Bolivia
7. Contract No.
8. Project Manager M. Conitz
9. Appropriation: 4 10 Category B

PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 77	FY
2. Service:	FY 73	FY 78	FY
3. LOP Costs:		FY	$

C. Countries

D. Project Documentation Status Data
1. Date Current Approval 2/22/73
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 11/77
In-depth Evaluation
Terminal Evaluation X
Special Evaluation
6. Period to 11/77

E. Project Description

1 Planned Outputs

See F-1

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	284				14		298	248	50	12/30/77	
2. Est. FY 1977								50			
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	284				14		298	298			

327

A. Project Identification

1. Cluster # 1201 Title Health Planning
2. RDA # 12 Title: Health Planning
3. Project # 0997 4. Code 751
5. Project Title: Remote Sensing Census
6. Contractor: PROAG - Kenya
7. Contract No.
8. Project Manager M. Conitz
9. Appropriation 4 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-1

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 77	FY
2. Service:	FY 73	FY 78	FY
3. LOP Costs:		FY	$

C. Countries

D. Project Documentation Status Data
1. Date Current Approval 2/22/73
2. New/Revised PP due TA/FPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 11/77
In-depth Evaluation
Terminal Evaluation X
Special Evaluation
6. Period to 11/77

E. Project Description

1. Planned Outputs

See F-1

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	190		-		10	-	200			6/77	
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	190		-		10	-	200	200			

328

A. Project Identification

1. Cluster # 1201 Title Health Planning
2. RDA # 12 Title: Health Planning
3. Project # 0997 4. Code 751
5. Project Title: Remote Sensing Census
6. Contractor: Dr. Leonard Berry
7. Contract No.
8. Project Manager M. Conitz
9. Appropriation 4 10 Category B

SUBPROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 77	FY
2. Service:	FY 73	FY 78	FY
3. LOP Costs:		FY $31	$

C. Countries

D. Project Documentation Status Data
1. Date Current Approval 2/22/73
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 11/77
In-depth Evaluation
Terminal Evaluation X
Special Evaluation
6. Period to 11/77

E. Project Description

1. Planned Outputs

See F-1

2. Progress in Achieving Outputs/Est. Completion Date

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	31		-		-	-	31	9	22	12/77	
2. Est. FY 1977								22			
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	31						31	31			

329

A. Project Identification

1. Cluster # 1201 Title Health Planning
2. RDA # 12 Title: Health Planning
3. Project # 0997 4. Code 751
5. Project Title: Remote Sensing Census
6. Contractor: PROAG - Afghanistan
7. Contract No.
8. Project Manager M. Conitz
9. Appropriation: 4 10 Category B

SUBPROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 73	FY 77	FY
2. Service:	FY 73	FY 78	FY
3. LOP Costs:		FY -	$

C. Countries

D. Project Documentation Status Data
1. Date Current Approval 2/22/73
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 11/77
In-depth Evaluation
Terminal Evaluation X
Special Evaluation
6. Period to 11/77

E. Project Description

1. Planned Outputs

See F-1

2. Progress in Achieving Outputs/Est. Completion Date

Project terminated in FY 1975.

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAR

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979					

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76	92		-		-	-	92	92	-	12/75	
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979											
5. Proposed FY 1980											
6. Proposed FY 1981											
7. All other											
8. TOTAL	92						92	92			

330

ONGOING PROJECT FISCAL DATA SHEET F-1

Project Identification

1. Cluster # 9958 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 1166 4. Code 950
5. Project Title: Remote Sensing for Resource Assessment
6. Contractor: Multiple
7. Contract No. See F 3
8. Project Manager M. Conitz
9. Appropriation: 1 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 78	FY 81
2. Service:	FY 77	FY 79	FY 82
3. LOP Costs:		$3,375	$10,275

C. Countries

Kenya
Sudan
Swaziland
Costa Rica
Bolivia
Philippines
Thailand
Other

D. Project Documentation Status Data

1. Date Current Approval 12/76
2. New/Revised PP due TA/PPU 6/78
3. Date Last Eval. -
4. Date of Current PAR -
5. Next Evaluation 10/79
   In-depth Evaluation X
   Terminal Evaluation
   Special Evaluation
6. Period to 10/79

E. Project Description

1. Planned Outputs

(1). Tested and evaluated remote sensing user assistance facility.

(2). Tested and evaluated specialized applications.

(3). Methodology for conducting intermediate and advanced training in remote sensing.

2. Progress in Achieving Outputs/Est. Completion Date

Contract for first sub project being negotiated.

3. Purpose of Project/Anticipated Achievement Date

To identify, adapt and demonstrate new procedures and techniques which support the utilization of remote sensing for inventorying, reappraising and managing agricultural and other resources. Anticipated achievement - 1990.

4. Project Change Requiring Revised PP and/or PAF

PP to be revised for FY 1979 funding

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	143			23.	166
1978	270			23	293
1979	320			-	320

F. Other Donors

NAME	$000/Yr.
See F-3s	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	645	85			430		1,075	775	300		See F-3
3. Est. FY 1978	1,400	234	40	40	860		2,300	1,900	700		" "
4. Proposed FY 1979	1,400		40	40	860		2,300	2,200	800		
5. Proposed FY 1980	1,310		40		950		2,300	2,500	600		
6. Proposed FY 1981	1,310		40		950		2,300	2,300	600	6/82	
7. All other								600			
	6,065		160		4,050		10,275	10,275			

331

SUB-PROJECT FISCAL DATA SHEET F-3

A. Project Identification

1. Cluster # 9958 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 1166 4. Code
5. Project Title: Remote Sensing for Resource Assessment
6. Contractor: Environmental Research Institute of Michigan
7. Contract No.
8. Project Manager Merrill Conitz
9. Appropriation 1 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final: Approved	Final: Requested
1. Obligation:	FY 77	FY 78	FY 81
2. Service:	FY 77	FY 79	FY 82
3. LOP Costs:		$640	$2,000

C. Countries

Kenya

D. Project Documentation Status Data

1. Date Current Approval 12/76
2. New/Revised PP due TA/PPU 6/78
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 10/79
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period to 10/79

E. Project Description

1. Planned Outputs

See F-1 Line 1

2. Progress in Achieving Outputs/Est. Completion Date

Contract to be negotiated 6/77

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

See F-1

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	20				20
1978	25				25
1979	20				20

F. Other Donors

NAME $000/Yr.

East African Regional Center for Services in Surveying and Mapping Approx. $500,000/yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	150	15			130		280	180	100		Staff and Equipment for Regional Center
3. Est. FY 1978	240	36			120		360	260	200		(Africa Bureau will fund after FY 1978)
4. Proposed FY 1979	240	36			120		360	360	200		
5. Proposed FY 1980	300				200		500	500	200		
6. Proposed FY 1981	300				200		500	500	200	6/82	
7. All other								200			
8. TOTAL	1,230				770		2,000	2,000			

332

1. Cluster # 0958 Title Remote Sensing and Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 1166 4. Code
5. Project Title Remote Sensing for Resource Assessment
6. Contractor: PROAG-EA Regional Mapping Center
7. Contract No. –
8. Project Manager Merrill Conitz
9. Appropriation 1 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 78	FY 81
2. Service:	FY 77	FY 79	FY 82
3. LOP Costs:		$440	$ 1,580

C. Countries
Kenya

D. Project Documentation Status Data
1. Date Current Approval 12/76
2. New/Revised PP due TA/PPU
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 10/79
In-depth Evaluation
Terminal Evaluation
Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

See F-1, Line 1

2. Progress in Achieving Outputs/Est. Completion Date

PROAG to be negotiated 7/77

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

See F-1

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	20				20
1978	25				25
1979	20				20

F. Other Donors

NAME	$000/Yr.
East African Regional Center for Services in Surveying and Mapping - Approx. $500,000/yr.	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	50	10			50		100	100	–		Includes approximately $55,000 in DH costs in FY 1977 and $80,000 in FY 1978.
3. Est. FY 1978	120	48	40	40	180		340	340	–		
4. Proposed FY 1979	120	48	40	40	180		340	340	–		Africa Bureau will fund in FY 1981 and beyond.
5. Proposed FY 1980	160		40		200		400	400	–		
6. Proposed FY 1981	160		40		200		400	400	–	6/82	
7. All other											
8. TOTAL	610		160		810		1,580	1,580			

A. Project Identification

1. Cluster # 9958 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 1166 4. Code
5. Project Title Remote Sensing for Resource Assessment
6. Contractor: Environmental Research Inst. of Mich.
7. Contract No.
8. Project Manager Merrill Conitz
9. Appropriation 1 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 77	FY 78	FY 81
2. Service:	FY 77	FY 79	FY 82
3. LOP Costs:		$1,135	$ 3,175

C. Countries

Swaziland
Cameroon
Costa Rica
Bolivia
~~Philippines~~
~~Thailand~~
Other

D. Project Documentation Status Data

1. Date Current Approval 12/76
2. New/Revised PP due TA/PPU See F-1
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation 10/79
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

See F-1 Line 2.

2. Progress in Achieving Outputs/Est. Completion Date

Contract being negotiated

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

See F-1

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	63			23	86
1978	110			23	133
1979	150				150

F. Other Donors

NAME	$000/Yr.
Grantees	Approx. $200,000/yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	295	40			200		495	395	100		Grants & Tech. Asst.
3. Est. FY 1978	340	50			300		640	540	200		" "
4. Proposed FY 1979	340	50			300		640	640	200		
5. Proposed FY 1980	350				350		700	700	200		
6. Proposed FY 1981	350				350		700	700	200	6/82	
7. All other								200			
8. TOTAL	1,675				1,500		3,175	3,175			

334

A. Project Identification

1. Cluster # 9958 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 1166 4. Code
5. Project Title: Remote Sensing for Resource Assessment
6. Contractor: South Dakota State University
7. Contract No. -
8. Project Manager Merrill Conitz
9. Appropriation 1 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-3

B. Project Approval Status ($000)

Item	Initial	Final: Approved	Final: Requested
1. Obligation:	FY 77	FY 78	FY 79
2. Service:	FY 77	FY 79	FY 80
3. LOP Costs:		FY $600	$1,000

C. Countries

Sudan
Tanzania
Bangladesh
Other

D. Project Documentation Status Data

1. Date Current Approval 12/76
2. New/Revised PP due TA/PPU See F-1
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation
   In-depth Evaluation 10/79
   Terminal Evaluation
   Special Evaluation
6. Period to 10/79

E. Project Description

1. Planned Outputs

See F-1 Line 3

2. Progress in Achieving Outputs/Est. Completion Date

Contract not yet negotiated

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

See F-1

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	30				30
1978	60				60
1979	80				

F. Other Donors

NAME	$000/Yr.
Host countries personnel, training facilities, etc. Approx. $100,000 per year	

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977	150	20			50		200	100	100		2 Training courses
3. Est. FY 1978	300	40			100		400	300	200		4 " "
4. Proposed FY 1979	300	40			100		400	400	200	6/80	
5. Proposed FY 1980								200			
6. Proposed FY 1981											
7. All other											
8. TOTAL	750				250		1,000	1,000			

335

A. Project Identification

1. Cluster # 9055 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 1166 4. Code
5. Project Title Remote Sensing for Resource Assessment
6. Contractor: To be determined
7. Contract No. –
8. Project Manager Merrill Conitz
9. Appropriation: 1 10 Category B

SUB-PROJECT FISCAL DATA SHEET F-3

Project Approval Status ($000)

Item	Initial	Final: Approved	Final: Requested
1. Obligation:	FY 77	FY 78	FY 81
2. Service:	FY 77	FY 79	FY 82
3. LOP Costs:		FY$560	$ 2,520

C. Countries

To be determined

D. Project Documentation Status Data

1. Date Current Approval 12/76
2. New/Revised PP due IA/FPU See F-1
3. Date Last Eval.
4. Date of Current PAR
5. Next Evaluation To be determined
   In-depth Evaluation
   Terminal Evaluation
   Special Evaluation
6. Period

E. Project Description

1. Planned Outputs

See F-1 Line 2

2. Progress in Achieving Outputs/Est. Completion Date

Initial funding scheduled for FY 1978.

3. Purpose of Project/Anticipated Achievement Date

See F-1

4. Project Change Requiring Revised PP and/or PAF

See F-1

5. Technical Office Support: (In work days)

F.Y.	DH	IPA	CONSULT	RSSA	TOTAL
1977	10				10
1978	50				50
1979	50				50

F. Other Donors

NAME $000/Yr.

Grantees Approx. $200,000/yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978	400	60			160		560	460	100		Grants and Technical Assistance
4. Proposed FY 1979	400	60			160		560	460	200		
5. Proposed FY 1980	500				200		700	700	200		
6. Proposed FY 1981	500				200		700	700	200	6/82	
7. All other								200			
8. TOTAL	1,800				720		2,520	2,520			

336

A. Project Identification
1. Cluster # 0958 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title Natural Resources for Agriculture
3. Project # 931-1224 4. Code 751
5. Project Title Remote Sensing in Agriculture
6. Contractor: To be determined
7. Contract No. –
8. Project Manager H. Conitz
9. Appropriation 1 10 Category B

PROJECT FISCAL DATA SHEET F-2

b. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 82
2. Service:	FY 79	FY	FY 83
3. LOP Costs:		$	$1,800

C. Countries
To be determined

D. Project Documentation Status Data
1. Date of Current PID Approval –
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve agricultural land utilization and crop forecasting in LDCs through assistance in the use of remote sensing and related technologies.

PROJECT PURPOSE(S) (stay within brackets)

To identify existing remote sensing monitoring techniques in agriculture and adapt them for use in developing countries and tropical conditions.

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	48				48

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
Consultant's study completed during FY 1977 will provide data needed for PP. Approximately 15 DH workdays required to develop PP.	

F. Other Donors
NAME $000/Yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	500		–		100	–	600	500	100		Research & Methodology development
5. Proposed FY 1980	400		–		100	–	500	400	200		Pilot project
6. Proposed FY 1981	400		–		100	–	500	500	200		Pilot project
7. All other	200		–		–		200	400	100	6/83	
8. TOTAL	1,500		–		300		1,800	1,800			

339

PROJECT FISCAL DATA SHEET F-2

A. Project Identification
1. Cluster # 9928 Title Remote Sensing and Satellite Technology
2. RDA # / Title Natural Resources for Agriculture
3. Project # 931-1215 4. Code 751
5. Project Title Remote Sensing in Cartography
6. Contractor: To be determined
7. Contract No. -
8. Project Manager M. Conitz
9. Appropriation 1 10 Category A

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 81
2. Service:	FY 79	FY	FY 82
3. LOP Costs:		$	$1,100

C. Countries
To be determined

D. Project Documentation Status Data
1. Date of Current PID Approval -
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve development planning and land utilization in developing countries through assistance in the use of Landsat imagery.

PROJECT PURPOSE (stay within brackets)

To identify appropriate Landsat mapping techniques and adapt them for use in developing countries.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
15 workdays of DH staff	

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	48				48

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months - WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	400		-		100	-	500	400	100		Research & Methodology development
5. Proposed FY 1980	250		-		50		300	300	100		Pilot Project
6. Proposed FY 1981	250		-		50		300	300	100		Pilot Project
7. All other							100	100		6/83	
8. TOTAL	900		-		200		1,100	1,100			

338

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 9938 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title Natural Resources for Agriculture
3. Project # 931-1225 4. Code 752
5. Project Title Computer Applications in Remote Sensing
6. Contractor: To be determined
7. Contract No. –
8. Project Manager M. Conitz
9. Appropriation 1 10 Category B

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 81
2. Service:	FY 79	FY	FY 82
3. LOP Costs:		$	$1,500

C. Countries

To be determined

D. Project Documentation Status Data

1. Date of Current PID Approval –
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve development planning and land utilization in LDCs through assistance in the use of Landsat digital data for natural resource identification and management.

PROJECT PURPOSE(S) (stay within brackets)

To assess current computer processing techniques and match them with identified existing and potential LDC capabilities.

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
Approximately 15 DH workdays required to develop PP	

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	30				30

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) WM	(3) Participants Dollars	(4) WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	400		–		100	–	500	400	100		Adaptation of Methodology & procurement
5. Proposed FY 1980	300		–		200	–	500	400	200		of equipment
6. Proposed FY 1981	300		–		200	–	500	500	200	6/82	" " "
7. All other								200			
8. TOTAL	1,000				500		1,500	1500			

339

A. Project Identification
1. Cluster # 0058 Title Remote Sensing & Satellite Technology
2. RUA # 7 Title Natural Resources for Agriculture
3. Project # 931-1227 4. Code 752
5. Project Title Earth Resources Information Systems
6. Contractor: To be determined
7. Contract No. -
8. Project Manager M. Conitz
9. Appropriation 1 10 Category B

PROJECT FISCAL DATA SHEET T-2

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 81
2. Service:	FY 79	FY	FY 82
3. LOP Costs:		$	$ 1,500

C. Countries
To be determined

D. Project Documentation Status Data
1. Date of Current PID Approval -
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve development planning and land utilization in developing countries through assistance in the use of information systems including remote sensing derived data.

PROJECT PURPOSE(S) (stay within brackets)

To modify and adapt existing or conceived information systems to address the agricultural and natural resource systems available to LDCs.

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	30				30

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
15 DH workdays required for development of PP. Assistance from USGS is anticipated.	

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY. Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	400		50		50	–	500	300	200		Development of Methodology & pilot project
5. Proposed FY 1980	400		50		50	–	500	400	300		Pilot projects in 4 countries
6. Proposed FY 1981	400		50		50	–	500	500	300	6/82	
7. All other								300			
8. TOTAL	1,200		150		150		1,500	1,500			

340

PROJECT FISCAL DATA SHEET F-2

A. Project Identification

1. Cluster # 0098 Title Remote Sensing & Satellite Technology
2. RDA # 7 Title: Natural Resources for Agriculture
3. Project # 931-1226 4. Code 752
5. Project Title Portable Ground Stations
6. Contractor: To be determined
7. Contract No. -
8. Project Manager M. Conitz
9. Appropriation 1 10 Category C

B. Project Approval Status ($000)

Item	Initial	Final Approved	Final Requested
1. Obligation:	FY 79	FY	FY 83
2. Service:	FY 83	FY	FY 84
3. LOP Costs:		$	$4,500

C. Countries

To be determined

D. Project Documentation Status Data

1. Date of Current PID Approval -
2. Draft Project Paper due TA/PPU 10/77

E. Project Description

PROJECT GOAL (stay within brackets)

To improve development planning and land utilization in developing countries through ensuring the acquisition of Landsat data in a temporary Landsat receiving station based in LDCs.

PROJECT PURPOSE(S) (stay within brackets)

To provide Landsat data to LDCs when desired for the purpose of both providing resource data and to permit LDCs to critically evaluate the utility of eventually constructing permanent stations.

Technical Office Support to Manage Project (in work days)

FY	DH	IPA	CONSULT	RSSA	TOTAL
1977					
1978					
1979	32				32

PLANNING RESOURCE REQUIREMENTS (staff/funds) Project Design

Type	Amount ($000)
15 DH workdays required for development of project. Cooperation of NASA technical personnel is anticipated.	

F. Other Donors

NAME	$000/Yr.

G. Budget Summary in ($000) and Work Months – WM

	(1) Personnel Dollars	(2) Personnel WM	(3) Participants Dollars	(4) Participants WM	(5) Commodities	(6) Other Costs	(7) Total	(8) Expenditures	(9) End FY Pipeline	(10) Services Funded Thru Month Year	(11) Description of Funding
1. Cum. Thru 9/30/76											
2. Est. FY 1977											
3. Est. FY 1978											
4. Proposed FY 1979	400				2,100		2,500	2,300	200		Includes station equipment
5. Proposed FY 1980	400				100		500	400	300		Operation of station
6. Proposed FY 1981	400				100		500	400	400		Operation of station
7. All other	800				200		1,000	1000	600	6/84	
8. TOTAL	2,000				2,500		4,500	4,500			

G TABLES
(SMALL ACTIVITIES)

Table G
5/20/77

Small Activity Projects (1979)

Cluster No. 9951 Title: Exploratory New Applications

		Resource Requirements $000/Work Days FY 79
Small Research		
None Proposed		
Evaluation		
ENAST Activity Evaluation		
	Subtotal	20/7
Utilization		
Publications, etc.	Subtotal	10/3
Special Projects Inputs		
None		
	Cluster Total	30/10

Table G

May 20, 1977

Small Activities

Cluster: 9952 - Energy

Title	FY 77	FY 78	FY 79
	$000/Work Days		
Research			
Design Data for Methane Generation	35/3		
Special Projects Input			
Assessment of Photovoltaic Applications	10/3		
Assistance in Project Design in Energy	5/3		
Analysis of Energy Aspects of AID Programs	30/5		
Assessment of Solar Power Application		15/5	
Preliminary Design of Solar Power Generator		35/10	
Assessment of Small Hydropower Units		20/5	
Support to Bioconversion Conference			40/10
Preparation for UN Energy Conference			40/10

Table G
5/20/77

Small Activities

Cluster: 9953 - Environment/Natural Resources

Title	Resource Requirements $000/Work Days FY 77	FY 78	FY 79
Small Research			
Conference on Research Priorities in Non-Chemical Pest Control		35/5	
Evaluation			
Evaluation of U. of North Carolina Env. Training Programs		40/7	
Utilization			
Workshop on Industrial Pollution		40/10	
Dissemination of Env. Informantion			40/10
Special Project Inputs			
Project Design - Env. Technical Assistance	5/3		
Project Design - E/NR Expanded Indo. Base		5/3	
Special Study - Design Baseline National Resource Collection Systems	40/10		
Project Design - OECD Mineral Research		5/3	
Project Design - Env. Institution Support		5/3	
Undefined E/NR Needs			20/5
Cluster Total	45/13	130/31	60/15

TECHNICAL ASSISTANCE BUREAU PROGRAM REVIEW

Table C

SMALL ACTIVITY PROJECTS

5-20-77

Office: Science & Technology
Cluster No. 9954 Title Technology Transfer & Development
Activity Coordinator W. D. Roseborough

A. Cluster # 9954 Title: Technology Transfer & Development

	Resource Requirements $000/Work Days					
	FY 1977		FY 1978		FY 1978	
	$	W.D.	$	W.D.	$	W.D.
1. Small Research						
a. Technology Corps - Design Study -	64	10				
b. Small Business Development - World Conference	30	15				
c.			30	10		
d.					30	10
Subtotal	94	25	30	10	30	10
2. Evaluation						
a. Small Industry Development Network - Newsletter	34	5				
b.			40	15		
c.					40	15
Subtotal	34	5	40	15	40	15
3. Utilization						
a.						
b.			40	15		
c.					40	15
Subtotal			40	15	40	15
4. Special Projects - Inputs						
a. Project design services by contractor for update of "Technology Transfer Kit"	4	3				
b.			30	10		
c.					30	10
Subtotal	4	3	30	10	30	10
Cluster Total	132	38	140	50	140	50

Attachment G
5/23/77

Small Activity Projects

		Resource Requirements $000/Work Days FY 1977	FY 1978	FY 1979
A. Cluster # 9957 Building Science & Technology Infrastructure				
1. Small Research				
a. Paper on History of U.S. Tech. Assistance in Science and Technology for the U.S. National Paper for the U.N. Conference on Science, Technology & Development, 1979		$35/5		
	(Sub Total)	$35/5	0/0	0/0
2. Evaluation				
a. Evaluation of Study on Interaction of S&T and LDC Cultures				$10/5
	(Sub Total)	0/0	0/0	$10/5
3. Utilization				
a. Field demonstrations by specialists in LDC's of technologies identified by NAS Advisory Committee on Technological Innovation.			$20/5	$20/5
b. Regional LDC workshops to exchange information on NAS Reports and the practical application of their recommendations in specific appropriate LDC's.			$25/10	$25/10
	(Sub Total)	0/0	$45/15	$45/15
4. Special Project Inputs				
a. Project Design - White House Summer Study on Science Policy			$5/3	
b. Project Design - Regional Workshops on Energy, Resources & Environment			$5/3	
c. Project Design - Interaction of S&T and LDC Cultures		$5/3		
d. Small Conference on Appropriate Technology and the U.N. Conference on Science, Technology & Development (to assure that this subject is adequately treated on the agenda of the U.S. and U.N. Conferences.		$4/4		
	(Sub Total)	$9/6	$35/9	$35/15
	Cluster Total	$44/11	$80/24	$90/33

346

G TABLE

Small Activity Projects

A. Cluster # 9958 Title Remote Sensing & Satellite Technology

	Resource Requirements $000/Work Days		
	FY 77	FY 78	FY 79
1. Small Research			
a. Small research project in remote sensing applications in cartography	$30/10	-	-
b. Small research on new space technology applications in development	-	-	$30/15
(Sub Total)	$30/10	-	$30/15
2. Evaluation			
Evaluation of Nairobi Regional Remote Sensing Center 10/78	-	$20/10	-
(Sub Total)	-	$20/10	-
3. Utilization			
Sponsorship of seminar on new opportunities for participation in space technology applications	-	-	$30/15
(Sub Total)	-	-	$30/15
4. Special Projects Inputs			
a. Project design services by contractor for design of a project on remote sensing in tropical agriculture	-	$40/20	-
b. Project design services by contractor in earth resources data systems	-	-	$30/15
(Sub Total)	-	$40/20	$30/15
Cluster Total	$30/10	$60/30	$90/45