AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: C (A = Add, C = Change, D = Delete) — Amendment Number: 2 — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: Worldwide 0069 14

3. PROJECT NUMBER: 936-5734

4. BUREAU/OFFICE: R&D/Office of Energy | 936

5. PROJECT TITLE (maximum 40 characters): Energy Training Project

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 09 DD 30 YY 97

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 87 — B. Quarter 3 — C. Final FY 96

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY B. FX	FIRST FY C. L/C	FIRST FY D. Total	LIFE OF PROJECT E. FX	LIFE OF PROJECT F. L/C	LIFE OF PROJECT G. Total
AID Appropriated Total						
(Grant)	(1,246)	( )	(1,246)	(29,577)	( )	(29,577)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2. Mission Buy-Ins				19,300		19,300
Host Country						
Other Donor(s)						
TOTALS	1,246		1,246	48,877		48,877

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	C. PRIMARY TECH. CODE 2. Loan	D. OBLIGATIONS TO DATE 1. Grant	D. OBLIGATIONS TO DATE 2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	E. AMOUNT APPROVED THIS ACTION 2. Loan	F. LIFE OF PROJECT 1. Grant	F. LIFE OF PROJECT 2. Loan
(1) PSEE				2,183		4,000		6,183	
(2) ARDN				9,394		14,000		23,394	
(3)									
(4)									
TOTALS				11,577		18,000		29,577	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE C

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code								
B. Amount								

13. PROJECT PURPOSE (maximum 480 characters)

The purpose of this project is to provide targeted training to LDC personnel in energy resource identification, exploration, production, and use.

14. SCHEDULED EVALUATIONS: Interim MM 04 YY 93 — Final MM 10 YY 96

15. SOURCE/ORIGIN OF GOODS AND SERVICES: ☐ 000 ☐ 941 ☐ Local ☐ Other (Specify)

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of a _____ page PP Amendment)

Authorized life-of-project costs are increased by this amendment to $48,877,000 from $37,000,000; this adds $14,577,000 to centrally-funded costs and ajusts the Mission buy-in costs downward to $19,300,000. Five years are added to the PACD, extending it to FY 1997, and extending the final fiscal year funding from 1991 to FY 1996.

17. APPROVED BY

Signature: James B. Sullivan

Title: Director, R&D/EI, Office of Energy & Infrastructure

Date Signed: MM 12 DD 10 YY 92

18. DATE DOCUMENT REC'D IN AID/W, OR FOR AID/W AMENDMENTS, DATE OF DISTRIB: MM DD YY

PD-ABD-696

ENERGY TRAINING PROJECT

(ETP)

PROJECT NUMBER: 936-5734

JANUARY 1992

OFFICE OF ENERGY AND INFRASTRUCTURE

BUREAU OF RESEARCH AND DEVELOPMENT

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

ENERGY TRAINING PROJECT

PROJECT PAPER AMENDMENT

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ENERGY TRAINING PROJECT
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I. RECOMMENDATIONS

Based on an Evaluation of the Energy Training Program (ETP) of January, 1990, and recent congressional directives, the Bureau for Research and Development/ Office of Energy and Infrastructure (R&D/EI) recommends that the Project Paper be amended to expand emphasis within the training program on the environmental impact of conventional energy, the utilization of renewable energy resources, and a focus on in-country training programs. A summary of recommendations made by interviewees during the evaluation process is listed in Annex B.

A. Proposed Funding

The Bureau of Research and Development/Office of Energy and Infrastructure recommends that the authorization be raised from $15,000,000 to $29,700,000 for the amended Energy Training Project (ETP) for an additional five (5) years. This is a world-wide energy training support program, originally authorized in 1986 to respond to the energy training needs of the less developed countries and the interests of the A.I.D. missions.

The primary focus of the original project was to expand and to augment the benefits of energy projects which were financed through A.I.D, by funding targeted training that would help build technical, managerial, research and institutional capabilities. Trainees successfully completed academic, in-service, and industry fellowship programs to increase technical competence in both the conventional and renewable energy fields. The purpose of the project has not changed.

Based on an evaluation that was completed in January, 1990, and the number of applications received to date, but not processed due to the lack of sufficient funds, the demand for well-trained energy specialists continues to run high. In addition, it is believed that with the Congressional mandate to do more in the energy and environment areas nominations for training will increase significantly.

Under the first five years of this program, 1525 participants have completed or are in the process of completing ETP sponsored training courses. The program had originally projected training 1990 participants, but we were not able to meet this goal because of lack of sufficient funds. An additional 370 applicants' request

for training are pending, with three or four new ones arriving each day. Under the existing project, only approximately a third of these pending applicants would be trained.

The total cost of this project when amended is estimated to be approximately $48,877,000. This includes projections of $18,000,000 in additional R&D/EI funds for a total of $29,577,000 and an additional $14,000,000 in buy-ins, transfers from regional and bilateral accounts, for a total of $19,300,000 and also $10,000,000 from host country and private sector contributions. The remaining R&D Bureau and Mission funding are planned to be incrementally obligated as follows:

FY	Core Funding (000)	Mission Funding (000)
92	3,392	2,705
93	4,483	3,415
94	3,258	2,687
95	4,174	3,851
96	2,693	1,342
Total	$18,000	$14,000

B. Host Country and Private Sector Contributions

Host country in-kind contributions are encouraged and are expected to equal $8 million over the remaining life of the project (LOP). In-kind contributions from U.S. private industry will support the preparation and staffing of seminars, hosting of interns, development of energy-related materials and data on compact disks, computer hardware, etc. This private industry contribution is anticipated at $2 million. Thus, the total contribution from sources outside of A.I.D. may total $10 million in addition to the Core and Mission life of project (LOP) costs. There will be no carry over of funds from those authorized from the original ETP Project Paper. They will be expended in the 1991 fiscal year.

C. Summary Description

1. Introduction

A.I.D.-assisted countries face a major difficulty in affording the energy they need to develop, due to continuing high imported oil bills and high capital costs of power system development. Even with recent sharp declines in world oil prices, the balance of payments

for less developed countries (LDCs) continues to suffer from the high cost of imported oil. Training in various aspects of energy technologies is important to help countries make the best possible energy investment decisions for short and long term considerations.

Energy is a critical input to achieving the A.I.D. goal of a world in which economic growth and development are self-sustaining and the extremes of poverty have been lessened.

2. Goal and Purpose

The goal of the ETP is to increase LDC technical competence to identify, explore, plan, manage, and productively use a wide range of energy resources which will increase economic growth within developing countries.

The purpose of the project is to provide targeted training to LDC personnel in energy resource identification, exploration, production, and use.

3. Project Description

The program goal and purpose will result in awareness among responsible energy decision-makers about the consequences of energy efficiency, waste, and environmental effects from the energy sector. This awareness leads to the application in LDC institutions of the technical competence acquired in training. The amended Project remains true to the ETP's original concept. The major difference is new emphasis on the implementation of knowledge acquired in training. The word "implementation" refers to the carrying out of knowledge or the application of training in a real situation: i.e., conservation and efficiency studies in the classroom that lead to maintenance budgets and energy savings in the home utility; studies that lead to a plan or a project; environmental awareness that leads to the installation of environmental protection devices. While implementation of energy projects is the responsibility of other areas of A.I.D. and host country agencies, training can be accomplished in a way that encourages "implementation" as well. Implementation refers to the application of training, not just its operations. The ETP is designed to provide an opportunity to change behavior as well as to transmit information.

In order to achieve its purpose, ETP will train participants in energy management, policy analysis, resource and technology development, environmental impacts of energy use, energy investment, and planning. The training will concentrate on country-specific energy conditions, employing a problem-solving approach in both academic and non-academic settings. Most training will take place in the United States in groups and on-the-job settings, with a limited amount of overseas regional and in-country group training to meet specific needs.

To supplement the traditional U.S. training, there will be newly developed, local, electronic multimedia programs for specific topics such as energy project evaluation. With supervision from U.S. staff, local alumni with appropriate qualifications will use personal computers to continue their training. The approach will be expanded if successful. There also will be an opportunity for internships and custom designed training programs in special cases, but, generally, groups will be formed for training in subject matter of importance to several countries.

At the end of the project, there will be a significant increase in the number of well trained energy professionals in LDC'S. They will assist in identifying and using the most efficient energy resources for specific productive purposes and national economic development. They will also constitute a potential link for project development by A.I.D.

4. Project Implementation

A large portion of this project will be implemented by a private sector contractor chosen through open competition. Since a variety of training capabilities are required e.g., logistics, computer-based training, cross-cultural understanding, etc., the use of subcontractors and/or consortia will be encouraged. This will maintain accountability, economies of scale, and integration of resource utilization.

The contractor will establish an Advisory Council consisting of a minimum of 10 members to assess the project annually, or more frequently if necessary, and to make recommendations for changes in the project implementation. The Advisory Council will consist of representatives from the private sector in such technical areas as oil, gas, coal, wind, hydro, etc., as well as advisors from the environmental community and universities. The A.I.D. Project Officer will be from the Bureau of Research and Development/Office of Energy and Infrastructure.

Cooperative Agreements/Grants, Purchase Orders, IQC's and 8(a) contracts may also be used to carry out training and other activities such as audits, evaluations unsolicited proposals, study tours, etc.

D. Analyses - Summary Findings

The ETP is considered economically, administratively, and technically feasible and socially sound without a negative environmental impact. Indeed, there are new courses specifically addressing the impact of the energy sector on the environment. The issues of greenhouse gases and global warming are directly examined. The matter of energy efficiency gains particular focus in the energy conservation areas. The impact of the program is therefore positive for numerous criteria. The cost estimates are

reasonable and all applicable statutory criteria are met.

II. PROJECT RATIONALE

Energy use and economic development are inescapably connected. Energy utilized in productive activity is an essential component of economic growth. The proceeds of growth and rising income permit increased services. Countries assisted by A.I.D. face a major difficulty in affording the energy they need to develop due to continuing high imported oil bills and the high costs of power systems development. LDCs recognize the need to control energy utilization in order to free local currency and to secure foreign exchange requirements to further overall economic development.

LDCs rely most heavily on fossil energy resources - oil, gas, and coal - for urban and rural industries, electric power generation, transportation, and agriculture. Renewable energy sources have begun to play a crucial development role in providing power for remote areas for various uses in communications, health delivery, water pumping and education. The demand for energy is complicated by the decreasing private interest in domestic exploration and development. Many international oil companies have tabled exploration plans until world prices increase.

LDCs present varied energy pictures, but, generally, the inability of conventional energy sources to satisfy growth is due to geography and policies. Small amounts of land often support the majority of the people because of abundant fresh water, cultivated land-locked areas, good roads, and energy availability to support services, i.e., health and educational facilities, and places of employment. By contrast, there are large land areas with very limited agriculture and permanent habitation due to sparse fresh water and no dependable energy resources.

In the coming years, commercial energy consumption in A.I.D.-assisted countries will continue to grow faster than their economies.[1] Factors such as population growth, rural to urban population shifts, and inadequate fuelwood supply accelerate the use of commercial energy. It is expected that developing countries will more than double their current commercial energy consumption levels by the year 2000. Thus, these countries must implement the most effective policies to develop indigenous energy resources and to increase productivity.

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[1]The income coefficient for commercial fuel consumption is 1.3 in AID-assisted countries - a 1 percent rise in income results in a 1.3 percent rise in fuel consumption. Source: Analysis of Energy Prospects and Problems in Developing Countries, Joy Dunkerley, William Ramsey; Resources for the Future, 1983.

Numerous policy barriers impede the efficient allocation of energy resources and, consequently, economic development. The most common examples of policy barriers include:

1. Aggregate petroleum products subsidization

2. Electricity pricing policies that differ significantly from marginal cost

3. Laws that restrict drilling access of foreign operators

4. Tax systems that inhibit investments

5. The presence of government monopolies that stifle the role of private enterprise

LDC's do not face an energy crisis per se, but a complex set of problems which must be addressed simultaneously from a balanced perspective. The energy future is open to choice, but the combination of possible decisions is multifaceted and replete with dilemmas. The challenge is to meet long-term needs, while also providing solutions to short-term problems, by launching timely initiatives that address supply, demand, environmental, and policy considerations. With this as a framework, a technically trained cadre of energy professionals is critical to help countries make the best possible energy investment decisions.

The primary focus of the Energy Training Project (ETP) will be to expand and to augment the benefits of energy projects that are being financed by A.I.D. in approximately 35 countries. Other countries will be included as needs change. ETP will fund target training to help build technical, managerial, research and institutional capacities. ETP supports the Bureau of Research and Development/Office of Energy and Infrastructure, Mission and regional bureau energy plans and activities, as well as the policy reform, private sector, institutional building, and technology transfer pillars of A.I.D.'s development strategy.

III. ENERGY TRAINING PROJECT DESCRIPTION

A. Background

The Energy Training Project presented in this paper extends the existing ETP (936-5734) a full ten years from its initial 1987 year of activity. (A prior program, the Conventional Energy Training Project (CETP) (936-9997) trained 700 people in various aspects of energy). The current program has already trained 1445. Annex B summarizes some of the accomplishments cited by interviewees in the evaluation of the ETP through 1989.

Based on the recent field evaluation in which interviews were conducted in Asia, Africa, and Latin America, the rationale that training leads to better performance in the energy sector and then to other sectors of the economy has been soundly demonstrated. While development and its linkages to the energy sector vary from location to location, training can be directly linked to increased productivity. The cost of training has been justified many times by the savings in utilities and industry alone. The paths to those savings have come both by the policy route (e.g., import tax savings in Thailand on energy saving equipment which led to the purchase of millions of dollars of efficient equipment) and by direct technical intervention (e.g., technical assistance to industry to reduce the need for additional refinery capacity in India).

B. Goal

The goal of the Energy Training Program is to increase LDC technical competence to identify, explore, plan, manage, productively use, and evaluate a wide range of energy resources, which will increase economic growth within developing countries.

Technical knowledge will provide an increased institutional capacity to conceptualize problems and manage resources most effectively to alleviate constraints on development. As needs in certain areas are decreased, economic productivity can be increased as the freed capital can be dedicated to other purposes.

C. Purpose

The purpose of the project is to provide targeted training for LDC personnel in energy resource identification, exploration, production, and use.

The goal and purpose will be achieved through two distinct activities:

1. Assisting Missions and host countries in conducting manpower assessments to develop training plans;

2. Providing training in a broad spectrum of energy resources and technologies including economic, financial, management and planning aspects through academic and non-academic means. Non-academic training will be provided through internships and short courses. Courses will be held in the U.S.A. and in other host countries for in-country and regional training.

D. Project Strategy

The project strategy for ETP will emphasize the following:

1. Direct involvement of participants in problem-solving techniques for energy and environmental issues, by requiring participants in planning courses to bring appropriate national data and local environmental regulations for application in classroom exercises.

2. Information and experience sharing among energy professionals and alumni from various countries and geographical regions.

3. A blend of technical training with management techniques to achieve success in energy project implementation.

4. Tailored responses to problems and opportunities encompassing a variety of educational formats, e.g., regional training, electronic multimedia courses, training of trainers, internships, seminars, and special courses.

5. A continuing effort at needs assessment to maintain responsiveness of curriculum to ongoing LDC energy problems.

6. Academic training so that participants will earn Master's degrees from accredited American universities in various energy fields.

E. End of Project Status

The predecessor projects, offering a variety of training in conventional energy, renewable energy and energy-related fields, jointly trained some 1445 participants through 1990. Upon authorization of the project amendment, the ETP Project Assistance Completion Date (PACD) will be extended to September 30, 1996.

At that time it is anticipated that the following will be achieved through the Amended Project during the five year extension:

1. Approximately 3200 energy professionals will be trained in various aspects of energy and energy-related environmental affairs employing various formats for training. The following year by year distribution reflects an increase in the number of participants trained in special courses, a limited number of participants enrolled in academic programs, and the addition of multi-media self-taught courses as a training activity:

	1992	1993	1994	1995	1996	Total
Special Courses 3-4 Months	352	490	270	550	475	2137
Interns	-	10	15	20	30	75
11 Months						
Academic 18-24 Months	25	25	30	30	-	110
Seminars/ Workshops 2 weeks	40	70	70	70	100	350
Multimedia Self-taught	12	35	75	200	200	522
TOTAL ALL YEARS	429	630	460	870	805	3194

2. **Employing the multiplier effect of alumni on-the-job skill transfer, through remote electronic education at learning centers and at home, approximately 2000 additional energy professionals will be informally trained and empowered to contribute concretely in various energy areas in their home institutions.**

3. Participants trained in problem-solving techniques will be available to the energy and other sectors of LDC economies, whether public or private. Marketing of the program to countries not now serviced, use of multilingual multimedia teaching tools, and expansion to the private sector will introduce new candidates for training.

IV. PROJECT IMPLEMENTATION

A. Training

The ETP will provide targeted training to energy professionals from selected AID-assisted countries. The training will cover energy aspects of several disciplines, including, but not limited to, science, engineering, economics, business, resources management, and law. There will be a core academic program and set of short courses which have been selected based on needs expressed by Missions and host countries, and findings from the evaluation. These courses may change as demands warrant and funds permit.

The training mechanisms associated with these purposes include both academic and short non-academic courses. The benefit of short non-academic courses justifies the cost by providing technical and management training for professionals who cannot leave their jobs for the extended periods of time required by academic training. The topics cover a broad spectrum of energy resources and technologies including the economic, financial, management, and planning aspects. Courses will be held in the U.S.A., within regions, and in-country. The format of training will include classroom, internships, and self-teaching methods based on electronic communications for specialized course materials.

Academic degree programs will continue as in the initial five-year phase of the project, with emphasis on training in critical energy skills in short supply in LDCs and in response to stated needs for such training by host countries and A.I.D. missions.

Introduced as a new format, there might be self-taught electronic courses supervised by a U.S. instructor, and/or by alumni who have recently taken the classroom version of the course, and by contractors during field visits. Since the training takes place in a free global educational market, actual demand after the first year will be a guide to the final formats and course content.

B. Types of Training

1. Special Courses in the U.S.A.

In some technical fields there is a need for customized training, where none exists appropriate to LDC audiences, and where it meets with agency and congressional policy. Experience also indicates a demand for short courses which do not take professionals away from their assignments for a long time. These courses will be made available through a broad range of industrial training organizations, especially those in oil and gas development, electricity, coal, renewables and utilities.

2. In-Country and Regional Training

In-Country and regional training will be offered when it is economic to group participants in a specific case, such as a common energy resource, or when linguistic demands make U.S. training too difficult. It will also be considered when a Mission buy-in finances a request for supporting energy projects in-country. In some cases, in-country training may be useful for implementation and follow-through on problem-solving for local institutions in need of assistance or reform or to meet unique human resource development needs. The final decision to conduct in-country training is made by the Project Manager based on the particular circumstances of the case.

3. Electronic Self-Taught Multimedia Courses

As personal computers become more widespread in the LDC's, they represent a resource for energy professionals to develop skills on their own. For a selected set of courses taught in the U.S., a set of computer disks with exercises taken from the course will be converted to a self-help multimedia format. Alumni who have recently taken the classroom course will help locally with questions. In some areas, notably Francophone Africa and Latin America, where language has been a barrier to recruitment, the technique will also be employed for a multilingual purpose.

4. Academic Training

While not numerically a major portion of the program, academic training will continue as a vital part of the program especially in those cases in which there are no other means of obtaining the necessary training, or when interest is expressed by Missions. Academic training will be made available on a case by case basis as far as the Master's degree.

5. Internships

Internships with U.S. utilities will be continued. In the initial project, internships included joint funding with the California Energy Commission (CEC) to bring mid-level LDC utility people to the U.S. for 9-11 months training at the CEC and selected California utilities. Participants were given hands-on training in how to accommodate dispersed electrical generation in those systems as well as on other related topics. At the Gulf Oil Exploration and Production Company in Houston, internships were arranged in seismic stratigraphy and the use of computers for seismic data processing and interpretation. Internships were also available in well-log, open-hole log, and acoustic-log interpretation at Birdwell in Tulsa, Oklahoma.

6. Seminars/Workshops

One format available to senior managers is the one or two week special purpose seminar and/or workshop. Such events will often be coordinated with technical participant training. The seminars and/or workshops will illustrate how a well-prepared staff can serve a supervisor or senior policy official. They should provide motivation and management skills to implement the recently trained participant's capabilities. Topical issues such as the privatization of power generation, environmental control tactics, international flow of capital in the energy sector, and management problem-solving will be addressed in seminar form.

C. Participant Selection

All participants in the ETP must have a Bachelor's Degree or be experienced, trained technicians, preferably with relevant energy work experience in the government or private sector.

To assure relevance to the host country's needs, A.I.D. Mission officers will discuss this project with host government and private sector officials. To ensure that all explanations given are consistent, R&D/EI will dispatch a worldwide, detailed project summary cable to energy and/or training officers. Missions will be requested to provide R&D/EI with the following:

1. Name, title and addresses of government and private sector contacts

2. Priority areas identified for energy development and training needs

3. Interest expressed in academic, internship, short course, seminar and other training formats

Each Mission will be asked to seek candidates for energy training. An application, designed by the contractor and approved by the Advisory Committee and A.I.D., will be used to elicit participants. Information requested will ensure that employers know that their employees are applying for training, and employers accept responsibility for continuing to pay salaries for a stipulated amount of time. Employers and employees both agree to a time period for which the trainees will continue to work at the home institution upon completion of training. This process should also help ensure that candidates selected do indeed accept the training.

The A.I.D. Mission will forward all applications to R&D/EI. If the Mission has relevant information on the candidate, it may attach a statement to the application and may recommend acceptance or rejection on any applications. The A.I.D. Mission will also be responsible for certifying language competency when a course is to be taught or internship sponsored in other than the native language of the participant. The A.I.D. Mission certifying officer may forward the application prior to official results from the Test of English as a Foreign Language Examination (TOEFL).

R&D/EI will forward all training applications to the contractor and send cables to Missions to acknowledge receipt of applications and notify if any information is incomplete.

D. Participant Training Assignment

The contractor will establish a selection committee to evaluate all applications. The selection committee should include at least one representative from the course provider and the R&D/EI Project Officer or his/her designee. The selection committee will determine the most suitable training program for each applicant. Qualified candidates who are not appropriate for courses offered currently will be notified of future prospects. All applicants will be informed of the status of their candidacy within a reasonable period of time.

The contractor will be responsible for providing written course synopses and orientation. Internship participants will receive preliminary information about the host institutions. The Mission, in turn, will promptly notify the applicant, who will inform the A.I.D. Mission of acceptance of the prescribed program in a stipulated amount of time. In the event of last minute cancellations by a candidate, the contractor may substitute other qualified candidates.

E. Participant Orientation

The contractor will be responsible for providing a participant orientation package that will include general information on the location of the course, housing, likely site visits, and any variation of climate and social activities that affect candidate needs. In this regard, a suggested packing list (i.e., heavy coat, boots, etc.) will be offered. Essential survival information on daily living, especially concerning the requirements of city life, health insurance, federal taxes and the power of attorney for dealing with them, emergency contact numbers and maintenance allowances will all be thoroughly explained. An outline of this information will be sent to the participant in the call forward cable.

F. Participant Monitoring

The contractor will monitor participants' progress during training periods. Missions will be kept informed of participant progress and problems during training. The contractor will also follow up on trainees for two years after participants have completed their programs and returned home.

G. Information Exchange

A newsletter will be established by the contractor to keep participants, their employers, and A.I.D. Missions abreast of developments within ETP and the Office of Energy and Infrastructure. Direct article contributions from alumni will be encouraged to facilitate continued information exchange among trainees worldwide.

Alumni organizations will be created on a national or regional basis. These groups will have a continuing education function and will act as resource centers for current program information and technical bulletins as new commercial and job-related information becomes available.

H. Selection Process

1. Participant Selection (U.S.)

Following the procedures outlined above in C. Participant Selection and D. Participant Training Assignment, the selection committee will choose candidates from the applications received.

2. Participant Selection (In-Country and Regional Training)

In-Country and regional training courses will only be designed and offered based on specific country demand.

R&D/EI will dispatch regional cables to announce the courses, provide descriptions and logistic and language requirements. Missions will be asked to seek applications. An application designed by the contractor and approved by the Advisory Council and A.I.D. will be utilized.

3. Manpower and Organizational Assessments

Manpower assessments, if not already carried out by the Mission, are an important first step in the design of long-term training plans. Such assessments enable A.I.D. project officers to identify key areas where training is needed in order to better allocate resources. The target areas include participants from ministries of energy, national and private sector petroleum enterprises, electric utilities, and organizations that deal with energy technologies.

A manpower assessment will be used when available to evaluate the existing employees' skills and capabilities in an organization. Current skill levels will then be compared to an ideal level necessary to run the organization effectively and to enable it to grow in a rational fashion. A training plan will be designed to improve the skill level of the staff without upsetting the operation of the company or institution.

4. Course Offerings (See Annex C)

Courses will be designed as a function of the manpower and organizational assessments or as mandated by R&D/EI, Agency policy, or Congressional concerns. Historically, the most successful training courses have been those in which job-oriented information was provided to participants who return to organizations committed to improvement. The accumulated needs of participants will result

in courses in various energy and energy/environment related fields.

The courses may take the form of internships, on-the-job training, special courses, study tours and combinations of the above. Since demand for degree and non-degree academic training has declined or been met by other programs, it will be offered in the ETP only when no other form of training is appropriate or when Mission funded. Some 110 degree slots are programmed in the five year budget.

Annex C, "The Energy Training Project (ETP) Brief Program Description and Course List", provides an illustrative list of ETP courses.

5. A.I.D. and Host Country Inputs

R&D/EI core funding of $18 million and projected Mission buy-ins and regional bureau OYB transfers of $14 million make a total A.I.D. contribution of $32 million for the remaining five years. Experience through the fall of 1990 indicated that the buy-ins were a much smaller fraction of the total than earlier projections. Provision is made in the Project Paper as amended to encourage greater Mission participation.

R&D/EI and Mission buy-in funds will be used to provide the following activities:

a. Participant training
b. Manpower and organizational assessments
c. Contractor services
d. Newsletter and alumni activities
e. Evaluations and audits
f. Educational hardware
g. Marketing of the training program

The host country contributions are in-kind and are estimated to be equivalent to $8 million. Contributions will be used to sponsor in-country and regional training programs. The in-kind contribution will be applied to the following expenditures:

a. Basic salaries of participants
b. Travel costs of participants
c. Local costs related to customs clearance (training materials, computers, conservation test kits, etc.)
d. Local costs related to normal project implementation

Private sector contributions in the U.S. and overseas are estimated at $2 million and will be employed to:

a. Provide space for self-taught courses
b. Subsidize and maintain additional multimedia computers

c. Encourage alumni to pass skills on to new participants
d. Supply vendor catalogs and reference materials on electronic media

V. Relationships with Other Programs, Policies and Activities

A. Relationship to the A.I.D. Energy Strategy

The ETP supports the aim of A.I.D.'s energy strategy of helping achieve a world in which economic growth and development are self-sustaining and the extremes of poverty are eliminated. To attain development targets in per capita income and caloric intake will require energy growth rates of at least 7% per year. Therefore, without adequate attention energy problems will continue to stifle economic growth in A.I.D.-assisted countries.

R&D/EI's analysis supports the conclusion that focusing on selected energy issues for local and national problems of significant socioeconomic effect will benefit developing countries in terms of increased productivity, improved environment, and better use of indigenous and imported resources.

B. Relationship to the Research and Development Bureau

The R&D/EI funded energy program is designed to help ensure adequate supplies of energy for economic growth by helping to alleviate underlying structural problems that inhibit energy development. It also provides technical assistance to energy producers and consumers in LDCs. Specific assistance activities are designed to:

- Promote policy reform, particularly with regard to energy prices and incentives for private investment;
- Expand the role of the private sector in development, management and distribution of energy supplies, including conservation, fossil fuels, electric power and renewable energy resources;
- Expand the availability of energy for rural and household needs.

The energy program supports the objectives of developing new approaches to energy problems through research and adaptation and of applying these approaches in LDC settings. The program concentrates on activities to develop indigenous energy sources as substitutes for imported oil and fuelwood, to increase efficiency in existing energy systems, and to help countries make wise energy system choices and investment decisions. A prerequisite for sound energy development and investment decision-making is dependable information about the problems and available options. Energy

survey and planning methods are addressed through energy policy development and conservation activities. Training and energy assessments are integral to achieving these objectives.

C. Relationship to Bilateral and Other Donor Projects

Training and energy assessments to be funded through ETP are complementary to approximately 35 bilateral energy related projects. The projects cover the following geographic regions: Africa, Asia, the Near East, Latin America, and the Caribbean. **With the addition of Eastern Europe to A.I.D. programs, this geographic region will benefit from the ETP as well.**

A.I.D. has placed emphasis on energy activities in its development portfolio. Programs have evolved from a concentration on power generation and distribution to an increasing concern for the current and projected imbalance of supply and demand in both conventional and renewable resources. Bilateral efforts have concentrated on technical assistance. The U.S. has relied on the multilateral development banks to assume the major share of capital financing of large energy systems.

Several donor organizations, such as the World Bank and the United Nation, have training and professional development programs. With few exceptions, none are as broad as the ETP. The program at the World Bank is in economic development and the U.N. programs have been postponed or canceled due to lack of funds. World Bank and other donors augment short-term training undertaken by various organizations within the United Nations.

This program will focus a major part of its attention on supporting A.I.D.'s policy and in-country energy projects. Continuous dialogues with Missions and host country officials will ensure that training efforts support the Agency's policy, and host country and Mission energy activities. Discussions with host countries will also consider training activities that will support other donors in-country projects.

VI. Summary of Feasibility Analysis

A. Technical Analysis

The ETP will support targeted training to increase LDC technical competence to effectively utilize indigenous and renewable energy sources. As discussed in the project description this will be achieved through energy management, policy analysis, resource and technology development and energy planning. The training will concentrate on specific country energy **and associated or related environmental** conditions and will be accomplished through energy resource and manpower assessments, and special academic and non-academic training courses and internships.

B. Social Soundness Analysis

The social consequences of the ETP will vary among countries and the level of sensitivity to energy as a prime development input. There is a clear emphasis among A.I.D.-assisted countries on the process of modernization as they strive to improve the socioeconomic status of the population. The primary beneficiaries will be the participants themselves, whose knowledge of energy will be increased through training. The efficiency of the spread effect will occur when the trainees return to their home institutions and apply their knowledge to specific problems. The ultimate beneficiaries are the end users - the society at large - who will have more efficient utilization of energy, and, thereby, increased services. The effects of energy training can be virtually universal on a society, depending on the specific technology involved, the efficiency of diffusion, the economic and social framework, and the equity with which that framework allows assets and income to be generated and shared.

The Role of Women

Women will have equal access to project training and participation in energy assessments. Due to the cultural mores of LDCs, it is anticipated that more women will participate in short term, in-country, and regional training programs, rather than in U.S. based programs.

Under the first phase of the project, approximately 8 percent of the participants trained in the U.S. were women, although a female population of 20 percent was targeted. From 1987 through September, 1991, 59 of the total 741 participants who completed training were female. The contractor shall be instructed to give special attention to the promotion and selection of female participants in order to achieve a female representation of 10 percent over the next five years.

D. Cost Effectiveness Analysis

The energy training project does not lend itself to traditional approaches of economic analysis because the training applicability is not easily predicted and the costs of implementing specific technologies are speculative. **Nonetheless, the Amended Project Paper focuses on improving problem-solving performance and provides new tools to assist the participant to present solutions in the home country.**

E. Economic Analysis

Quantitative methods do not reveal a complete picture of the economic impact of training. The following examples, related by participants during the interview process of the 1989 evaluation, illustrate some of the ways in which home countries benefitted by respective participants upon completion of training.

- A power distribution company employee in the Philippines salvaged expensive equipment with the knowledge acquired from a systems protection course in a U.S. based utility.

- An African government employed a participant to handle all international oil transactions for the central bank.

- In the Dominican Republic, a private consulting firm which is helping industry and government to save oil was established by a recipient of project training.

- A group of participants in power distribution in Pakistan are now planning more efficiently by applying software systems learned during the U.S. training.

- A participant helped his utility company in the Philippines through the difficulties of planning a privatization program.

- A group of trainees in Thailand developed and helped to execute national policies designed to encourage energy savings, resulting in substantial savings to the country.

- A senior policy planner trained in quantitative methodology for policy evaluation introduced it to several sectors of the Indian economy.

- A participant in oil exploration was able to save both negotiating parties time and money in concluding an oil agreement in Pakistan.

In sum, spread out through the energy sectors of many countries, there are participants who have contributed to the efficiency of their countries' performance by implementing the lessons learned in the ETP.

The ETP is evaluated and judged as economically sound, based on the assumption that trained participants will contribute to overall energy planning and effective energy utilization in their countries, thereby increasing national productivity. The cost of the training itself, including course design, will be offset by the development contributions made by participants.

F. Administrative Analysis

The major portion of the ETP will be implemented through a private sector contractor. The critical contributions of the project will be accurate energy assessments, a more efficient energy sector, and a trained cadre of energy professionals.

Through the contractor and Advisory Council the ETP will:

1. Fund energy training consistent with individual country needs and development priorities.

2. Upgrade and strengthen the capacity of LDCs to solve energy-related development problems through multi-disciplinary approaches.

3. Provide opportunities for energy information sharing among countries.

4. Provide opportunities for energy professionals to collaborate.

The contractor will be expected to develop a strong and direct management system to ensure that:

1. Applicants concentrate on defined energy priority areas.

2. Resource allocations are commensurate with defined needs and energy technologies.

3. A.I.D. consultation and dialogue are sought and reflected in decisions. **Communications with R&D/EI and Missions are undertaken with frequency and are responsive to the Agency's requirements.**

4. Adequate advertising of the project induces the best energy professionals to apply.

5. Applications are reviewed and trainees selected in a competitive, sound and timely manner.

6. Satisfactory standards of technical and financial accountability are maintained.

7. Tax liabilities for participants are covered.

The R&D/EI project manager will ensure implementation in accordance with the project design, authorization, and applicable contract provisions.

G. Financial Analysis and Plan

ETP is a non-revenue producing effort whose major financial element is used for training. Projected budget totals are used in preparing the ETP budget. On the average, $6 million is used as the total project budget figure for each fiscal year. Thus, a figure of $32 million over the 5 year second phase of the project is projected. **Based on a coherent and consistent training effort and a self-taught multimedia program that suits individual countries' training needs, it is estimated that Mission buy-ins will total almost $14 million from regional and bilateral accounts. The total R&D Bureau cost is $18 million for the remaining five years of the project. Mission and regional bureaus buying into the ETP will share in the administrative costs of the program.**

The budget estimate is based on experience gained in the early years of the ETP as well as the predecessor project. Cost figures were recently updated with current contractor staff estimates. Other private and U.S. government agency tuitions were examined for similar courses and found to be well within the estimated range of costs.

The budget has been prepared with Training Cost Analysis (TCA) software provided by The Office for International Training (OIT). The categories of costing and the allocation procedures which follow conform to this new system. There is a five year summary, including administrative costs, and then a year by year summary omitting such charges. The projected budget appears to have a high administrative charge. It should be noted, however, that in addition to the unusually high load of field work, there is a great deal of equipment and a gradual increase of in-country self-taught courses which increase the number of participants dramatically, at far less training cost, but with administrative requirements.

The following Training Cost Analysis material is self explanatory, but this is the first time that it has been employed in an R&D/EI, ETP budget. Given the unfamiliarity with the accounting system, additional descriptions follow its presentation.

Additional descriptions of selected major cost elements amplify the TCA description. The TCA category A. "Education Training Costs" includes several formats.

"Special Courses" refers to the curriculum described in ANNEX C. The costs assume a three to four month course and at least one field trip in most cases. Many of the courses exist in a form similar to that required so that standard academic or institute tuition costs will generally apply.

"Internships" are estimated without tuition or training costs levied by the host training institution.

"Multimedia" has no previous cost history in the ETP. Cost estimates for initial development work are discussed below under different headings to facilitate cost control.

"Electronic Hardware" includes the cost of the development system to write the original software, approximately $28,000 each, minimum of two, and on site teaching units at $4000 each, including shipping, but not customs. (Most countries are signatories of a UNESCO agreement that admits training computers duty free). In large countries a learning center will be established to house several units. In small countries where participants are near each other, alumni groups or private sector groups will house computers. Some maintenance costs are included, but, generally, the machines are reliable after the warranty period. In countries where power sources are unreliable, some funds will go to purchasing uninterrupted power supplies. All machines will have some protection against power fluctuations. These costs are in the Equipment line item under administrative costs.

The cost of American-made systems was compared and it is believed that the estimated costs are conservative because manufacturers offer quantity discounts for educational purposes. The cost differential between IBM and Apple systems is not sufficient to alter the budget estimates. Equipment choice should be made on broader considerations, Apple having an edge in ease of use of development and graphic applications, but with new IBM interfaces and software improving.

"Courses and Software" includes the programming costs for original materials and for converting existing courses into self taught formats. Documentation and multiple copies of software are included. These costs are distributed throughout the training costs.

"Energy Data Bank" and its update include the use of a full page scanner and two editors and staff to arrange copyrights and assemble an energy reference library on a Compact Disk. The contractor can use staff for this purpose. This cost is included in the administrative budget.

"Communications" is a budget item used for communications between remote supervisors and self-taught students. The costs are based on mailing disks, modem transfer of data, and occasional telephoning. This cost is found in the indirect cost account.

Generally the per student costs of multimedia courses decline as more and more students share computers and software. This is why the numbers of students taught is much higher in the extended project than in previous formats.

"Electronic Hardware" includes more than computers for multimedia use. Measurement devices, either for conservation kits or occasionally for resource measurement (i.e., solar radiation), are included. Approximately one-third of the hardware budget, item for Equipment will be applied to these diverse needs.

"Alumni Program" costs are not a significant part of the multimedia cost structure, except when there are volunteers to assist with self-taught courses for new recruits or for continuing education courses. The purpose of these funds is to organize communications and meetings among alumni who have expressed strong interest in having a way to call on networking in the energy sector. The contractor is called on to find key alumni with organization skills and to provide funds to assist with a local newsletter, mailing lists, and the development of other communications. The cost for this activity is also in the administrative budget.

Other administrative costs are broken down in different categories as well. "Manpower Assessments" cover contractor visits at the start of the ETP extension to review needs on a current basis. Two people are expected to spend 4 months each traveling to Missions to accomplish this task. Similarly, "Annual Visits" are costed for one person to visit Missions where updates are needed or initial interest is expressed in joining the ETP after the first year. "Seminars/Workshops" are costed for an average of a two-week stay. The audiences will not be inexperienced workers, but higher level managers and policy makers. It is assumed that Missions will cover local expenses in hotel headquarters for these guests.

"Academics" to be funded by Core or by Missions number some 110 estimated for the last five years of the project and assume individual programs for 18 to 24 months at an institution of higher learning granting a degree. These costs are found in the annual report under Academic Training.

"Learning Centers" consist of donated or rented space , often contractor time and expense to organize the site staffing to guard the facility, and a local assistant to help with the basics of computer interaction. It is expected that Missions and host contributions will fund activities taking place in the host country, and there will be host contributions. The machines are in the equipment budget. The procurement of space security and guards and staffing is the responsibility of the local staff.

For each of the above line items for each year, there is a pool of contingency funds and inflation factors anticipated. Inflation and contingency are calculated at approximately 10% per year. Some costs decrease with time due to experience, as in the Alumni Program and in the repetition of courses which should lower unit costs. Saturation and economies of scale are also assumed in costs of hardware and self-taught courses.

The figures assume that international travel for participants will be provided by the participant's employer or, in some cases, the relevant U.S.A.I.D. mission. They also assume the participant's employer will continue to employ the participant after the training and to pay full salary during training. For those countries whose economic and budgetary situation make it impossible for them to pay international travel costs, the project, in exceptional cases, will pay travel from the closest point served by the host country's airline to the U.S.

Cost figures do not include English language training, which is expensive and, based on previous experience, not cost effective. In-country training can be more cost effective. Orientation is included in the administrative overhead figures associated with each course. Special services are assumed in administrative costs except when the host country or Mission deems them appropriate to other, more specific, accounts.

In principle, R&D/EI core support will be used to design courses, track course progress, and make modifications if necessary. It will support integrated training activities with other A.I.D. energy assistance programs and, in general, provide overall administrative control, coordination, and conceptual development of the project. Core support will also provide manpower assessments and participant training cost.

We anticipate that approximately 15% of energy short courses will be held in the host countries or regions. According to R&D/EI calculations, in-country training will be less costly than U.S. training, but not significantly less. The costs listed in the TCA are not overly sensitive to U.S. versus host country training location.

H. Environmental Analysis

ETP, because of its research and educational training nature, does not require an Environmental Impact Statement or the preparation of an Environmental Assessment. The project meets the criteria for a categorical exclusion under 22 CFR 216.2 (c) (2).

It should be noted that the expectation is that ETP will be positive for the environment in that proper training will raise consciousness and encourage preventive and remedial actions, specifically as it pertains to the energy sector and its interaction with the atmosphere.

R&D/EI will be responsible for the energy/environment interface area in the energy sector with prevention and remedial action in resource production and use; e.g., sulfur dioxide pollution, oil spills, particulate removal, and attention to global warming.

The Environment and Natural Resources Policy and Training Program will be responsible for a broader set of training courses such as environmental management e.g., standards setting, regulation, research, and impacts analysis, especially those outside of the energy sector.

PROPOSED BUDGET FOR AMENDED ETP

Type of Program Activities	Number of Participants	1992 ($000) Core	1992 ($000) Buy-In	1993 ($000) Core	1993 ($000) Buy-In	1994 ($000) Core	1994 ($000) Buy-In	1995 ($000) Core	1995 ($000) Buy-In	1996 ($000) Core	1996 ($000) Buy-In
1. Special Courses	1,150	1,500	585	2,415	835	2,155	1,335	2,415	1,035	2,220	1,030
A. Internships	115	30	150	40	200	50	275	50	250	80	100
B. Multimedia	547	18	30	40	100	50	175	50	200	75	300
C. Seminars/Workshops	660	60	100	80	200	200	200	300	300	220	425
D. Academics	110	40	155	80	310	160	620	160	620	160	640
2. Electronic Hardware		200	50	350	100	200	200	250	100		
A. Courses and Software		450	100	150	50	100		25	25		
B. Manpower Assessments		100	150					25	40		
C. Alumni Program		125	50	20	80	25	50	15	5		
D. Learning Centers		150	50			200	100	300	300	300	400
E. Reference Upgrade CD								100			
F. Communications		25		30		50		100			
G. Annual Visits				175		150		150			
FY Total		2,698	1,420	3,380	1,875	3,340	2,955	3,940	2,875	3,055	2,895
Contingency and Inflation		371	200	432	250	464	300	535	300	520	300
FY TOTAL		3,069	1,620	3,812	2,125	3,804	3,255	4,475	3,175	3,575	3,195

*NOTES TO BUDGET SUMMARY

The first group of numbers in each FY are the number of participants projected to enroll in each type of program listed. The second set of line item costs is not per participant, but a relatively fixed program cost to pay for the function described.

Special Courses - Those courses described in Annex C. The cost here is an average cost with considerable variation (6K to 22K) in any given case.

Internships - On-the-job apprenticeships of approximately 6-12 months duration are administratively intensive to organize and monitor, even though much of the actual cost is borne by the host institution.

Multimedia - Courses are generally self taught with the aid of electronic tutors employing software written especially for energy training. Remote instructors, accessed by electronic communications or occasional personal visits will monitor progress. Alumni, who have taken the classroom version of the multimedia course, will be "Teachers' Aides". On occasion, there will be a brief regional introduction to the multimedia courses that explains the fundamentals of operations of computers for those who have no experience with them and lack a local tutor.

Seminars - This format is based on courses of 1 or 2 weeks duration for senior managers and participant supervisors. These seminars are often coordinated with special courses to encourage implementation of training. They will often be on a regional level, related to regional resource and institutional considerations.

Academics - Courses lead to 18 to 21 month degree programs up to the master's level, offered by ETP to candidates from LDCs with critical needs based on the judgment that these candidates are likely to return home after earning degrees. The budget includes all costs of obtaining the degree.

Electronic Hardware - The hardware consists of conservation testing kits which participants keep after a course, books on disks or in paper form that permit materials to be taken home for later use; and personal computers for multimedia courses which are not the property of the student, but remain in the custody of the Mission, an alumni group, a designated university, or an agency such as the U.S.I.A. which will make them available to a student at a local site. The costs per student fall dramatically as this inventory of machines grows.

Manpower Assessments - These are done twice in the program to better understand the training demands in the marketplace and

adjust the program accordingly.

Courses and Software - These efforts oblige annual costs for developing new materials, especially software versions of previously taught courses which will create a library of self taught materials to be shared by a large number of students.

Alumni Program - This expense is initially for an organizational effort to establish national and international alumni contact for fostering implementation. After organizational work by the contractor, the alumni themselves will need little maintenance effort to encourage them to stay in contact and assist with recruitment, tutorials, and participant problem solving.

Learning Center - When the total number of self-taught participants justifies its presence in a country, a learning center will be created to house and maintain machines and provide some guidance in machine use. Gradually it is expected that the learning centers will also become alumni centers and electronic libraries with automated retrieval of information not requiring librarians.

Communications - Remote instruction from the U.S. or regional centers by fax, electronic bulletin board, and data downloading will improve performance of the self-taught participants. The money is set aside to pay for telephone time at non-peak hours.

Evaluation and Audit - This a process of independent examination to determine if project goals were met and to capture lessons for future programs. New guidelines for evaluation and audit were set in 1990 and will provide the basis of this activity.

Annual Visits - The contractor and/or the Project Officer will visit Missions each year to recruit candidates and encourage Mission participation. As learning centers develop, visits will be dedicated to assisting with their performance. Each Mission will not be visited each year under this budget item, but when combined with other activities, most Missions will be visited at least once over the life of the program.

Contingency and Inflation - A 10% factor is added to the total annual FY budget estimate to deal with likely single digit inflation and contingencies. About one-half is allocated to Missions.

VIII. IMPLEMENTATION PLAN

A. Administrative Arrangements

1. A.I.D.

The Project Authorization will be signed by the Office Director for Energy and Infrastructure of the Research and Development Bureau.

2. Host-Country Implementing Agencies

There will be various host-country implementers, governmental and private, who will be responsible for candidate applications and ensuring that knowledge gained through the project is applied upon return of the participants. They will also be responsible for targeting when energy manpower assessments are necessary.

3. Project Disbursements

Disbursements will follow procedures set forth in implementation letters. An annual operating plan will be prepared by the R&D/EI project manager which will include a review of the previous year's activities, a description of the overall thrust of the coming year's activities, a specific work plan, and an operating budget. The plan must also address any proposed changes in selection criteria. Annual funding levels will be within the constraints of authorization amounts.

4. Funding Provisions

This project describes a broad, ten-year, energy training program in support of regional bureau and mission energy programs. R&D/EI expects to contribute up to $18,000,000 in the second half of the program, $14,400,000 for a major competitively bid contract, and $3,600,000 for various other contractual mechanisms such as Cooperative Agreements, Purchase Orders, 8 (a) Contracts, etc. Regional bureaus and missions are expected to contribute up to $14,000,000 to the program of which $11,200,000 will be for the

competitively bid contract, and the balance of $2,800,000 will be for selected Cooperative Agreements, Purchase Orders, 8(a) Contracts, etc. R&D/EI funds may be used to fund all the categories of activities authorized under the project, including direct participant costs, and will be obligated under various contracts on an annual incremental basis.

Regional bureaus and missions may contribute their funds for any activity described under the contract. In general, these "buy-in funds" will be provided to the contract office under the following modes:

a. PIO/T requesting specific technical assistance, such as consultant services or a manpower assessment.

b. PIO/T requesting training for a specific individual.

c. PIO/T requesting the contractor to put together a specific training program for the country, such as an in-country course or a special course in the United States.

The estimated cost of incremental funding actions under the major contract is $14.4 million. The estimated cost of orders for technical services is $11.2 million under a "Q" contract. All estimated funding is incremental over a five-year period.

B. Implementation Plan A.I.D. Management

Project implementation management and monitoring of A.I.D. inputs will be the responsibility of R&D/EI. A Project Officer will be assigned responsibility for the ETP and will be assisted as needed in monitoring, evaluating and reviewing all project components. The officer will dispatch cables to Missions, serve as an ex-officio member of the Advisory Council, and monitor the work of the contractor and sub-contractors. A.I.D. will have access to all documents issued by the contractor. The A.I.D. role, then, is purely one for review/approval oversight as opposed to that of implementer.

1. A.I.D. Contractual Arrangement

A major contractor for this project will be chosen through an open-competition mechanism. The Request for Proposal (RFP) will make clear the responsibilities of the contractor, which include development of short-courses, identification of existing training courses, development of internships, selection and follow through on trainees, energy assessments, and information exchange.

It is anticipated that A.I.D. will execute two contracts for the ETP, a level of effort contract and a requirements contract, with one prime contractor. This contractor will assume responsibility for planning and arranging training.

The use of other contractors and/or grantees will be affected under Cooperative Agreements, Grants, Purchase Orders, 8 (a) Contracts, etc., as described above.

2. Gray Amendment

As part of being responsive to the level of effort of the RFP, all offerors will be required to submit subcontracting plans which address how they will have Gray Amendment firms involved in implementation. Such plans must also address the ways in which 8 (a) or other minority firms will be used as training facilities.

C. Evaluation Plan

The ETP is innovative and, as such, may require periodic readjusting of training foci. For example, are the participants utilizing the training received upon returning to their country? If not, what can be done to better identify the training needs of the country and to identify appropriate individuals for training?

Evaluations will be the responsibility of A.I.D. The contractor, the Advisory Council, regional bureaus and host country governments will participate in the evaluations as necessary.

Periodic evaluations will be held during the Advisory Committee Meetings and at other times when deemed necessary to look at selection procedures, fields of study and use of returned Energy Fellows. The Advisory Council, meeting at least semi-annually, will review the program of the contractor in all phases of the project and make recommendations where appropriate. In addition, the project budgets $250,000 for two external evaluations, one in FY 93 and one in FY 96.

Semi-annual review meetings will be held with representatives from the regional bureaus, PPC, R&D/EI, R&D/IT, as appropriate, and the contractor to review past activities and discuss upcoming and future activities and travel plans. Additional meetings will be held, when appropriate, to discuss new programs or activities or any problems that arise that are of any significance.

Annual internal reviews will assess progress, serving as a basis for the development of the annual work plan and corresponding budget. The reviews will update and consolidate the information from semi-annual reviews and will focus on:

1. Candidate application rates

2. Participant selection

3. Training effectiveness

4. Training applicability

Specific questions to be addressed in the mid-term and final evaluations include, but are not limited to:

1. General Program Effectiveness and Impact

    a. To what extent is the project meeting the objectives and goals of the amended project paper? To the extent that the program has evolved in ways not fully foreseen at the time of project approval, have these changes enhanced the effectiveness of the program?

    b. Has the ETP been targeted to meeting critical needs in the developing countries, as determined by review of national energy problems, needs and

priorities and by consultations with A.I.D. Missions and host government officials?

c. Does the ETP duplicate any other program? If fellowships for U.S. study in energy fields were not available under ETP, would they be available from other sources?

d. **Is the ETP providing adequate training related to environmental effects originated in the energy sector?**

e. **How is the ETP promoting private sector involvement in LDC energy development? How has the private sector been involved in the implementation of the program?**

f. **Is the ETP responsive to U.S. foreign policy interests? How? How can this responsiveness be improved?**

g. How is the ETP related to A.I.D.'s interest in promoting institutional development and sound energy policies in the developing countries?

h. What levels of future funding are needed to ensure the project's efficacy in meeting stated goals and objectives? Should the project continue? Should current contracting arrangements be continued? If so, should some modifications be made in contractual requirements?

i. Given budgetary constraints, how can the effectiveness and impact of the ETP be enhanced within current levels of financial resources? How can cost-sharing with Missions, other donors, host countries and other sources be encouraged?

2. Academic Participant Selection and Placement

a. Are the Missions given appropriate and adequate guidance by the contractor and R&D/EI regarding the ETP's target candidate pool, nomination procedures,

and admission requirements and procedures of the ETP and the universities involved in the ETP?

b. Is travel abroad by the contractor to meet with A.I.D. Mission personnel and host government or private-sector officials useful for improving communication? Is it sufficiently important to justify a major commitment of the contractors administrative budget (i.e., $25-40,000) and staff time (4-8 person-weeks annually)? How often should each region be visited?

c. Are the training application forms designed to provide all information necessary to find an appropriate match between the candidate's needs/interests and a U.S. training program? How can the form be improved?

d. Are the contractor's credential analysis services adequate in giving the contractor's staff guidance and universities the required interpretations of previous academic records?

e. What procedures does the contractor follow in deciding which universities to apply to for specific candidates? Are the procedures adequate for ensuring that the participants' desired specializations (not just major fields of study) can be provided at those institutions? Do the universities find the applicants sent to them by the contractor to be appropriate and qualified for consideration?

f. Are missions and candidates kept adequately informed about progress toward placement? Are they informed immediately when required documents, test scores, letters of recommendations, etc. are missing? Are they informed in a timely fashion if candidates are not qualified?

g. Are competitive selection criteria and procedures for candidates appropriate, workable and fair in both fact and appearance?

3. Selection and/or Development of Non-Academic Training Activities

   a. Does the contractor's staff appear to be knowledgeable about the broad range of existing non-degree training programs in various aspects of energy and the environment that are offered by private industry, national laboratories, trade associations, professional societies, research institutions, universities, government agencies, consulting firms and others? Are there networks, professional affiliation, directories, data banks or other mechanisms available through which these programs could be made known to A.I.D. and the contractor?

   b. How does the contractor determine whether these existing programs are appropriate or (adaptable to) the need of LDC participants?

   c. Has the contractor identified apparent gaps in available training within the fields covered by the ETP? How has it sought to fill those gaps? How effective has the contractor been in "commissioning" specific courses, developing their curricula and locating institutions and/or individuals to conduct them?

   d. What is the ETP's record to date with respect to individually tailored internship programs? Have participants found them satisfactory? Have participating companies derived benefits from their participation? How can the general receptiveness to such requests be enhanced? Is there a need for better communication with potential participating companies? How can the advisory committee help?

4. Participant Monitoring and Support

   a. How does the contractor stay in touch with participants in the field? Do the participants find the contractor to be accessible and responsive to special

needs as they arise?

b. Does the contractor communicate with (and receive communications from) participants' institutional training advisors on a regular basis? Are written progress/grade reports received on timely a basis? Do advisors keep informed of special problems? Do the advisors find the contractor responsive to the institutions' and participants' needs?

c. Do participants have an opportunity to meet and compare experiences with other ETP participants? Do alumni involve themselves in multi-media self-taught courses as planned?

d. What improvements does the team recommend in each of the above areas?

5. Post-Training Evaluation Mechanisms and Procedures

a. Does the contractor conduct exit-briefings with all participants? If so, what records are kept of those interviews?

b. Are participants required to provide written reports evaluating their training experiences? If so, are these narratives or questionnaires? What questions are included? To whom are the results provided?

c. How does the contractor evaluate the programs(as opposed to the participants or their individual experiences) to which it has sent participants? Is the evaluation an interactive one, allowing the contractor to suggest program modifications for future sessions? How do these evaluations affect decisions about sending participants to future sessions?

d. Has the contractor kept in touch with participants after they have returned home? How? Has it communicated with their employers? Can the contractor/ETP assess whether returned participants are

using their training effectively in their jobs?

e. What plans should the contractor and R&D/EI make now for future long-term evaluation of the impacts of the training on participants' future employment and performance, on national energy programs, efforts to control global warming, and on U.S. interests (including but not limited to private sector interests) and involvement in LDC energy activities?

6. The Contractor's Program Administration and Staffing, A.I.D. Backstopping

a. Are the contractor's personnel working on the project of appropriate professional calibre and background? Are their individual responsibilities appropriate to their skills and do they appear to be fulfilling their individual responsibilities effectively?

b. Is the contractor/ETP project staff effective as a team? How can the contractor's overall effectiveness be improved through reorganization, improved office automation, additional hiring or other changes?

c. Are the contractor's procedures relating to participant call-forwards and travel, provision of monthly living allowances, payment of tuition, processing of insurance claims, responding to emergencies, and meeting other logistical needs adequate, appropriate and effective? Are there recommendations for improvements?

d. Is there a need, as candidate and participant case loads grow, to improve the contractor's record-keeping systems for easier access to up-to-date records on individual participants, on the total project population, on project budgets and expenditures? Can new approaches to automation (e.g., use of microcomputers with commercially available software for spreadsheets and data base management)

help in these areas?

e. How well are communications procedures (physical transport between the contractor and A.I.D. by messenger, editing, clearance and transmission by R&D/EI) working? Can telecommunications technology improve these procedures?

f. Are existing communication/consultation channels between the contractor and R&D/EI adequate? Are other A.I.D. entities (regional bureaus, R&D/IT, and Missions) brought into the communication/consultation loop at appropriate points?

g. Are changes needed in R&D/EI's backstopping and management of the ETP? If so, what changes are recommended?

h. Is interaction between the contractor and A.I.D. adequate in areas relating to Handbook 10 requirements and procedures such as approval of extraordinary expenses, processing of insurance claims, provision of visas and travel allowances, etc.? If not, how can these procedures be carried out more smoothly?

ANNEX A

ENERGY TRAINING PROGRAM 936-5734

IMPLEMENTATION SCHEDULE

Major project events are summarized below. The R&D/EI Project Officer will be responsible for monitoring the achievement of these targets. The Officer will work closely with the regional bureaus, contracts office, and R&D Program Office to help ensure smooth project implementation.

Action	Responsibility	Completion Date
Amended PP Approval	A.I.D.	January 1992
Project Authorization Signed	R&D	January 1992
PIO/T & Scope of Work Prepared	R&D/EI	January 1992
RFP Prepared	FA/OP/B/PCE	February 1992
CBD Announcement	FA/OP/B/PCE	February 1992
Selection Panel Appointed	R&D/EI	February 1992
Proposals Due	FA/OP/B/PCE	April 1992
Proposals Reviewed	A.I.D.	April 1992
Contractor Selected	A.I.D.	May 1992
Contract Negotiated Awarded	FA/OP/B/PCE	May/June 1992
Mid-Point Evaluation/ Audits	R&D/EI	May 1994
Final Evaluation/ Audits	R&D/EI	June 1996

ANNEX B

ENERGY TRAINING PROGRAM 936-5734

PROJECT SUMMARY

The completed Conventional Energy Training Project began in 1981 by providing M.S. degrees, in-service programs, and industry fellowships in science and engineering fields "to increase the technical competence in developing countries to explore for and exploit conventional energy resources."

Today the Energy Training Program, begun in 1987, offers a variety of non-academic and academic energy specialties to trainees from Ministries, government-owned companies, and private sector employers. In August 1989 an evaluation was conducted of selected activities within these two projects. The evaluation focused on the impact these two training programs have had on their participants, their institutions, and their countries. The results show success on all three dimensions.

During the period August - December 1989, 112 participants of the 929 total participants from the two programs were interviewed. Employing an interview questionnaire to develop the data base, the program's success was measured. In addition, over 75 trainee supervisors and other energy personnel were questioned informally on their opinions and suggestions regarding the program's impact and future.

Along with the programs' success came many suggestions on the need for changes in order to implement the training courses. Both participants and other energy personnel identify management training as a requirement to lessen barriers to change. Specifically, interviewees made the following recommendations:

Recommendation 1: The curriculum should be recast to a problem-solving orientation in order to facilitate implementation by the participants or their superiors. Once participants return to their employers, senior management creates a barrier to implementation by failing to permit participants to apply the training knowledge they have acquired.

Recommendation 2: Complement training with technical assistance while maintaining the focus on implementation.

Recommendation 3: Focus attention on indigenous fuels. Not all nations can now economically afford, nor will they be able to ecologically afford, participation in a fossil fuel based global energy economy.

Recommendation 4: Place more emphasis on management of human, physical, and capital resources as they apply to the energy sector.

Recommendation 5: Improvements are needed in the training program selection process. Numerous difficulties, including the loss of qualified candidates, occur because of delays in the selection process. The process could be improved by providing more informative and descriptive announcements, more lead time for participants to prepare for departure, technical assistance to training bureaucracies regarding U.S. Aid procedures, and more staff to oversee the selection process.

Recommendation 6: Create a proactive alumni association with resources for continuing education, technical assistance, and library materials.

This evaluation strongly supports the concept of an expanded energy training program with new courses on energy management, environmental impacts of energy, and indigenous energy sources. Additionally, opportunities to augment training through the creation of an active alumni program that recruits new trainees and continues a U.S. role in technical assistance and international trade.

These and other recommendations based on the reaction to the evaluation are incorporated in the Amended Project Paper. The proposed course topics for the continuation of the ETP reflect changes that will accommodate the recommendations made by participants.

Existing courses will be repeated based on their continuing interest to LDC participants and applicability to the goals of the amended program. Six series of course topics are proposed for the amended project:

SERIES 1: The Most Efficient Use of Fossil Fuels: A Role for Energy Conservation

SERIES 2: National Fuel Mix Planning: Balancing Imports and Exports

SERIES 3. Environment and the Energy Sector: Global and National

SERIES 4: Oil and Gas Supply: Lengthening the Time for Transition to Alternatives

SERIES 5: Oil Replacement: The Transition to Indigenous Fuels Including Renewable Resources

SERIES 6: Management and Implementation of Energy Programs

The six categories that comprise each of the series of courses are not mutually exclusive. Each category includes components on management, technology, and policy. The categories are intended to ensure that the major areas of Mission concern, as expressed in the CDSS's, and Congressional directives are on the menu for general participant training.

Furthermore, the courses relate to each other in a coherent curriculum that provides familiarity with the main elements of a national energy and environmental program. Both policy-makers and technicians will find course materials that apply to solving problems in a broadly conceived and coherent energy strategy. The options to send staff or managers to courses of different degrees of advancement and technical depth are available. They complement each other overall so that a cumulative impact from several trainees working together is encouraged.

ANNEX C

THE ENERGY TRAINING PROJECT 936-5734

ILLUSTRATIVE COURSE LIST

Introduction

The Illustrative Course List of the Amended ETP Project Paper reflects increased attention to the issues of the Nineties addressed by Congress. Modifications to existing courses and the addition of new courses or training activities result from the Congressional Report accompanying the Foreign Operations, Export Financing, and Related Programs Appropriations Bill, 1990, suggestions from U.S.A.I.D. regional and Office of Energy and Infrastructure staff, and The Evaluation of the Energy Training Project completed in January 1990. Accordingly, particular attention was paid to the following requirements, suggestions, and recommendations:

- Environmental issues have high priority in the U.S. Foreign Assistance Program
- The Office of Energy and Infrastructure serves as a source of expertise in energy efficiency, renewable energy, and least cost energy planning
- ETP includes emphasis on an expanded trade initiative
- Regional and local training are offered as supplements to U.S. based programs or as independent courses
- Training focuses on implementation with a strong problem-solving orientation
- Program approach stresses use of indigenous fuels, especially renewable
- ETP emphasizes the effective management of human, physical, and capital resources
- An active alumni association contributes to continuing education

Under this project training will be offered in the following categories:

- Industry and government internships
- Special courses training (including in-country and regional training)
- Non-degree University and University-style Training
- Study Tours/Seminars/Workshops
- U.S. degree training

Course Topics

The Energy Training Program will continue to use established courses that address environmental concerns, renewable energy resources, and topics that lend themselves to in-country or regional training. It is anticipated that new training activities will be added to the program. Established courses include, but are not limited to, the following:

Short Courses

- **Energy Planning and Policy** for mid to senior-level energy managers and planners. Prepares participants to solve national and institutional energy-planning problems in efficient and cost-effective ways. Topics include energy modeling and analysis, energy technologies, energy resources and pricing, environmental problems and energy conservation.

- **Utility and Industry Energy Conservation** for utility and industrial plant engineers and supervisors involved in the performance of heat rates and/or efficiency of plant operations. Covers methodology and standards used to improve overall plant efficiency.

- **Fluidized Bed Coal Combustion** designed to provide engineers with the fundamentals of fluidized bed combustion, the information needed to evaluate technologies currently available, and determine the technology that best fits their particular application.

- **Power System Protection** for electric power design and maintenance engineers. Provides hands-on training in all effective techniques of power systems protection, including microcomputer-based protective relay systems.

- **Refinery Energy Conservation** for refinery engineers. Provides comprehensive, hands-on training in pinch technology and other techniques to reduce energy consumption and improve operational efficiency of refinery and petrochemical plants.

- **General Management of Electric Utilities** for mid-to senior-level technical managers from utilities and other

companies that produce or utilize energy as a primary commodity. Demonstrates how to manage a company as a total enterprise, by combining technical capabilities with general managerial skills in order to optimize performance of men and machines.

- **Managing A National Petroleum Enterprise** for senior-level officials. Covers how to promote cooperative oil and gas ventures with international oil companies and financial institutions and to negotiate productive and equitable contracts.

- **Geothermal Exploration** for engineers and exploration geologists. Covers the development and utilization of geothermal energy resources, with focus on locating, assessing, and exploiting geothermal sites.

- **Photovoltaic Technologies** for engineers. Comprehensive hands-on training on all aspects of designing and utilizing photovoltaic (PV) powered equipment, including the technical, economic, and practical information necessary to design a PV-based project or set up a PV-based commercial enterprise.

- **Electric Utility Engineering** for electric utility engineers. Covers all aspects of power plant maintenance and operation and all forms of power generation including steam turbines, generators, hydro-turbines, gas turbines, and diesels.

- **Diesel Based Electric Power Generation** trains engineers in skills and techniques necessary to maximize the availability, reliability, and performance of diesel power generators.

- **Human Resource Development and Training Management** for energy company managers. This is a three phase learning-application-review program with primary emphasis on the development of knowledge and the skills that are critical for fully effective performance in the key training and human resource development jobs.

- **Private Power Executive Seminar** for officials and private-sector leaders concerned with privatization of the power sector. Examines the benefits and potential role of private power in developing countries, and allows participants to study successful initiatives in the U.S.A.

- **Technology Choices in Renewable Energy for Policy and Decision-makers.** Provides the data and analytical tools necessary to make optimal choices among competing renewable energy technologies for distributed uses such as village electrification, water pumping, irrigation, cathodic protection, space heating and cooling, and other end uses.

- **Small Hydro Power Generation** for engineers. Includes identification and assessment of prospective sites, feasibility studies,installation, operation and maintenance of micro and mini hydro facilities.

- **Environmental Policy and Implementation** for policy makers, regulators, legislators, judicial personnel. Encompasses policy, law, regulation, enforcement, economic analysis and data requirements, informational and analytical base upon which to structure a national environmental system.

- **Pollution Control Systems for Industrial Facilities and Power Plants** for operations personnel. Comprehensive practical training on mitigating environmental impacts of fossil fuel burning for industrial purposes and electric power generation at the plant level, with a focus on existing installations.

- **Ambient Air Pollution Monitoring** for regulatory and company technical personnel. Practical internship on ambient air pollution modelling, monitoring, measurement, analysis, and reporting.

- **Stationary Source Air Pollution Monitoring** for regulatory and company technical personnel. Practical internship on point source monitoring of stack gas and industrial emissions, chemical analysis, data collection, analysis and reporting.

- **Data Utilization and Management for Environmental Decision Making** covers management of empirical data, theoretical models, and simulations for environmental analysis and regulation applicable to single and multi-media pollution control.

Courses in Renewable Technologies

Gasification	University of California/Davis
Boiler Efficiency (Biomass Combustion)	Boiler Efficiency Institute
Biomass	Georgia Institute of Technology
Windmills: Water and Electrical	New Mexico State University
Wind Energy	University of Massachusetts
Small Scale Hydro Development & Management	Denver Research Institute
Water Resources and Environmental Engineering	The Massachusetts Institute of Technology

Water Resources Engineering	University of Colorado
Photovoltaic Applications Seminar	Florida Solar Energy Center
Photovoltaic Specialization	Cleveland State University

U.S.Degree Training

Academic training will continue to be offered in response to requests by missions and LDC institutions that are able to financially support such activities through buy-ins. Representative fields of study include, but are not limited to, the following:

- Chemistry
- Geology
- Petroleum Engineering
- Coal Mine Engineering
- Energy Management and Planning
- Energy/Natural Resource Law
- Energy Economics
- Natural Gas Engineering

Industry and Government Internships

Internships that provide on-the-job training may be the most useful training for those persons who have the requisite academic qualifications but lack the practical experience of working in energy industries. In addition to those participants coming to the U.S. for internships, the project will enable students already enrolled in M.S. degree or in-service academic training to spend up to 12 months interning in an industry as part of their academic training. This will enable the student to gain practical experience as well as the necessary academic background.

Internships will be arranged with non-profit government contractors, national laboratories, federal agencies, academic institutions and the private sector. Organizations will be chosen on the basis of a strong capability in an energy technology.

Special Training Courses

Special energy training courses will be designed to fulfill training needs not already met. These needs will be determined by interviews with relevant officials of A.I.D. missions, LDC ministries, and other energy organizations in the developing

countries. These recommendations will be considered within the context of A.I.D. energy policies and programs and the context of the Office of Energy and Infrastructure in consultation with other relevant agency offices.

Once the need has been established and agreed upon, the contractor will solicit advice and counsel from professionals on the advisory committee involved in this program to learn what components should be included in the course being developed. At that point, one or more energy training organizations will be contacted to determine interest and subsequently to develop a detailed curriculum and budget. The contractor and R&D/EIN will work closely with such organizations in developing curricula and teaching manuals.

Typical short courses may include:

- Power Systems Planning
- Economic Evaluation of Renewable Energy Systems
- Refurbishing and Rehabilitation of Power Plants
- Financial Management of a Utility
- Cogeneration and Decentralized Power Generation
- Economic Assessment of Renewable Energy Systems

Program Structure

Presently, the program structure includes special courses in the U.S., industrial internships with U.S. companies, technical training institutes, a limited amount of academic training at the Master's level, and some additional activities both in the U.S. and overseas. This structure will continue as applicable and appropriate.

The amended program will also emphasize special overseas regional and local courses based on commonality of energy resources or energy problems. The use of computers will be expanded in the U.S. and overseas to take advantage of both existing energy and environmental software, as well as to facilitate the use of new software specifically for LDC use.

Multimedia technology for self-taught courses will be utilized as a teaching tool at selected overseas library centers complete with equipment, textbooks, journals and other materials. Finally, the strong teaching interests shown by many ETP alumni in both informal and college-level courses, especially in energy conservation, will be tapped to assist with these new or expanded centers.

U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

ATTACHMENT 2

MEMORANDUM

TO: See Distribution **DATE:** 12 December 1991

FROM: R&D/EI, Shirley A. Toth

SUBJECT: Energy Training Program (936-5734)

The Energy Training Program was approved in FY 1987 for five years and is due to expire later this year along with the contract to the Institute of International Education. Enclosed for your review/ comments/approval is a revised project paper for the training program. The goal and the purpose of the program do not change, the paper has been amended to put a greater emphasis on alternative energy sources, the environment, to add multimedia type training and to do more overseas training in Spanish and French. All changes are reflected in bold print.

I know the holidays are upon us, and I hope everyone has a very happy holiday, but I would appreciate your comments/approval back to me by cob December 27. This can be in the form of a memo, E-mail or sign the bottom of this memorandum if you are approving with no comments. If I do not receive any comments/approval from you by cob December 27 I'll take that as your approval, also.

Your cooperation and interest in this activity is greatly appreciated.

Distribution:
AFR/ARTS/SARA, Tony Pryor
ASIA/TR, Thomas Nicastro
EUR/DR/EI, Robert Ichord
LAC/TR, James Hester
NE/DR, Satish Schah
R&D/EI, Staff

MEMORANDUM

FROM: Joe Pastic, NE/DR/EPS December 20, 1991

THROUGH: Satish Shad, NE/DR

TO: Shirley A. Toth, R&D/EI

SUBJECT: **Comments on Amended PP for Energy Training Program 936-5734**

We approve the project amendment, however, we hope that the following comments and observations will be helpful to you.

1. Project Data Sheet, block 16, last sentence: "...extending the **final** fiscal year funding from..."

2. Section III.E.1: Reader is unclear how the mix of outputs changes from the original mix. For example, I infer that **special courses** are emphasized much more than in the original project, and the amended PP says that academic training will be cut back. Also, reader assumes that **multimedia self-taught** is a new activity. That is why there is a 220% increase on number of training outputs with about the same amount of money. Suggest some clarification on this point.

3. With new emphases on multimedia self-teaching and short courses, suggest addition of affirmation that the benefit-cost relationship of these activities are positive. Short courses are proportionately heavy on TDY costs. Is the net result worthwhile, regardless of who (AID/W or Mission) pays these costs?

4. The evaluation plan does not seem to include consideration of the effectiveness of self-teaching modules. Something should be in the plan to measure this.

5. Section VI.A, last sentence: "...on specific country energy and **associated or related** environmental conditions..."

6. Section VI.E., 3rd example: The establishment of a private consulting firm doesn't support the anecdotal aspects of the economic analysis. Suggest example be restated as "A private consulting firm in the Dominican Republic which is helping industry and government to save oil had been established by a recipient of project training."

7. Section VI.I., 7th example: Saying that a training participant introduced a useful methodology to "more than one sector" prompts the question: how many more sectors?

8. Section VI.G., page 22, first paragraph, the statement "Some maintenance costs are included, but, generally, the machines are reliable after the warranty period": If no real support for the hardware is available after they are initially provided, the confusion, frustration, and discouragement resulting from unrepairable equipment could virtually eliminate any benefits expected from this project component. Since nearly 20% of training outputs are attributable to dependable hardware, to only assume dependability seems to create an unacceptable vulnerability to project success. Wouldn't we want to build in stronger safeguards? In an LDC where such hardware and repair services aren't readily available without foreign exchange, a sustainable backup seems vital.

Agency for International Development
Washington, D.C. 20523

MEMORANDUM

TO: FA/OP/B/PCE, Thomas Stephens DATE: 8 August 1991

FROM: R&D/EI, Shirley A. Toth

SUBJECT: Energy Training Project Amendment (936-5734)

The attached amended project paper for the Energy Training Project is being sent to you for approval of the implementation plan. This has been reviewed by Frank Donovan and his suggested changes have been made. After reviewing the amended project paper if you approve the implementation plan please sign below and return the memorandum to me.

Your prompt attention to this matter is greatly appreciated.

I have reviewed the amended project paper for the Energy Training Project and approve suggested implementation plan.

Thomas Stephens
Chief, FA/OP/B/PCE

1/16/92
Date

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ANNEX D

ENERGY TRAINING PROJECT 936-5734

WOMEN IN DEVELOPMENT

On the Amended Project, women will continue to have equal access to project training and participation in energy assessment. Due to the cultural mores of LDCs, it is anticipated that more women will participate in short term, in-country, and regional training programs, rather than in U.S. based programs.

Under the first phase of the project, approximately 8 percent of the participants trained were women, although a female population of 20 percent was targeted; from 1987 through September, 1991, 59 of the 741 participants who completed training were female. The contractor shall be instructed to give special attention to the promotion and selection of female participants in order to achieve a female representation of at least 10 percent over the next five years.

Through its commitment to promoting the training of female participants and to making educational opportunities available to them, a representative portion of the female population will benefit directly from the ETP's courses and indirectly from the improved standard of living resulting from the economic benefits of the program.

Positive Determination

James B. Sullivan

James B. Sullivan
Director
Office of Energy and Infrastructure
Bureau for Research and Development

2/10/92

Date

ANNEX E

ENERGY TRAINING PROJECT 036-5734

RECOMMENDED ENVIRONMENTAL THRESHOLD DECISION

Section 216.2(c)(2) of the Agency Environmental procedures (22 CFR 216) lists the categories of Agency activities for which an Initial Environmental Examination, Environmental Assessment, and Environmental Impact Assessment are not required. This covers "(i) Education, technical assistance or training programs except to the extent such programs include activities directly affecting the environment (such as the construction of facilities); (iii) Analyses, studies, academic or research workshops and meetings; (xiv) Studies, projects or programs intended to develop the capability of recipient countries to engage in development planning, except to the extent designed to result in activities directly affecting the environment (such as the construction of facilities.)"

ETP meets the criteria for a categorical exclusion under 22 CFR 216.2 (c) (2) and does not require an Environmental Impact Statement or the preparation of an Environmental Assessment because it encompasses training programs and research.

James B. Sullivan

James B. Sullivan
Director
Office of Energy and Infrastructure
Bureau for Research and Development

2/10/92
Date

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)

[X] ACADEMIC
[X] TECHNICAL

PROJECT TITLE
ENERGY TRAINING PROGRAM

PROJECT NUMBER
936-5734.

COMMENTS:

II. ADMINISTRATIVE COST

PROGRAM CATEGORIES/TRAINING ACTIVITIES	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
II.F. Administrative Costs	$ 1,439,617	$ 1,690,602	$ 1,824,226	$ 1,592,000	$ 1,427,000	$ 7,973,446
1. Salaries (Total)	$ 529,617	$ 545,602	$ 562,226	$ 510,000	$ 400,000	$ 2,547,446
a. Professional	$ 399,617	$ 415,602	$ 432,226	$ 380,000	$ 270,000	$ 1,897,446
i. U.S.	$ 399,617	$ 415,602	$ 432,226	$ 350,000	$ 240,000	$ 1,837,446
ii. Field				$ 30,000	$ 30,000	$ 60,000
b. Support Staff	$ 130,000	$ 130,000	$ 130,000	$ 129,999	$ 130,000	$ 650,000
i. U.S.	$ 130,000	$ 130,000	$ 130,000	$ 129,999	$ 130,000	$ 650,000
ii. Field						
2. Fringe Benefits	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 120,000	$ 600,000
3. Travel (Total)	$ 40,000	$ 35,000	$ 42,000	$ 12,000	$ 32,000	$ 151,000
a. International	$ 30,000	$ 30,000	$ 40,000	$ 10,000	$ 30,000	$ 130,000
b. Local	$ 10,000	$ 5,000	$ 2,000	$ 2,000	$ 2,000	$ 21,000
4. Consultant Fees (Total)						
a. United States						
b. Field						
5. Equipment	$ 250,000	$ 350,000	$ 400,000	$ 150,000	$ 74,999	$ 1,225,000
6. Sub-Contracts						
7. Indirect Costs	$ 500,000	$ 500,000	$ 500,000	$ 400,000	$ 400,000	$ 2,300,000
8. Other (Mission Option)		$ 150,000	$ 200,000	$ 400,000	$ 400,000	$ 1,150,000
TOTAL PARTICIPANT COSTS (A+B+C+D+E+F)=	$ 6,096,937	$ 7,897,801	$ 5,944,985	$ 8,025,450	$ 4,077,806	$ 32,042,981

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT TITLE	PROJECT NUMBER	PROJECT YEAR
ENERGY TRAINING PROGRAM	936-5734.	1 Of 5.0 Years
PROJECT WRITER	**PARTICIPANT MONTHS PROJECTED (THIS YEAR)**	**DATE BUDGET PREPARED**
MORTON GORDEN	1523	03/04/1991

COMMENTS:

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
A. Education/Training Cost	25	$ 218,945.[illegible]	382	$1,217,775.4	$ 1,436,720.4
1. Tution/Fees	50	$ 218,945.0			$ 218,945.0
2. Training Costs			352	$1,132,478.2	$ 1,132,478.2
3. Package Program Costs			40	$ 85,317.1	$ 85,317.1
4. Other (Mission Option)					
B. ALLOWANCES	25	$ 504,910.2	382	$2,440,681.3	$ 2,945,591.6
1. Maintenance Advance	25	$ 83,769.8	310	$1,022,771.4	$ 1,106,541.2
2. Living/Maintenance	25	$ 383,888.8	310	$1,124,757.1	$ 1,488,325.9
3. Per Diem	25	$ 15,471.8	310	$ 187,021.0	$ 202,492.9
4. Books & Equipment	25	$ 33,507.9	382	$ 36,664.9	$ 70,172.8
5. Book Shipment			215	$ 21,479.4	$ 21,479.4
6. Typing (papers) - Academic Only	25	$ 8,591.7	250	$ 9,907.1	$ 18,498.9
7. Thesis - Academic Only					
8. Doctoral Dissertation - Academic					
9. Professional Membership			125	$ 22,894.7	$ 22,894.7
10. Other (Mission Option)					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
C. Travel	25	$ 9,907.1	310	$ 153,186.7	$ 163,093.8
1. International					
2. Local	25	$ 9,907.1	310	$ 153,186.7	$ 163,093.8
3. Other (Mission Option)					
D. Insurances	25	$ 17,507.2	350	$ 67,388.8	$ 84,896.0
1. HAC for U.S.	25	$ 17,507.2	350	$ 67,388.8	$ 84,896.0
2. Required by Institution					
3. Other (Mission Option)					
E. Supplemental Activities	25	$ 1,298.7	322	$ 25,708.7	$ 26,997.5
1. ELT, In-Country					
2. ELT, U.S.					
3. Academic Up-Grade					
4. Reception Services	25	$ 429.5	300	$ 5,078.4	$ 5,508.0
5. WIC Orientation					
6. Other Orientation	25	$ 859.1	300	$ 9,740.6	$ 10,599.8
7. Interpreters/Escorts					
8. Internship/Cooperative					
9. Enrichment Program					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary

Training Cost Analysis (TCA)

** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
10. Mid-winter Community Seminars					
11. Follow-Up/Career Development			175	$ 3,827.7	$ 3,827.7
12. Other (Mission Option)					

TOTAL PARTICIPANT COSTS (A + B + C + D + E) = $ 4,657,319.6

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT TITLE	PROJECT NUMBER	PROJECT YEAR
ENERGY TRAINING PROGRAM	936-5734.	2 Of 5.0 Years
PROJECT WRITER	**PARTICIPANT MONTHS PROJECTED**	**DATE BUDGET PREPARED**
MORTON GORDEN	(THIS YEAR) 2035	03/04/1991

COMMENTS:

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC TRAINING Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL TRAINING Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
A. Education/Training Cost	35	$ 273,889.3	490	$1,791,977.5	$ 2,065,866.9
1. Tution/Fees	35	$ 273,889.3			$ 273,889.3
2. Training Costs			490	$1,642,672.5	$ 1,642,672.5
3. Package Program Costs			70	$ 149,304.9	$ 149,304.9
4. Other (Mission Option)					
B. ALLOWANCES	35	$ 223,479.9	505	$3,487,831.3	$ 3,816,311.3
1. Maintenance Advance			400	$1,370,370.8	$ 1,370,370.8
2. Living/Maintenance	35	$ 139,270.9	400	$1,718,121.1	$ 1,978,392.1
3. Per Diem	35	$ 12,817.5	400	$ 238,311.2	$ 251,128.1
4. Books & Equipment	35	$ 22,106.5	505	$ 52,795.0	$ 74,901.6
5. Book Shipment	5	$ 1,039.0	477	$ 49,192.9	$ 50,231.9
6. Typing (papers) - Academic Only	25	$ 8,935.4	385	$ 16,665.6	$ 25,601.1
7. Thesis - Academic Only	5	$ 2,597.5			$ 2,597.5
8. Doctoral Dissertation - Academic					
9. Professional Membership	5	$ 1,082.3	175	$ 32,468.9	$ 33,551.2
10. Other (Mission Option)					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC TRAINING Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL TRAINING Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
C. Travel	25	$ 7,853.1	275	$ 149,663.4	$ 157,516.5
1. International					
2. Local	25	$ 7,853.1	275	$ 149,663.4	$ 157,516.5
3. Other (Mission Option)					
D. Insurances	25	$ 11,863.4	470	$ 101,313.2	$ 113,176.7
1. HAC for U.S.	25	$ 11,863.4	470	$ 101,313.2	$ 113,176.7
2. Required by Institution					
3. Other (Mission Option)					
E. Supplemental Activities	25	$ 936.8	420	$ 54,011.0	$ 54,947.8
1. ELT, In-Country					
2. ELT, U.S.					
3. Academic Up-Grade					
4. Reception Services			385	$ 6,777.7	$ 6,777.7
5. WIC Orientation					
6. Other Orientation			385	$ 13,555.5	$ 13,555.5
7. Interpreters/Escorts					
8. Internship/Cooperative					
9. Enrichment Program					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
10. Mid-Winter Community Seminars			35	$ 18,909.9	$ 18,909.9
11. Follow-Up/Career Development	5	$ 216.4	407	$ 14,066.5	$ 14,283.0
12. Other (Mission Option)					

TOTAL PARTICIPANT COSTS (A + B + C + D + E) = $ 6,207,199.4

+ Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT TITLE
ENERGY TRAINING PROGRAM

PROJECT NUMBER
936-5734.

PROJECT YEAR
3 Of 5.0 Years

PROJECT WRITER
MORTON GORDEN

PARTICIPANT MONTHS PROJECTED (THIS YEAR) 1725

DATE BUDGET PREPARED
03/04/1991

COMMENTS:

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC TRAINING Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL TRAINING Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
A. Education/Training Cost	30	$ 529,680.7	270	$ 731,920.4	$ 1,260,601.1
1. Tution/Fees	60	$ 529,680.7			$ 529,680.7
2. Training Costs			270	$ 564,161.3	$ 564,161.3
3. Package Program Costs			70	$ 167,759.0	$ 167,759.0
4. Other (Mission Option)					
B. ALLOWANCES	30	$ 690,117.9	315	$1,954,105.5	$ 2,644,223.4
1. Maintenance Advance	30	$ 108,164.6	170	$ 591,713.8	$ 699,878.5
2. Living/Maintenance	30	$ 502,985.5	170	$1,146,072.6	$ 1,649,058.1
3. Per Diem	30	$ 24,608.0	170	$ 117,926.4	$ 142,534.5
4. Books & Equipment	30	$ 43,265.8	315	$ 32,375.4	$ 75,641.3
5. Book Shipment	20	$ 4,322.2	445	$ 47,962.9	$ 52,285.1
6. Typing (papers) - Academic Only	30	$ 11,093.8	125	$ 4,002.5	$ 15,096.3
7. Thesis - Academic Only	20	$ 10,805.6			$ 10,805.6
8. Doctoral Dissertation - Academic					
9. Professional Membership	20	$ 4,502.3	160	$ 34,443.0	$ 38,945.4
10. Other (Mission Option)					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE 'Instructions: Budget Estimate Worksheet - Summary' **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
C. Travel	30	$ 10,193.3	170	$ 83,536.2	$ 93,729.5
1. International					
2. Local	30	$ 10,193.3	170	$ 83,536.2	$ 93,729.5
3. Other (Mission Option)					
D. Insurances	30	$ 22,631.3	315	$ 82,565.4	$ 105,196.8
1. HAC for U.S.	30	$ 22,631.3	315	$ 82,565.4	$ 105,196.8
2. Required by Institution					
3. Other (Mission Option)					
E. Supplemental Activities	30	$ 1,483.9	245	$ 15,523.8	$ 17,007.8
1. ELT, In-Country					
2. ELT, U.S.					
3. Academic Up-Grade					
4. Reception Services	20	$ 374.6	125	$ 2,251.1	$ 2,625.7
5. WIC Orientation					
6. Other Orientation	30	$ 1,109.3	125	$ 4,502.3	$ 5,611.7
7. Interpreters/Escorts					
8. Internship/Cooperative					
9. Enrichment Program					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE 'Instructions: Budget Estimate Worksheet - Summary' **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
10. Mid-Winter Community Seminars					
11. Follow-Up/Career Development	20	$ 720.3	360	$ 12,966.8	$ 13,687.1
12. Other (Mission Option)					

TOTAL PARTICIPANT COSTS (A + B + C + D + E) $ 4,120,758.8

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT TITLE	PROJECT NUMBER	PROJECT YEAR
ENERGY TRAINING PROGRAM	936-5734.	4 Of 5.0 Years
PROJECT WRITER	**PARTICIPANT MONTHS PROJECTED**	**DATE BUDGET PREPARED**
MORTON GORDEN	(THIS YEAR) 2645	03/04/1991

COMMENTS:

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
A. Education/Training Cost	30	$ 560,401.5	550	$1,682,447.8	$ 2,242,849.4
1. Tution/Fees	60	$ 560,401.5			$ 560,401.5
2. Training Costs			550	$1,533,142.8	$ 1,533,142.8
3. Package Program Costs			70	$ 149,304.9	$ 149,304.9
4. Other (Mission Option)					
B. ALLOWANCES	30	$ 676,884.1	580	$3,162,750.9	$ 3,839,635.0
1. Maintenance Advance			310	$1,136,599.9	$ 1,136,599.9
2. Living/Maintenance	30	$ 570,659.9	310	$1,664,767.5	$ 2,235,427.4
3. Per Diem	30	$ 18,250.3	310	$ 191,834.4	$ 210,084.8
4. Books & Equipment	30	$ 44,996.5	580	$ 64,441.3	$ 109,437.8
5. Book Shipment			565	$ 62,263.3	$ 62,263.3
6. Typing (papers) - Academic Only	30	$ 11,537.5	280	$ 11,410.2	$ 22,947.7
7. Thesis - Academic Only					
8. Doctoral Dissertation - Academic					
9. Professional Membership			125	$ 23,412.2	$ 23,412.2
10. Other (Mission Option)					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
C. Travel	30	$ 7,248.4	310	$ 171,939.6	$ 179,188.1
1. International					
2. Local	30	$ 7,248.4	310	$ 171,939.6	$ 179,188.1
3. Other (Mission Option)					
D. Insurances	30	$ 23,536.6	380	$ 94,606.9	$ 118,143.5
1. HAC for U.S.	30	$ 23,536.6	380	$ 94,606.9	$ 118,143.5
2. Required by Institution					
3. Other (Mission Option)					
E. Supplemental Activities	30	$ 1,153.7	510	$ 52,480.9	$ 53,634.6
1. ELT, In-Country					
2. ELT, U.S.					
3. Academic Up-Grade					
4. Reception Services			280	$ 5,266.8	$ 5,266.8
5. WIC Orientation					
6. Other Orientation			280	$ 10,533.6	$ 10,533.6
7. Interpreters/Escorts					
8. Internship/Cooperative					
9. Enrichment Program					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
10. Mid-Winter Community Seminars			30	$ 17,531.1	$ 17,531.1
11. Follow-Up/Career Development			495	$ 18,423.3	$ 18,423.3
12. Other (Mission Option)					

TOTAL PARTICIPANT COSTS (A + B + C + D + E) = $ 6,433,450.8

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT TITLE	PROJECT NUMBER	PROJECT YEAR
ENERGY TRAINING PROGRAM	936-5734.	5 Of 5.0 Years
PROJECT WRITER	**PARTICIPANT MONTHS PROJECTED**	**DATE BUDGET PREPARED**
MORTON GORDEN	(THIS YEAR) 1425	03/04/1991

COMMENTS:

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC TRAINING Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL TRAINING Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
A. Education/Training Cost			475	$1,070,377.1	$ 1,070,377.1
1. Tution/Fees					
2. Training Costs			475	$ 801,099.9	$ 801,099.9
3. Package Program Costs			100	$ 269,277.2	$ 269,277.2
4. Other (Mission Option)					
B. ALLOWANCES			475	$1,419,727.2	$ 1,419,727.2
1. Maintenance Advance			175	$ 664,721.0	$ 664,721.0
2. Living/Maintenance			175	$ 533,237.7	$ 533,237.7
3. Per Diem			175	$ 103,920.4	$ 103,920.4
4. Books & Equipment			475	$ 55,515.1	$ 55,515.1
5. Book Shipment	30	$ 6,922.5	535	$ 62,392.7	$ 69,315.2
6. Typing (papers) - Academic Only			125	$ 4,869.7	$ 4,869.7
7. Thesis - Academic Only	30	$ 17,306.3	50	$ 1,947.9	$ 19,254.2
8. Doctoral Dissertation - Academic					
9. Professional Membership	30	$ 7,210.9	30	$ 5,843.7	$ 13,054.6
10. Other (Mission Option)					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER
936-5734.

COMMENTS

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
C. Travel			175	$ 102,264.7	$ 102,264.7
1. International					
2. Local			175	$ 102,264.7	$ 102,264.7
3. Other (Mission Option)					
D. Insurances			275	$ 41,392.8	$ 41,392.8
1. HAC for U.S.			275	$ 41,392.8	$ 41,392.8
2. Required by Institution					
3. Other (Mission Option)					
E. Supplemental Activities			175	$ 17,044.1	$ 17,044.1
1. ELT, In-Country					
2. ELT, U.S.					
3. Academic Up-Grade					
4. Reception Services			175	$ 3,408.8	$ 3,408.8
5. MIC Orientation					
6. Other Orientation			175	$ 6,817.6	$ 6,817.6
7. Interpreters/Escorts					
8. Internship/Cooperative					
9. Enrichment Program					

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

BUDGET ESTIMATE WORKSHEET: Summary
Training Cost Analysis (TCA)
** SEE "Instructions: Budget Estimate Worksheet - Summary" **

[X] ACADEMIC
[X] TECHNICAL

PROJECT NUMBER	COMMENTS
936-5734.	

I. PARTICIPANT COST - SUMMARY

PROGRAM CATEGORIES/TRAINING ACTIVITIES	ACADEMIC Number of Participants	ACADEMIC TRAINING Item Cost	TECHNICAL Number of Participants	TECHNICAL TRAINING Item Cost	LINE TOTAL
10. Mid-Winter Community Seminars					
11. Follow-Up/Career Development	30	$ 1,153.7	235	$ 9,110.1	$ 10,263.9
12. Other (Mission Option)					

TOTAL PARTICIPANT COSTS (A + B + C + D + E) = $ 2,650,806.2

* Units are standard measures for the cost element (e.g., participants, participant weeks, etc.)

Project name : Energy Training Project
Est. Completion : FY 1991
Date of Revision: Nov.1991
Design Team : R&D/EIN

Narrative Summary (NS)	Measureable Indicators (OVI)	Means of Verification (MOV)	Important Assumptions
Goal: 1 To expand LDC technical skills to identify, explore, and use a broad range of energy resources, conventional and renewable, for productive use and economic development.	1.1 Placement of high number of successfully trained participants into positions in which skills and techniques acquired in training make a positive contribution to host country and AID energy-related development programs and economic activities. 1.2 LDC energy policy incorporates renewable generation technology	1.1 Contractor records of back-placement of participants. 1.2 AID project records. 1.3 LDC and Alumni Association records. 1.4 Project evaluations in FY 93 and FY 96	(Goal to Supergoal) 1 LDC Ministries, parastatals and private concerns will hire and/or retain personnel trained in energy resource development, utilization and related energy policy. 2 Trained personnel will be in positions in which they can effect policy decisions related to energy and environment.
Purpose: 1 To provide targeted training to LDC personnel in energy resource fields identification, exploration, production and use.	1.1 Trained technicians and decision makers remain engaged in relevant jobs for at least one year after training. 1.2 LDC energy ministries respond positively to environmental concerns of their legislature 1.3 LDC energy planning anticipates future economic development needs.	1.1 AID and contractor's records based on follow-up activities for returned participants. 1.2 Contractor's reports and Project Manager's Annual Report. 1.3 Appropriate LDC ministry and private sector records. 1.4 Academic and industry host training records	(Purpose to Goal) 1 Trained participants will return to host institutions and be able to employ skills gained through ETP courses. 2 Political receptivity to energy training in LDCs. 3 LDCs willing to invest resources.
Outputs: 1 Trained personnel in non-academic energy specific areas in project design, implementation, management, supervision, energy plant operation & maintenance, pricing, analysis and evaluation in public and private sector concerns. Personnel trained in academic programs as requested & funded by Missions & LDC public & private institutions. 2 Manpower assessments and human resource management systems evaluated. 3 Regional and national	1.1 Up to 4000 LDC professionals trained (2400 funded by R&D and an additional 1600 through buy-ins.) 3200 in short courses, 160 in energy institutes, 340 in internships, 100 in academic degree programs, 200 in special programs. 2.1 Up to 12 country assessments completed. 3.1 Multi-media equipment &	1.1 Contractor's periodic reports. Maintenance of data base on program statistics. 2.1 AID, contractor, LDC records and evaluations summaries. 3.1 On-site visits by	(Output to Purpose) 1 Project, through the implementing contractor, will take adequate steps to ensure that trainees have energy related employment commitments prior to engagement in training. 2 Sufficient number of training candidates exist with adequate prerequisites of skills, language, and secured relevant employment. 3 U.S. schools and training

learning resource centers established to provide technical training, library facilities and information exchange.	materials supplied, including personal computers, training software, energy-related books, periodicals & serials. Technical support system established.	contractor and local AID mission staff.	institutions assess and modify curriculum regularly to be relevant.
4 Alumni organizations developed on a regional and in-country basis.	4.1 Newsletters, training seminars, special programs, and forums for information exchange.	4.1 Alumni correspondence; annual report by Project Manager.	4 Alumni support and participate in activities and initiate programs regionally and in country based on interest and needs.
Activities: 1.1 Training 2.1 Institutional Development 3.1 Dissemination 4.1 Networking 4.2 Studies & Technical Assistance	Inputs/Resources: Administrative Cost 4,640 Salaries 4,140 Travel 500 Other 1,085 Training 22,872 Studies 580 Evaluation 400 Total $29,577	1.1 Annual work plans of management entity. 2.1 Curriculum Summary by Training Contractor 3.1 Travel Request Forms & Trip Reports. 4.1 Management Entity Invoices	(Activity to Output) 1 LDCs recruit technically prepared or qualified operations personnel 2 Appointed decision makers are receptive to environmental issues and skilled at managing ideas and programs 3 Field missions identify and nominate appropriate positioned participants. 4

USAID

U.S. AGENCY FOR
INTERNATIONAL
DEVELOPMENT

JAN 2 9 1992

ACTION MEMORANDUM FOR THE DIRECTOR OF THE OFFICE OF ENERGY AND INFRASTRUCTURE, BUREAU OF RESEARCH AND DEVELOPMENT

FROM: R&D/EI, Shirley Toth

SUBJECT: Authorization of Amendment for Energy Training Project (ETP) (Project Number: 936-5734)

PROBLEM: Your authorization is requested for Amendment 2 of the Energy Training Project, 936-5734. The centrally-funded Energy Training Project was authorized on March 4, 1987, for use of Section 106 funds, although Section(s) 106 and 103 were approved in the Congressional Notification and in the Project Data Sheet when the project was designed. The project was further amended on August 25, 1987, to increase the level-of-effort from $15,000,000 to $22,000,000, but not amended to include the Section 103 account; therefore, your authorization is requested to amend the project as specified below and to ratify and confirm the use of the Section 103 account:

a. to change the PACD from 9/30/92 to 8/25/97;
b. to ratify and confirm actions taken under this project with respect to funds from Section 103 account;
c. to increase the authorized centrally-funded LOP cost from $22,000,000 to $29,577,000 from Section 103 and Section 106 account(s).

Your approval is also requested to add other participatory financing arrangements for buy-ins other than R&D. Such funding may also be provided from the Economic Support Fund (ESF) or the Development Fund for Africa (DFA). as well as from the accounts authorized under this project.

DISCUSSION: On March 4, 1987, Nyle Brady authorized the design of a five-year, $15,000,000, centrally-funded Energy Training Project (ETP). ETP was then amended on August 25, 1987, and approved by Nyle Brady to increase the level-of-effort from $15,000,000 to $22,000,000.

This project is being further amended to continue to respond to the energy training needs of the less developed countries and the expressed interest of the A.I.D. Missions and the Congress. During the initial five-year phase of the project, some 1525 trainees successfully completed academic, in-service, and industry fellowship programs to increase technical competence in both the conventional and renewable energy fields. Based on an extensive evaluation of the original project, the primary changes are to

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increase emphasis within the training program on implementation of learned skills by participants in the home country and to increase emphasis on knowledge of the environmental impact of the energy sector. Increases in the project costs are requested to facilitate the development of new courses on energy and the environment that will build on the successful curriculum of the original training program. This will be accomplished by funding targeted training that will help build technical, managerial, research and institutional capabilities for an expanded target group of 3194 participants by 1996. The primary focus of the ETP will be to continue to augment the benefits of energy projects which are financed by A.I.D. and to complement and follow on the activities of other A.I.D. energy sector projects. The ETP design promotes the integration of other A.I.D. energy sector activities in an efficient and coherent fashion. ETP supports R&D, Mission, and Regional Bureau energy plans and activities, as well as the policy reform, private sector institution building, technology transfer pillars of A.I.D.'s development strategy, and the Agency's efforts to combat the global warming trend.

On December 12, 1991, a draft of the amended project paper was sent to all the Regional Bureaus and the R&D/EI staff for their review/comments/approval by December 27, 1991. Only the NE/DR/EPS Bureau has responded, and their comments have been incorporated into the amended paper. A copy of the December 12 memorandum is attached, along with the NE/DR/EPS Bureau's comments (Attachment 2). In addition, the amended project paper was sent to Thomas Stephens in the Procurement Office for their approval of the implementation plan, FA/PO/B/PCE's approval is attached (Attachment 3).

PROJECT ISSUES:

SPECIAL INTEREST IN THE PROJECT: The project is responsive to the Congressional mandate provided in the November 1989 House of Representative Report 101-344, and supports the intent of Section 533 (c) (4) of the FY 1991 Appropriations Act.

WAIVERS, SPECIAL CLEARANCE, PROVISIONS AND DETERMINATION: No waivers or other special conditions are requested at this time.

CONGRESSIONAL NOTIFICATION: Substantive Notification required since the planned LOP Costs now exceed the approved amount and the PACD is extended by five years.

PROCUREMENT PLAN AND BUDGET: The project will be implemented by competitive contract bid in FY 1992. The FY 1992 budget is $2,800,000: $900,000 in Section 106 and $1,900,000 in Section 103 funds.

RECOMMENDATION: That you approve the amended Energy Training Project by signing the attached Project Amendment Number 2 and the Project Data Sheet (Attachment 1). In addition, it is requested that you sign the Women in Development determination (Annex D) and

the Environmental Threshold determination (Annex E).

Clearance:

R&D/EI: A. Sabadell Date: 1/27/92
R&D/PO: D. Sheldon Date: 2/7/92
GC/R&D: G. Winter (draft) Date: 1/27/92

Attachments:
1. Project Amendment Number 2
   and Project Data Sheet with
   Amended Project Paper
2. Memorandum of December 12
   with comments from Bureau
3. FA/PO/B/PCE Approval

Drafter: R&D/EI: Shirley Toth/X54057/1/27/92

PROJECT AUTHORIZATION AMENDMENT NUMBER 2

Name of Project: Energy Training Project

Number of Project: 936-5734

Country: Worldwide

1. Pursuant to Section 106 of the Foreign Assistance Act of 1961, as amended, the Energy Training Project was authorized on March 4, 1987 and amended on August 25, 1987. The authorization is hereby further amended as follows:

a. The authorized centrally-funded life-of-project funding is increased from $15,000,000 to $29,577,000.

b. The final obligation year is changed from FY 1991 to 1996.

c. The PACD is changed from September 30, 1992 to August 25, 1997.

d. Actions under this project heretofore taken with respect to funds from the Section 103 account are ratified and confirmed.

e. Funds authorized under Section 103 and Section 106 may be used without regard to previously authorized dollar limits for each appropriation so long as the total authorization of $29,577,000 for the project is not exceeded.

f. The use of funds from the Economic Support Fund (ESF) account and from the Development Fund for Africa (DFA) for this project is hereby approved.

2. The authorization cited above remains in force except as hereby amended.

Signature _____
James B. Sullivan
Director
Office of Energy
and Infrastructure
Bureau for Research
and Development

Date 2/10/92

Clearances:

R&D/EI: A.Sabadell _____ Date: 1-27-92
R&D/PO: D.Sheldon _____ Date: 2/7/92
GC/R&D: G.Winter (draft) Date: 1/27/92

Drafter:R&D/EI:Shirley Toth/X54057/1/27/92