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U.S. Agency for International Development (AID)
Bureau for Science and Technology (S&T)
Office of Energy (EY)

EVALUATION
OF THE
CONVENTIONAL ENERGY TRAINING PROJECT
(CETP)

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1.0 CONCLUSIONS AND RECOMMENDATIONS

The evaluation team feels that it is premature to evaluate the impact of this project at the present time. Relatively few participants have returned home; and for those that have, there has been little time in which to make use of their training. Furthermore, it was not possible within the time allotted and resources available to make an exhaustive evaluation. Nevertheless, a good understanding of the status of the program has been developed.

The CETP is a well-conceived project that can contribute materially to the needs of less-developed countries (LDC), and can provide significant long-term commercial and political benefit to the United States. Its performance to date is considered highly satisfactory. The major issues that need to be addressed are indicated below.

1.1 General

- The project has tried to meet the multi-faceted requirements for trained personnel in courses of both a general and specialized nature. There should be further study to determine the relative priority of the different types of activities; although it appears that the present balance between academic and non-academic programs is appropriate.

While the first priority should be given to continuing to place participants into existing courses, CETP should also continue to initiate new courses where gaps in existing U.S. training opportunities exist for those fields where developing countries are most in need. Given the rapid development of new national petroleum agencies to handle newly discovered resources, and given the current financial status of many LDC's power utilities, the planned CETP courses in petroleum industry economics, utility financial management, energy project design, etc., and gas distribution management are very appropriate and should be funded. Regional bureaus and USAID missions should be consulted about priorities among these, and the extent to which existing mission project/training funds could be used to support participant financing.

- The program should wherever possible include internships/visits/demonstrations of U.S. manufacturers' hardware related to participant's interest. Interns particularly should have an opportunity for fairly extensive exposure to U.S. manufacturers, A&E firms, and other organizations that could provide future services to the intern's country. In the case of the academic program, which is limited to two years duration, these visits could be organized to take place during the university vacation periods.

- Although it was not an original objective of the program, a new objective should be the development of indigenous training capacity in LDCs. Close cooperation needs to be established between the CETP and regional organizations engaged in energy training, such as OLADE (Latin American Organization for Energy Development) in Latin America. Courses at local regional training centers, rather than bringing all students to the U.S., should be considered.
- Provision should be made for a continuing exchange of information with international organizations and bilateral donors for the purpose of coordination of existing and planned activities to the maximum extent possible.
- The contribution of companies participating in internship programs should be recognized by some formal mechanism, such as a formal certificate of recognition signed by the Administrator of AID; or an invitation to attend a function given by the Embassy of the intern's country. The prospective U.S. private companies accepting interns should be aware that the experience is practically one-way; only in cases of exceptional individuals can participants be expected to make a real contribution.

1.2 Institute for International Education

- The staff of the Institute for International Education (IIE) is clearly dedicated to the success of the project, and overall has been quite effective in managing the project within the resources available in a cost-effective manner. The IIE should be continued as the administrator of this project.
- IIE should monitor more carefully the progress of the participants. Better record keeping of all activities is required. Ideally, all basic information on participants should be recorded on computer for easy retrieval. While this is already done for some basic information (name, field of study, university, etc.) and for financial accounting, it should be expanded to serve as a file of notes of phone conversations, grade reports, etc.
- IIE staff should establish mechanisms to implement and document in writing evaluations of all courses, and evaluation of all participants' performance. For course administrators, these requirements should be built into their statements of work, including sending copies to IIE. This documentation should be kept on file at IIE and forwarded to S&T/EY upon termination of the project or as otherwise directed.
- Exit interviews need to be strengthened. Written report of exit interviews, including description of particular problems experienced during training should be strictly enforced, and should be provided to S&T/EY.

-- While IIE has sent one letter to past participants requesting follow up information, better questionnaires need to be developed based on a formal evaluation plan. The questionnaire could be developed for use by USAID Mission staff during follow-up interviews with participants and supervisors. Data obtained from the recent mailing is unlikely to be in a form which can easily be analyzed. It would also be useful for IIE to attempt to develop procedures to ensure that participants can be tracked overtime as they move among jobs. IIE's New York office has a research section that does this for other programs which should be able to provide the technical support required for this effort. If IIE cannot, then a special consultant should be asked to develop these procedures.

-- To date IIE and S&T/EY have made only limited efforts to inform AID Missions and energy institutions in AID countries about the wide range of training opportunities available under this program. Such information would be especially useful concerning specialized short-term training opportunities. During the next year, IIE should attempt to develop a brochure or catalog describing the range of short courses available, and the prerequisite of each. In addition, it would be helpful for missions to see a listing of some of the universities and degree programs available to participants under this program. ✓

The evaluation team recognizes that this task would require funds and/or staff resources beyond those currently available in the IIE contract budget.

-- IIE should develop a mechanism to regularly (e.g., quarterly) keep Regional Bureau energy advisors apprised of the status and whereabouts of participants in ongoing U.S. training. Whenever possible, participants should be brought to AID/Washington (AID/W) offices midway thru the course or enroute home at the end of their training to meet with S&T/EY and Regional Bureau energy advisors.] *

-- Given the need to select from among a growing pool of qualified academic applicants, application deadlines must be more strictly enforced. Missions need to know that these deadlines are firm; that all test scores should be strictly enforced before application is accepted; and that all forms must be submitted by a certain date if a candidate is to be considered.

-- The IIE staff should be encouraged to take full advantage of the services available from IIE in New York. For example, the IIE staff should review the information sent to Fulbright Centers Overseas which apparently contains considerable information on the kinds of prerequisite courses required of applicants to specific degree programs and detailed information on procedures for taking the Graduate Record and Test of English as Foreign Language (TOEFL) exams.

- CETP should in the future rigorously limit the instances of training being provided to junior country staff who have not yet even worked for their employer and whose employment is contingent upon CETP training. This practice has resulted in applications by persons who may not use their training in employment with a sponsoring employer. This practice should be avoided in the future, with the exception being for staff of new agencies from countries with very limited pools of technically trained manpower.

1.3 AID/W

- The reduced funding for CETP limits the effectiveness of the project, and creates a potential source of embarrassment for the U.S. vis-a-vis third world countries. The Advisory Committee members have indicated that they would like to be able to make an impact on future funding decisions and are working towards that goal. S&T/EY should direct its best efforts to budget restoration.
- Notwithstanding the present limited budget conditions, IIE's staff should be increased by at least one member; even at the expense of a few training slots per year.
- A CETP Support Group consisting of S&T/EY conventional energy specialists, and the energy officers in the Regional Bureaus should be established. The functions of this group, which could be performed whenever they travel, would be:
 - o To ensure adequate exchange of information between AID/W and Missions about training activities.
 - o To meet with past participants, current applicants and their supervisors. The results of the interviews should be recorded for later use during evaluation.
 - o To make formal presentations to host country senior-level policy makers and universities, to familiarize them with energy training issues.
- Additional effort should be placed on obtaining a better representation of participants from Central and South American and French speaking countries.
- Through CETP, energy sector training needs assessments should be developed in collaboration with host country governments, USAID Missions, private sector and Regional Bureaus. CETP staff or consultants should be used as appropriate, in coordination with other S&T/EY training program staffs. ✓
- Develop more efficient means of handling routine communications between IIE and AID missions.

1.4 Final Recommendation

The evaluation findings were reviewed by the team, and notwithstanding the issues referred to above, it was concluded that a sound basis exists for continuation and full funding of this program at the originally authorized level. Therefore, the evaluation team recommends that the program be extended for at least two more years, with a thorough program review, including field evaluation, in mid-1985. A proper budget for this evaluation should be established well in advance.

2.0 INTRODUCTION

2.1 Background

In early 1981, AID began implementing the Conventional Energy Training Project (CETP), whose purpose is "to provide less developed countries (LDC) participants with M.S. degrees, in-service and industry fellowships in science and engineering fields related to conventional energy" and whose larger goal is "to increase the technical competence in developing countries to explore for and exploit conventional energy resources." The project was formulated in direct response to a Congressional directive, in Section 106 of the Foreign Assistance Act as amended in 1979, to "furnish assistance...for energy programs involving research on and development of...energy sources.... Such assistance may include...the training of skilled personnel...."

For purposes of the project, the term "conventional energy" is defined to include fossil fuels (oil, gas, and coal), electricity in all forms except nuclear, fossil-based synthetic fuels (principally oil shale), and geothermal. All phases of the fuel cycle are included -- exploration, development, production, conversion, transport, storage and consumption. Training related to energy consumption is generally limited to training in energy efficiency and conservation, with an emphasis on industry and the electric power sector. Science and engineering fields predominate in the areas of training provided, but the social sciences and inter-disciplinary studies encompassing the broad field of energy planning and management are also included.

While the (AID) Project Paper (PP) anticipated a five-year program beginning in FY 80, the project was not authorized until FY 81 and then only for an initial two-year period, with the expectation that it would be re-authorized for FY 83 through FY 86, assuming the results of an evaluation carried out after the first two years indicated that a re-authorization was appropriate. Thus, the current evaluation is intended to serve as the principal input to the decision of the Agency Director for Energy and Natural Resources, which will be taken with the advice and counsel of the AID Energy Sector Council, on continuation of the project.

2.2 Evaluation team

The evaluation team consisted of the following individuals:

James A. Bever; AID, Bureau for Near East, Office of Technical Support (NE/TECH)

Miles A. Greenbaum; DOE, Office of Technical Coordination, Fossil Energy

Patricia Koshel; AID, Bureau for Science and Technology, Office of Energy (ST/EY)

Alberto J. Sabadell; AID, Bureau for Science and Technology, Office of Energy (ST/EY); Team Leader

Each team member covered a specific evaluation subject while maintaining close coordination with other members' activities. This report is the integrated result of the team's effort.

2.3 Purpose and Scope of the Evaluation

There were two basic objectives to this evaluation:

1. To review the accomplishments and impacts realized by the CETP to date.
2. To review the performance of the contractor, the Institute of International Education (IIE).

It must be noted that the evaluation team believes that it is premature to attempt to evaluate the impacts of this project. The individuals trained through CETP cannot be expected to take their training back to their country, apply their new knowledge, and show results of that implementation all within the space of one year. The impact of this project will be felt only as those students mature in their respective positions, as they are promoted to positions of more authority, and as they move into areas in their governments where they themselves can have impact on policy and operation. It would not be unreasonable to expect this process to take from five to ten years. Further, the evaluation of such impact would require direct communications with the program graduates after they have been back on their jobs for several years; a criterion which obviously is not met now.

This evaluation does, however, provide a representative picture of the present status of the CETP.

2.4 General Approach

Data generated for this report was developed through a number of channels, including: review of S&T/EY and IIE project documentation, both project-general and participant-specific; interviews with S&T/EY and IIE

(Washington and New York) staff; telephone interviews with members of the Advisory Committee; personal and telephone interviews with participants; personal and telephone interviews with participants' advisors; and personal and telephone interviews with senior members of the European Economic Commission, the International Energy Agency and the World Bank.

This report is structured to address in separate sections the different aspects concerning the project. Each section relates major findings and pertinent comments.

The draft report was given to IIE for review. The comments received from IIE are incorporated in Attachment 1.

3.0 NON-ACADEMIC PROGRAMS

3.1 Short Courses

3.1.1 Description

The CETP short courses can generally be divided into four categories:

a) Existing Courses These existing courses, in general, last from one to four months. Generally, the course sponsors do their own advertisement and promotion (although not necessarily widely overseas). Usually, CETP participants make up only a minority of the class.

b) CETP-Initiated Courses These courses are initiated by CETP to meet special training needs in fields where existing courses do not provide the appropriate curriculum. CETP actively promotes these courses by announcements/brochures, etc. to USAID Missions and by occasional field visits.

c) Custom-Made Courses Based on USAID Mission requests, CETP has also on occasion put together specialized programs for individual participants, usually consisting of a series of various existing short-courses of a few weeks to a few months each in length.

d) Study Tours On an exceptional basis, CETP has been asked to organize study tours for special senior level participants.

Since CETP began, over 80 participants from more than 25 countries have already completed training in eight different short-course fields, including already existing short-courses in subjects ranging from electric power to petroleum management and a new CETP-initiated industrial energy conservation course. In addition, over 25 additional participants from six

countries are now being trained in a CETP-initiated new course on fundamentals of petroleum geology, engineering, economics, and geophysical exploration. Furthermore, two upcoming CETP-initiated courses have been announced for Summer/Fall 1983 in the areas of, a) industrial energy conservation (revised) and (b) power systems management (combined with follow-on internships) for between 20-30 participants each. Finally, the following new CETP-initiated short courses are planned but await implementation pending additional funding: economics of the petroleum industry; financial management of utilities; energy project identification, design, evaluation, financing preparation and quality control; and gas distribution management.

3.1.2 Documentation Consulted and Interviews

The following documentation was consulted in evaluating the short-course activities of CETP: CETP progress reports for 1982 and 1983 and course descriptions for most of the short courses.

Course evaluations by participants were reviewed for the A.D. Little Petroleum Management Course (1982), the Natational Rural Electric Cooperative Association/University of Missouri at Rolla (NRECA/UMR) Rural Electrification Course (Winter 1983) and the U. of Tennessee Industrial Energy Conservation Course (1982). Although these evaluations only represent 3 of the 8 courses completed under CETP, they are representative of the courses attended by 1/2 of the 83 participants. A course evaluation by the lecturers themselves and by the IIE staff and S&T/EY staff was reviewed for the latter course, only. No course evaluations were available for review for any of the other courses.

No written evaluations of any of the participant's performances in the short-courses were available for review. A.D. Little does have documentation on the participants in the 1981 and 1982 courses, including some individual and group case studies, exercises, etc. and apparently exam(s), as well, which A.D. Little said it would make available for the CETP group as an average vis-a-vis other trainees, if needed. The International Petroleum Consulting Services (IPCS) Course currently in progress is giving weekly exams, but as it has only recently begun, these scores were not reviewed.

Interviews were held either in person or by telephone with CETP staff; administrators of those courses which combined cover 90 percent of the short-course participants so far; and all AID Regional Bureau energy advisors.

No interviews with participants who have completed short-courses were possible because they have already returned home. Interviews with participants in the ongoing IPCS Petroleum Fundamentals course were not held because the course only recently began. No effort was made, given time constraints, for contacting short-course alumni back home, their supervisors, or the relevant individual USAID Mission energy or training officers.

3.1.3 Evaluation Findings

a) Knowledge of Conventional Energy (Non-Degree) Training Program Availability

The IIE staff appears to be very knowledgeable about existing non-degree training activities in the U.S., in conventional energy fields. The IIE staff has actively sought out information on such activities, through surveys, letters, phone interviews, organizing special meetings (e.g., of petroleum corporations), visits, literature reviews, professional affiliations, directories and participation in a variety of conferences and professional workshops, etc. In fact, IIE may well now have the best compendium of such activities available and where in the U.S., and regularly updates it. However, staff limitations have prevented IIE from editing and publishing a compendium.

b) Matching of Interests

By consulting the administrators of such programs, the curricula, alumni, and peer reviews and by evaluating training needs and background of participants presented by USAID Missions, IIE determines the appropriateness of these existing programs for its LDC participants. Usually the participants, the USAID Mission and/or the participants' supervisors are given a chance to consider the appropriateness of a given course.

c) Establishment of New Courses

Apparent gaps in available training in the U.S. for CETP's LDC participants have been identified by IIE in those areas already discussed in sub-section 3.1.1.--specifically in the areas of industrial energy conservation, petroleum fundamentals, utility financial management, gas distribution management, petroleum industry economics, and energy project design and development, etc., IIE has sought to fill these gaps with its own initiated courses in these areas as carried out by a variety of contractors. The 1982 U. of Tennessee, Knoxville, Industrial Energy Conservation course is the only completed course of this "CETP-initiated" category. As a result of extremely rigorous internal IIE and S&T/EY review of the course and its administrator, the IIE staff have appeared to put into practice the "lessons learned" about commissioning courses, curricula development, and locating institutions to conduct them. So far, the IPCS course seems to be going well, and IIE has effectively commissioned two new courses for Summer/Fall 1983: a revised industrial energy conservation course and a power systems management course.

3.1.4 General Comments

Following are general comments and observations based on above findings:

a) Courses

All the short-courses reviewed were judged to be high quality successes in terms of content, management, delivery and appropriateness to participants' training needs, with the sole exception of the U. of Tennessee Knoxville course. That course, as noted previously, was the

first generation of CETP's "initiated" courses. Although some parts of that course were very well received, in general it suffered from many of the problems of any first generation effort: communication problems between institutions involved, administrative problems, lack of adequate coherency and continuity of curricula, inappropriateness of course material content and level of sophistication, and inadequate preparation for field visits. However, as noted previously, both the IIE and S&T/EY staff learned a great deal from this experience and have applied these lessons to the next generation of CETP initiated courses and have also re-designed the industrial energy conservation course, to emphasize practical "hands-on" training and to be commissioned at TVA where it is expected that management problems which plagued the first generation course will be avoided. The IIE and S&T/EY staffs are to be commended for their swift and effective handling of these problems and application of "lessons learned."

b) Participants

In general, the CETP participants were well chosen and well prepared on the basis of experience, technical training and English language to benefit from the short-courses given, in the opinion of the course administrators. Relative to other trainees, in the mixed courses, CETP participants on the whole performed as well as the others and in numerous individual cases were exceptionally motivated students, according to the oral recollections of course administrators.

c) Institutional

With the sole exception of those affiliated with the U. of Tennessee Knoxville course, the course administrators, IIE and S&T/EY staffs all expressed very good working relations with one another, and in general the course administrators rated IIE staff highly motivated, hard-working and effective.

IIE staff noted that as much as they would like to continue to be responsive to S&T/EY or USAID Mission initiated study tour requests, these required significant staff and budget resources which could only continue to be done at the expense of good program administration and other activities budgets.

The IIE staff also noted some new initiatives over the past year including the interest of some USAID Missions in having CETP organize training courses/programs on a country-specific basis, (using Mission or Bureau funds), and having CETP's course administrators give brief technical seminars in a number of countries, in an effort to simultaneously assist CETP in evaluation of candidates.

IIE staff noted that their outreach to the energy sectors could be even greater if project material was distributed directly to their list of LDC energy officials. To address this opportunity, IIE should include their recommended distribution list for each country along with the mailings of materials to/through the USAID Mission.

IIE staff added that some of the USAID Missions sometimes submit incomplete candidate credentials or poor quality or inappropriate candidates; make promises about funding commitments, etc., that cannot be kept by CETP; misread cables on CETP -- it should be noted none of these problems are peculiar to CETP, however. IIE staff agreed that more USAID Missions should prepare (with their host governments) a national energy sector training strategy/plan or related conceptual framework, which would help establish training needs.

IIE staff have investigated trying to find some mechanisms for dealing with the relatively low participation of Latin American and French speaking African countries in its programs. IIE participated in a recent Economic Community of West African States (ECOWAS) energy workshop and has been considering bi-lingual consultants for some training activity in French to be responsive to needs in this area of the world where English language training is weakest.

Finally, the Project Paper expected ten people would be needed to manage CETP's activities at the originally authorized budget level, and although the activities have continued relatively close to what was anticipated, IIE's staff has been kept at about half the number originally estimated. This explains why evaluations, outreach, and monitoring, have not been carried out at optimal levels.

d) Regional Bureaus

As for the Regional Bureau energy advisors' comments, the most general is that on the whole there has been general satisfaction with the CETP short-courses and that IIE staff and S&T/EY have been very responsive to USAID Mission requests for short-course and specialized training. One Bureau advisor noted problems with locating and monitoring of internship training in national energy planning for participants from one of its countries. Two Bureau advisors noted the need for IIE to better monitor participants in all its activities (academic, short-course, internships).

Advisors in all of the Bureaus agreed that if increasing IIE's staff would allow it to better monitor participants while in the U.S., this should be done even at the expense of a few short-course or internship training slots or one or two academic slots per year, then that would still be a good investment and an acceptable trade-off.

e) Alumni Follow-up

There appeared to be a general concern with the need to "follow up" with short-course alumni by keeping these alumni: a) in touch with each other, b) informed of advances in the field, and c) informed of new courses they, their colleagues, staff or supervisors, would find of interest, and in order to assess alumni use of their training and suggestions how to improve the courses. Some course administrators appeared to keep touch annually with almost all of their alumni through their own letters, newsletters and visits, while other course administrators had only ad-hoc

follow-up. There is no written documentation on the extent to which IIE staff had followed up with most short course alumni, although there have been numerous letters exchanged, regular contact between some alumni and USAID Mission energy project officers, and interviews with alumni whenever possible during IIE field visits. The Project Paper stated "the contractor will develop procedures to determine if Energy Fellows have indeed been placed in positions where they further the conventional energy programs of their countries" (p. 35) and "the contractor will establish a system to keep track of Energy Fellows' careers" (p. 21). Except for informal procedures and an informal system, it appears the contractor has not yet established a written, documentable system for such follow-up which can serve as a useful mechanism to verify that CETP keeps track of its alumni, their promotions and activities, and their feedback on CETP after some time back on the job. This will become increasingly important as time goes on, and when CETP is evaluated again.

f) Documentation

There appeared generally to be a dearth of documentation in writing about, a) the performance of the participants in the course, evidence of work products, exams, individual or group projects, case studies or exercises, etc.; b) how the CETP participants perform vis-a-vis other trainees; and c) exit interviews held with participants in the short courses. Although some CETP course administrators and IIE staff have some such documentation, it is neither easily nor readily obtainable, or in the case of IPCS is only beginning. This is not to say that course administrators and IIE staff have not been concerned with performance of CETP participants (and their viewpoints). Remarkably, most course administrators recalled details orally on many of the individual participants in their courses(s) and IIE staff appeared to have had interviews of some nature with many or possibly most short-course participants through visits to the courses in session, exit interviews, etc. But as time goes on and only the exceptional participants remain in people's memories, the need for some brief, succinct written summary of each participant's performance will become more important -- especially when CETP is evaluated again.

g) Private Sector Involvement

The IIE staff have succeeded in involving the U.S. private sector in key aspects of its short-course activities. These have included the placement of participants into established private sector courses (A.D. Little, Westinghouse), the commissioning of private sector firms to give CETP-initiated courses (IPCS), the cooperation of private sector (e.g., petroleum corporations) in placing non-academic trainees, the involvement of private sector individuals as lecturers in short-courses, discounts/cost-sharing for tuition in one private sector course, and the involvement of private sector firms as hosts for field trips. This private sector involvement is clearly planned by CETP to increase, as evidenced by the subject matter, curricula and some of the administrators for the four pending CETP-initiated courses awaiting additional funding before they can be initiated.

3.2 Internships

3.2.1 Introduction

The intern program appears to have the greatest potential for near-term impact. The participants chosen are usually relatively senior in their respective governments, and are sufficiently mature to understand how to operate effectively in their own political environment. The training that they receive is generally specific to their needs, and more operational in nature than the theoretical training in academic institutions, thereby making transfer somewhat easier. Unfortunately, it is also the most costly technique among the CETP programs. The tradeoff analysis of value versus cost has not been done and, indeed, it may not be possible at present to do other than simply indicate an awareness that this is an issue.

There are two types of internships that have been investigated as part of this evaluation: internships at universities, and internships at industrial firms (to include utilities, etc.). University internships approach a Master's program, except that the participants are not required to meet specific course requirements and do not receive a degree. However, a final evaluation should be required from the advisor. The program is developed at the university to attempt to provide exposure to information beyond the academic (e.g., field trips and participation in symposia).

Industrial internships appear to provide the students generally the information they require, although one intern was interviewed who felt his exposure was too limited, and that he did not get as much out of the program that he could have. This student did not convey his reservations to IIE until the completion of his internship, however, thus making it impossible for the contractor to modify his specific program.

3.2.2 Participant Interviews

The interns interviewed as part of this evaluation were all dedicated, enthusiastic individuals. They all felt that the training they were receiving would make them much better able to serve their countries. They apparently did get, and are getting, the specific knowledge for which they came. Their only criticisms had to do with two items:

First, the cultural transition was extremely difficult, particularly for those going to an industrial firm. For those interns being placed at a university, the transition was easier because of the student housing and transportation, food and laundry services, and the proximity of other foreign-born participants. With an industrial firm, however, housing and transportation were much more of a problem, requiring considerable effort and time on the part of their industrial contact to get the intern settled in and oriented. One way to overcome some of the cultural disorientation would be for IIE to provide a one or two-week transition time in the Washington area, teaching the new arrivals how to take care of themselves in this environment.

The other criticism received from all interns interviewed was inadequate contact with U.S. manufacturers. They want to know what is available, and how to obtain access. These interns are generally senior people, and want to be able to apply what they have learned. Technology generally implies products and services; these interns need to have a better idea about where and how these products and services can be obtained.

The contractor is doing an excellent job in placing and servicing these interns. Although no formal mechanism exists for identifying host industrial firms, the contractor has been able to obtain sufficient commitments from enough companies to assure that the needs of all interns chosen will be met. In the case of those interns whose placement proved unsatisfactory, the contractor was able to get them reassigned within a matter of days. In general, all reasonable needs of interns have been met.

Once the interns arrive in the U.S., IIE takes responsibility, and the system appears to flow smoothly. Before they arrive, however, the system is somewhat slower. It takes about one year from the time the individual is proposed by his government until he is notified of his acceptance.

3.2.3 Industry Interviews

From the point of view of the industrial firms that have accepted interns, the program is less than a complete success. One of the "selling points" of the program is that it provides the company with another competent worker to use on their projects; that the individual would contribute while he was learning. In actual fact, in the great majority of firms interviewed, the experience was strictly one-way. They provided extensive learning experiences for the participant, but were never able to use him for their own work. By the time he was trained in their operation and procedures, it was time for him to return to his own country.

Interestingly, no company expressed dissatisfaction with this one-way transfer. They saw it as "dues" that they felt obliged to pay as our responsibility to less developed countries. All company representatives spoken to were generally pleased with the caliber of individual they were assigned; personable, hard-working, and dedicated were terms that were frequently heard. However, it did place a drain on the company's resources and, in general, the individuals contacted were willing to repeat the experience, but only on an infrequent basis, e.g., every other year.

This is an area that should be addressed by either AID or the contractor. The company gets little (if anything) from their participation in the project. On the other hand, it costs them in terms of overhead and personnel time (plus many incidentals). It may be worth considering some sort of acknowledgement; for example, a senior official of the company could be invited to attend a function given by the Embassy of the intern's country, or could be presented with a formal certificate of appreciation signed by the Administrator of AID, etc. In any case, some sort of recognition should be contemplated.

Finally, it should be recognized that it is becoming increasingly difficult to place interns in industry due to the general economic conditions. When a company is laying off people, or has a freeze on hiring, it is unreasonable to expect them to take on a new person who ostensibly will contribute to the firm's efforts. This could be perceived as "taking a job away from a citizen," particularly when it is learned that the USAID is subsidizing his "salary and expenses." The contractor is to be complimented on the fact that, in spite of the economic conditions that prevail, they still have sufficient commitments from U.S. firms to be able to place all interns proposed.

3.3.4 Other Programs

The European Economic Commission (EEC) has had a similar project in place since 1975. The mechanisms are quite different than the CETP, however. The EEC establishes a fund for each of the LDCs in the Africa-Caribbean-Pacific area, which the individual country (or group of countries) can use for energy projects as they see fit. One aspect of the fund is its use for training in the energy area. Since its inception, over 1000 students have been through the EEC-sponsored courses. Usually, the training is in the country itself; if no appropriate training is available there, the student is brought to an appropriate institution in Europe. One of the most effective (they believe) techniques for training is the establishment of a regional training institution in the region from which the students are drawn. This tends to minimize both language and logistics problems, and may be an item for consideration by AID.

4.0 ACADEMIC PROGRAMS

The current academic program has 37 participants registered in 18 universities. Personal and telephone interviews were conducted with about 60 percent of the participants (representing 11 countries) and their faculty advisors.

4.1 Student Interviews

The participants interviewed all expressed satisfaction with the program and stated that upon returning they will be better able to serve their countries of origin. All students expressed satisfaction with the assistance received from their advisors. Some of the general criticism expressed is summarized below:

- Notification of acceptance in program and date of departure for U.S. is too short (often only one week). Some students did not receive the University information package until arrival in U.S.
- Matching of the student background and originally stated interest to the assigned area of study has been less than ideal. Not all conventional energy related courses in institution's catalog are available at all times; because of the two year limitation students have to take any

other courses available to comply with credit requirements. In other cases, the student learned of courses available upon arrival in U.S. and had to suddenly adapt to something different to what he/she thought they would be doing. As a case in point -- the Polytechnical Institute of New York (PINY) advertises an energy program; in fact, for many students only two energy courses are specifically required -- Energy Policy Issues, and Energy Resources and Conversion Technology. The CETP participants now attending PINY will receive master's degrees in economics or operations research. Since the students and their employers expected them to receive degrees in "energy management" they are somewhat disappointed. While their curriculum may be good and in fact may meet most of their training requirements, IIE should make every effort to provide clear information to the participants about program course options -- before the participants arrive in the U.S.

- Several participants indicated disappointment at not being able to participate in internships in industrial organizations in addition to academic training. These students thought it was important to acquire some form of hands-on practical experience.
- Some students requested that the orientation period be extended one more week to smooth out their socio-cultural transition. Otherwise they all expressed satisfaction with the travel and post-arrival arrangements.
- Not all students are required to write a thesis to qualify for the M.S. degree. For some of those who have to prepare a thesis, there has been a problem with the subject given by their advisor. In some cases, sometime after the initiation of the work, IIE did not accept the thesis because it was not fully responsive to the CETP objectives. This problem required extra work to establish a new approach, which has created some friction between all parties involved: student - advisor - IIE.
- In view of the two year program duration, the married students should be able to bring their immediate families. Accordingly, proper economic support should be made available.

4.2 Faculty Interviews

All institutions contacted were willing and interested in receiving CETP participants. They generally indicated that the students had proper technical background, considered them enthusiastic, and would like to have more of them. Some of the more negative comments from faculty are summarized below:

- Foreign students are an extra burden on faculty. These students have been brought up in relatively authoritarian school environments. They need more direction on the part of the faculty.

- Faculty members recognize initial language and communication difficulties, but believe that high level of interest on the part of students compensates for it.
- Two years is sufficient to complete program if knowledge of English is appropriate, otherwise an extra semester is required.
- In many cases the faculty is not clear on what is required by this program, e.g., course and/or thesis subject. The students themselves are not clear about project limitations.

4.3 General Comments

It was not possible within the time and resources available to make a comprehensive assessment of the academic program. This evaluation does, however, provide a representative picture of the present status of activities.

In general, the academic program is accomplishing the stated goals. The faculties should be complimented for their dedication in attempting to understand the participants' problems and to provide the assistance needed to complete the program within the pre-established limitations.

Based on the inputs received from the academic participants and their advisors, the following suggestions are submitted for consideration:

- The AID Missions directly or the USIA libraries, should be provided with the catalogs of the institutions being considered. Even if the catalog is somewhat outdated, the participant can have access to information needed to formulate a decision.
- Limit the number of choices in programs and Universities. Prepare and distribute a pamphlet indicating these limited choices to all Missions. The host government will also be better able to match the participant selection to the pre-established choices.
- The program constraints, including discussion of allowable courses and thesis subjects, should be clearly stated in writing, and given to each student and faculty advisor at the beginning of the program.
- To solve the problem of ready availability of conventional energy courses, consider a localized group of schools interested in coordinating this activity. Then a critical mass of students could be reached, which would help to establish the frequency of a given course.
- The minimum TOEFL scores should be established. The Missions should enforce this score as a prerequisite before applications are processed.

5.0 REVIEW OF PROJECT DOCUMENTATION

This section describes the main results of the evaluation of the documentation submitted by the ST/EY Project Officer and IIE

5.1 Project Paper (June 26, 1980)

The current CETP project operates in much the same way it was initially conceived in the Project Paper. In fact, the program appears to measure up extremely well when compared to the expectations raised in the PP especially given significant reductions in annual budgets. It is interesting to note that engineering and scientific training has been relatively less important than initially expected, with large numbers of academic participants enrolled in more general programs of training in energy management or energy resource management. There has been less "active recruitment" of participants than initially expected -- this may have caused some problems in cases where countries have submitted large numbers of applicants without providing a clear sense of the priorities attached to individual training requests or of kinds of training needed in the energy sector. The Project Paper also noted that English language training was expected to be provided under the program -- apparently now provided only to enable a student to move from 500 to 550 on the (TOEFL) exams. Finally, the PP provided for fairly extensive evaluation efforts. The work of this team has represented a lower level of effort than originally expected due to time and funding constraints externally imposed.

5.2 CETP Announcement Brochures (English, French, Spanish)

The brochures are generally attractive and eye catching. It would seem appropriate, however, to mention the AID support of the program somewhat more prominently as is the case of the brochures published by IIE for the Fulbright Program or the International Visitors Programs. A number of errors were found in both the Spanish and French versions of these brochures. Annotated copies will be made available by the team.

5.3 CETP Application Form

In general, the application form is quite adequate. Some minor improvements might be considered in subsequent printings.

- On page 1, item 8b, it would be useful to have a block specifically for short term non-academic training even though some of the short courses have their own application form.
- Item 16, might be expanded somewhat giving applicants more room to describe the kind of work they do. This might make it easier to match nominees with the training programs suited to their needs.
- A place on form for endorsement by employer. Also employer's assurance that the candidate will be released from his job responsibilities if/when accepted for CETP training.

5.4 IIE Progress Report

Only two progress reports have been submitted by IIE.

1. April 24, 1982 -- This progress report is a detailed, comprehensive summary of the CETP program including numerous tables, a report of the

Advisory Committee meeting, and the participant conference as well as other activities of the CETP staff. Many of the issues raised in the report appear to have been resolved during the last year. Two issues, however, still require more attention. One concerns the apparent lack of interest in the program from Latin America. The other concerns the desire of program participants and their employers to combine practical internship with programs of long term academic training.

2. April 29, 1983: This brief report raises a number of issues, some of which need to be resolved during the next few months -- how to cope with limited AID funding, and levels of participant stipends.

5.5 First Year Management Report (June 15, 1982)

The management report presents a clear, concise description of work undertaken by the Conventional Energy Training program and the IIE staff. Many of the implementation issues raised appear to have been resolved. The team notes that several important recommendations have not been acted upon. For example, IIE was directed to prepare a written directory of available training programs and institutions in conventional energy, to improve its procedures for matching participants with appropriate training programs and to find ways of accommodating participants whose English language capability is inadequate.

5.6 Advisory Committee Meeting Notes

The report of the first Advisory Committee meeting (April '82) was detailed in the first comprehensive IIE progress report. A report of the second meeting in La Jolla, dealt partly with the short course in energy conservation offered by the University of Tennessee and the need for more careful monitoring of such a special program. It was also suggested that CETP prepare brochures for U.S. institutions and companies who might assist in this training. It was also agreed that close participant monitoring was required.

5.7 Follow-up Letter to Participants (April 7, 1983)

This letter is not written in a form that makes it easy for participants to respond; it does not lend itself to any systematic analysis of responses and it requires no information from participants that could assure IIE of the ability to follow these participants over time -- a necessary step for any impact evaluation. IIE with advice from AID and experienced evaluators should, as soon as possible, begin to develop such an evaluation plan and to design appropriate survey instruments to collect necessary baseline information so that a comprehensive evaluation can be carried out sometime in the future (1985).

In addition to the documents mentioned above, the evaluation team reviewed participant files and other materials in IIE's Washington office; S&T/EY project files and numerous memoranda prepared by the project manager; participant budget printouts; the IIE contract proposals; a number of "exit reports"; and various other materials. All of them seemed to accomplish the desired purpose.

6.0 ADMINISTRATION - INSTITUTE OF INTERNATIONAL EDUCATION (IIE)

6.1 Description

The Washington office of IIE is largely responsible for administering the Conventional Energy Training Program. It is staffed by three professionals and two administrative assistants.

The New York headquarters office is responsible for reviewing the academic credentials of nominees for university placements. It relates degrees and grades obtained in host country universities to the requirements of U.S. universities. The New York office is also responsible for maintaining the budget for the entire program issuing stipend and allowance checks, etc.

The IIE regional offices are responsible for a limited amount of participant monitoring and in cases where there are special problems they may be heavily involved. They also assist with placement in some cases; the Houston office for example, has helped to arrange petroleum-related internships.

6.2 Relationship with AID/W

While IIE is the contractor for this program and bears most of the responsibility, most decisions on program direction as well as many smaller issues are made by the staff in the AID Office of Energy (S&T/EY). Almost all contact between the program, overseas AID missions and in turn CETP candidates is handled by telegram. All telegram traffic is reviewed and cleared by the S&T/EY project manager. Even the most routine telegram traffic is handled this way. As a result, the S&T/EY project manager is in almost daily contact with the IIE, CETP staff. This extremely close oversight on the program appears to have created some albeit apparently minor dissatisfaction on the part of the IIE staff in that according to the terms of the contract they are responsible for the program but in fact have little authority. The other and more serious problem which has resulted from this arrangement is that much of the program documentation (written reports or notes) which one would expect to find available in the IIE and S&T/EY files is not there. This is a problem not only for evaluators but also for program operations as noted in other parts of the evaluation report.

6.3 Documentation Processing

After the contract was signed with the Institute for International Education in August 1981, a general cable was sent out describing the program in detail and listing application procedures, etc. Basically, missions are requested to cable their intent to nominate participants giving their name, employment information, description of desired field of study and previous academic degrees. They are then expected to forward CETP application forms, a detailed statement of training objectives, copies of official transcripts, letters of recommendation, recent photographs, Graduate Record Examination (GRE) results and TOEFL scores.

Once this information has been received, it is reviewed by the IIE staff. Transcripts are sent to New York for review and based on their analysis the staff applies to a number of universities. In the case of non-academic participants the entire review is handled in Washington.

When students have been accepted -- a process which for academic participants can take as long as 12 months -- a call forward is issued. The amount of time between notification of admission and call forward date is often short -- less than two weeks in the case of the Kenyan participants attending PINY. They were not able to leave as early as suggested and consequently were able to attend only three days of a normal two week orientation session given for academic participants.

6.4 Participant Monitoring

After students are enrolled in universities, they appear to have little contact with IIE. They receive regular stipend and allowance checks but unless they have particular problems, they generally do not contact IIE. In principle, the IIE regional offices are expected to monitor participants and a representative of the Washington staff has visited about 22 academic participants in 13 universities. Student advisors in a few instances have talked with IIE staff regarding funding for field trips, etc., but in general there appears to be little regular contact. This is not necessarily a serious problem, however, since most participants felt that IIE was generally responsive to their needs.

The academic students are required to send copies of grade reports and enrollment information to the IIE staff each semester.

All academic students and interns are required to come to Washington at the conclusion of their program for exit interviews. While the information collected is presumably of value to the IIE staff, comprehensive written reports are not prepared by the staff following these interviews.

Participants in the short courses fill out end of program evaluation forms, but it is not clear how this information is used by the IIE staff.

A number of CETP participants have complained to members of the evaluation team and to IIE about the inadequacy of their stipend and allowances. This appears to be a particular problem for those participants living in New York City or other high cost metropolitan areas. It is not as much of a problem for academic participants living in university housing facilities.

Stipends now range from \$520 to \$615 a month for long term academic participants and average \$850 for those enrolled in short courses with \$1500 for the first month plus allowances for books and supplies. Payment levels are based on annual cost of living survey and applied to all A.I.D. trainees, as established by AID regulations.

7.0 ADVISORY COMMITTEE

All members of the Advisory Committee contacted expressed strong philosophical support for the goals and objectives of the project, and were generally in agreement that the project should continue. What is impressive about this Advisory Committee is the degree to which the members actually are involved. They are knowledgeable of the issues, and express a commitment to the concepts. In those cases where a principal was unable to attend one of the CETP Advisory Committee meetings, his alternate was equally well versed, and also sufficiently senior to be effective. The Committee has also been helpful in finding special internship opportunities for CETP participants.

There is one major issue in which the Advisory Committee feels a sense of frustration, that is the erratic nature of funding for the project. They also believe, however, that if the quality of the Advisory Committee is good, and if the quality of the project is good, they should be able to make an impact on future funding decisions and are working towards that goal.

Many of the Advisory Committee members see this project as providing significant commercial opportunity for U.S. industries in the long term, by exposing these students now to U.S. values, the best technology and the best management techniques. In this sense, they fail to understand the reduction in funding for current and future years. In the words of one of the senior members of the Committee, "The lack of financial support reflects an absence of AID understanding of this Administration's philosophy." Ancillary to this statement is the thought that a project of this nature entails minimal downside risk, but an enormous upside potential.

In terms of general program content, the Committee generally agreed that the project is now getting the right kinds of people, with a good technical/policy background mix. Further, and as a generalization, they agree that most benefits are to be derived from well-run internship programs, even though those cost more on a per-student basis than do the academic programs. They would like to see internship programs expanded, but realize the funding limitations that currently exist.

Most of the criticisms voiced by the Advisory Committee are directed not towards S&T/EY or the contractor, but towards AID management, and its apparent internal problems in determining whether or not this project is worthy of support. Questions were also raised whether or not the AID field missions could be more effective in supporting an energy-related project of this nature.

Criticism of S&T/EY and the contractor was almost entirely relegated to the fact that they might be stretched too thin to do a credible job of managing the project. There is no question that these staffs are dedicated to the success of the project; what is in question is whether -- given the funding available -- they may be attempting too ambitious a project, thereby weakening the management of what is in place.

In addition to the above, three minor points were raised by members of the Advisory Committee that may be worth addressing: First, there may not be enough cultural preparation of the students upon their arrival in the U.S. Second, several of the Committee members have been promised resumes of individuals for possible internship placement that they have not yet received. Third, better communication with the Advisory Committee on a more frequent basis would be useful; perhaps quarterly reports would be appropriate.

MEMORANDUM

INSTITUTE OF INTERNATIONAL EDUCATION

MEMORANDUM

July 26, 1983

TO: Alberto Sabadell
FROM: Steven Ebbin *SE*
SUBJECT: Evaluation of the CETP, May 1983

CETP is pleased with the evaluation report that the evaluation team has written. We feel that the approach was thorough and well conceived and are delighted to find that program strengths as well as shortcomings were noted. We believe that the report is even handed and fair. The attached pages are our comments on specific points made by the evaluation team.

July 26, 1983

TO: Alberto Sabadell

Chairman, CETP Evaluation Committee

- 1.1 P.1 - Visits of academics to U.S. manufacturers. It is an idea with which we fully concur were funds to be made available for this purpose. However, under present budget and staff limitations, this is impossible. Most industrial interns and short-term trainees are exposed to U.S. firms.
- P.2 - CETP has had extensive contact with the Inter American Development Bank, The World Bank, ECOWAS, UNDP and other international agencies. While great interest is always expressed in CETP and its unique efforts, no solid cooperative relationship has been established because of a lack of interest on their part. CETP has been frustrated by the reception those agencies have afforded it and would be delighted if AID would assist in developing closer ties.
- Contributions of companies to CETP ought definitely to be recognized in some formal way. IIE's efforts to have this done by AID have so far been frustrated. IIE is currently discussing with the Embassy of Sri Lanka a way to recognize PP&L, which hosted two Sri Lankan engineers and hopes to do more of this in the future.
- 1.2 - Evaluation of participants' performance is now required by CETP. All courses are requested to test and grade participant work.
- Exit interviews have been held with almost every participant, either individually or in groups where that was appropriate. Exit reports are also required and are made available to ST/EY. The interviews do not

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often elicit vital information beyond that included in the written reports though some interesting anecdotal material does come out of these meetings. A written report or at the very least, notes of the conversation, might prove to be interesting and will be done in the future, time permitting.

P.3 - follow-up letter. Believe this to be adequate instrument, but must be done systematically over course of time. This is so planned for the future. CETP has contacted IIE/NY about other follow-up efforts.

- The limited effort to inform AID missions and institutions in AID countries of the wide range of training opportunities available under CETP; referred to on p. 3, has been rather extensive to date. CETP staff has met with scores of officials in 24 countries in the Middle East, West Africa, Southeast Asia, Near East and the Far East. More can be done and has been planned. The evaluators should be aware, however, that the effort to do that has been suspended since budget cuts and budgetary uncertainty call into question the wisdom of stirring up additional interest in CETP. Further, the small professional staff has great difficulty finding the time to leave the office to explain and promote the program overseas. Since it is not possible to service all nominations presently received, the CETP staff, with the agreement of ST/EY, has suspended travel to the missions until the budgetary issue is clarified.

The organization and compilation of information about available training opportunities is a major undertaking not now within the abilities of the current 3-person professional staff to undertake. A

preliminary draft proposal was sent to AID/Washington on 7/8/83 outlining such a project and the necessary staff to implement it. Discussions with AID/Washington will ensue.

- Efforts to involve Regional Bureaus in CETP have so far been unrewarding with the exception of ASIA/TR (Ichord) and Middle East (Bever). The other Bureaus have shown occasional interest.
- Deadlines have been set for academic nominations. They have frequently been ignored by missions who often ask for special consideration. The deadlines respond to university calendars and are not speciously set. A difficult issue faced by CETP is mission pressure to achieve placement for nominees before the nominee has gotten an adequate TOEFL (or ALIGU) score and just as often, with incomplete dossiers, missing GRE scores, recommendations, and often parts of the undergraduate records as well as garbled study objectives not cleared by employers. Missions nevertheless often expect placement to be effected by IIE absent complete documents and express annoyance when they are not.
- The point that CETP staff should take full advantage of the services available from IIE, particularly the Fulbright Program, seems to me to be irrelevant. The Fulbright Fellowship program works very differently from the CETP. First, Fellows are selected by a commission within each country. This prescreening eliminates much concern about the qualifications and English language abilities of the candidates. Also, the Fulbright program is more mature and is more competitive, attracting a stronger set of candidates.
- Detailed information about TOEFL and GRE has been distributed to

missions who make it available to nominees. We have had no complaints from any mission concerning our supplying information about these requirements, where they apply. Many countries with which we deal, distinct from many Fulbright Program countries, do not have TOEFL and GRE available on a regular basis. CETP staff has on many occasions arranged for these to be given for nominees.

As to prerequisites, IIE/New York is not in a position to make judgments on technical training and in their credential analysis make no effort to identify necessary prerequisites. This, however, has not been a problem to date and where prerequisite coursework is identified, it is done so by the university itself. There are no such things as standard prerequisites among the various universities. One may require what another does not. This point seems irrelevant, at best.

P.4 - The point about providing training for junior country staff who have not yet worked for their "employer" or who will be hired after completing CETP training is heartily applauded. CETP staff has always opposed doing that. Some exceptions may be made, but as a rule, we agree that it is a bad thing to do. CETP participants, in our view, should be professionals whose training is approved by the employer who agrees a priori to utilize the training acquired.

- 1.3
- Point about funding reductions - Rah!
 - Staff increase - Rah!
 - CETP support group - Rah! - but difficult to implement
 - Better representation from Central, South America and French speaking countries. Difficult until budget problems are resolved. If you stimulate additional interest you must be prepared to meet the demand.

- CETP staff has repeatedly offered to work with missions to assist in carrying out training needs assessments and has done preliminary work in the Philippines and Pakistan.

- Commendations, more efficient means - needs further explanation.

2.3 - see attached letter

3.1.2

- Two week transition time in Washington, D.C. now one week. Given the added expense and delay in beginning the training program, we do not feel that more than one week orientation is necessary or in the best interest of participants. In our experience, after one week, most participants are eager to get on to their permanent station, find housing and begin training. Frequently interns come late and once program is laid on with company it is difficult to change it.

Moreover, CETP staff has been aware that an additional week in Washington costs an additional \$350 or so, thereby diminishing the amount of money available to resettle at new station, to acquire warm clothing, to put up a deposit for apartment, initial groceries, etc.

- Inadequate contact with manufacturers. This would require additional travel funds and someone with time to set up appointments, arrange itinerary, etc. Would have to be accomplished at end of training so as not to interrupt training. Could be done, but CETP does pay for attendance at professional meetings and where recommended by training institution, to manufacturers and other U.S. companies.

3.2.3

Industrial firms' dissatisfaction. Want to know about this in detail.

"By the time he was trained in operations and procedures, it was time

to return to his own country." If requested by training institution, extension would be considered. We've heard no such thing.

Acknowledgement. Rah!

3.3.4

- MacDonald suggested this. Discussed April 8, 1983 to no conclusion.

4.1

- Notification too short: Students did not receive information package until arrival in U.S.

This is true in many cases but is unavoidable given the difficulty experienced in getting full credentials and in getting missions to adhere to deadlines for receipt of application. Moreover, because of that, many of the university admissions are carried out informally, by telephone, thereby circumventing normal admissions processes. Additionally, because dossiers usually arrive without up-to-date, adequate TOEFL scores, even where admission has been attained, sometime before, often conditionally, calls forward come only upon the completion of these prerequisites. Orderly process, no matter how hard CETP staff tries, is defied by the lack of orderly process at the mission level. We consider this inevitable and coming with the territory, and are unphased. We do not, though, believe it legitimate for participants to complain about this since they create the problems in the first place by sloppy applications processed at their level. Moreover, missions are often remiss in seeing to it that dossiers are complete prior to sending them on to CETP for placement. The dates of university terms are fixed and do not depend on when we receive complete credentials. We feel fortunate to be able to place people on

short notice and while it would be desirable to call them forward earlier, we cannot do so until formal notice of acceptance is received.

4.1

P.15 cont'd - Matching student background with courses---less than ideal. Committee should understand that a) study objectives outlined in application form are more often than not sketchy, ill conceived and poorly presented. IIE has often asked for clarification and often receives response no better than original. b) courses advertised in catalogues are sporadically available for one reason or another, heavy enrollment precludes the neophyte from entry or low enrollment causes cancellation, etc. Clear information about courses is provided by IIE either by cable which quote catalogue or by sending xeroxed catalogue material. Universities are also expected to send materials directly to applicants. Unfortunately, international mails are difficult and slow. Moreover, before they get here accepted participants are frequently so delighted to be accepted that they are uncritical and unanalytical and are prone to accept anything within reason (and beyond) just to get here. It is only later when they get to know the system that they become critical. Moreover, committee should realize that gap between advertisement and reality often catches CETP staff offguard.

- Practical experience. IIE/CETP has discussed this matter with AID/W on several occasions. Placement is time consuming and difficult in difficult economic times. CETP participants must compete with U.S. students who would dearly love the same kinds of opportunities. An

additional person is necessary to undertake such placements if they are to be effected. There is also the matter of cost since the budget available for additional time and maintenance is simply not available.

- Extended orientation. Same story, cost.

- Thesis. Letter of appointment clearly spells out need for IIE to review thesis topic prior to the initiation of the project. This provision is to assure its relevance to host country and to assure that it is focused on energy topic relating to home country needs. IIE is too often advised of thesis topic after project has been begun only to find it lacks relevance. If this causes unhappiness of grantee, it eventuates only because the rules have been ignored. CETP staff attempts to assure that thesis will make contribution to country of origin since it is for their purposes that training is provided.

- Married students/families. IIE concurs but points out that Handbook 10 doesn't.

- Academic participants are not routinely provided internships with industrial organizations. Most students have been requiring the two year maximum to complete their degrees. In some cases, where participants finish all degree requirements in less than the two year limit, IIE has provided appropriate internships. One such example is a student at the U. of Pittsburgh studying Energy Resources who had a four month internship with the City of Pittsburgh. She conducted an analysis of the city's energy consumption at its water treatment plants. Two people who complete Master's degrees in Civil Engineering at Washington State University in June are presently serving as interns with the U.S. Army Corps of Engineers.

4.2

- Clarity of faculty on study and thesis topic. IIE can only deal with central authorities at universities since only extensive effort would identify all relevant teachers and advisors. Deans and department chairmen are indeed briefed by phone as well as having available to them original study plans. The message frequently does not get transmitted within the university itself. When advisors change or direction changes, message is not communicated adequately. We believe the ball is in the grantees' court.

4.3

- Program constraints should be clearly stated in writing. They are.
- Critical mass at localized group of schools. The requested training is too diverse to do that. "Critical mass" is not possible to develop given limitation on number of academic grants imposed by budget cuts. AID missions or USIA libraries should be provided with institution's catalogues.

While IIE agrees that this is an ideal to be strived for, it is not feasible since this would require requesting sixty plus copies (eligible AID assisted countries) of catalogues from every institution which CETP knows has appropriate programs in conventional energy technology (fifty plus universities).

Limit the number of choices in programs and universities.

IIE does not feel that this is in the best interest of the program since a pamphlet of this type is necessarily incomplete which may lead host governments to believe that specialized degree training cannot be found.

- 5.2 P.18 - IIE notes with concern the error made by outside translator in French and Spanish (though not English) version of the brochure. Will attempt to fix it. Not aware that there are "a number of errors." Please advise in detail.
- 5.3 - Missions have been asked to secure endorsement of training program from employers. Some do, most don't. We will press them harder on this point.
- 5.4 P.19
- Trip to Latin America has been deferred until budget issues are resolved.
 - Practical internships are desirable. Referred to above.
- 5.5 - Directory issue referred to above.
- Better matching of programs to participants. Not aware that this has been a problem.
 - Accommodating participants with inadequate English language. Expensive, though feasible. Nothing has been done in this area since demand has not been great and AID/W has not felt it necessary to move into third country training.
- 5.7 - Evaluation, to date, has not been a hot topic. IIE has per recommendation conferred with research office to examine what might be done that is not now being done.
- 6.1 - Error of fact: 3 professionals, one (1) administrative officer and one (1) secretary, only.
- 6.4 - One academic officer cannot do very much by way of keeping contact with students. However, IIE regional office personnel do visit CETP grantees as a regular matter whenever they are on campus which in some

cases is as much as 2-3 times a year and is at least once per year. CETP made an early decision to limit those trips to times when other business brought the representatives to campus because of the expense involved in special travel, particularly where only 1-2 students are at a particular campus.

Students have also been visited by CETP academic officer at least once per year. Grantee conference in April of 1982 gave an additional important contact but that was not requested in 1983 because of budgetary strictures. CETP does plan to hold a conference during the next year.

**S. RAJAGOPAL
SR. SUPERINTENDENT (OPERATION)
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National Thermal Power Corporation Ltd
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(BADARPUR DIVISION)
BADARPUR NEW DELHI-110044
Telar : 031-2384 Telegrams : BITIM Telephone : 63626

No. SS(0)/10/83/ 3624

May 19, 1983
15

JUN 13 1983
[Handwritten signature]

Dear Mr. Ebbin,

Your kind letter dated April 7, 1983 reached me only about a week back and thank you very much for the same. I hope that you have received my previous letter which I had indicated some of the areas in my work in which I could make use of the training I had in U.S.A, in improving the Plant performance and also resulting in considerable saving in energy. I give below -my comments on the list of questions you had mentioned in your letters.

1. As a result of my training in USA, I could bring a dramatic reduction in the consumption of coal and fuel oil. The specific coal consumption which was nearly .68 Kgs. to 0.70 Kgs. per unit generated has been reduced to .6 to .62 Kgs. per unit. This is a considerable saving in energy for a Station that generates an average of 12 Million units per day. This was possible mainly by the study of combustion process in the boiler and by controlling the excess air in the boiler. Similarly, the fuel oil consumption which was 37 ML per unit when I came back from USA has been brought down to as low as 17 ML per Unit. You would appreciate that these are great savings in energy. All attempts are being made to reduce this consumption to still further low values. My training in the Widow's Creek Power Plant of TVA was most useful in this aspect.
2. The job performance, since my return from USA has been continuously improving. We could achieve records in generation during the months of November and December. This again was mainly due to the training I had in the Power Station of TVA.
3. By and large my employer, the National Thermal Power Corporation has been prepared to try the experiments based on my training with the view that it would finally help the Management in the reduction of the use of coal and oil in the Station.
4. As indicated above, the management has reacted favourably to me and to the training I had in USA.
5. As indicated in my previous letter I have now been promoted as Sr. Superintendent (Operation). This has been as recognition of my performance since my return from USA.
6. As mentioned earlier main contribution of my training to my organization has been in the reduction of oil and coal consumption and also higher availability of the Units (Units of 100 and 210 MW capacity).

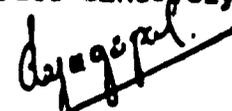
7. The training I had, especially in one of the large Power Stations in USA has been of great use for my Organization and in turn to my country.
8. I have been in touch with all most all the participants of the Training in Knoxville, USA. This has been mainly of a social nature.
9. Since my return from USA I have had correspondence with Dr. Lumsdaine of the University of Tennessee. He was kind enough to reply my letters and also send me detailed drawing of the Solar House, he has built. To him also I have written some of the little achievements I could make since my return from USA.
10. I have not joined any professional organization in USA. M/s. Caterpillar and M/s. General Electric Co. have been good enough to send more catalogues on the equipments, they manufacture.

I hope the informations I have given above are sufficient. In my previous letter I had requested you to kindly contact the TVA authorities regarding the certificates of training I had in their Station and which the Station authorities promised to send. I am yet to receive the same. You will please appreciate that this certificate is an important one for me and I am sure you will try to send the same soon.

Kindly convey my regards to Mr. Robert Gordon and all the staff at your Washington Office.

With best wishes,

Yours Sincerely,


(S. RAJAGOPAL.)

Mr. Steven Ebbin,
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