

I. PROJECT IDENTIFICATION

1. PROJECT TITLE
 Training Program On Environmental Aspects Of Industrial Development (University of North Carolina)

2. RECIPIENT (specify)
 COUNTRY
 REGIONAL INTERREGIONAL TA/OST

3. LIFE OF PROJECT
 BEGINS FY 72
 ENDS FY 76

APPENDIX ATTACHED
 YES NO

4. PROJECT NO. (M.O. 1093.2)
 931-11-995-983-73

5. SUBMISSION
 ORIGINAL 5/4/72
 REV. NO. 10-15-73
 DATE
 CONTR./PASA NO.

II. FUNDING (\$000) AND MAN MONTHS (MM) REQUIREMENTS

A. FUNDING BY FISCAL YEAR	B. TOTAL \$	C. PERSONNEL		D. PARTICIPANTS		E. COMMODITIES \$	F. OTHER COSTS \$	G. PASA/CONTR.		H. LOCAL EXCHANGE CURRENCY RATE: \$ US (U.S. DANE)			
		(1) C	(2) MM	(1) S	(2) MM			(1) \$	(2) MM	(1) U.S. GRANT LOAN		(2) COOP COUNTRY	
										(A) JOINT	(B) BUDGET		
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5. BUDGET -2 FY	-												
6. BUDGET +3 FY													
7. ALL SUBQ. FY													
8. GRAND TOTAL													

9. OTHER DONOR CONTRIBUTIONS

(A) NAME OF DONOR	(B) KIND OF GOODS/SERVICES	(C) AMOUNT
UNIDO	Participant Fellowships	\$20,000
UNEP	Participant Fellowships	\$10,000
Env. Protection Agency (EPA)	Resource Materials	\$ 5,000

III. ORIGINATING OFFICE CLEARANCE

1. DRAFTER Bill L. Long	TITLE Environmental Affairs Specialist, TA/OST	DATE 10/15/73
2. CLEARANCE OFFICER John Fry	TITLE Deputy Director, TA/OST	DATE 10/20/73

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

A project narrative which summarized the proposed activity (or amendment) was distributed to all GTSC members on May 16, 1974. The GTSC review was held May 23, 1974. This PROP (or PROP amendment) reflects the discussions/comments made at the GTSC review. It was circulated to the GTSC members for optional comments on May 24, 1974 and recommendations for changes have been incorporated in this revision.

2. CLEARANCES

BUR/OFF.	SIGNATURE	DATE	BUR/OFF.	SIGNATURE	DATE
TA/PM	Alfred Bisset	11/14/73			
TA/PM	David Mathias	11/10/73			

3. APPROVAL AA & OR OFFICE DIRECTORS

SIGNATURE
 DATE 11/17/74
 TITLE
 Assistant Administrator, AA/TA

4. APPROVAL A/AID (See A.I.O. 1023.1 V/C)

SIGNATURE
 DATE
 ADMINISTRATOR, AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT SUMMARY

This project is a follow-on to the 10 1/2 week AID-UNIDO training course for LDC policy makers on the environmental aspects of industrialization conducted by the University of North Carolina during the period January 20 - April 10, 1973. An evaluation team comprised of representatives of TA/OST, PPC, and SER/IT concluded that the experimental course demonstrated the validity of the concept of U.S.-sponsored environmental training for LDC decision makers, and that AID should centrally fund at least two more courses to refine the course content and training materials (see Evaluation Report, Annex A). Continuation and refinement of the training is endorsed by the Environmental Protection Agency and the Council on Environmental Quality which assisted with the initial course; by the new U.N. Environment Programme which has indicated its willingness to make fellowship support available; and by UNIDO which has notified AID that it wishes to continue its collaboration as a principal sponsor.

This PROP provides for two more courses, each of 6-8 weeks duration, to be held in early summer 1974 and 1975. In addition, it is envisioned that at least two training seminars will be held in developing countries between the end of the first course and termination of the project (May 1976) to assess the value of conducting this type of specialized training in the LDC's. AID funding will provide for course design; tuition, travel and per diem for 10-15 LDC participants (per basic course); development of course documentation and training aids (including audio-visual materials) for subsequent distribution to, among others, cooperating LDC institutions; and costs for U.S. instructors in LDC seminars. Funding requirements are as follows:

FY 1974	-	\$125,000
FY 1975	-	\$125,000

It is anticipated that financial support will also be provided by UNIDO and the U.N. Environment Programme.

The focus of the training will continue to be the environmental aspects of industrialization. This is consistent with TA/OST's program strategy which includes (as a component of the Natural Resources area of concentration) attention to "technologies and methodologies for protecting the environment including pollution abatement and control." The new UN Envi

Programme has identified industrial pollution as a priority area for international action, noting that this is an increasing concern of the LDCs given the growing pressures for industrialization. Specific actions taken this past year by countries such as Thailand, Korea, Philippines, India, Indonesia, Brazil, El Salvador, Chile, Nigeria and Turkey attest to the fact that industrial pollution is not solely a rich man's problem.

The content of the courses will emphasize the identification and assessment of environmental problems associated with various types of industrial activities; alternative technological and methodological approaches to preventing or mitigating pollution; environmental, social and economic cost-benefit relationships; and legal/institutional/administrative options. It is envisioned that the data generated by TA/OST's project on the "Economics of Environmental Safeguards" (in the industrial sector) will be fed back into the training project, thereby providing it with a major new input in an area which has heretofore suffered from the lack of reliable quantitative information. Industrial field trips and in-plant training will continue to constitute major features of the courses.

The two basic courses planned for FY'74 and FY'75 will again be conducted by the University of North Carolina. This will enable the program to benefit from the experience gained by that University during the initial session, and is also responsive to a specific UNIDO request. From AID's point of view, this choice has the following advantages: proximity of the training institution to Washington, as well as to a wide variety of Federal and State air and water quality laboratories and planning agencies, and industrial operations; and the opportunity to strengthen a nucleus of talent which is slowly being developed at the University as the result of its involvement in other related training programs sponsored by AID's Office of Engineering and Office of Health.

The audience for the course will again be LDC policy makers, defined as those individuals who, by virtue of their present or anticipated positions, make or influence decisions on the location and/or operation of industrial firms in their countries. Selection of candidates will be made by each sponsoring agency

(AID, UNIDO and UNEP) in accordance with mutually agreed-to criteria. Consideration will be given to restricting each of the two courses to specific geographical regions and carrying them out in cooperation with the U.N. Regional Economic Commissions (i.e., Latin America and ECLA in FY'74; East Asia and ECAFE in FY'75).

Continuation of the program is based on the premise that, in the near term, specialized environmental training will be in increasing demand, particularly training that goes beyond problem identification to provide information on the technological, institutional and sociological options for solving the problems. An evaluation of the initial course indicates that there are significant advantages in conducting the training in industrialized countries for the present given their experiences with assessing environmental problems and evaluating and implementing various technological, legal and institutional options. A "show and tell" approach (as opposed to an overseas "tell" seminar) appears to be essential for meaningful training in this new field. After several iterations of the course, enabling a sound curriculum to be developed and documented -- and after one or several key people in each of the LDCs have been trained -- then a basis will exist for gradually conducting the training (at least in part) in the LDCs, and with LDC leadership. This project will therefore be designed to achieve the dual objectives of (1) providing a curriculum and training materials for presentation of short courses and seminars in developing countries; and (2) institutionalizing a basic curriculum and in-plant training program at the University of North Carolina which, in the absence of AID central funding after FY'75, will continue through fellowships provided by other international development agencies (e.g., UNEP, UNIDO, OAS), national governments, and (possibly) AID Missions. It is anticipated that a well-designed course in the industrial pollution field would be sufficiently attractive to U.S. students to render it self-sustaining at the University even if international participation fluctuates from year to year.

NONCAPITAL PROJECT PAPER (PROP)A. THE PROJECT GOAL

(1) Goal Statement - The goal of this demonstration project is to prevent or mitigate environmental problems associated with industrial operations in developing countries by increasing the sensitivity, awareness, and knowledge of LDC decision-makers. The project falls within AID's policy determination for Science and Technology which identifies an Agency interest in "technologies and methodologies for protecting the environment, including pollution abatement and control."

(2) Measurements of Goal Achievement - The quality of air and receiving waters adjacent to new industrial plant operations is not seriously degraded over time; pollution control technology and techniques are incorporated into existing plants; governments actively seek environmental safeguards for development projects in their negotiations with foreign industries and assistance agencies; and development plans at the national, regional, and local levels highlight the need to consider the environmental aspects of industrialization,

(3) Assumptions for Goal Achievement -

(a) governments have the motivation and viable options required to successfully pursue environmental quality objectives with respect to industrial operations.

(b) the cost of techniques for controlling industrial pollution is low enough to allow developing nations to apply them.

(c) countries begin to establish minimum air and water quality standards at a national level, and create and implement regulatory mechanisms.

(d) LDC education and training programs which deal with industrialization are expanded to consider environmental aspects

B. THE PROJECT PURPOSE

(1) Statement of Purpose - Demonstrate how U.S. knowledge and experience can be synthesized and presented to train LDC policy makers, planners, managers and educators in techniques of

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predicting, evaluating, and controlling environmental problems associated with various types of industrial operations. The purpose is identical to that of the original project; this follow-on is designed to further refine and expand on the initial experiment.

(2) Conditions Expected at the End of the Project

(a) Evidence that the U.S. can provide training in the environmental aspects of industrialization that is relevant to developing country needs and goes beyond mere problem identification to set forth viable alternatives for coping with potential problems.

(b) Developing country planners and educators (70-90) trained to assess potential environmental problems associated with industrial operations, and to identify and evaluate alternative preventative and remedial measures.

(c) An improved U.S. institutional capability to provide the type of environmental training now being requested by developing countries as the result of the mobilization of resources from academia, industry, and government agencies necessary to establish and conduct the training program.

(d) Environmental training offered by LDC institutions which utilize concepts and materials generated by this project.

(e) A basic curriculum and in-plant training program institutionalized within a leading U.S. university, with continuing support for LDC trainees provided by non-AID international development agencies and LDC governments.

(3) Basic Assumptions

(a) Developing country planners, managers, and educators are increasingly interested in addressing environmental problems associated with industrial operations.

(b) The U.S. presently has sufficient knowledge of the causes, effects, costs and methods of control of environmental pollution associated with industrial operations to provide meaningful training for developing country participants; and this knowledge can be successfully extracted and packaged by the contractor.

(c) LDCs will draw on U.S. knowledge and experience by sending high quality trainees to the University of North Carolina, and by subsequently replicating the training in their own countries.

(d) UNIDO and U.N. Environment Programme will endorse and publicize the course and will provide financial support as indicated.

C. PROJECT OUTPUTS

(1) Outputs

- Basic course curriculum developed, tested, evaluated, and packaged
- Spin-off seminar series in the LDCs
- LDC industrial planners managers, and educators trained in environmental aspects of industrial development
- U.S. personnel experienced in presenting course to, and working with, LDC participants in this field; and an institutional focus at the University of N. Carolina
- New U.S. institutional focus for providing this type of specialized training on a continuing basis

(2) Output Indicators

- 2 sessions of course conducted and refined by end of FY'75; documentation including audio-visual materials distributed to participants, LDC institutions and other development agencies.
- 2 regional seminars by May 1976
- 75-90 trained cooperating-country personnel, by the end of FY'75
- 20 faculty lecturers; 20 visiting lecturers; 1 project director and staff; personnel from some 25 Federal and State agencies and industrial firms, by the end of FY'75
- Incorporation of course into University of North Carolina curriculum with LDC trainee support provided by non-AID funding sources

(3) Assumptions For Achieving Outputs

(a) it is possible to design an environmental training course in the U.S. that is relevant to LDC needs; and also will be attractive enough to draw high-level LDC participation and, by the end of the project, endorsement and sustained financial support from other funding sources.

(b) the requisite inputs can be mobilized, particularly participation by U.S. industry and Federal and State agencies concerned with industrial pollution (e.g., Environmental Protection Agency).

(c) the University of North Carolina is willing to continue to conduct the course (which falls outside its regular curriculum) and is able to commit the participation of senior faculty in its re-design and implementation.

D. PROJECT INPUTS

(1) Types and Magnitude

(a) Personnel - the contractor, the University of North Carolina, will provide a senior project supervisor, a project manager, 10-15 faculty lecturers and administrative staff for the development and implementation of each of the two sessions of the basic course. In addition, the project manager and 2-5 faculty members will be involved in the spin-off seminars to be held in the LDCs.

Visiting lecturers (8-15 per course) will be obtained by the contractor from Federal and State resource agencies, and private industry.

(b) Facilities - the University will provide residence halls, lecture rooms and research space during the classroom phase of the basic course; cooperating industrial firms and U.S. agencies will provide access to laboratories and other facilities during the in-plant visitation phase.

Facilities for the overseas seminars will be provided by the cooperating LDCs.

(c) Commodities - training and reference materials will be provided by the University, Environmental Protection Agency, and cooperating U.S. agencies and industrial firms. New cost-benefit data for incorporation into the course will be obtained from a new TA/OST contract on the Economics of Environmental Safeguards.

(2) Budget - AID's budgetary requirements for the project are as follows:

(a) FY'74

- Course re-design and implementation of one 6-8 week session (salaries for project supervisor, project manager, and administrative staff; honoraria for visiting faculty)	\$40,000
- Documentation preparation and printing including production of audio-visual packets, for basic course and spin-off seminars	\$25,000
- LDC Participant Support (International and domestic travel and subsistence for 15 participants)	\$60,000
<u>Total FY'74</u>	<u>\$125,000</u>

(b) FY'75

- Course refinement, and implementation of one 6-8 week course	\$25,000
- Documentation refinement and publication	\$20,000
- LDC Participant Support (15 AID trainees)	\$55,000
- Two overseas seminars (U.S. costs)	\$25,000
<u>Total FY'75</u>	<u>\$125,000</u>

In addition, it is anticipated that UNIDO and the UN Environmental Programme will provide fellowship support (including a contribution to faculty salaries and document preparation) for up to 10 additional trainees per course. The estimated non-AID contribution per course is \$40,000.

It should be noted, however, that the project will be completely viable in the absence of contributions from other anticipated sponsors.

Indirect budgetary support is again anticipated from cooperating industrial firms and the U.S. Environmental Protection Agency in the form of contributed lecturers and resource materials.

(3) Assumptions about Management of Inputs - Course design and implementation, identification and involvement of lecturers, and the selection and preparation of instructional materials will be carried out by the University of North Carolina. These functions, however, will be responsive to the objectives, perspectives and subject matter preferences identified by AID (TA/OST) in collaboration with other sponsoring agencies. The Evaluation Report on the initial course (Appendix A) sets forth basic guidelines for this follow-on training project.

Technical guidance will be provided to the contractor by AID's Office of Science and Technology, while administrative support (travel arrangements, handling of PIO/Ps, briefings) will be provided by AID/SER/IT. AID overseas Missions will be expected to assist with the identification and selection of LDC participants. Final selection will be carried out jointly by AID/TA/OST, the contractor, and other sponsoring institutions.

E. Rationale

A rationale for AID support of environmental training for LDC policy makers is presented in Appendix A. In summary, the growing worldwide concern over the accelerating degradation of air and water quality on a global scale is creating a rapidly increasing demand for trained personnel capable of assessing potential problems, and implementing remedial actions. While this concern initially was manifested almost exclusively within industrialized countries, over the past two years developing

countries in all regions of the world have begun to create new institutions, pass laws, and otherwise expand their capabilities to prevent and mitigate environmental problems. Many examples can be cited: new national environmental control organizations in Thailand, the Philippines, Ghana, Kenya, Indonesia, and Korea; new regulations on industrial pollution in Brazil, Argentina, Thailand, India, El Salvador, Chile and Indonesia; and participation by 19 developing countries in the first AID-UNIDO training course.

In their search for assistance with the identification and control of environmental problems, the developing countries are naturally turning to the more advanced, industrialized countries which have, of necessity, begun to accumulate significant experience, knowledge, and expertise in this field. An increasing number of requests for U.S. technical assistance is being received by the Environmental Protection Agency, Department of Commerce, and AID from LDCs (and also from international funding agencies such as the UNDP and IBRD). Since the U.S. is continuing to play a leadership role in articulating potential environmental dangers, in developing new institutions and technologies to deal with these dangers, and in encouraging all nations to work toward protecting the global environment, it is reasonable that the LDCs will continue to turn to the U.S. for assistance.

A review of the actions recommended by last year's Stockholm Conference in the Human Environment and recent pronouncements by LDC spokesmen at international and regional environmental seminars indicates that the developing countries perceive specialized training as a prerequisite to any effective environmental protection measures they may implement over the long term. In August, 1973, the U.S. Government (on the basis of an assessment by an inter-agency task force of Stockholm recommendations) communicated to the U.N. its views on priorities in the international environmental field. Two of the seventeen "priorities" specifically deal with training:

- "C. Education, Training, Assistance and Information: (ii) to support and encourage the training of experts in various environmental fields, especially from developing countries to help in development of local expertise.

- D. Trade, Economics, Technology and Transfer of Technology: (viii) to encourage training of personnel in the techniques of incorporating environmental considerations into development of planning, and of identifying and analyzing the economic and social cost-benefit relationships of alternative approaches."

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Justification for this project therefore involves a number of considerations:

(1) the U.S. has consistently urged the LDCs to address the environmental aspects of their development activities (because it believes that the benefit-cost ratios will be increased over the long term and also because international cooperation will be required to prevent global pollution);

(2) the LDCs are demonstrating an increasing awareness of potential environmental problems and an expressed desire to develop their capabilities to respond, particularly through training and education;

(3) the U.S., by virtue of its experience and expertise, is uniquely qualified to provide environmental training opportunities-- particularly training that goes beyond problem identification to include options to solve the problems, and the associated cost - benefits;

(4) the U.S. is receiving a growing number of LDC requests for assistance in the environmental field, and AID is the only agency of the U.S. Government (including the EPA) with statutory authority to provide bilateral support; and

(5) an evaluation of the initial AID-UNIDO training program at the University of North Carolina (including reactions of the trainees) demonstrated the ability of the U.S. to provide useful training and to attract LDC officials who can influence policy making, a view that is endorsed by the EPA, CEQ, UNIDO and UNEP.

The industrial focus of the course is dictated by a number of considerations: (1) a desire to work with a manageable segment of the total "environmental" universe; (2) the fact that the U.S. has unique qualifications in the industrial sector; (3) the more advanced state of knowledge (viz-a-viz other development sectors) which enables one to treat in greater and more accurate detail institutional and technological solutions to the problems, and associated costs and benefits; and (4) the growing recognition by many LDCs that they have, or may experience in the near future, serious air and water quality problems caused by industry. Appendix B provides documentation illustrative of the latter point.

The introductory section describes the rationale for continuing to utilize the University of North Carolina as the principal contractor.

F. Implementation Plan

A proposal will be solicited from the University of North Carolina (UNC) which will identify the level of effort, management arrangements, curriculum revision and documentation requirements, cooperating agencies, program design, and schedule recommended to achieve the objectives of presenting two courses (one in FY'74 and the other in '75) plus two overseas seminars. The proposal will then be discussed with UNIDO and the UN Environment Programme to attempt to reach agreement on the nature of the training effort, and individual institutional responsibilities. If an acceptable arrangement can be worked out with the University, AID will contract separately with UNC for an effort that can go forward even in the absence of fellowship support from other sources.

Course announcements will be jointly prepared by all participating funding sources, plus the contractor, to ensure a common understanding of course objectives, the type of trainee desired, and overall program design -- and to avoid misunderstanding on the part of recipients. Candidates for AID support will be identified by the overseas Missions, based on an airgram to the field transmitting the course announcement plus a brochure which describes the initial course.

An issue to be resolved is whether the courses should each focus on a separate geographical region or whether each should be open to trainees from all developing countries. A regional focus has been suggested by UNIDO to reduce the broad differences in cultures associated with a truly "international" course -- and they are in the process of exploring pros and cons with UNEP, ECLA and ECAFE.

Each sponsoring agency will select its trainees based on a prior understanding of the number of participants it can involve. As the lead agency, AID will contract with the University for support of 10-15 participants plus course design, implementation and documentation. UNIDO and any other sponsors will contract separately with UNC, and solely for fellowship support. Nominations submitted through AID Missions will be evaluated jointly with those UNIDO receives from its Country Representatives by a steering committee to help establish boundaries on the qualifications of the candidates and otherwise provide guidance for agency selections.

The first course under this continuation would be presented in June - July 1974. Detailed documentation of the material presented in the course will be prepared, including audio-visual aids, for use in the second course planned for the following Spring or Summer. In addition, some of the documentation will be designed specifically for use in overseas LDC seminars.

The first of the seminars will be held after the basic course of June-July 1974 has been carefully evaluated and the appropriate documentation prepared, but prior to the second session of the course. The seminar site will be dependent on the degree of interests of various countries and the opportunities to directly involve one of the trainees from the basic course in the planning and implementation. The second seminar will be held in approximately October 1975, after the second basic course has been conducted.

There will be a continual revision of the course materials and curriculum based on the feed-back between the basic course and seminars. By the end of the second seminar, it is envisioned that the stage will be set -- through the project itself and through continuing consultation with UNEP -- to "present" to the UN Environment Programme a set of specialized instructional materials for replication of the training program in the LDCs (with financial support from UNEP and other donors if required), also available will be a tested and in-place (at UNC) short course on the environmental aspects of industrialization that is an integral part of the University curriculum and particularly relevant to LDC needs.

G. Logical Framework

Appendix C.

- Attachments:
- A. Evaluation Report on First AID-UNIDO Environmental Training Program
 - B. LDC Industrial Pollution Concerns
 - C. Project Matrix

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2. CLEARING OFFICER H. A. Arnold	TITLE Director, TA/OST	DATE 11/14/73

IV. PROJECT AUTHORIZATION

1. CONDITIONS OF APPROVAL

NOTE: 3-18-74

Copy was signed by AA/TAC. Farrar. This original was lost.

JB

SIGNATURE	DATE

Assistant Administrator, AA/TA

PROJECT SUMMARY

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NONCAPITAL PROJECT PAPER (PROP)

A. THE PROJECT GOAL

(1) Goal Statement - The goal of this demonstration ^{project} project is to prevent or mitigate environmental problems associated with industrial operations in developing countries by increasing the sensitivity, awareness, and knowledge of LDC decision-makers. The project falls within AID's policy determination for Science and Technology which identifies an Agency interest in "technologies and methodologies for protecting the environment, including pollution abatement and control."

(2) Measurements of Goal Achievement - The quality of air and receiving waters adjacent to new industrial plant operations is not seriously degraded over time; pollution control technology and techniques are incorporated into existing plants; governments actively seek environmental safeguards for development projects in their negotiations with foreign industries and assistance agencies; and development plans at the national, regional, and local levels highlight the need to consider the environmental aspects of industrialization.

(3) Assumptions for Goal Achievement -

(a) governments have the motivation and viable options required to successfully pursue environmental quality objectives with respect to industrial operations.

(b) the cost of techniques for controlling industrial pollution is low enough to allow developing nations to apply them.

(c) countries begin to establish minimum air and water quality standards at a national level, and create and implement regulatory mechanisms.

(d) LDC education and training programs which deal with industrialization are expanded to consider environmental aspects.

B. THE PROJECT PURPOSE

(1) Statement of Purpose - Demonstrate how U.S. knowledge and experience can be synthesized and presented to train LDC policy makers, planners, managers and educators in techniques of

predicting, evaluating, and controlling environmental problems associated with various types of industrial operations. The purpose is identical to that of the original project; this follow-on is designed to further refine and expand on the initial experiment.

(2) Conditions Expected at the End of the Project

(a) Evidence that the U.S. can provide training in the environmental aspects of industrialization that is relevant to developing country needs and goes beyond mere problem identification to set forth viable alternatives for coping with potential problems.

(b) Developing country planners and educators (70-90) trained to assess potential environmental problems associated with industrial operations, and to identify and evaluate alternative preventative and remedial measures.

(c) An improved U.S. institutional capability to provide the type of environmental training now being requested by developing countries as the result of the mobilization of resources from academia, industry, and government agencies necessary to establish and conduct the training program.

(d) Environmental training offered by LDC institutions which utilize concepts and materials generated by this project.

(e) A basic curriculum and in-plant training program institutionalized within a leading U.S. university, with continuing support for LDC trainees provided by non-AID international development agencies and LDC governments.

(3) Basic Assumptions

(a) Developing country planners, managers, and educators are increasingly interested in addressing environmental problems associated with industrial operations.

(b) The U.S. presently has sufficient knowledge of the causes, effects, costs and methods of control of environmental pollution associated with industrial operations to provide meaningful training for developing country participants; and this knowledge can be successfully extracted and packaged by the contractor.

(c) LDCs will draw on U.S. knowledge and experience by sending high quality trainees to the University of North Carolina, and by subsequently replicating the training in their own countries.

(d) UNIDO and U.N. Environment Programme will endorse and publicize the course and will provide financial support as indicated.

C. PROJECT OUTPUTS

(1) Outputs

(2) Output Indicators

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| -- Basic course curriculum developed, tested, evaluated, and packaged | -- 2 sessions of course conducted and refined by end of FY'75; documentation including audio-visual materials distributed to participants, LDC institutions and other development agencies. |
| -- Spin-off seminar series in the LDCs | -- 2 regional seminars by May 1976 |
| -- LDC industrial planners managers, and educators trained in environmental aspects of industrial development | -- 75-90 trained cooperating-country personnel, by the end of FY'75 |
| -- U.S. personnel experienced in presenting course to, and working with, LDC participants in this field; and an institutional focus at the University of N. Carolina | -- 20 faculty lecturers; 20 visiting lecturers; 1 project director and staff; personnel from some 25 Federal and State agencies and industrial firms, by the end of FY'75 |
| -- New U.S. institutional focus for providing this type of specialized training on a continuing basis | -- Incorporation of course into University of North Carolina curriculum with LDC trainee support provided by non-AID funding sources |

(3) Assumptions For Achieving Outputs

(a) it is possible to design an environmental training course in the U.S. that is relevant to LDC needs; and also will be attractive enough to draw high-level LDC participation and, by the end of the project, endorsement and sustained financial support from other funding sources.

(b) the requisite inputs can be mobilized, particularly participation by U.S. industry and Federal and State agencies concerned with industrial pollution (e.g., Environmental Protection Agency).

(c) the University of North Carolina is willing to continue to conduct the course (which falls outside its regular curriculum) and is able to commit the participation of senior faculty in its re-design and implementation.

D. PROJECT INPUTS

(1) Types and Magnitude

(a) Personnel - the contractor, the University of North Carolina, will provide a senior project supervisor, a project manager, 10-15 faculty lecturers and administrative staff for the development and implementation of each of the two sessions of the basic course. In addition, the project manager and 2-5 faculty members will be involved in the spin-off seminars to be held in the LDCs.

Visiting lecturers (8-15 per course) will be obtained by the contractor from Federal and State resource agencies, and private industry.

(b) Facilities - the University will provide residence halls, lecture rooms and research space during the classroom phase of the basic course; cooperating industrial firms and U.S. agencies will provide access to laboratories and other facilities during the in-plant visitation phase.

Facilities for the overseas seminars will be provided by the cooperating LDCs.

(c) Commodities - training and reference materials will be provided by the University, Environmental Protection Agency, and cooperating U.S. agencies and industrial firms. New cost-benefit data for incorporation into the course will be obtained from a new TA/OST contract on the Economics of Environmental Safeguards.

(2) Budget - AID's budgetary requirements for the project are as follows:

(a) FY'74

- Course re-design and implementation of one 6-8 week session (salaries for project supervisor, project manager, and administrative staff; honoraria for visiting faculty) \$40,000
 - Documentation preparation and printing including production of audio-visual packets, for basic course and spin-off seminars \$25,000
 - LDC Participant Support (International and domestic travel and subsistence for 15 participants) \$60,000
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|-------------|-----------------------------|-----------|
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| Total FY'74 | | \$125,000 |

(b) FY'75

- Course refinement, and implementation of one 6-8 week course \$25,000
 - Documentation refinement and publication \$20,000
 - LDC Participant Support (15 AID trainees) \$55,000
 - Two overseas seminars (U.S. costs) \$25,000
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|-------------|-----------------------------|-----------|
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| Total FY'75 | | \$125,000 |

In addition, it is anticipated that UNIDO and the UN Environmental Programme will provide fellowship support (including a contribution to faculty salaries and document preparation) for up to 10 additional trainees per course. The estimated non-AID contribution per course is \$40,000.

It should be noted, however, that the project will be completely viable in the absence of contributions from other anticipated sponsors.

Indirect budgetary support is again anticipated from cooperating industrial firms and the U.S. Environmental Protection Agency in the form of contributed lecturers and resource materials.

(3) Assumptions about Management of Inputs - Course design and implementation, identification and involvement of lecturers, and the selection and preparation of instructional materials will be carried out by the University of North Carolina. These functions, however, will be responsive to the objectives, perspectives and subject matter preferences identified by AID (TA/OST) in collaboration with other sponsoring agencies. The Evaluation Report on the initial course (Appendix A) sets forth basic guidelines for this follow-on training project.

Technical guidance will be provided to the contractor by AID's Office of Science and Technology, while administrative support (travel arrangements, handling of PIO/Ps, briefings) will be provided by AID/SER/IT. AID oversea Missions will be expected to assist with the identification and selection of LDC participants. Final selection will be carried out jointly by AID/TA/OST, the contractor, and other sponsoring institutions.

E. Rationale

A rationale for AID support of environmental training for LDC policy makers is presented in Appendix A. In summary, the growing worldwide concern over the accelerating degradation of air and water quality on a global scale is creating a rapidly increasing demand for trained personnel capable of assessing potential problems, and implementing remedial actions. While this concern initially was manifested almost exclusively within industrialized countries, over the past two years developing

countries in all regions of the world have begun to create new institutions, pass laws, and otherwise expand their capabilities to prevent and mitigate environmental problems. Many examples can be cited: new national environmental control organizations in Thailand, the Philippines, Ghana, Kenya, Indonesia, and Korea; new regulations on industrial pollution in Brazil, Argentina, Thailand, India, El Salvador, Chile and Indonesia; and participation by 19 developing countries in the first AID-UNIDO training course.

In their search for assistance with the identification and control of environmental problems, the developing countries are naturally turning to the more advanced, industrialized countries which have, of necessity, begun to accumulate significant experience, knowledge, and expertise in this field. An increasing number of requests for U.S. technical assistance is being received by the Environmental Protection Agency, Department of Commerce, and AID from LDCs (and also from international funding agencies such as the UNDP and IBRD). Since the U.S. is continuing to play a leadership role in articulating potential environmental dangers, in developing new institutions and technologies to deal with these dangers, and in encouraging all nations to work toward protecting the global environment, it is reasonable that the LDCs will continue to turn to the U.S. for assistance.

A review of the actions recommended by last year's Stockholm Conference in the Human Environment and recent pronouncements by LDC spokesmen at international and regional environmental seminars indicates that the developing countries perceive specialized training as a prerequisite to any effective environmental protection measures they may implement over the long term. In August, 1973, the U.S. Government (on the basis of an assessment by an inter-agency task force of Stockholm recommendations) communicated to the U.N. its views on priorities in the international environmental field. Two of the seventeen "priorities" specifically deal with training:

- "C. Education, Training, Assistance and Information: (ii) to support and encourage the training of experts in various environmental fields, especially from developing countries to help in development of local expertise.
- D. Trade, Economics, Technology and Transfer of Technology: (viii) to encourage training of personnel in the techniques of incorporating environmental considerations into development of planning, and of identifying and analyzing the economic and social cost-benefit relationships of alternative approaches."

Justification for this project therefore involves a number of considerations:

(1) the U.S. has consistently urged the LDCs to address the environmental aspects of their development activities (because it believes that the benefit-cost ratios will be increased over the long term and also because international cooperation will be required to prevent global pollution)

(2) the LDCs are demonstrating an increasing awareness of potential environmental problems and an expressed desire to develop their capabilities to respond, particularly through training and education;

(3) the U.S., by virtue of its experience and expertise, is uniquely qualified to provide environmental training opportunities - particularly training that goes beyond problem identification to include options to solve the problems, and the associated cost - benefits;

(4) the U.S. is receiving a growing number of LDC requests for assistance in the environmental field, and AID is the only agency of the U.S. Government (including the EPA) with statutory authority to provide bilateral support; and

(5) an evaluation of the initial AID-UNIDO training program at the University of North Carolina (including reactions of the trainees) demonstrated the ability of the U.S. to provide useful training and to attract LDC officials who can influence policy making, a view that is endorsed by the EPA, CEQ, UNIDO and UNEP.

The industrial focus of the course is dictated by a number of considerations: (1) a desire to work with a manageable segment of the total "environmental" universe; (2) the fact that the U.S. has unique qualifications in the industrial sector; (3) the more advanced state of knowledge (viz-a-viz other development sectors) which enables one to treat in greater and more accurate detail institutional and technological solutions to the problems, and associated costs and benefits; and (4) the growing recognition by many LDCs that they have, or may experience in the near future, serious air and water quality problems caused by industry. Appendix B provides documentation illustrative of the latter point.

The introductory section describes the rationale for continuing to utilize the University of North Carolina as the principal contractor.

F. Implementation Plan

A proposal will be solicited from the University of North Carolina (UNC) which will identify the level of effort, management arrangements, curriculum revision and documentation requirements, cooperating agencies, program design, and schedule recommended to achieve the objectives of presenting two courses (one in FY'74 and the other in '75) plus two overseas seminars. The proposal will then be discussed with UNIDO and the UN Environment Programme to attempt to reach agreement on the nature of the training effort, and individual institutional responsibilities. If an acceptable arrangement can be worked out with the University, AID will contract separately with UNC for an effort that can go forward even in the absence of fellowship support from other sources.

Course announcements will be jointly prepared by all participating funding sources, plus the contractor, to ensure a common understanding of course objectives, the type of trainee desired, and overall program design -- and to avoid misunderstanding on the part of recipients. Candidates for AID support will be identified by the overseas Missions, based on an airgram to the field transmitting the course announcement plus a brochure which describes the initial course.

An issue to be resolved is whether the courses should each focus on a separate geographical region or whether each should be open to trainees from all developing countries. A regional focus has been suggested by UNIDO to reduce the broad differences in cultures associated with a truly "international" course -- and they are in the process of exploring pros and cons with UNEP, ECLA and ECAFE.

Each sponsoring agency will select its trainees based on a prior understanding of the number of participants it can involve. As the lead agency, AID will contract with the University for support of 10-15 participants plus course design, implementation and documentation. UNIDO and any other sponsors will contract separately with UNC, and solely for fellowship support. Nominations submitted through AID Missions will be evaluated jointly with those UNIDO receives from its Country Representatives by a steering committee to help establish boundaries on the qualifications of the candidates and otherwise provide guidance for agency selections.

The first course under this continuation would be presented in June or July 1974. Detailed documentation of the material presented in the course will be prepared, including audio-visual aids, for use in the second course planned for the following Spring or Summer. In addition, some of the documentation will be designed specifically for use in overseas LDC seminars.

The first of the seminars will be held after the basic course of June-July 1974 has been carefully evaluated and the appropriate documentation prepared, but prior to the second session of the course. The seminar site will be dependent on the degree of interests of various countries and the opportunities to directly involve one of the trainees from the basic course in the planning and implementation. The second seminar will be held in approximately October 1975, after the second basic course has been conducted.

There will be a continual revision of the course materials and curriculum based on the feed-back between the basic course and seminars. By the end of the second seminar, it is envisioned that the stage will be set -- through the project itself and through continuing consultation with UNEP -- to "present" to the UN Environment Programme a set of specialized instructional materials for replication of the training program in the LDCs (with financial support from UNEP and other donors if required), also available will be a tested and in-place (at UNC) short course on the environmental aspects of industrialization that is an integral part of the University curriculum and particular relevant to LDC needs.

G. Logical Framework

Appendix C.

- Attachments:
- A. Evaluation Report on First AID-UNIDO Environmental Training Program
 - B. LDC Industrial Pollution Concerns
 - C. Project Matrix