PD-AAR-125 39467 DIU

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

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

COUNTRY/ENTITY: Dominican Republic

3. PROJECT NUMBER: 517-0144

4. BUREAU/OFFICE: Latin America and the Caribbean [05]

5. PROJECT TITLE (maximum 40 characters): Energy Conservation & Resource Dev.

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 04 DD 12 YY 87

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 82 B. Quarter 2 C. Final FY 86

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

A. FUNDING SOURCE	FIRST FY 82 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total			2,533	12,065	5,467	17,532
(Grant)	( )	( )	(1,767)	(3,819)	(1,895)	(5,714)
(Loan)	( )	( )	(766)	(8,246)	(3,572)	(11,818)
Other U.S. 1.						
Other U.S. 2.						
Host Country						6,290
Other Donor(s)						
TOTALS			2,533	12,065	5,467	23,822

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) ARD	740	710	710	4,114	11,818	600	-	5,714	11,818
(2) SDA									
(3)									
(4)									
TOTALS									

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each): 850 | 840

11. SECONDARY PURPOSE CODE:

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

A. Code	BR	INTR	TNG
B. Amount	5,000	12,000	532,000

13. PROJECT PURPOSE (maximum 480 characters)

To 1) develop a national energy investment planning capability, 2) initiate a continuing program of industrial energy conservation, 3) develop the institutional capacity to exploit small scale hydro and wood fuels as alternative sources of energy, and 4) upgrade the management and planning capabilities of the Dominican Electricity Corporation.

14. SCHEDULED EVALUATIONS: Interim MM 06 YY 85 | MM 05 YY 86 | Final MM 04 YY 87

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

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

Provision of additional grant funds for extensions to existing technical assistance contracts under the Industrial Energy Conservation, Wood Fuel Development Mini-hydro and Energy Planning components.

17. APPROVED BY: Signature | Title Director, USAID/DR | Date Signed MM 01 DD 15 YY 84

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

AMENDMENT NUMBER ONE
TO THE
PROJECT AUTHORIZATION

NAME OF COUNTRY	:	Dominican Republic
NAME OF PROJECT	:	Energy Conservation and Resource Development
NUMBER OF PROJECT	:	517-0144
LOAN NUMBERS	:	517-T-037 517-W-038

1. Pursuant to Section 103 and 106 of the Foreign Assistance Act of 1961, as amended, the Energy Conservation and Resource Development Project for the Dominican Republic was authorized on March 23, 1982. That authorization is hereby amended as follows:

a. Paragraph 1 is amended to increase planned obligations by One Million Six Hundred Thousand United States Dollars ($1,600,000) in grant funds, subject to the availability of funds in accordance with the A.I.D. OYB/Allotment process, to help in financing of foreign exchange and local currency costs for the project which will bring total grant funding to Five Million Seven Hundred and Fourteen Thousand United States Dollars ($5,714,000).

b. A new paragrah "J. Conditions Precedent for Mini Hydro Technical Assistance (Grant)" is added as follows:

"Prior to any disbursement, or the issuance of any commitment documents under the Project for technical assistance under the Mini-hydro Development Component, the Cooperating Country shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D. evidence that the Mini hydro Plant Unit (PCH), including personnel, equipment and vehicles, has been permanently transferred to the Dominican Electricity Corporation (CDE)."

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

Henry H. Bassford
Mission Director

6/5/85
Date

PP SUPPLEMENT
ENERGY CONSERVATION AND RESOURCE DEVELOPMENT

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I. SUMMARY AND RECOMMENDATION

A. Summary

The Energy Conservation and Resource Development Project Grant (517-0144) was designed to provide technical assistance and training in support of activities funded under the complementary loan project (517-T-037 and 517-W-038). Recent evaluations of the major project components demonstrate that the training and technical assistance have been major contributing factors to project accomplishments to date. However, some important objectives have not been met although the grant resources are nearly exhausted. In order to ensure achievement of the project objectives an extension of grant funded activities through the provision of additional resources has been analyzed by the Project Development Office/Energy Division (PDO/E).

B. Recommendation

Based on the analyses carried out by PDO/E, the USAID recommends that the Energy Conservation and Resource Development Project be amended to increase by $1,600,000 the amount of grant resources available to the Government of the Dominican Republic. This action will bring total life of project grant funding to $5,714,000. The additional funds provided will be used primarily to extend the services of the technical assistance currently provided under the project as described in this Project Paper Supplement. No extension of the current PACD of April 22, 1987 is recommended.

II. BACKGROUND

A. Original Project Design

The Energy Conservation and Resource Development Project was authorized on March 23, 1982 for a loan of $11,818,000 and a grant of $4,114,000, with a PACD of April 22, 1987. This Amendment to the project proposes an increase of $1.6 million in grant funds without a change in the original Project Assistance Completion Date.

The purpose of the project is (1) to develop a national energy investment planning capability, (2) to initiate a continuing program of industrial energy conservation, (3) to develop small scale hydro and wood fuels as alternative sources of energy, and (4) to upgrade the technical financial and planning capabilities of CDE. The executing agency is the National Energy Policy Commission (COENER).

To date, there has been substantial progress towards meeting these objectives of the Project; in some cases, the objectives have been fully met, in others additional support is required to enable COENER to

meet the purpose and/or to deepen and broaden its capability to carry out its responsibilities.

B. Specific Implementation Problems

Over the past two years of project implementation, several factors have contributed to the need for additional financing for the Project. These include the follcwing:

1. In all components, except CDE Administrative Support, the level of effort required to successfully implement the component was substantially underestimated. For example, in the Industrial Conservation Component, successful audits require detailed knowledge of the energy system in the industrial plant being audited. In every instance, however, no engineering drawings existed in the Industry, requiring additional time to develop such engineering drawing and plans. In the case of the mini-hydro component, the amount of time required to properly assess each of the 40 potential sites to be studied under the project was significantly underestimated. The reconnaissance, pre-feasibility, feasibility and final design, while resulting in excellent designs for the pilot projects, required additional time and effort beyond that originally estimated.

2. The GODR personnel supplied to implement the project, especially in the Industrial Conservation and Mini-hydro Components and mid-level project administrators for all components, generally lacked the experience to realistically meet the project objectives in the time frame contemplated. The level of professional engineering and mid-level experience to conduct energy audits, prepare scopes of work, negotiate and evaluate contract, prepare designs for international bids, procure equipment and materials, and manage foreign technicians was generally beyond their capability. In addition, there has been a serious shortage of counterpart personnel in several components. These factors resulted in lengthening the time required to conduct the activities cited.

3. Because of the problems with personnel discussed above, more time than anticipated was devoted to the training of counterparts, including hands on training and short-term training outside the Dominican Republic. Related to the shortage of personnel, there were unanticipated conflicts between use of personnel for implementation activities and allowing these same personnel to undertake short-term training, which further slowed down the pace of project implementation.

4. Low salaries of counterpart personnel and, more recently, the impact of inflation on buying power of existing salaries resulted in higher than anticipated turnover of counterpart personnel and contributed to project implementation delays.

5. It took longer than anticipated to procure essential, project related equipment. Such equipment was essential for several

project components, especially the Industrial Conservation Component, which required specialized measuring equipment to conduct the energy audits. Since this equipment and equipment under other components were not received in a timely fashion, much of the field work could not be initiated on-time.

III. PROJECT MODIFICATION

A. Introduction

There will be relatively minor modification to the Project Paper as a result of this PP Supplement. Those modifications that are recommended will impact on the Project Description, primarily the Industrial Conservation, Mini-hydro Development and Fuel Wood Development Components, and the budget, reflecting the increase in funding for technical assistance to consolidate and institutionalize the results desired. A new condition for extension of the technical assistance for the Mini-hydro Component has been imposed.

B. Current Status and Additional Needs

In general terms, the objectives have been achieved in one of the project components while the remaining four components require additional inputs to achieve the objectives set out for them.

1. CDE Advisory Program

The basic objective of this component was to assist CDE with specialized foreign technical assistance in priority problem areas where CDE needed assistance urgently in the short term. The U.S. firm of Burns and Roe was selected to provide the assistance which involved the provision of 56 man-months of support focused on 10 problem areas, including:

(i) coal procurement;

(ii) coal strategy and materials handling;

(iii) electrical system planning;

(iv) design and construction of transmission and distribution systems;

(v) system protection and hot line maintenance;

(vi) safety for linemen;

(vii) thermal plant efficiency;

(viii) plant maintenance;

(ix) quality control in construction; and

(x) financial reporting.

At this point, the TA has basically completed its work. It has provided the guidance, analysis, manuals, and studies contracted for, lacking only the submission of its final report (for details, see Annex 1, Item 4). Thus, the objective for this component has been achieved and no further resources are deemed necessary.

2. National Energy Planning

This component of the project is aimed at developing COENER's capacity to carry out national planning in the area of energy investment. The U.S. firm of IDEA Inc. was selected which involved the provision of 20 man-months of service in the areas of energy investment planning and the procurement and use of computer equipment.

The contractor is nearing completion of its contract and has been successful in assisting COENER to achieve the component objective. A National Energy Plan has been developed which identifies all energy project investments being studied in the country, includes an economic and technical analysis of each investment to determine its feasibility, and prioritizes these investments, including the annual financial requirement to carry them out. In addition, other analyses, studies, and strategies related to energy issues have been completed, published and distributed to public and private sector entities.

Although the basic objective of the component has been achieved, an extension of the contract is deemed necessary to "institutionalize" the planning capability of COENER. This is necessary because the original project did not contain training for COENER staff, beyond the on-the-job training provided by the contractor. While the on-the-job training has been critically important -- and will continue under the contract extension -- specialized short-term training in the U.S. for 2-4 COENER staff is deemed necessary to strengthen the Commission's in-house capability and enable it to effectively use computer energy software and develop analyses once the technical advisors depart. In addition, the contractor would assist the Commission to complete an analysis of the electricity sub-sector contemplated under the project but not completed. (For details, see Annex 1, item 2.)

It is estimated that, to complete the institutional development objective of the component, an additional 11 person-months of TA (5 person-months long-term and 6 person-months short-term) and 4 person-months of short-term training in the U.S. will be required.

3. Industrial Energy Conservation

The basic objective of this component is to initiate a program of industrial energy conservation including the identification of ways to improve energy efficiency in the industrial sector and the financing of these activities with a credit fund (provided under the complementary loan). To assist COENER in this effort, Fluor Corporation was contracted to supply 78 person-months of TA in a variety of areas related to the objective.

A significant proportion of the activities planned to achieve this component's objective has been accomplished to date. For example, 8 audits have been completed, audit training has been given to 13 COENER personnel and 33 private sector engineering companies, assistance has been provided to 11 industries to date in the field of energy conservation, COENER has published a number of pamphlets and brochures regarding energy conservation, and a number of energy coordinators have been identified and trained in industries assisted. Negotiations for implementation of the first two pilot projects are underway. The FIDE Industrial Credit Fund has been established. The funding provided to finance audits by the private sector is being utilized. (For details, see Annex 1, item 1).

However, due to several of the problems discussed earlier, a number of planned activities have not been fully completed and should be before the advisors depart. Most importantly, to ensure that it has the ability to carry out audits, an additional 30-40 audits of industrial plants should be completed by COENER; to help develop indigenous capacity to train energy auditors, a number of professors at the universities of UCMM and UNPHU should be trained; five energy conservation pilot projects should be completed (using funds provided under the complementary loan); and, to enable the industrial sector to utilize the lending capital available in the Energy Conservation Fund in FIDE (established under the complementary loan), COENER must be able to evaluate and approve project proposals attached to loan requests made by enterprises through its lending institutions (commercial banks, development bank, etc.).

On this latter point, the PDO/Energy Division proposes to evaluate the demand for loan funds for financing energy conservation measures one year into the implementation phase of the financing activity. This evaluation will determine whether demand is adequate to utilize the full amount programmed for this purpose. If not, these funds would be either reprogrammed or deobligated as appropriate.

To enable COENER to complete this component, it is estimated that COENER will require an additional 26 person-months of TA (18 long-term and 8 short-term).

4. Fuel Wood Development

The objective of this component is to develop a program of research and demonstration to be carried out by the Superior Agricultural Institute (ISA) in collaboration with the Energy Commission in two areas: tree production for energy; and technologies for converting wood to energy. To assist in the achievement of this objective, Purdue University was contracted to provide 62 persons month of assistance including a resident advisor and, inter alia, advisors in charcoal production, and forestry genetics and tree species improvement. In addition, Purdue provided the training of COENER and ISA personnel -both academic training and seminars.

The activities actually executed under the tree production element have partially achieved what was orignally envisioned. Nurseries with the capacity of 120,000 plants a year have been established and are operational; plantations for testing various fast-growing species, their spacing, and growth requirements have been established and are operational; and more than 400 has. of native forest have been set aside, are being studied, and data collected and analyzed. Nevertheless, the original project design did not provide enough TA to adequately carry out data collection and analysis activities. Most of the varieties being tested require a 3-5 year growth cycle before cutting is appropriate while only 24 months of a long term advisor was provided. Thus, unless the TA is extended, the resident advisor will depart before adequate data have been collected and analyzed and recommendations made concerning which varieties are appropriate under what local conditions. This information is essential for businessmen and farmers to make decisions concerning investment in energy plantations.

Regarding the activity involving the conversion of wood to energy, most of the work has been accomplished in the area of small scale charcoal production. Four of the six charcoal production ovens, included in the original design, have been built and are being tested. The output of these ovens is being tested in the project laboratory to determine its calorific/energy content. Nothing, however, has been done to assess the potential for producing charcoal on a large scale and electricity using wood -- the remaining two areas for which resources were provided. It is recommended that efforts aimed at studying the production of electricity using wood be eliminated and that resources earmarked for this activity (provided under the complementary loan) be reprogrammed for use by FIDE to finance energy plantations or energy conservation efforts by the private sector.

An activity which was not contemplated in the original design but which -- because of interest on part of the private sector -- has been initiated with success is support to the private sector in developing energy plantations as an investment. Advice, information, and limited extension service has been provided by the TA advisor and ISA to

15 entities in the private sector which are undertaking testing of fast growing tree varieties with the intent of developing energy farms. Given the importance of the involvement of the private sector to the success of producing fuel wood in large quantities in the country, continued support of this effort should be provided and encouraged.

To enable COENER and ISA to complete this component and continue support to the private sector, 26 person months of additional technical assistance will be required (18 p/m long term and 8 p/m short-term). In addition, a vehicle, seeds, and minimal communication equipment will be needed.

5. Mini-hydro Program

The objective of this component is to develop the institutional capability for the selection, design, construction and operation of mini-hydro facilities throughout the Dominican Republic. This includes the development of related community organizations, and the testing and demonstration of the economic, social and technical feasibility of mini-hydro facilitites in different settings. This was to be accomplished by providing technical assistance to a unit -named the small hydro plant (PCH)- formed by COENER, INDRHI and CDE. A U.S. firm, Harza Engineering, was selected to provide this assistance which included 52 person months of assistance: a long term resident advisor for 22 months and several short term advisors for 30 person months.

Considerable progress has been noted in the achievement of the objective for this component. The PCH unit has been formed and has completed 25 reconnaissance studies to identify and make basic, preliminary feasibility decisions about potential mini-hydro sites throughout the country. Based on this analysis, five sites with high potential were selected and two prefeasibility studies have been completed and three others are now in execution. Of the two prefeasibility studies completed, one full feasibility study has been completed and forms the basis for the first mini-hydro site for which construction and equipment financing is provided (under the complementary loan).

The original project design did not foresee the need for technical assistance to aid the PCH unit to contract with local construction firms, to advise on the construction of a mini-hydro facility, or to develop an operational and maintenance manual. However, because the PCH unit has a more limited capability than originally assumed, the need for additional technical support is now evident. This support would assist the PCH unit with bidding documents, their review, the contractor selection process, and the supervision of construction and review of manuals prepared by the construction contractor. In addition it would assist the PCH unit to complete three more prefeasibility

studies, making a total of five, and one more feasibility study thereby bringing up these totals to the original levels foreseen. (For more details, see Annex 1, Item 5).

To allow these final activities to be undertaken and the component's objective to be achieved, it will require an additional 18 person months of technical assistance -- all of which could be provided by short-term advisors.

However, before going forward with this TA package, the GODR must agree to transferring the PCH unit into a permanent organization, where it and its personnel would become a permanent fixture. As it now stands, the PCH unit exists in no single organization -- neither in COENER, INDRHI, or CDE. It is composed of personnel from all three of these organizations but institutionally resides in a "Never-Never Land" outside of these entities. To correct this situation, and help ensure that the training and experience gained under the project are not lost, the PDO/Energy Office recommends that, as a condition for receiving additional financial support for this activity, the GODR agree to integrate the PCH unit within the CDE. If that agreement cannot be obtained, then the funding provided for the construction of mini-hydro facilities (provided under the complementary loan) should be reprogrammed or decbligated, whichever is most appropriate, and the TA package cut back so as to provide for completion of only the feasibility studies originally contemplated.

C. The Proposed Budget

The following budget summarizes the additional financial resources needed to complete the project as described above:

	COMPONENTS/INPUTS	ESTIMATED COST
1.	National Energy Planning	
	A. Permanent Resident Advisor (5 p/m)	110,000
	B. Short Term Advisor Energy Demand by Sector (6 p/m)	80,000
	C. Training 1. On-the-job 2. Off-shore	60,000
	Sub-total	$250,000
2.	Industrial Conservation	
	A. Permanent Resident Advisor (18 p/m)	390,000
	B. Short Term Advisors (8 p/m) 1. Energy audit (2 p/m) 2. Train University professors (1 p/m) 3. Pilot Demonstration Project (3 p/m) 4. Financial Systems (2 p/m)	110,000
	Sub-total	$500,000
3.	Fuel Wood Program	
	A. Permanent Resident Advisor (18 p/m)	285,000
	B. Short Term Advisors (8 m/m) 1. Small scale - charcoal production (1 p/m) 2. Plantation Tests (1 p/m) 3. Native Forests (1 p/m) 4. Large scale - charcoal production (5 p/m)	90,000
	C. Equipment	25,000
	Sub-total	$400,000
4.	Mini-hydro Program	
	A. Feasibility Studies Advisor (2 p/m)	30,000
	B. Plant Design & Bid Document Advisor (3 p/m)	50,000
	C. Plant Construction Drawings Advisor (7 p/m)	120,000
	D. Plant Construction Advisor (6 p/m)	100,000
	Sub-total	$300,000 *
5.	Contingency/inflation	$150,000
	GRAND TOTAL	$1,600,000

* If OENER does not accept the condition that the PCH unit be permanently transferred to CDE then funds allocated to this line item will be reprogrammed for Contingencies/Inflation.

The foregoing budget breakdown reflects experience under the project with the existing contracts for technical assistance. The costs for permanent resident advisors are approximately 50% more than those for short-term advisors because of the inclusion of additional items such as housing, vehicle, shipment of household goods, education, allowances, home office support, etc. in the salaries of long-term advisors.

D. RECOMMENDATIONS

It is recommended that the technical assistance financed under the Energy Conservation and Resource Development Grant Agreement be extended as described above. Specifically, extensions are recommended for the National Energy Planning, Industrial Conservation, Fuel Wood and Mini-hydro Components, while no additional resources are recommended for the CDE Administrative Improvement component.

The extensions will enable the Project to meet the original project purpose and objectives established and, in some components, broaden and deepen the impact of project objectives. No extension to the PACD is requested.