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USAID/Dominican Republic

PROJECT ASSISTANCE COMPLETION REPORT

ENERGY CONSERVATION AND RESOURCE DEVELOPMENT
No. 517-0144

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PROJECT ASSISTANCE COMPLETION REPORT

ENERGY CONSERVATION AND RESOURCE DEVELOPMENT

No. 517-0144

I. BACKGROUND

The center of the economics and energy problems in the Dominican Republic continues to be the Country's heavy dependence on imported petroleum. The costs of imported oil and other petroleum products, along with a growing demand for energy, are placing a serious strain on the balance of payments and the development of the economy as a whole.

Recognizing the need for a fundamental restructuring of energy supply and consumption, the GODR established a National Energy Policy Commission (COENER) in 1979 to plan and coordinate the government's response to the crisis. In addition to a series of measures to raise energy prices, conserve available energy resources and increase non-petroleum energy usage, the GODR, through the COENER, undertook a National Energy Assessment with AID grant funding.

The Energy Assessment was completed in the fall of 1980. It analyzed energy supply and demand, laid out a series of general strategies for dealing with the energy problem, and made several specific recommendations. At the strategy level, the Assessment recommended a long term program emphasizing the development of hydroelectric resources, conversion of oil to coal fired generation of electricity, a major effort at energy conservation, and development of renewable energy resources. This strategy was approved by the COENER as the basis for Dominican energy policy.

The Energy Conservation and Resource Development Project was based upon the recommendations of the National Energy Assessment and the strategy adopted by the GODR. It consisted of a number of activities which were considered crucial to moving this strategy forward and achieving the long term objectives of the GODR in the energy area.

Date of Authorization:	Mar. 23, 1982
Date of Obligation:	April 22, 1982
Initial CPs Met:	August 22, 1983
PACD:	April 22, 1987 (Original)
	March 22, 1989 (Revised)

Amount Obligated (US\$)	L: 11,818,000	G: 5,714,000
Amount Expended (US\$)	L: 6,728,388	G: 5,322,322

Implementing Agencies:

- Technical Secretariat of the Presidency (STP)
- National Energy Policy Commission (COENER)
- National Institute of Hydraulic Resources (INDRHI)
- Dominican Electric Company (CDE)
- Instituto Superior de Agricultura (ISA)
- Dominican Republic Central Bank (FIDE)

II. PROJECT DESCRIPTION AND MAJOR OUTPUTS:

The goal of this project was to help reduce the dependence of the Dominican Republic on imported petroleum and to increase the availability of affordable energy to all Dominicans. The purposes of the project were to (1) develop a national energy investment planning capability, (2) initiate a continuing program of industrial energy conservation, (3) develop small scale hydro and wood fuels as alternative sources of energy, and (4) upgrade the technical, financial and planning capabilities of CDE.

The project consisted of five major components which are described below:

1. National Energy Planning:

The purpose of this component was to develop a national energy investment planning capability within de GODR. To achieve this purpose, the project financed technical assistance and equipment to COENER for evaluating alternative investments in energy conservation, resource development, and centralized and decentralized electricity generation on the basis of economic, social and technical criteria.

This component was completed as scheduled in January 1987. International Development Energy Associates, Inc. (IDEA) was the consultant who provided technical assistance to COENER. The effective date of contract was October 10, 1984 and the completion date April 22, 1987. The total contract amount was US\$566,220.29.

The major outputs are focused on technical assistance and training provided by the consultant in the following areas:

- a. Analysis of investment options.
- b. Pricing analysis (Petroleum Sector).
- c. Analysis of energy/macroeconomic interrelationship.
- d. Creation of a detailed energy-economic data bank with review of information and data-collection needs by COENER.
- e. Transportation energy issues.

The following studies leading to a national energy investment plan were concluded and published by COENER with the T.A. provided by the consultant:

- a. Financial Analysis of Major Energy Investment Projects Proposed for the Dominican Republic.
- b. Alternative Anaysis of Electricity Supply and Demand During 1985-1995 Period.
- c. Macro-Economic Implication Analysis of the Energy Investment Plan for the next decade (1985-1995).

IDEA also developed a number of computer programs to simulate the behavior of the country's economy with different investments plans.

Other Accomplishments:

- a. A prefeasibility study for exploitation of Sanchez lignite deposit was completed. COENER contracted Morrison-Knudson Engineers, Inc. (HCC) to perform the study, for the amount of US\$185,000. The study was satisfactorily completed in June, 1987.
- b. A COENER buy-in contract to perform energy co-generation and transportation studies was completed by Hagler, Bailey and Co. through the buy-in to the centrally financed Energy Conservation Services Program (ECSP). The studies were satisfactorily completed in April and January, 1987, respectively.

2. Industrial Energy Conservation Program:

This component supported government efforts, through the National Energy Policy Commission (COENER) to conduct energy analyses of industries, to identify opportunities for increasing energy efficiency in the industrial sector, to provide direct assistance to industries for this purpose, and to encourage a broader based effort on the part of the private sector in industrial conservation.

Activities:

- a. Energy Audits: Intended to identify opportunities for energy savings and to provide COENER with data for national energy planning purposes.

Under this sub-component the targets were exceeded, as a total of 80 audits were made (including 10 audits carried out by COENER), 8 more than the 72 in the original project description (Table 1).

- b. Assistance to Industries: To provide assistance in implementing the recommendations resulting from energy audits and in establishing plant level energy conservation programs.

Since the limited technical resources available to the Energy Conservation Division of COENER were used mainly to advance auditing activities and demonstration projects, there was relatively little field work in this subcomponent.

- c. Promotion and Training: This sub-component developed satisfactorily. COENER offered 19 courses on Industrial Energy Management and 4 on Energy Audit, which in total had more than 700 participants (Table 2). Universities and educational centers have continued offering similar courses using funds deposited in the Educational Credit Foundation for such purposes. The Energy Conservation Division of COENER created a registry of authorized energy auditors, where 73 private consulting engineers and/or engineering firms were registered and eligible to perform audits to be granted through the Audit Assist Program.

- d. Energy Conservation Pilot Projects: To encourage adoption of energy

conservation technologies by demonstrating their effectiveness in working situations.

Even though 14 projects were considered, only 4 could be completed (Table 3):

Projects which turned out to be not feasible:	5
Projects which were cancelled due to several implementation problems:	5
Projects satisfactorily completed:	4

e. Financial Assistance Program:

- 1) Audit Assistance Program: To provide grants covering up to 75% of the costs of audits conducted by private consulting engineering firms.

The initial audit cost limit of RD\$2,500.00 was found to be unrealistic, and was increased to RD\$25,000. Operating rules and application forms were issued, and applications were promoted through the registered engineers and/or engineering firms. A total of 64 audits were granted, and the program worked well until late 1987, when the STP tried to modify the program. This caused serious delays in the disbursement of funds, and since then the program was virtually stopped (Table 1).

- 2) Industrial Energy Conservation Credit Fund (FIDE): An \$8 million fund to finance implementation of energy conservation measures.

From the US\$3.75 million budgeted for this activity, A.I.D. disbursed to FIDE US\$2.6 million (RD\$6.9 million). The GODR disbursed RD\$3.0 million from the RD\$4.0 million counterpart.

The credit fund was established in 1985, but the FIDE Credit Fund window at the Central Bank was closed during part of the 1st semester of FY 1987 due to monetary policies, which slowed down the industrial conservation activity considerably, and the funds moved very slow until the second semester of FY 1988. During that semester FIDE approved loans for more than RD\$5.8 million, and disbursed more than RD\$4.0 million. As of PACD, 14 of the 16 projects financed under the project were satisfactorily completed (Table 4).

- f. Technical Assistance: The main contractor was Fluor Engineers, Advanced Technology Division, Inc., with Daniels Construction Company International as subcontractor. The effective date of contract was August 12, 1983, and the completion date August 5, 1988. The total contract amount was US\$1,462,920.

3. Mini-Hydro Development Program:

The purpose of this program was 1) to develop the institutional capability for the selection, design, construction and operation of mini-hydro

facilities throughout the country, including development of related community organizations, and 2) to test and demonstrate the economic, social and technical feasibility of mini-hydro operations in different settings.

Activities:

- a. Site Selection and Design: Fifty five (55) sites with power output varying from 100 kw to 1,500 kw were screened, with all the information available completed and analyzed. Only 25 sites were selected to make reconnosaince visits, because the others were not apt or have been studied previously. Every site visited has his report with the following items: Proposed Schemes, Final Schemes, Access Roads, Geology, Site Photographs, Site Geology, Social Studies, and Cost Estimated, also in some sites furthers studies were made such as economic and financial analysis, social and enviromental studies as well as technical aspects.

For the evaluation 11 sites were visited and are described as follows:

Project -----	River -----	
Masacre	Dajabon	
Jura	Jura	
Banilejo	Banilejo	(*)
Villa Guerra	Bani	
La Casualidad	San Juan	(*)
El Seybo	Soco	
Yuboa	Yuboa	(*)
La Palma	La Palma	
Yaquesillo	Yaquesillo	
Guayabal	Guayabal	(*)
Manuel Bueno	Arroyo Luisa	(*)
Comatillo	Comatillo	(*)

From those sites, evaluation studies were made for the projects marked with an (*).

Even Guayabal was the first report finished and showing a good rate of return, due to the high investment cost was postponed for a letter date, and all the attention was concentrated in the Yuboa project which show also a good rate of return.

With Yuboa selected, the final design work started as well as the documents for request of proposal to supply the electric and mechanical equipment and to do the civil works. The basic design criteria was to have a simple and funcional project.

- b. Construction/Installation and Operation: Once the construction drawing as well as the documents for requesting of proposal were completed, bids were called to supply the electro-mechanical equipment knowing as Lot I, and the construction of the civil works

and installation and commissioning of the equipment known as Lot II.

The electro mechanical equipment have been supply in about 90%, and is in site, the civil work contract at the PACD have done about 45%.

c. **Technical Assistance:** The technical assistance was performed by a resident engineer and short technical assistance in the different discipline conforming a mini hydro project whom trained the mini hydro group in the following activities:

- a. Reconnaissance Studies
- b. Evaluation Studies
- c. Demand Studies
- d. Financial & Economic Analysis
- e. Geological Studies
- f. Project Schemes
- g. Environmental Studies
- h. Ranking of Projects
- i. Costs Estimates
- j. Feasibility Studies
- k. Final Designs
- l. Preparation of Bidding Documents

4. Wood Fuel Development Program:

The purpose of this component was to develop fuel wood as an alternative energy source for the country.

This component financed a program of research and demonstration carried out by the Superior Agricultural Institute in Santiago (ISA) in collaboration with the Energy Commission (COENER) in the areas of tree production for energy and technologies for converting wood to energy.

The major activities and investments expenditures of this component were completed in July, 1987. An Official closing ceremony took place at ISA on August 8, 1987. Final results on this research program, such as most appropriate rapid growth tree species and kiln designs, were presented to COENER, STP, AID and other public and private entities interested in investments in this area. This results were also forwarded to AID/LAC and ROCAP. Long-term training and long-term data collection were underway until PACD.

Activities:

- a. **Tree Production Research Program:** A total of 142 test plantations were started in 20 different locations with 40 different tree species, to conduct research on plantations and species selection and management. This produced 18 technical notes and 10 B.S. graduation theses.

A research on native forest management was added to the PROAG, that resulted in 7 pilot plots, 30 permanent plots, 4 silvicultural trials, studies of litter fall, sprouting and seed trees. A total of

10 technical notes and 10 B.S. graduation theses were produced.

- b. Wood Conversion Program: Nine (9) brick kilns were constructed and tested, which produced eight technical notes and two B.S. graduation theses.
- c. Technical Assistance: Purdue University was the major contractor for this component and worked principally with the Superior Institute of Agriculture (ISA) in Santiago on applied research in the area of fast growing varieties. The effective date of contract was June 2, 1983 and the completion date of contract February 22, 1989. The total cost of the contract was US\$1,121,479.
- d. Other Accomplishments:
 - 1) On February 19, 1987, a one day seminar was held at Sheraton Hotel with approximately 250-300 participants: bankers, private sector investors, COENER, AID, ISA and government representatives, for the purpose of distribute the end of the project research findings of ISA and Purdue Universities. A second seminar was held on May 13, 1988. Also three courses were conducted for consultants, investors and technicians covering applications for energy farms loans, with more than 200 participants.
 - 2) FIDE credit fund for energy farms: A RD\$4.0 million credit fund was established in FIDE using Local Currency Funds (CBI) in early 1986. At PACD, 12 loan applications covering a total of 1,650 hectares had been approved by FIDE for a total of RD\$3.9 million (Table 5), and more than 80 projects were in different stages of study and/or evaluation, for more than 17,600 hectares to be used as energy farms.
 - 3) Demonstrative Energy Farms Program: COENER signed ten (10) cooperation agreements with different institutions like universities, comunal centers, rural parishes, etc, for the implementation of Pilot Energy Farms, using more than RD\$390,000 from counterpart funds (Local Currency Funds). As a result there are now more than 60 hectares of small farms of several forest species to collect growth data, land yield, etc. (Table 5).

5. CDE Technical Assistance Program:

To upgrade the technical, financial and planning capabilities of CDE.

The technical assistance for CDE provided by Burns & Roe, Inc., was completed in June 1985. The effective date of contract was February 14, 1984 and the completion date of contract February 14, 1986. The total cost of the contract was US\$700,000.

The project financed technical assistance to the Dominican Electricity Corporation in the following areas:

- a. ITABO I Operation Supervision.
- b. Transmission and Distribution Engineering.
- c. System Planning.
- d. System Protection and Hot Line Maintenance.
- e. Lineman Safety.
- f. Thermal Plant Efficiency Analyses.
- g. Construction Quality Control.
- h. Maintenance Programming.

CDE requested and obtained an extension of the contract to include additional work for the Rio Haina Plant Circulating Water System improvement. CDE directed the consultants to do additional engineering in several specific areas not covered under the Technical Assistance Contract. The total cost of the additional work was US\$230,000, which were provided by the Caribbean Basin Initiative of the U.S. Government (A.I.D. Local Currency Program). Furthermore, CDE extended with own funds the technical assistance services in several areas until June, 1987.

III. PRESENT STATUS OF PROJECT

Upon project termination, the Technical Secretariate of the Presidency, from which COENER depends administratively, did not renew the contracts of the majority of project technicians working at COENER, for which reason most had to withdraw since they they were paid with funds the Local Currency Program (P.L-480), and it was stipulated that such fund could only be used to cover counterpart expenses during the life of the project. This resulted in a standstill of almost all COENER activities and in a loss of almost all expertise accumulated during project implementation.

The project has made evident the lack of effectiveness which the technical assistance offered government institutions may have where there is no administrative career and where the staff working in such institutions is subject to changes for purely political reasons, in spite of technical expertise and dedication to work. This is the case of COENER, where a great amount of money was invested in technical assistance in almost every component, and at the end only remain one or two from over 20 technicians which were trained during the project. On the other hand, almost all technicians trained are working in other Government institutions, or better still, in private enterprises, from where they can help solve the country's energy problems.

In general it can be said that almost all long-term project objectives were achieved, as demonstrated by the success of the energy farms and industrial energy conservation programs, in spite of the long bureaucratic process necessary to obtain FIDE funding.

IV. RECOMMENDATIONS

1. Funding technical assistance programs to government institutions should be made only when these institutions have an administrative career which can

guarantee their personnel certain stability, in order to give continuance to the programs and policies resulting from such technical assistance. If the objective is to train technicians, there are much more effective ways than offering technical assistance to Government institutions, where the personnel selection process may not be precisely for academic merits.

2. When it is foreseen that the project should continue beyond termination of the AID-financed program, personnel working in the implementing agencies should not be paid with funds either originating from the project or from the Local Currency Program (PL-480), as disbursement of these funds ends when the project terminates, and it may prove very difficult for the implementing institution to suddenly increase its personnel payroll. If it is desired that the project continue beyond the PACD, project personnel should be passed gradually to the implementing institution's payroll.

V. POST PROJECT MONITORING AND ADDITIONAL INVESTMENTS

1. Monitoring:

In view of personnel changes being carried out in COENER, it is possible that at the end accounting errors may have been committed with Project funds, in both funds originating from AID as in counterpart funds originating from the Local Currency Program. Therefore, we recommend an audit be carried out of the project accounts handled by COENER.

Given the virtual cassation of all project activities upon the termination of direct AID funds, USAID/DR does not foresee any need to continue monitoring the COENER's activities. USAID will monitor the continuation of the construction of the Yuboa Mini-hydro Project, and the Industrial Energy Conservation and Energy Farms Credit Funds in FIDE.

2. Additional Investments:

The Rio Yuboa Hydro Project was closed as the PACD was not extended. In the semester report meeting, and in the interest of USAID to complete the project, it was agreed to try to facilitate funds from the Local Currency Program for this purpose. An estimated amount to complete the civil works, supply and installation of the penstock and installation of the hydro-electric equipment was worked-out, showing a need of about RD\$8,200,000. At present the Local Currency Program Office is processing a CDE request sponsored by the STP to approve and allocate funds for completion of the project.

ANNEXES

TABLE 1

PROJECT	AUDITOR	Date	Amount Approve.	Savings BEP/yr	Savings RD\$/yr	
AUDITS FINANCED UNDER THE PROGRAM						
1	Aceros del Cibao	ITACA	Oct-87	7,661	440	85,290
2	Aceros en General	ESIOCA	Apr-86	7,581	295	55,861
3	Artesania Lime	Dalmau	Jun-87	9,077	138	45,515
4	Barcelo Industrial	Acosta	Mar-87	24,534	5,069	763,401
5	Camisas Bazar	ITACA	Nov-87	12,172	232	39,416
6	Cartones Haina	Vector	Aug-85	20,180	3,080	2,935,637
7	Celso Perez & Cia.	Acosta	Nov-87	11,081	381	134,925
8	Centro de Pediatria	Vector	Jun-86	8,837	142	57,540
9	Ceramica Ind. del Caribe	ARGO	Jan-87	23,134	3,010	494,331
10	Cerveceria Vegana	EXERGIA	Feb-87	25,000	5,627	1,304,000
11	Cervec. Nac. Dom.	PROSOL	Jun-87	23,699	23,328	7,355,543
12	Cia. Embotelladora (Pepsi)	Dalmau	May-86	13,232	170	61,925
13	Clinica Abreu	PROSOL	May-87	11,243	205	42,239
14	Clinica Corominas	Dalmau	Apr-86	10,998	198	70,995
15	Embotelladora Dominicana	PROSOL	Jan-86	9,838	310	56,354
16	Envases Antillanos	Dalmau	Mar-88	19,614	1,489	374,844
17	Envases Plasticos	Vector	Dec-86	12,056	357	148,921
18	E. Leon Jimenez	Vector	Jun-86	24,316	1,879	152,517
19	Fabrica de Helados Bon	PROENERGIA	Aug-87	11,407	314	109,727
20	Fab. Nac. Pastas Alim.	Bolivar	Aug-88	20,882		88,903
21	Fibras Dominicanas	ARGO	Sep-88	23,067	1,948	6,010,702
22	Halifax	ENERINSA	Aug-88	20,041	623	67,863
23	Hielo Cristal	SERCITEC	Dec-85	6,058	568	712,937
24	Hotel Costa Atlantica	EXERGIA	Sep-88	23,613	1,511	46,496
25	Hotel Decameron	EXERGIA	Aug-88	21,000	273	122,796
26	Hotel Dominican Concorde	Gumer	Oct-86	25,000	563	2,327,506
27	Hotel Dorado Naco	Dalmau	May-86	14,625	448	219,210
28	Hotel El Embajador	ESIOCA	Jun-86	14,087	2,875	740,571
29	Hotel Holiday Inn	Vector	Sep-87	24,997	1,203	309,785
30	Hotel Lina	Acosta	Apr-87	25,000	505	110,343
31	Hotel Montemar	Dalmau	Jun-87	16,995	499	162,698
32	Hotel NACO	Acosta	Aug-86	11,914	336	140,270
33	Hotel Sheraton	Vector	Jan-87	25,000	2,197	475,437
34	Hotel Villas Doradas	SERCITEC	Jan-87	13,800		265,729
35	Ilguiflod, S.A.	Rodriguez	Apr-86	14,469		
36	INASCA (Moldeado)	SERCITEC	Jan-87	13,416	263	305,592
37	INDOGRASCO	Acosta	Apr-87	16,749	462	69,933
38	Indo-Quimica	ESIOCA	Mar-87	16,685	355	536,369
39	Industria Jabonera	PROENERGIA	Feb-88	15,191	556	251,872
40	Industria Sal Dominicana	Rodriguez	May-87	14,051	6,000	994,606
41	Industrias Cheico	ESIOCA	Jan-87	23,539	2,119	260,611
42	Industrias Ja Ja	Acosta	Nov-87	9,804	230	33,936
43	Industrias Portala	Vector	Nov-86	23,435	2,498	363,000
44	Industrias Selecta	ARGO	Aug-86	22,833	2,952	73,829
45	Industrias Suprema	Rodriguez	Dec-87	10,082	22	2,116
46	Industrias Vegana, CxA	ESIOCA	Mar-86	10,901	1,037	213,305
47	K & Q Dom. de Papel	ECOSA	Aug-88	22,365	7,327	792,800
48	Lab. Dr. Collado	PROSOL	Dec-87	14,626	200	41,410
49	Listin Diario	ARGO	May-86	13,617	171	66,548
50	Mabramo & Cia., CxA	Bolivar	Aug-88	25,000	167	45,540
51	M. Gonzalez I	PROSOL	Aug-86	9,752	657	217,857
52	M. Gonzalez II	PROSOL	May-87	12,953	255	217,357
53	Panificadora Pepin	PROCO	May-88	13,687	358	40,839
54	Panificadora Reyes	Rodriguez	Aug-88	9,762	231	29,062
55	Pasteurizadora Rica	Acosta	May-87	17,372	507	123,838
56	Posada Cibaena	Rodriguez	Nov-86	15,978	1,159	194,959
57	Procesadora de Citricos	EDESA	Jun-87	20,879	69	149,216
58	Procesadora San Martin	Dalmau	Aug-86	12,247	642	117,844
59	Productos Diversos	PROCO	May-86	5,771	11	28,417
60	Supermercado Aurora	ITACA	Dec-87	7,655		
61	Tavares Industrial	PROSOL	Dec-87	14,683	346	171,841
62	Teneria Acra	PROSOL	Jan-86	14,400	325	68,192
63	Textil del Caribe	PROCO	Feb-87	11,245	1,905	152,540
64	Troquelados Dominicanos	Dalmau	May-85	5,845		
			1,010,729	91,097	31,653,756	

TABLE 1

PROJECT	AUDITOR	Date	Amount Approved	Savings BEP/yr	Savings RD\$/yr
AUDITS FINANCED BY THE INDUSTRIES					
1	Banco Agricola	PROENERGIA	Nov-87		
2	CODAL	Vector	Dec-87	7,544	891,348
3	Destileria del Yaque	ITACA	Nov-87	4,192	390,288
4	Hotel Rio San Juan	Alonzo	Feb-88		
5	Indutec	PROSOL	Aug-88		
6	Teneria Bermudez	ITACA	Aug-88		
				11,736	1,281,636
AUDITS CARRIED OUT BY COENER					
1	Casa Hache	COENER			
2	Ceramica del Caribe	COENER		3,421	
3	Cia. Anonima Tabacalera	COENER			
4	Edificio San Rafael	COENER			
5	Fabrica de Vidrio	COENER		(*) 35,840	1,750,000
6	Induspapel	COENER		(*) 20,733	650,000
7	Ingenio Porvenir	COENER		(*) 16,375	580,000
8	Molinos Dominicanos	COENER			
9	Panco Popular	COENER			
10	Tejanca (Elec.)	COENER		(*) 237	30,481
				76,606	3,010,481

(*) Pilot Project

TABLE 2

INDUSTRIAL ENERGY MANAGEMENT COURSES

Place	Date	No. of Participants
1 Santo Domingo	Jan-84	100
2 Santo Domingo	Sep-84	38
3 Puerto Plata	Oct-86	41
4 Instituto Dominicano de Tecnologia	Jan-87	46
5 Universidad PUCMM, Santiago	Apr-87	40
6 Fuerzas Armadas	Aug-87	20
7 Universidad Central del Este	Nov-87	83
8 Corporacion del Acueducto de Sto. Dgo.	Dec-87	21
9 Policia Nacional	Dec-88	26
10 Universidad Autonoma de Sto. Domingo	Apr-88	64

Coorp. de Empresas Estatales (CORDE):

11 Teneria FA-2	May-88	13
12 Fabrica de Pinturas PIDOCA	May-88	13
13 Fabrica de Sacos FASACO	May-88	10
14 Fabrica Dom. de Cemento	May-88	14
15 Fabrica de Papel INDUSPAPEL	May-88	13
16 Fabrica de Vidrio FAVIDRIO	May-88	23
17 Molinos Dominicanos	May-88	17
18 Planta de Recauchado	May-88	5
19 Marmoleria Nacional	May-88	8

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ENERGY AUDIT COURSES

Place	Date	No. of Participants
1 Puerto Plata	Aug-81	27
2 Sto. Domingo	Nov-85	48
3 Sto. Domingo	Apr-86	15
4 Universidad APEC, Sto. Domingo	Apr-87	19

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TABLE 3

INDUSTRIAL ENERGY CONSERVATION PILOT PROJECTS

PROJECT	DATE	STATUS	TOTAL AMOUNT RD\$	AMOUNT APPROVED RD\$	AMOUNT DISBURSED RD\$	SAVINGS BEP/YR	SAVINGS RD\$/YR
1 Tejanca (Vapor)	Jul-85	Finished	134,554	134,554	92,094	339	216,000
2 Ingenio Porvenir	Nov-85	Finished	338,728	338,728	235,880	16,375	580,000
3 Fábrica de Vidrio	Nov-85	Not Feasible	27,800	27,800	27,800		
4 Induspapel	Nov-85	Canceled	621,246	621,246	41,266		
5 Tejanca (Elec.)	Nov-85	Canceled	393,768	393,768	15,687		
6 Fábrica de Sacos	Nov-85	Not Feasible	27,000	27,000	27,000		
7 Refinería de Sal	Dec-85	Canceled	871,832	871,832	43,340		
8 Fact. de Arroz C. A.	Jan-86	Not Feasible	37,768	18,884	18,884		
9 Panificadora Reyes	Mar-87	Finished	186,360	93,180	89,995	250	29,062
10 Cementos Cibao	Jun-87	Finished	1,355,200	500,000	500,000	170,000	----
11 Molinos de Arroz Cibao	Jul-87	Not Feasible	10,000	5,000	5,000		
12 Edif. San Rafael	Oct-87	Not Feasible	29,700	29,700	7,425		
13 Cervec. Nac. Dom.	Nov-87	Canceled	48,200	24,200	24,200		
14 Ind. Casabe Almonte	Mar-88	Canceled	16,890	8,445	8,445		
			4,099,046	3,094,338	1,137,016	186,964	825,062

TABLE 4

FIDE - INDUSTRIAL ENERGY CONSERVATION CREDIT FUND

Date: 28-Sep-89

CONTRIBUTIONS:	Budget	Actual
AID:	US\$ 3,750,000	RD\$ 6,922,701 (US\$2,592,106)
GORD:	RD\$ 4,000,000	RD\$ 3,000,000
Recovered:		RD\$ 2,431,431
		RD\$ 12,354,132

PROJECT	DATE	TOTAL AMOUNT RD\$	AMOUNT APPROVED RD\$	AMOUNT DISBURSED RD\$	AMOUNT EXPENDED RD\$
1 Productos del Sol, CxA	02-Apr-85	499,917	250,000	250,000	250,000
2 Cerámica del Caribe	23-Aug-85	399,111	211,529	211,529	211,529
3 Cartones Haina	29-Aug-85	3,117,727	1,500,000	1,500,000	1,500,000
4 Barceló Industrial	19-Dec-85	223,283	167,462	167,462	167,462
5 Hielo Cristal	07-Feb-86	1,448,047	782,000	782,000	782,000
6 Briquetas Nacionales	28-Nov-86	1,099,771	627,035	627,035	627,035
7 Hotel NACO	03-Mar-87	257,001	134,007	134,007	134,007
8 M. Gonzalez I	26-Jun-87	624,103	184,600	184,600	183,204
9 INASCA (Moldeado)	15-Jan-88	859,456	477,000	477,000	477,000
10 Briquetas Dominicanas	29-Feb-88	1,589,768	1,000,000	747,325	750,000
11 Fábrica de Hornos	29-Feb-88	335,320	200,000	200,000	200,000
12 Posada Cibaena	28-Apr-88	803,170	490,000	490,000	490,000
13 INDOGRASCO	08-Jul-88	272,231	190,930	190,930	190,930
14 Industria de Sal Dom.	26-Jul-88	1,156,406	800,000	800,000	800,000
15 Biosistema Dom., S.A.	26-Jul-88	3,413,751	Cancelled	--	--
16 Cartonaje Ind. Dom.	12-Aug-88	2,580,000	1,867,137	0	1,867,137
		18,679,062	8,881,700	6,761,888	8,630,304

TABLE 5

ENERGY FARMS PROGRAM
(Local Currency Funds)

PROJECT	DATE	AMOUNT APPROVED	AMOUNT DISBURSED	COMPLETION DATE	

FIDE CREDIT FUND FOR ENERGY FARMS					

1	Miguel F. Beltré	29-Mar-88	65,021	49,671	2do Sem 90
2	Francisco Rodríguez	15-Jun-88	105,882	43,451	2do Sem 90
3	Finca El Choco	26-Jun-88	127,571	56,777	2do Sem 89
4	Pedro J. Tejeda B.	08-Jul-88	69,836	0	2do Sem 90
5	Rancho La Cana	08-Jul-88	102,443	102,443	1er Sem 90
6	Ismael Taveras G.	12-Aug-88		Withdrawn	
7	Las Brenas, C. por A.	12-Aug-88	338,272	173,314	2do Sem 90
8	Rancho Nizao	12-Aug-88	99,333	56,274	1er Sem 90
9	Leandro Rodríguez A.	12-Aug-88	75,000	25,294	2do Sem 90
10	Proyecto la Pita	12-Aug-88	798,676	266,225	2do Sem 90
11	Duquela & Duquela, S.A.	12-Aug-88	1,631,947	979,165	2do Sem 90
12	Floresca, S.A.	12-Aug-88	360,311	216,185	2do Sem 90

		3,774,292	1,968,799		

DEMONSTRATIVE ENERGY FARMS PROGRAM

1	COENER-ITECO	20-Feb-86	140,000	140,000	Feb-91
2	COENER-UNPHU	25-Mar-86	40,000	40,000	Mar-91
3	COENER-UASD	30-May-86	90,000	65,000	May-91
4	COENER-Pro-Ambiente	18-Jun-86	30,000	25,000	Jun-91
5	COENER-Plan Cordillera	08-Apr-87	50,000	12,500	Apr-92
6	COENER-INDENOR	11-Apr-87	30,000	0	Apr-92
7	COENER-Santa Lucia	23-May-87	30,000	30,000	May-92
8	COENER-UNNE	04-Jun-87	30,000	30,000	Jun-92
9	COENER-San José de Ocoa	28-Oct-87	15,000	15,000	Oct-92
10	COENER-San Isidro	14-Apr-88	50,000	50,000	Apr-93

		505,000	407,500		

TABLE 6

FINANCIAL SUMMARY - AID PROJECT FUNDS

PROGRAM (1)		TOTAL AID OBLIGATION (2)	EARMARKED (3)	AVAILABLE (4)=(2)-(3)	COMMITTED (5)	DISBURSED (6)	UNLIQ. COMMITMENT (7)=(5)-(6)	UNLIQ. OBLIGATION (8)=(2)-(6)
1 Ntl. Energy Planning		756,000	839,289	(83,289)	839,289	764,425	74,864	(8,425)
a Sanchez Lignite	L	256,000	276,920	(20,920)	276,920	210,920	66,000	45,080
b Tech. Ass. & Trng.	G	500,000	562,369	(62,369)	562,369	553,505	8,864	(53,505)
2 Ind. Conservation		8,838,000	8,521,201	316,799	8,521,201	6,160,378	2,360,823	2,677,622
a Instruments	L	124,000	139,000	(15,000)	139,000	100,000	39,000	24,000
b Vehicles	L	75,000	63,395	11,605	63,395	54,780	8,615	20,220
c Publ. and Mat.	L	225,000	369,969	(144,969)	369,969	364,409	5,560	(139,409)
d Pilot Projects	L	1,000,000	1,063,494	(63,494)	1,063,494	599,687	463,807	400,313
e Audit Finance Prg.	L	1,000,000	1,181,167	(181,167)	1,181,167	850,020	331,147	149,980
f Credit Fund	L	3,749,000	4,063,350	(314,350)	4,063,350	2,592,106	1,471,244	1,156,894
g Survey (IL#16)	L	5,000	0	5,000	0	0	0	5,000
h Contingency	L	1,120,000	0	1,120,000	0	0	0	1,120,000
i Technical Assist.	G	1,400,000	1,472,920	(72,920)	1,472,920	1,444,398	28,522	(44,398)
j Training	G	140,000	164,406	(24,406)	164,406	154,978	9,428	(14,978)
k Training	L	0	3,500	(3,500)	3,500	0	3,500	0
	L	7,298,000	6,883,875	414,125	6,883,875	4,561,002	2,322,873	2,736,998
	G	1,540,000	1,637,326	(97,326)	1,637,326	1,599,376	37,950	(59,376)
3 Mini-hydro Devlp.		4,166,000	3,605,547	560,453	2,880,922	1,570,116	1,310,806	2,595,884
a Technical Assist.	G	906,000	944,970	(38,970)	944,970	846,072	98,898	59,928
b Vehicles	L	165,000	184,176	(19,176)	184,176	177,629	6,547	(12,629)
c Pilot Projects	L	2,600,000	2,476,401	123,599	1,751,776	546,415	1,205,361	2,053,585
d Contingency	L	495,000	0	495,000	0	0	0	495,000
	L	3,260,000	2,660,577	599,423	1,935,952	724,044	1,211,908	2,535,956
	G	906,000	944,970	(38,970)	944,970	846,072	98,898	59,928
4 Wood Fuel Devlp.		2,140,000	2,206,621	(66,621)	2,206,621	2,151,162	55,459	(11,162)
a Tree Research Prgm.	L	258,000	462,312	(204,312)	462,312	462,312	0	(204,312)
b Wood Convers. Prgm.	L	162,000	247,267	(85,267)	247,267	247,267	0	(85,267)
c Tech. Ass. & Trng.	G	1,136,000	974,198	161,802	974,198	918,739	55,459	217,261
	L	0	183,000	(183,000)	183,000	183,000	0	(183,000)
d Vehicles	L	120,000	51,303	68,697	51,303	51,303	0	68,697
e Energy Farms	L	255,000	288,541	(33,541)	288,541	288,541	0	(33,541)
f Contingency	L	209,000	0	209,000	0	0	0	209,000
	L	1,004,000	1,232,423	(228,423)	1,232,423	1,232,423	0	(228,423)
	G	1,136,000	974,198	161,802	974,198	918,739	55,459	217,261
5 COE Technical Assist.		700,000	700,000	0	700,000	700,000	0	0
a Technical Assist.	G	700,000	700,000	0	700,000	700,000	0	0
6 Proj. Adm. & Eval.		782,000	695,675	86,325	688,467	650,573	37,894	131,427
a Adm/Personnel	G	478,570	551,424	(72,854)	547,244	509,350	37,894	(30,780)
b Adm/Mat'l-Eqp-Op	G	149,630	85,053	64,577	85,053	85,053	0	64,577
c Adm/Evaluation	G	153,800	59,198	94,602	56,170	56,170	0	97,630
7 Advance Control		0	66,733	(66,733)	66,733	0	66,733	0
8 Contingencies		150,000	0	150,000	0	0	0	150,000
TOTAL	L	11,818,000	11,053,795	764,205	10,329,170	6,728,389	3,600,781	5,089,611
	G	5,714,000	5,581,271	132,729	5,574,063	5,268,265	305,798	445,735
		17,532,000	16,635,066	896,934	15,903,233	11,996,654	3,906,579	5,535,346

TABLE 7

SUMMARY OF GODR COUNTERPART
PROJECT EXPENDITURES

PROGRAM	BUDGET RD\$	ACTUAL RD\$
1 National Energy Planning	50,000	574,029
2 Industrial Energy Conservation	4,852,000	4,039,285
3 Mini-hydro Development	868,000	967,706 (*)
4 Wood Fuel Development	470,000	5,292,968 (**)
5 CDE Technical Assistance	50,000	713,680
6 Administration and Evaluation	0	746,472
	<u>6,290,000</u>	<u>12,334,140</u>

(*) Does not include the cost of the land for the mini-hydro pilot project which was estimated at RD\$80,000

(**) Includes RD\$4,000,000 FIDE credit fund for Energy Farms (not included in the original PROAG)