

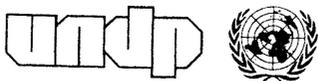
GLOBAL ENVIRONMENT FACILITY

Peru

Technical Assistance to the Centre for Energy Conservation

Project Document

*This Project Document has been edited to facilitate public dissemination.
The original is on file in the GEF Office at UNDP Headquarters in New York.*



GLOBAL ENVIRONMENT FACILITY

Peru

Technical Assistance to the Centre for Energy Conservation

Project Document

*This Project Document has been edited to facilitate public dissemination.
The original is on file in the GEF Office at UNDP Headquarters in New York.*



A. CONTEXT

1. Description of sector

In 1989 Peru consumed 6,739 thousands of tons of oil equivalent (Mtoe) of commercial energy. Of this energy, 35 percent was consumed by the industrial sector, 40 percent by the transport sector, and 25 percent by the residential, commercial and service sectors. Total energy supply by sources for that year was: 7,383 Mtoe of petroleum, 1,131 Mtoe of hydroelectric energy, and 4,917 Mtoe from other sources. Approximately 991,000 Mtoe of petroleum and coal were imported.

Peru has become a net importer of energy and will remain so as long as no new national energy resources are developed. Inefficient energy use increases imports, which have a negative impact on the national debt problem and therefore on the national economy. Dependence on imported energy also increases the national economy's vulnerability to changes in the international economy, especially to world oil market fluctuations.

This project will help reduce the negative impact of importing energy by demonstrating a variety of energy saving techniques. Energy conservation measures represent the most viable short-term alternative to an energy deficit. Through such measures, approximately 15 percent of the total energy supply can be saved and used elsewhere. Likewise, the project will help lay the foundation for pollution control programmes for the industrial and transport sectors. Environmental activities are closely related to energy conservation. Energy conservation and efficient use will reduce pollution, primarily from the combustion fumes of boilers, ovens, and diesel-powered vehicles.

2. Host country strategy

The 1987-1990 National Development Plan granted high priority to the rational, integrated use of energy through a more efficient employment of existing resources.

3. Prior or ongoing assistance

In recent years the United Nations Development Programme (UNDP) and the United Nations Department of Technical Cooperation for Development (DTCD) have provided support to the energy sector through two projects: Assistance to CENERGIA (PER/86/011) and Assistance to CENERGIA, Phase II (PER/88/009). These projects conducted energy audits and demonstrations of new technologies through which energy savings were quantified and achieved, and provided training to CENERGIA engineers for institutional strengthening.

The results of the latter project, Assistance to CENERGIA, Phase II include:

- Establishment of a centre of excellence within Latin America in the field of energy end-use efficiency.
- Savings of more than 240,000 barrels of oil equivalent in the 1989-1990 period by businesses that implemented improvements identified by energy audits.

- Significant savings achieved by businesses in the productive sector with technicians trained in courses given by CENERGIA. These savings have been calculated at more than 100,000 barrels of oil equivalent each year.
- Reductions in fuel consumption which have reduced carbon dioxide (CO₂) production by approximately 170,000 tons annually.

Analysis of the energy audits conducted in various industries suggests that adoption of energy efficiency measures could result in potential savings of 7 million barrels of petroleum per year (US \$200 million). Of these potential savings 40 percent, or 2.8 million barrels, could be achieved with little or no investment, with economic payback periods of under six months. Additional savings of 4.2 million barrels (US \$115 million) of petroleum could be realized through capital investments with economic payback periods of two to three years.

4. Institutional framework

In February 1985, with Supreme Decree No. 005-85-EM/VM, CENERGIA was created by the Peruvian government as a non-profit institution, to be part of the Department of Energy and Mines. CENERGIA's role is to undertake technological and scientific activities in order to encourage energy saving and substitution in Peru. These activities are of great importance given Peru's increasing need to import growing quantities of petroleum products and ration electric power.

B. PROJECT JUSTIFICATION

1. Problem to be addressed and the present situation

Energy is a fundamental necessity for economic growth, and sustains the socioeconomic well-being of any country. The current production of petroleum in Peru, the primary source of energy, has become insufficient to meet current and future demand. Peru now has two options to meet its short- and medium-range energy needs while it intensifies its efforts to develop national energy resources. The first is to import energy; the second is to reduce the demand for energy through efficient production, distribution and use.

Given the financial strain of importing petroleum on Peru's limited foreign currency reserves, the second option of improving efficiency should clearly be pursued. Although it cannot fully solve the problem, it can reduce the impact of energy imports on the national economy. The negative effects of importing energy can be reduced significantly if a clear policy and a national programme for energy conservation and saving are adopted.

The causes of inefficient energy use in Peru are:

- Lack of awareness about efficient energy use
- Unsuitable pricing policies until August 1990

- Use of energy-inefficient industrial technologies and processes, aggravated by the lack of maintenance and technological innovation
- Lack of a generalized business policy for saving energy
- Lack of a national programme with the financial and technical capacity to carry out the National Policy for Environmental and Energy Conservation
- Lack of incentives to promote energy saving.

The projects Assistance to CENERGIA (PER/86/011) and Assistance to CENERGIA, Phase II (PER/88/009) have shown through energy audits that there is a potential for saving 30 percent of the energy used in the industrial sector, and that 40 percent to 50 percent of this potential saving can be obtained with little or no investment. Similar savings estimates have been made in other sectors.

The Peruvian government created CENERGIA for the purpose of implementing energy substitution and conservation policies, and has requested assistance from UNDP/DTCD to strengthen the operational and technical capacity of CENERGIA. Through conducting numerous energy audits and technology demonstrations, CENERGIA has developed adequate technical ability to execute energy conservation programmes. Its staff of twenty professionals has participated in international study programmes as well as local field work alongside highly experienced international experts. There is no other consolidated experience in the nation, or elsewhere in Latin America, with the success of CENERGIA in executing energy conservation audits and programmes.

2. Expected end-of-project situation

At the end of the project, the following conditions will have been met:

- Improvements recommended by energy audits conducted under the project in the industrial sector will be implemented and will save 300,000 barrels of oil equivalent.
- A baseline study to quantify air pollution levels at major industrial sites, at thermal power stations, and in the transport sector (of metropolitan Lima) will be conducted.
- Recommendations for reducing pollutant emission levels will be made.
- Changes in the legislative and regulatory framework of the country in order to limit greenhouse gases and contaminant emissions will be proposed.
- A policy for a national environmental programme will be defined by the government.
- Four engineering projects that contribute to increasing energy efficiency in industrial plants will be implemented. These projects will support the efforts of industries to get adequate financing to implement them.
- Private consulting firms will develop the ability to programme and execute energy conservation projects and industrial emission control studies.

- Through additional personnel training and intensive field work in new technologies for environmental control, CENERGIA will be better prepared to carry out its functions, including technical and operational functions.
- As a consequence of the energy conservation measures, low-investment energy saving improvements will be implemented in twenty industrial companies.
- Peru will have a Latin American Training Centre to provide training in the modern technologies used for energy audits associated with environmental emission controls, directed by CENERGIA.
- The government will have the foundation for defining a policy and a national programme to control industrial fumes and emissions from the diesel-powered automotive fleet.
- CENERGIA will have trained five staff members in environment and energy conservation project engineering, and another five staff members in technologies to control industrial emissions and diesel-powered passenger and cargo transport pollution.
- At least twenty technicians from neighboring countries will have been trained in the technologies of energy conservation and emissions control.

3. Target beneficiaries

The following groups and institutions will benefit in a variety of ways from the project:

- CENERGIA will benefit directly by consolidating its technical capacity to execute a national government policy for energy saving and conservation. It will be trained in technologies for environmental pollution control in the industrial sector. It will also have reinforced and proven its capacity to execute engineering projects in the field of energy conservation and in environmental technologies.
- Public and private businesses in the industrial sector will benefit through reducing their costs for electricity and fuel consumption.
- The country as a whole will benefit from a reduction in fuel imports brought about by an increase in the available supply.
- Recommendations for governmental policies, legislation, and regulations related to the mitigation of environmental impacts will improve the quality of life in Peru.
- The national economy will benefit from reduced costs of importing energy and investments to develop energy resources.
- Latin American countries will also benefit by sending their technicians to be trained at CENERGIA.

4. Project strategy and implementation arrangements

Strategy

International experience during the last ten years and the results obtained by the projects Assistance to CENERGIA (PER/86/011) and Assistance to CENERGIA, Phase II (PER/88/009) show that energy savings can be achieved in very short periods with small to moderate investments, with economic payback periods of one to three years. In addition, efficient energy use and conservation correspondingly reduces pollution, primarily from fumes of combustion in boilers, ovens, and diesel-powered vehicles.

The objective of the project is to reduce greenhouse gas emissions by strengthening the institutional and technical capacity of CENERGIA, thereby enabling it to carry out energy conservation activities and environmental control studies. This project will implement energy conservation and management technologies which will reduce industrial emissions. The project will also enhance the technical capacity of certain businesses (energy producers and consumers) and consulting firms to apply energy saving measures and use technologies to control industrial emissions. The campaign for environmental control in industry will begin with a national programme for the control of industrial emissions and combustion fumes from diesel engines.

Peru's self-sufficiency in energy will be reinforced by a complementary policy of replacing expensive or imported fuels with national fuel that is cheaper and more easily available, by changing or technologically adapting energy conversion and use equipment. Reducing energy demand by implementing the measures recommended by the project's energy audits component will be equivalent to reducing energy imports or investments in energy production and distribution infrastructure.

Finally, the environmental baseline studies concerning reduction of air pollution, along with reduced CO₂ production through more efficient fuel consumption, will allow a gradual improvement in pollution levels, and lessen the contribution of CO₂ to the greenhouse effect.

Implementation

CENERGIA is both a technical and operational entity with the status of a non-governmental organization (NGO). It was created by the government of Peru to implement the national policies of conservation and energy substitution according to the national energy conservation programme. The board of directors of CENERGIA is comprised of leaders from government, parastatal organizations and private businesses. CENERGIA has earned the trust and confidence of the private sector and, with assistance from the Global Environment Facility (GEF), will be capable of meeting the objectives of the project. The government, through CENERGIA, will provide a National Project Director, several trained engineers, and office space and facilities. The GEF will provide technical management of the project, various international environmental consultants, training and measurement equipment.

The United Nations Department for Development Support and Management Services (DDSMS, formerly the United Nations DTCD) has supported CENERGIA since its creation through a variety of technical assistance projects. These projects made it possible to successfully implement

energy saving programmes in Peru and to develop the institution's technical ability. CENERGIA now possesses modern measuring equipment to undertake energy audits. CENERGIA is still in the process of consolidating its technical capacity, which makes it necessary to continue relying on the international expertise of the DDSMS as the agency executing project activities.

The project will therefore be executed by CENERGIA personnel with the assistance of DDSMS experts and international consultants. DDSMS will support and supervise project execution. To train personnel abroad, DDSMS will identify training programmes and make the necessary arrangements for enrolling candidates. Project equipment for air pollution sampling will be procured by DDSMS. CENERGIA will ensure the participation of local enterprises in energy audit and air pollution sampling activities under the project. At the same time, CENERGIA will be in charge of any intersectoral coordination that may be required.

The European Economic Community (EEC) is funding a parallel project which is performing energy audits in the mining and metallurgy industry. The Project Director of the EEC project is the former Chief Technical Advisor of the projects Assistance to CENERGIA (PER/86/011) and Assistance to CENERGIA, Phase II (PER/88/009). To optimize resource utilization, it has been agreed that the EEC Project Director will also act as Project Coordinator for this project.

CENERGIA will be the government coordinating agency in charge of selecting counterpart personnel. The capacity building objectives of this project require intensive participation by the project's national personnel in all activities relating to the project.

5. Reasons for assistance from UNDP/GEF

CENERGIA requires both technical and institutional support to be effective. The Peruvian government cannot, however, provide the requisite financial resources due to other pressing social and economic programmes. Assistance from GEF is, therefore, critical to assure the success of CENERGIA.

The project is significant to the GEF in that it will permit the transfer of technology and methodology for monitoring and controlling various contaminant emissions, especially those contributing to global warming, and will increase the efficiency of energy use in industry. The energy audits performed will permit *minimum* energy savings on the order of 300,000 barrels of oil equivalent over the first two-years of the project. This will result in a reduction of CO₂ emissions of roughly 150,000 tons.

6. Special considerations

Unlike many projects which seek the involvement of the private sector, this project will mobilize the private sector directly through activities taking place on the premises of industrial enterprises. Managers of enterprises request the services of CENERGIA and give their full cooperation because they know that the recommendations of CENERGIA engineers will cut their fuel costs and give them advantages over their business competitors. In addition, the board of directors of CENERGIA is comprised of leaders from government, parastatal organizations and private businesses. This formula is extremely useful in gaining the cooperation of all parties involved.

At the end of the project, CENERGIA will be able to quantify the number of barrels of oil, and therefore the tons of CO₂, that will have been saved as a direct result of project activities. The reports of these savings will come directly from the parastatal companies and private industries that are CENERGIA's clients. This is, therefore, a pragmatic project with measurable results.

As a result of project assistance, CENERGIA will become a regional centre of excellence with considerable accumulated expertise and experience in energy auditing, environmental monitoring, emissions and effluent control, and management of national energy conservation campaigns. The role of the training centre established under the project will be to disseminate this expertise and experience to other countries of the region.

7. Coordination arrangements

As mentioned earlier, the European Economic Community is conducting an energy audit project in the mining and metals industry. This EEC project covers 16 percent of national commercial energy consumption. To optimize resource utilization, the EEC Project Director will also act as Project Coordinator for this project.

8. Counterpart support capacity

CENERGIA has both the physical and technical infrastructure, and the experience with engineering studies and audits for energy conservation, to provide the groundwork for national energy saving programmes. It has twenty national professionals and administrative support staff devoted full-time to this project's activities. The directors of CENERGIA are recruited from business and organizations such as PETROPERU and the Ministry of Energy and Mining; this facilitates coordination with these organizations which play a direct role in energy sector activities.

In accordance with regulations concerning scholarships granted by the government, the five professionals who will receive training abroad under the project will be obliged to work in the agency sponsoring the study grant for twice the foreign training period. Since CENERGIA activities still generate income, part of its revenues must go towards maintaining a salary scale that will retain qualified personnel.

C. DEVELOPMENT OBJECTIVE

The project's long-term objective is to ensure that Peru's economy has sufficient energy supply to ensure economic development that is compatible with environmental conservation. As energy imports are reduced by saving energy, national economic dependence on foreign energy will be reduced. This will allow investment resources to be reallocated to other sectors. In addition, efficient energy use, especially in the industrial sector, will help lower environmental pollution.

D. IMMEDIATE OBJECTIVES, OUTPUTS AND ACTIVITIES

IMMEDIATE OBJECTIVE 1

To strengthen and consolidate CENERGIA by training its technicians.

Output 1.1

Five members of CENERGIA personnel trained in engineering to help in the energy conservation components of this project. Five additional members of CENERGIA personnel trained in techniques for evaluating and controlling emissions from industry, and from overland passenger and cargo transportation vehicles.

Activities for Output 1.1

- 1.1.1. Identify both national and foreign training programmes, select personnel to be trained, and execute training.
- 1.1.2. Train field personnel through participation in engineering projects and in the study of emissions (from industry and from overland passenger/cargo transportation diesel vehicles) under the supervision of international experts.

Output 1.2

Design and implement an annual one-month training course in energy conservation and control of industrial emissions, and four internships for Latin American technicians to study the most modern technology for environmental and energy conservation.

Activities for Output 1.2

- 1.2.1. Design, schedule and administer a yearly course.
- 1.2.2. Schedule four one-month internships for Latin American technicians.

Output 1.3

CENERGIA provided with:

- The equipment and instruments, including software, needed to monitor industrial pollution levels and to conduct technical research, especially in the study of industrial emissions and vehicle exhaust emissions
- Computer-assisted drafting equipment to produce graphs, flow charts, design plans for instrumentation and piping in plants, as well as other engineering design work associated with energy audits
- A truck equipped with isokinetic stack sampling equipment, for environmental sampling at industrial sites
- Material, equipment, literature, and so on, to implement the regional training course.

Activities for Output 1.3

- 1.3.1. Prepare specifications and purchase equipment and instruments.
- 1.3.2. Conduct research and process information as needed for engineering projects and for the programme for control of industrial emissions and exhaust gases from diesel-powered overland passenger and cargo transportation vehicles.

Output 1.4

Sharing of CENERGIA's experience in energy conservation and environmental control techniques with public and private educational institutions in Peru, and with professionals in energy conservation in other Latin American countries.

IMMEDIATE OBJECTIVE 2

To evaluate environmental pollution from industrial fume emissions and from diesel-powered overland passenger/cargo transportation vehicles in metropolitan Lima, and to define a programme to monitor and control such emissions.

Output 2.1

Basic parameters and framework for a programme to control and monitor industrial emissions and emissions of exhaust fumes from the diesel-powered cargo/passenger transport vehicle fleet.

Activities for Output 2.1

- 2.1.1. Study environmental pollution by the most energy-intensive industries in Peru.
- 2.1.2. Complete five studies of industrial emissions of businesses with the greatest potential for pollution.
- 2.1.3. Complete a sampling programme to quantify emissions of polluting gases in the diesel-powered cargo/passenger transport vehicle fleet.
- 2.1.4. Formulate a programme to reduce industrial emissions to the minimum possible level of pollution, and draft legal mechanisms to regulate its implementation.
- 2.1.5. Prepare a manual for designing and executing projects to control industrial emissions.

IMMEDIATE OBJECTIVE 3

To reduce energy losses by implementing small engineering projects, and projects that demonstrate new energy saving devices and techniques.

Output 3.1

A saving to the industrial sector of 300,000 barrels of oil equivalent and a proportional reduction of CO₂ emissions to the atmosphere during 1993-1994 (approximately 150,000 tons of CO₂).

Activities for Output 3.1

- 3.1.1. Execute six engineering projects for energy efficiency improvements identified by energy audits conducted by CENERGIA.
- 3.1.2. Execute six projects demonstrating new technology for saving energy and reducing atmospheric pollution.
- 3.1.3. Follow up and monitor the implementation of measures (energy saving and ecological impact reduction) recommended by CENERGIA following energy audits in at least twenty businesses under the project Assistance to CENERGIA, Phase II (PER/88/009).
- 3.1.4. Mobilize financial resources for investments necessary to implement recommended energy conservation and air pollution control measures.

E. INPUTS

1. Government of Peru

New Sols 190,900 (in kind)
(US \$96,904)

Personnel

	<u>Man-months</u> (mm)
National Project Director	24
Technical professionals	
Three energy conservation experts	24 (each)
Three environmental evaluation and control technology experts	24 (each)
Secretary	24
Chauffeur	24

Offices

Premises for national and international project personnel and for project equipment.

Materials

Office and other necessary materials (gasoline, equipment maintenance items, measuring instruments, computers, photocopier and vehicles).

2. UNDP US \$810,310

Personnel

Consultant specializing in technologies for measuring and controlling atmospheric pollution produced by industrial emissions mm 12

Consultant specializing in control of transportation emissions 12

Professors or trainers to teach courses on environmental and energy conservation 4

National expert with experience in techniques for measuring and controlling emissions in the industrial and thermal power sectors 24

National expert with experience in techniques for measuring and controlling emissions in the transport sector 24

Training

Five individual one-month overseas study grants in engineering projects concerned with energy saving and environmental control.

Equipment

One vehicle, equipped with technical equipment for measuring pollution emissions, and equipment for engineering plans and diagrams. Equipment and material for the annual regional training course in energy conservation and environmental control techniques.

Miscellaneous

Reporting and other costs.

F. RISKS

Since this project is a continuation of well-defined activities in the field of energy conservation, no factor that may delay its initiation is foreseen. However, there is a risk that some professionals may leave CENERGIA due to low salary levels. The national personnel trained by the project, Assistance to CENERGIA, Phase II (PER/89/009) who will continue with this project, are important to achieving the outlined objectives. Although the Peruvian government is committed to establishing a salary system that will enable CENERGIA to maintain

a stable base of professionals, CENERGIA is at risk of losing up to 20 percent of its professional staff if salary levels are not adjusted upward.

G. PRIOR OBLIGATIONS AND PREREQUISITES

The government will provide professional and national support personnel, as well as the premises and other logistical support to operate the project. The Project Document will be signed by the UNDP Resident Representative on behalf of the United Nations, and GEF will provide assistance only if the prerequisites have been completed to GEF's satisfaction.

H. PROJECT REVIEW, REPORTING AND EVALUATION

The project will be subject to tripartite review by the government, UNDP and DDSMS. Revisions will be made annually or periodically according to the parties' decision. The National Project Director along with the Project Coordinator will prepare and present at each tripartite meeting a project progress report. Additional reports of this type may be requested, if necessary, during the course of the project.

I. LEGAL CONTEXT

This Project Document shall be the instrument referred to as such in Article 1 of the Standard Basic Assistance Agreement between the Government of Peru and UNDP. The host country implementing agency shall, for the purpose of the Standard Basic Assistance Agreement, refer to the government cooperating agency described in that agreement.

The following types of revisions may be made to this Project Document with the signature of the UNDP Resident Representative only, provided he or she is assured that the other signatories of the document have no objections to the proposed changes:

- Revisions in, or additions to, any of the annexes of the original Project Document
- Revisions which do not involve significant changes in the immediate objectives, outputs or activities of a project, but are caused by the rearrangement of inputs already agreed to, or by cost increases due to inflation
- Mandatory annual revisions which rephase the delivery of agreed project inputs; increase expert or other costs due to inflation; or draw upon agency expenditure flexibility.

J. BUDGET

The country budget and the UNDP budget for the project are attached.

PROJECT BUDGET
 Government Contribution (in kind)
 (in New Sols)

ITEM	TOTAL		1993		1994	
	MM	COST	MM	COST	MM	COST
1.0 STAFF						
1.1 Technical Staff	168	144,000	84	72,000	84	72000
a. Counterpart Director	24	43,200	12	21,600	12	21600
b. Technicians in Energy Conservation in Industry	72	50,400	36	25,200	36	25200
c. Technicians for Studies of Industrial Pollution	72	50,400	36	25,200	36	25200
1.2 Support Staff						
a. Secretaries	42	8,400	21	4,200	21	4200
b. Chauffeurs	24	4,800	12	2,400	12	2400
Subtotal for Staff	24	3,600	12	1,800	12	1800
3.0 Equipment		152,400	108		108	76200
a. Local Instruments and Equipment		20,000		10,000		10000
4.0 Miscellaneous		20,000		10,000		10000
a. Maintenance of Equipment and Instruments (including microcomputers)		18,500		9,500		9000
b. Various		10,000		5,000		5000
		8,500		4,500		4000
TOTAL IN SOLS		190,900		95,700		95200

CONSOLIDATED PROJECT BUDGET FOR EXECUTING AGENT UNDTCD (IN US DOLLARS)

PROJECT NUMBER: PER/92/G31/B/IG/01
 PROJECT TITLE: TECHNICAL ASSISTANCE TO THE CENTRE FOR ENERGY CONSERVATION
 REVISION CODE: B
 SOURCE OF FUNDS: GEF
 EXECUTING AGENT: UNDTCD/DEPARTMENT FOR ECONOMIC AND SOCIAL DEVELOPMENT

Budget Cmp Line	Line Description	AOS Provider	MM	Project Total (1993-1995)			Year 1 1993			Year 2 1994			Year 3 1995	
				\$ COST	\$ AOS	mm	\$ Cost	\$ AOS	mm	\$ Cost	\$ AOS	mm	\$ Cost	\$ AOS
10	PROJECT PERSONNEL	UNDTCD	24.0	9,200	1,012	7.0	2,400	264	12.0	4,800	528	5.0	2,000	220
13.	Admin. personnel	UNDTCD	24.0	6,500	715	7.0	1,400	154	12.0	3,600	396	5.0	1,500	165
13.01	Admin./Data	UNDTCD	48.0	15,700	1,727	14.0	3,800	418	24.0	8,400	924	10.0	3,500	385
13.02	Driver/Messenger	UNDTCD												
13.99	Subtotal													
15.	Official travel	UNDTCD		14,000	1,260		4,000	360		7,000	630		3,000	270
15.01	Official travel	UNDTCD		14,000	1,260		4,000	360		7,000	630		3,000	270
15.99	Subtotal													
16.	Mission costs	UNDTCD		10,000	900		3,000	270		5,000	450		2,000	180
16.01	Mission costs	UNDTCD		10,000	900		3,000	270		5,000	450		2,000	180
16.99	Subtotal													
17.	National Professionals	UNDTCD	21.0	26,900	2,959	4.0	4,800	528	12.0	15,600	1,716	5.0	6,500	715
17.01	Coordinator	UNDTCD	25.0	24,200	2,662	8.0	7,200	792	12.0	12,000	1,320	5.0	5,000	550
17.02	Global env. & industry	UNDTCD	25.0	28,400	3,124	8.0	8,000	880	12.0	14,400	1,584	5.0	6,000	660
17.03	Global env/Trans/Cent	UNDTCD		77,300	8,503		15,000	1,650		40,000	4,400		22,300	2,453
17.04	Ad-Hoc experts	UNDTCD	71.0	156,800	17,248	20.0	35,000	3,850	36.0	82,000	9,020	15.0	39,800	4,378
17.99	Subtotal													
19.	Component Total		119.0	196,500	21,135	34.0	45,800	4,898	60.0	102,400	11,024	25.0	48,300	5,213
20	SUBCONTRACTS													
21.	Subcontract A	UNDTCD		40,000	4,400		10,000	1,100		20,000	2,200		10,000	1,100
21.01	Promotional campaigns	UNDTCD		240,000	26,400		80,000	8,800		100,000	11,000		60,000	6,600
21.02	Con.glob	UNDTCD		108,000	11,880		38,000	4,180		60,000	6,600		10,000	1,100
21.03	env/Trans/Ind/Cap.	UNDTCD		388,000	42,680		128,000	14,080		180,000	19,800		80,000	8,800
21.99	Ad-hoc consultants (local)													
21.99	Subtotal													
29.	Component Total			388,000	42,680		128,000	14,080		180,000	19,800		80,000	8,800

PROJECT NUMBER: PER/92/G31/B/1G/01
 PROJECT TITLE: TECHNICAL ASSISTANCE TO THE CENTRE FOR ENERGY CONSERVATION
 REVISION CODE: B
 SOURCE OF FUNDS: GEF
 EXECUTING AGENT: UNDTCD/DEPARTMENT FOR ECONOMIC AND SOCIAL DEVELOPMENT

Budget Cmp Line	Line Description	AOS Provider	Project Total (1993-1995)			Year 1 1993			Year 2 1994			Year 3 1995		
			mm	\$ Cost	\$ AOS	mm	\$ Cost	\$ AOS	mm	\$ Cost	\$ AOS	mm	\$ Cost	
30	TRAINING													
32	Study travel													
32.01	Regional workshops	UNDTCD		80,000	16,800	40,000	8,400	40,000	8,400					
32.02	Study travel	UNDTCD		30,000	6,300	12,000	2,520	18,000	3,780					
32.99	Subtotal			110,000	23,100	52,000	10,920	58,000	12,180					
39.	Component Total			110,000	23,100	52,000	10,920	58,000	12,180					
40	EQUIPMENT & SUPPLIES													
45.	Local purchases													
45.01	Local purchases	UNDTCD		29,500	1,770	24,500	1,470	5,000	300					
45.99	Subtotal			29,500	1,770	24,500	1,470	5,000	300					
47.	Int. purchases under \$70,000													
47.01	International purchases	UNDTCD		70,000	7,000	50,000	5,000	20,000	2,000					
47.99	Subtotal			70,000	7,000	50,000	5,000	20,000	2,000					
49	Component Total			99,500	8,770	74,500	6,470	25,000	2,300					
50	MISCELLANEOUS													
51.	Miscellaneous													
51.01	Various	UNDTCD		9,310		3,500		4,000				1,810		
51.99	Subtotal			9,310		3,500		4,000				1,810		
52.	Information costs													
52.01	Information	UNDTCD		7,000		2,000		3,000				2,000		
52.99	Subtotal			7,000		2,000		3,000				2,000		
59.	Component Total			16,310		5,500		7,000				3,810		
90	TOTAL		119	810,310	95,685	34	305,800	36,368	60	372,400	45,304	25	132,110	14,013
99.	Budget Total													