MEDIUM-SIZED PROJECT BRIEF

PROJECT SUMMARY

PROJECT IDENTIFIERS	
1. Project name: Capacity Building for the Adoption and Application of Energy Codes for Buildings (Regional Project)	2. GEF Implementing Agency: UNDP
3. Countries in which the project is being implemented: Lebanon and the Palestinian Authority	4. Countries' eligibility: Lebanon ratified the UNFCCC on 15 Dec. 1994. The Palestinian Authority is eligible under Paragraph 9 (b) of the Instrument
5. GEF focal area(s): Climate Change	6. Operational program/Short-term measure: OP5 Removal of Barriers to Energy Efficiency and Energy Conservation

7. Project linkage to national priorities, action plans, and programs:

The conservation of energy and increased "energy end-use efficiency", including energy-saving modalities in buildings, has been a major concern for Lebanon and the Palestinian Authority (PA). Several projects and initiatives have and are being implemented in this field.

The Lebanese Council for Development and Reconstruction (CDR) has commissioned in 1995 a study on thermal comfort in buildings. The study, once finished, is intended to serve as a guideline. Version (2.0) of the study is to be published for public voluntary review and feedback in early 1999. Parallel to this activity, the "Association Libanaise pour la Maitrise de L'Energie" (ALME) has initiated a feasibility study on Energy Efficient Building (EEB) measures endorsed by the FFEM. The project comprises three activities within a three year time frame: 1- a pilot demonstration project; 2- a monitoring activity; 3- a formulation of guidelines for several EEB measures, in addition to a focused capacity building activity for the diffusion of the project results. Moreover, the Ministry of Public Works has called for a revision of the Lebanese Building Law, and in this regards, the proposed project will provide a time appropriate intervention for the incorporation of energy codes for buildings. Furthermore, the GEF council has recently approved a project entitled "Barrier Removal for Cross-Sectoral Energy Efficiency".

The PA's commitment to energy conservation and increased efficiency was explicitly expressed in the Palestinian Energy Authority's (PEA) Letter of Sector Policy (LSP) of July 1997. The PEA is also presently carrying out a GEF/UNDP-funded project which aims at "Energy Efficiency Improvements and Greenhouse Gas Reduction" (PAL/97/G31), with a total of US$ 2.69 million. The PEA also received funds from the European Community to perform energy end-use research and is presently seeking support from UNESCWA for the development of a planning study on renewable energy development.
The Palestinian Ministry of Local Government (MLG) is presently revising and upgrading the inherited building codes of 1966 (effective in the West Bank) and 1938 (effective in the Gaza Strip). The revisions are largely concerned with health, sanitation, scenery, and planning issues, and will be submitted to the Palestinian Legislative Council for adoption. The MLG, in line with the national energy policy, expressed interest in addressing the issue of energy efficiency in buildings within their ongoing activities.

This regional capacity building project will include incremental activities, which will complement the ongoing energy conservation initiatives in Lebanon and the Palestinian Territories. It will allow the Lebanese Government to adopt the formulated Lebanese "Thermal comfort building guidelines" and feasibility studies, and the PA to formulate energy codes for buildings and benefit from the Lebanese and regional experience in this field. The project will remove barriers for the formulation, adoption, dissemination and application of thermal energy codes for buildings. It will also remove barriers for the transfer of relevant knowledge and experience among the participating country/Authority and other countries in the region. With the projected investment in the construction sector over the period 2000-2020 calculated at $ 40 billion for Lebanon and $ 15 billion for the PA, the project is seen as a foundation for the creation of a national momentum targeting the reduction of CO_2 emissions in buildings.

7. GEF national operational focal points and dates of countries' endorsement: -The Lebanese Ministry of Environment (MoE), Minister Akram Shehayeb, Tel 961-4-522 222, (Project endorsed on 12 Aug. 1998) -The Palestinian Environmental Authority (PEnA), Ramallah, West Bank, Tel. & Fax. 972-2-298-1495/6, e-mail: pena@planet.edu, (Project was endorsed on 11 March 1998).	
PROJECT OBJECTIVES AND ACTIVITIES	
9. Project rationale and objectives: The development and adoption of energy codes and thermal guidelines for buildings will enhance energy efficiency and end-use performance. This can lead to an appreciable reduction in energy consumption and associated CO_2 emissions. Objectives: 1. Reduction of greenhouse gas emissions 2. Establishment of energy codes for buildings 3. Initiation of a transformation in the construction industry (Lebanese component)	Indicators: 1. Reduction in energy consumption for space heating and cooling 2. Increased adoption and application of energy codes in buildings 3. Increased market demand on energy-efficient building materials and designs 4. Published and approved energy codes for buildings
10. Project outcomes: 1. A set of completed energy codes and guidelines for buildings 2. Developed human and resource capacity to develop energy codes for building and design and execute energy efficient buildings 3. Information dissemination tools and increased public and policy-makers' awareness of cost-effective energy- efficient building material, methods and designs, as well as benefits of energy efficient measures in buildings 4. Developed institutional bodies to promote and adopt energy codes in buildings and increased support at the formal and informal level 5. An effective verification and certification mechanism (Lebanese component) 6. Action plan for the facilitation of future adoption of Energy Code for Buildings Act (Palestinian component) 7. Regional cooperation and coordination in the field of energy efficiency in buildings.	Indicators: 1. Stakeholder consensus and Governmental/Authority endorsement of the application of energy codes in governmental projects compliance 2. Increased demand for and execution of energy efficient buildings 3. Demand for energy-efficiency user guides and explanatory sheets 4. Consumers show preference for energy efficient buildings 5. Issuing of building certificates and establishment of database (Lebanese component) 6. Public participation in workshops on energy-saving modalities in buildings 7. Stakeholders endorsed action plan for future activities in the field of energy codes for buildings (Palestinian component) 8. Coordinate activities in regional countries in the field of energy efficiency in buildings
11. Project activities to achieve outcomes: The project foresees the following incremental activities to the on-going national initiatives over a 2-year period. Shared Components: 1. Coordinate activities between Lebanon and PA as well with other countries in the region involved in similar projects (US$25,000) 2. Carry out activities to build professionals' knowledge and expertise, and sensitize them to energy-saving modalities in buildings and their economic and social benefits (US$240,000) 3. Carry out wide scale public awareness campaign to emphasize the economic and environmental benefits of energy codes in buildings (US$245,000)	Indicators: Shared Components: 1. Regional meetings and exchange of expertise between Lebanon and the PA and regional countries in the field of energy codes for buildings 2. Higher capacity of engineers and architects to employ energy efficient building methods 3. Consumer awareness of energy efficiency issues in buildings, reflected in consumer demand and increased application of improved energy codes and thermal building standards

Lebanese Component: 1. Complete the "Thermal building guidelines" (US$ 40,000) 2. Assess the consequences of adoption of Thermal standards on the environment, economy and society (US$ 50,000) 3. Disseminate environmental, economic and social feasibility studies (US$ 20,000) 4. Reinforce verification and certification offices through training of personnel (US$ 60,000) 5. Establish data base (US$ 25,000) Palestinian Component: 1. Establish of cost-effective energy codes for building (US$174,000) 2. Prepare for the future adoption of energy codes for buildings in the PA areas (US$37,000) 3. Remove barriers for the establishment of programs for energy-saving modalities in buildings within the existing civil engineering departments of local universities (US$ 156,000)	Lebanese Component: 1. Stakeholder participation, involvement 2. In country capacity and willingness to address issue on policy level 3. In country capacity to certify compliance to Thermal standards 4. Information availability Palestinian Component: 1. Energy efficiency programs established in formal and informal institutions 2. Energy-saving modalities are applied in public and Authority's new buildings 3. An action plan for future adoption of an act on energy codes for buildings is prepared 4. Energy-efficiency courses integrated into civil engineering programs in local universities

12. Estimated budget (in US$ or local currency):

PDF:	0	
GEF:	994,000	
Co-financing:	64,000	PA in-kind contribution to the project
	91,000	Lebanon in-kind contribution to the project
	100,000	UNDP/PAPP
TOTAL:	1,249,000	

INFORMATION ON INSTITUTION SUBMITTING PROJECT BRIEF

13. Information on project proposer:

Lebanese Component:

The Lebanese Department of Town Planning (under the Ministry of Public Works) is the body responsible for the advancement of building laws. Furthermore, the following parties have a key role to play in the advancement of thermal building codes:

- Lebanese norms institute (LIBNOR) founded in 1962, responsible for setting national norms and standards. These standards are voluntary in principle unless endorsed by the government.
- Council for Development and Reconstruction (CDR) reconstituted in 1991 after the end of the war. It is a governmental organism for planning and resource mobilization. In 1992, CDR launched a 10-year Emergency and Reconstruction Programme for the country.
- The Order of Engineers and Architects founded in 1952 currently comprising around 20,000 professional members from the various fields of Engineering, and the field of architecture. Membership in the Order is a prerequisite for professional practice in the country.
- Association Libanaise pour la Maitrise de l'Energie (ALME), is a national scientific NGO founded in 1992. It comprises around 50 professionals specialized in the various fields of engineering, architecture and economics. Its aim is the promotion of sustainable development through the encouragement of energy saving measures and the use of cleaner renewable energy sources.

Palestinian Component:

Palestinian Ministry of Local Government (MLG) was established in 1994 and became responsible for providing all services to local authorities and councils, mainly licensing, zoning, infrastructure planning, local elections. The Minister of MLG acts as the chairperson of the Palestinian Higher Council of Construction that revise or establish town planning laws and building codes in the Palestinian Authority areas. MLG staff also acts as the secretary and treasury of this council.

14. Information on proposed executing agency (if different from above):

- The Lebanese component will be executed through the Department of Town Planning (Ministry of Public Works) and will be coordinated among the project proposers (section 13) through a steering committee comprising a representative of each of the proposers.

- The Palestinian component will be executed by the UNDP/PAPP and implemented by the MLG. The UNDP/PAPP began working in the West Bank and Gaza Strip in 1980, providing Palestinians with infrastructure, large scale training projects, and technical assistance for institutional building. UNDP/PAPP has utilized and applied UN regulations in the implementation of projects using fully transparent and reliable financial mechanisms. The UNDP/PAPP established several initiatives that were jointly implemented with Palestinian ministries and authorities, including the MLG. The main initiatives with MLG includes the Local Rural Development Programme, the upgrading of the Technical and Managerial Capacities of Palestinian Village Councils, and the preparation of Palestinian local elections.

- The regional activities of the project will be facilitated and coordinated by the Project coordinators of the two national components.

15. Date of initial submission of project concept:

INFORMATION TO BE COMPLETED BY IMPLEMENTING AGENCY:

16. Project identification number:

Regional Project: RAB/
Lebanese component: LEB/
Palestinian component: PAL/

17. Implementing Agency contact person: Rana Maalouf, GEF Programme Officer at RBAS

18. Project linkage to Implementing Agency program(s):

The Lebanese component of the project is incremental to the following in-country baseline projects:
- The UNFCCC's mitigation phase, which is due to identify and assess national energy mitigation options, has ended in May 1999.
- UNDP regional project: Sustainable Energy in the Arabic States.
- "Barrier Removal for Cross- Sectoral Energy Efficiency" project LEB/99/G31; the project brief has been approved by the GEF council recently, and the project is expected to begin in Jan. 2000.

In the PA, the project is incremental to the following baseline projects:
- Energy Efficiency Improvement and Greenhouse Gas Reduction funded by GEF, with additional support from UNDP/PAPP (1998-2002).
- Revision and development of the town planning and building law in the PA areas (1998-1999)
- Housing and infrastructure projects in the PA areas supported by UNDP/PAPP

PROJECT DESCRIPTION

PROJECT RATIONALE AND OBJECTIVES

Although baseline activities are on-going in both the Lebanese Republic and the Palestinian Authority to update existing building codes and improve end-use energy efficiency, these activities do not address barriers hindering the inclusion of energy codes in the available building codes or construction of energy efficient buildings. The project will add on the existing activities and will provide the stakeholders with needed support to establish cost-effective energy codes in buildings. Governmental participation will be a requirement to transform codes and guidelines to standards, which in turn trained professionals in design and construction must be familiar with in order to apply them in their work. In addition, public awareness will be needed to activate market demand, as well as provide economic incentive scenarios in order to overcome increases in construction cost.

This timely intervention presents an opportunity for both Lebanon and the Palestinian territories to address this issue given the anticipated private sector investment in the construction sector in Lebanon and the Palestinian Territories over the period 2000-2020 is $ 40 billion and $ 15 billion respectively.

The regional aspect of the project will facilitate the exchange of knowledge and expertise between Lebanon and the Palestinian Authority and other countries in the region in this field. It would assist the Palestinians to benefit from the Lebanese experience in the establishment of energy codes and guidelines for buildings and the institutional, human and capacity development achieved in process. And, as all Mediterranean Arab countries have more or less the same weather therefore having to take similar actions, this project has sound replicability potential.

Moreover, primary energy consumed in Lebanon and the Palestinian Territories is imported and purchased from outside sources making it an expensive commodity and an economic constraint, in addition to being an environmental burden. Thus, the reduction of energy consumption is a national priority.

Thus, the proposed GEF project provides for incremental costs that are vital to the establishment, adoption and application of energy codes and guidelines for construction in the region. This in turn will contribute to a measurable reduction in energy consumption in the building sector and bring about global benefits by reducing CO_2 emissions and other greenhouse gases into the atmosphere. As such, and by removing barriers to the establishment and adoption of energy codes for buildings, the project contributes to the reduction of the risk for climate change, and falls under Operational Program 5. It also contributes to the integration of global environmental concerns within national developmental activities and benefits.

Lebanese component
In Lebanon, the project will complement two major ongoing baseline activities:

The first, an initiative by the Lebanese Council for Development and Reconstruction (CDR), who has commissioned in 1995 a study on summer and winter thermal comfort in buildings. This study entitled "Guide de l'isolation thermique et du comfort d'ete des batiments au Liban" was carried out by the French "Centre Scientifique et Technique du Batiment" (CSTB) under the supervision of the Lebanese Norms Institute LIBNOR and in collaboration with volunteer Lebanese specialists. The study deals with the upgrading of the thermal performance of building

envelops, where by the specified suggestions are estimated to bring about 25% energy reduction on space heating and cooling per household. The study is intended to serve as a guideline, version (2.0) is to be published by LIBNOR for voluntary review and feedback in early 1999. With this initiative, there are no planned activities to secure public participation or to promote awareness. To be noted also is that the contract with CSTB ends with the issuing of the preliminary version.
The second, an activity launched by the "Association Libanaise pour la Maitrise de L'Energie" (ALME) who initiated an economic feasibility study on Energy Efficient Building (EEB) measures endorsed by the FFEM who are contributing around one million US$ in incremental cost. The project comprises three main activities within a three-year time frame:

- A pilot demonstration project, Byblos residential park, with around 50% of the total project budget for purchasing energy efficient equipment.
- A monitoring activity, with around 30% of the total project budget for purchasing measurement equipment for project monitoring.
- A formulation of guiding brochures for several EEB measures including low-consumption lamps and solar water heaters; and a focused capacity building activity targeting the formation of around 50 national specialists. This takes up the remaining 20% of the project's budget. (The capacity building activity of the Byblos project does not target a national scope of professionals, and does not aim at initiating policy changes; but rather aims at informing a limited number of specialists about the findings of the Byblos project.).

Secondly, the proposed GEF project will draw on the "Thermal comfort guidelines" (which has already taken a 2 year effort) to provide a solid starting point from which to structure a completed and agreed upon document ready to be incorporated into an energy building code. On the other hand, it will draw on the activities of the FFEM/Byblos project as a model for implementation possibilities and constraints, and as a source for data analysis and evaluation.

Furthermore, the proposed project will complement a major national project LEB/99/G31 entitled "Barrier Removal for Cross-Sectoral Energy Efficiency". The project brief has been recently approved by the GEF Council. The project is expected to begin in January 2000 and will be executed by the Ministry of Hydro-Electric Resources. The goal of this project is to reduce GHG emissions in Lebanon by improving demand-side energy efficiency through the creation of a multi-purpose Lebanese Center for Energy Conservation and Planning. The Center, which is expected to be a "soft" and flexible institutional set-up, will simultaneously undertake barrier removal activities and provide energy efficiency services to the public and private sectors, with the aim of becoming an independent, commercially viable private corporation. The project will undertake a broad range of supporting activities including information dissemination, awareness programmes, and policy analysis and programme design. It will play a crucial role in activating market demand for energy efficiency and will therefore greatly benefit the current proposal. Specifically, it will be working jointly with this proposal on activities including assessment of environmental and social impacts and national benefits of adopting a thermal building standard as well as economic benefits to consumers and pay back time; and on developing economic incentives, scenarios and mechanisms to help private developers in overcoming the incremental construction cost.

Palestinian component

Approximately half of the 926 KTOE of energy used in the Palestinian Territories are used in buildings (residents, hotels, hospitals and others). A minimum of 20% reduction in energy consumption in buildings in the Palestinian Territories can therefore be achieved by introducing energy-efficient building codes. These codes should address such areas as energy-saving construction material and methods, building designs, and landscaping. The adoption of these codes would substantially reduce energy consumption for heating, cooling and ventilation, and

subsequently lower the emissions of carbon dioxide and other greenhouse gases.

The PEA is presently carrying out a GEF/UNDP-funded project which aims at "Energy Efficiency Improvements and Greenhouse Gas Reduction" (PAL/97/G31), with a total investment of US$ 2.675 million. This project will assist in reducing the long-term growth of GHG emissions from electric power generation and from consumption of non-renewable fuel resources. The long-term policy and overall objectives will be achieved through:

- supporting efficiency improvement and loss reduction in the distribution of electric power;
- facilitating adoption and implementation of energy conservation measures in residential, commercial, and industrial sectors through education, promotion, financing, and standard-setting activities;
- stimulating and guiding the private sector in the development of a capability for end use energy efficiency service planning, feasibility analysis, conceptual design, and project implementation, including the manufacture of energy efficient products;
- assisting in the international and regional transfer of experience and technology that could be instrumental in GHG emission reduction; and
- promoting public and private sector investments in energy projects that are beneficial for the global environment.

The PEA has also received funds from the European Community to perform energy end-use research and selected energy efficiency projects, and is currently seeking support from ESCWA for the development of a planning study on renewable energy development. These projects address mainly the removal of barriers for end-user energy efficiency. However, the establishment of energy codes for buildings, despite its importance, is still a concern yet to be addressed.

This project provides a time-appropriate intervention. It will add-to and complement the PEA's on-going activities in this field. The Palestinian Ministry of Local Government (MLG), which is the institution responsible for the establishment of building codes in the Palestinian Authority areas, is presently carrying out an initiative for revising and upgrading the inherited building codes of 1966 (effective in the West Bank) and 1938 (effective in the Gaza Strip). The on-going revisions mainly concern health, sanitation, scenery, and planning issues, and will be submitted upon completion to the Palestinian Legislative Council for legal adoption. The MLG, in line with the Palestinian Authority energy policy, has expressed interest in addressing the issue of energy efficiency in buildings as part of its ongoing initiative. The lack of both human and financial resource capacity to accomplish this goal has so far hindered any accomplishments in this field. The limited access to information and technologies has also hindered the voluntary adoption of energy-saving building designs and material by Palestinians in the Palestinian Territories.

CURRENT SITUATION

After the end of the 17 year war in Lebanon in 1991, and the signing of the Palestinian/Israeli Interim Agreement (Oslo II) in September 1995, both country/Authority witnessed a boom in the building sector. The number of new building licenses, for example, granted in the West Bank and Gaza Strip from the first quarter of 1996 to the second quarter of 1997 reached 19,786. Nevertheless, the anticipated need for housing units to cover the existing shortage in housing is enormous, exceeding 200,000 in the case of the Palestinian Territories. As for Lebanon, the construction permits for 1995 reached 33,059 declined in 1996/97 but are picking up in 1998. With 800,000 people displaced during the war, Lebanon's medium term projected housing needs are in the order of 500,000 units. However, as shown in Annex D, the number of new building

units entering the market between 2000 and 2020 are in the order of 1.28 million building units.

Construction and design of buildings in Lebanon and the Palestinian Territories have changed considerably over the last century. Flat roofed and thin walled buildings of relatively low thermal insulation have replaced the old thick walled houses, which were characterized by good thermal mass. New buildings are, however, characterized by more efficient use of construction material. Despite the relatively mild winters and summers that characterize Lebanon and the Palestinian Territories, heating remains essential in the winter (November/March) and cooling in the summer (June/September). The enhancement of the existing insulating and ventilation capabilities of new building is essential to alleviate high energy bills for heating and cooling.

In Lebanon, 97% of the energy needs are imported in the form of crude oil. According to the UNFCCC inventory report, this imported energy resulted in 12 million tons of CO_2 in 1994. Moreover, according to the UNFCCC inventory and mitigation reports, the building sector in Lebanon (residential, commercial and institutional) consumed in 1994 for space heating and cooling purposes 0.30 MTOE resulting in the emission of 1.93 million tons of CO_2. The energy used for space heating and cooling was derived from three sources whose 1994 breakdown is as follows: electricity (0.13 MTOE representing 27% of total national electricity supply), LPG/diesel oil (0.12 MTOE representing 15% of total national LPG/diesel imports) and wood (0.05 MTOE). The projected average yearly energy consumption for space heating and cooling between 2000 and 2020 is calculated to be 0.49 MTOE based on a 3% energy growth rate (see Annex D).

In the Palestinian Territories, electricity, butane (natural gas), kerosene, timber and coal are the common energy sources for heating in winter. Approximately 23.3% and 0.7% of the West Bank and Gaza Strip households, respectively, use kerosene for heating, while 52.1% and 38.3% use timber and coal. Most cooling systems in the Palestinian Territories operate on electricity. Electric lighting[1] is the dominant type, except for 2% of the Palestinian population in rural areas whom are left with no connection to an electricity grid, and thus kerosene and oil lamps are still in use. Approximately 42% of the 926 KTOE of energy consumed in the Palestinian Territories are used for residential purposes. The consumption of energy by public and service buildings, although undocumented, is apparently substantial, especially for heating, cooling and lighting.

The building sector in Lebanon and the Palestinian Territories, therefore, places a heavy environmental and economic burden. The energy consumed for the provision of thermal comfort, cooling, ventilation and lighting in buildings constitutes a substantial proportion of the energy bill. Several barriers in both Lebanon and the Palestinian Authority are hindering the achievement of effective better energy performance in buildings. These barriers are mainly attributed to the lack of energy codes and thermal building standards, institutional structure, information and public awareness, and professional expertise in this field. Although the country/Authority are aiming to achieve similar objectives, barriers in both territories vary considerably due to different political and socioeconomic situations. Also, the intensity of certain barriers varies between Lebanon and the Palestinian Authority as Lebanon has already proceeded in the establishment of thermal guidelines for buildings.

In the Lebanese component, the proposed capacity building project aims at removing the barriers that hinder the Lebanese Government from the adoption of a thermal standard, and the consequent transformation in the construction industry. The barriers in Lebanon include:

[1] This project addresses heating and cooling. Lighting will be covered under the Energy Efficiency project PAL/97/G31.

A - Institutional barriers

L.1. Uncompleted thermal guidelines, hindering their transformation into standards.

L.2. Lack of a coordinating mechanism between body which develops the codes, body which adopts the codes, and body which applies the codes, which would hinder adopting standards and putting them into effect.

L.3. Absence of adequate verification and certification mechanism.

L.4. Inefficient collection system.

B - Economic barriers

L.5. Absence of economic feasibility studies, which would substantiate the investment in energy efficient building measures by establishing payback time.

L.6. Absence of economic incentives, which would instigate developers to incorporate energy efficient measures despite an increase in construction cost.

C - Information and capacity barriers

L.7. Policy makers' unfamiliarity with environmental, economic and social benefits.

L.8. Architects, engineers, and contractors unfamiliarity with methods of design and execution of energy efficient buildings.

L.9. Consumer unawareness of favorable environmental, comfort and life-cycle economic benefits.

As for the Palestinian Territories, the project aims at removing barriers that hinders the establishment and voluntary adoption of energy codes for buildings. The main barriers in the Palestinian Authority component are:

A - Institutional barriers

P.1. Absence of energy codes for buildings. The currently applied building codes in the West Bank and Gaza Strip are outdated and do not address the issues of energy savings and efficiency.

P.2. Lack of a coordination body in the Palestinian Authority to establish and promote energy codes for buildings.

B - Human and resource capacity barriers

P.3. Lack of specialized courses and training in formal and informal local educational institutions in energy efficiency in buildings and building designs.

P.4. Lack of expertise and knowledge of local civil engineers and contractors in the designing and constructing of energy efficient buildings.

P.5. Unavailability of equipment and procedures to measure energy efficiency in buildings.

C - Information Barriers

P.6. Limited access of professionals and consumers to appropriate technologies in the field of energy efficiency in buildings.

P.7. Unavailability of studies, guidelines, and software to local professionals and consumers for the designing and construction of energy efficient buildings.

P.8. Lack of awareness of the short- and long-term economic and environmental benefits of energy-saving designs and construction.

EXPECTED PROJECT OUTPUTS, WITH UNDERLYING ASSUMPTIONS AND CONTEXT

To achieve its objective, the project will target the four main barriers to the formulation and

adoption of energy codes in buildings that are stated in the previous section and lay the ground for future development in this field. Although the overall outputs anticipated of this project are similar for both Lebanon and the Palestinian Authority, specific outputs vary slightly between the two country/authority to conform with the level of achievement so far reached in the field of energy efficiency in buildings.

The overall outcomes of the project are as follows:

- Information dissemination tools and increased public awareness of cost-effective energy-efficient building material, methods and designs, as well as benefits of energy efficient measures in buildings. This output targets barriers L.5, L7 and L8, P.6, P.7, and P.8;
- Developed human and resource capacity in the field of energy efficiency and standards in buildings and transformation of construction industry. This output targets barriers L6 and L7, P.3, P4,and P.5;
- Developed institutional bodies to promote and adopt energy codes in buildings and increased support at the formal and informal level. This output targets barriers L.2, L.3, P.2;
- Government/Authority's participation in the process of formulating and adopting energy codes for buildings. This output targets barriers L.6, P.1, P.2; and
- Regional cooperation and coordination in the field of energy efficiency in buildings.

The outputs specific for the Lebanese component of the project are:

- A complete "thermal building guideline" through participation, consolidation and consensus among stakeholders. Achievement of this output removes barriers L.1 and L.2.
- Policy makers knowledge of economic, environmental and social impact which would result from the adoption of Thermal standards. Achievement of this output removes barrier L.6.
- Developers willingness to incorporate energy efficient building measures as a result of the introduction of economic incentive mechanisms. Achievement of this output removes barriers L.4 and L.5.
- A competent verification and certification mechanism and issuing of building certificates. Achievement of this output removes barrier L.3.
- With respect to barrier L.4 it should be noted that, in parallel with the present project, overall electricity bill collection increased from 37% in 1996 to 50% in 1997 due to the progress made in the GIS Mapping project, the installation of additional meters and the registration of end-use consumers in a database. To date, installation of meters is almost complete in the Greater Beirut area and will be further expanded to the rest of the country. The increase in bill collection is estimated to reach 84% by 2001 especially that privatisation of bill collections is now under serious consideration after the experience gained from privatising bill collection in 1996 in the Bekaa and Akkar[2].

Outputs specific to the Palestinian component of the project are:

- Model energy code for buildings specifying minimum energy efficient standards for new building construction. This output targets barrier P.1.
- Action plan for the facilitation of future adoption of the "Energy Code for Buildings Act", ensuring the continued momentum of the project activities after project completion.

ACTIVITIES AND FINANCIAL INPUTS NEEDED TO ENABLE CHANGES

The project's activities will focus on the removal of the aforementioned institutional, economic, capacity and information barriers. Special steering committees will be formed in both Lebanon

[2] Banque du Liban Yearly Bulletin 1996

and the Palestinian Authority to provide guidelines and supervise the progress of the project activities at the national level. These committees will consist of representatives of the various stakeholders of the project in both country and authority. The project will promote regional coordination among the participating parties in the field of energy efficiency in buildings through the following activities:

- Hold an initial coordination meeting between the Palestinian and Lebanese teams working on this regional project (US$10,000);
- Exchange of visits and transfer of knowledge and experience between the countries of the region and specifically with Lebanon (US$15,000);
- Exchange of publications and information tools on energy-saving modalities produced by the national activities of the project.

The selected project coordinators in both Lebanon and the Palestinian Authority will carry out the organization of the regional components. Furthermore, to maximize cost efficiency of the project, several components will be carried out in Lebanon and the Palestinian Territories in full synchronization, such as using the same international consultants who are brought to the region to train local staff and exchange public awareness publications and material.

Lebanese component

The removal of the aforementioned barriers will result in the adoption and application of the "Thermal building guideline". This translates into the removal of the barriers that hinder legal support, and this will namely be overcome by conducting proper assessment studies and by securing proper stakeholders involvement. In addition to the removal of barriers that hinder market transformation, and this translates into the provision of skilled human resources on the one hand, and the provision of economic incentives on the other. In order to establish the needed foundation of supportive policy makers, informed consumers and skilled professionals, the proposed project foresees within a two-year time frame the following main activities:

Activity 1: Review and completion of the "Thermal building guidelines" in order to ensure their acceptance. (Cost US$ 40,000 of which 29,000 are from GEF)

LIBNOR is going to issue in early 1999 the "thermal building guideline" in its preliminary version (2.0) for voluntary feedback. It foresees a period of six months for this feedback. The contract with CSTB ends with the issuing of the preliminary version (2.0). In order for these guidelines to be transformed into standards two main things are needed: one that they be completed, and second that proper stakeholder involvement is ensured.

The proposed activity involves the recruitment of an international consultant to first review the guidelines and identify any remaining key missing issues, and second to introduce relevant comments made during the workshops of activities 3 and 4, and during a proposed stakeholder conference. This stakeholder conference is to insure participation and facilitate discussion among the main stakeholders in order to achieve consensus and approval of guidelines. As such the conference will address LIBNOR, CDR, Order of Engineers and Architects, Town Planning, and Ministry of Public Works. This activity will provide the baseline completed and agreed upon Thermal guideline document, which can be transformed into a Thermal building standard through legal support.

Activity 2: Undertaking of environmental, economic and social assessments. (Cost US$ 50,000 of which 40,000 are from GEF)

This activity aims at providing the sound scientific basis to drive both policy changes and market transformation. It will consist of environmental, economic and social feasibility studies. It will be carried out through the recruitment of international and national specialists. It will include issues

on the environmental and social impacts and national benefits of adopting a thermal building standard, and issues on economic benefits to consumers and pay back time in addition to economic incentives, scenarios and mechanisms, to help private developers in overcoming the incremental construction cost. Finally, it will be carried out in cooperation with the GEF-funded project LEB/99/G31.

Activity 3: Dissemination of Environmental, economic and social assessments through workshops and publications. (Cost US$ 20,000 of which 10,000 are from GEF)
This activity aims at sensitization of policy makers in particular, in order to endorse the transformation of guidelines to standards. It will furthermore address professionals from the building industry, industrialists, economists, environmentalists, and university students. The workshops could take place in several regions of Lebanon to insure proper coverage. It will include the dissemination of the studies undertaken in activity 2.

Activity 4: Sensitization of professionals to energy efficient building design and execution. (Cost US$ 120,000 of which 110,000 are from GEF)
This activity aims at providing the technical know how to design and execute energy efficient buildings. It will provide the skill needed for the application of the thermal standards and the transformation of the building industry. It addresses private sector professionals from the building industry (architects, engineers, and contractors) and university students from the related fields. It could take place in several regions of Lebanon to insure proper coverage. It will be carried out through the recruitment of international and national specialists to give a series of seminars and workshops. In addition to this, general and specialized publications could be prepared as reference and reminder of target issues. These publications will provide reference information for the continuity and sustainability of the capacity building activities.

Activity 5: Sensitization of the general public through awareness campaigns. (Cost US$ 150,000 funded from GEF)
This activity will include television, magazines and newspapers campaigns, in addition to community group campaigns in order to address as wide a public as possible. It is foreseen to take place at several intervals within the two-year life span of the project. This activity will insure public participation whereby the public is considered as the driver of demand and activator of market transformation.

Activity 6: Reinforcement of verification and certification mechanism through training of personnel who verify building permits and personnel who certify compliance to permits. (Cost US$ 60,000 of which 50,000 are from GEF)
This activity is directed towards both the public and private verification offices. It will address the personnel in charge of reviewing building permit documents and those in charge of tracking conformity of executed project to the building permit document. This training activity will reinforce the capabilities of Town Panning department and those of private verification offices. It will lead to the establishment of a credible and competent verification and certification mechanism.

Activity 7: Establishment of a database. (Cost 25,000 of which 15,000 are from GEF)
This activity aims at the establishment of an information bank which would hold data about new buildings that applied the Thermal standards and older building that are being retrofitted to meet the thermal specifications of the standards. This database will form the foundation for future verification of the effectiveness of the Thermal standards in reducing energy consumption, in addition to forming the basis for future updating of the Thermal standards.

Palestinian Component

Activities in this project will remove barriers to the establishment of energy codes for buildings and promote wide voluntary adoption of energy saving modalities by professionals and consumers. The main activities to achieve this are:

Activity 1: Establishment of cost-effective energy codes for buildings (US$ 174,000 of which 156,000 are from GEF)

- Review energy codes for buildings in the neighboring countries of the region, including Lebanon, and international codes (US$3,000);
- Review traditionally used energy-saving construction materials and methods and building designs in the Palestinian Territories (US$3,000);
- Bring regional and international consultants to assist in the establishment of the energy codes for buildings (US$30,000);
- Draft energy codes for buildings for the Palestinian Authority areas based on cost-effective energy-saving modalities (US$120,000).

Activity 2: Building local human and resource capacity in energy-saving modalities in buildings (US$ 166,000 of which 120,000 are from GEF)

- Transfer energy-saving knowledge and technologies through in-country training of local professional form the private sector as well as project staff in the appropriate fields of energy-saving modalities (US$35,000);
- Facilitate the participation of local expertise in regional and international workshops and conferences in this field (US$35,000);
- Obtain specialized and technical books and publications on energy-saving technologies (US$15,000);
- Provide equipment that would facilitate the implementation of the activities of the project such as computers, software, vehicles, and audiovisuals (US$35,000).

Activity 3: Promotion of wide and voluntary adoption of cost-effective energy-saving modalities in buildings by the Palestinian public (US$ 205,000 of which 105,000 are from GEF)

- Publish and distribute energy-saving explanatory pamphlets, newsletters, articles, consumer guides, and other publications in the field of buildings (US$70,000);
- Establish an open access information center on the internet, through a specialized homepage on energy-saving modalities and models in buildings (US$10,000);
- Hold seminars and workshops that would convey the economic and environmental short, long-term and global benefits of energy-saving modalities. Participants would include professional members of the Palestinian Engineers Association and the public (US$125,000).

Activity 4: Preparation for the future adoption of regulatory Energy Codes for Buildings Act (US$ 37,000)

- Identification of factors that may influence or hinder the voluntary adoption of energy-saving modalities in buildings or compulsory adoption of energy codes for buildings (US$7,000);
- Formation of a central coordinating committee that would advocate for the future adoption of energy codes for buildings (US$10,000); and
- Establishment of a plan of action and identification of future projects that would facilitate the adoption of the "Energy Codes for Buildings" Act (US$20,000).

SUSTAINABILITY ANALYSIS AND RISK ASSESSMENT

Both the Lebanese Government and the Palestinian Authority expressed their willingness to address the issue of energy-efficiency in buildings. However, to overcome risks that may generate

Presently, in Lebanon, the Ministry of Public Works has called for a revision and rewriting of the Lebanese building law. In the Palestinian Territories, the Ministry of Local Government and the Ministry of Planning and International Cooperation are implementing two initiatives to revise and update Palestinian building laws and codes and formulate a legal structure for it. The ongoing revisions, however, are mainly concerned with health, sanitation, scenery, and planning issues, and do not address energy codes for buildings. This project would provide the incremental costs to specifically address energy codes and guidelines in buildings. Furthermore, the incorporation of universities in this project will initiate interest in the introduction of energy-saving modalities in their programs.

INCREMENTAL COST MATRIX

	Baseline	Alternative	
Business as usual	• Established building codes will not include energy codes and guidelines • Low energy efficiency in buildings	• A set of energy codes and guidelines for buildings • Awareness and training programmes to promote and facilitate the employment of building codes in new buildings • Improved energy efficiency and reduction in greenhouse gases	•
Domestic and regional benefits	• Limited or no saving in energy and national expenditure • Lack of public knowledge and professional expertise in energy-efficiency in buildings • PA and Lebanese Government will not be able to achieve energy end-use efficiency saving targets • No regional cooperation and collaboration reduction energy bills in buildings	• Employment of cost-effective energy-saving modalities in buildings • Reduction of national expenditure on energy imports • Development of local capacity and industries in the field of energy savings in buildings • Arab regional demonstration and cooperation in the field of energy savings modalities in buildings • Health benefits from avoidance of kerosene or charcoal/wood fires	• • •
Global Benefits	• Limited reduction of CO_2 gas emissions • Lebanon Baseline reduction of 0.08 million tons of CO_2 • PA Baseline reduction negligible	• Annual reduction in CO_2 emissions estimated at: 0.13 million tons of CO_2 for Lebanon and 0.1 million tons of CO_2 for PA (Annex D) • Sensitization of regional initiative for reducing CO_2 emission from buildings	•
Costs	• PA US$ 330,000 establishment of building codes • Lebanon: US$70,000 Thermal guidelines for buildings(CDR/LIBNOR) • Lebanon: US$ 1 million, energy-efficient building pilot project (ALME/FFEM) Total baseline activities: **US$ 1. 400 million**	Total Alternative: **US$ 2. 649 million**	• • • • Tot

Please refer to Project Planning Matrix

BUDGET

Component	Palestinian		Lebanese		
	GEF	**Other sources**	**GEF**	**Other sources**	**Project total**
PDF:	0	0	0	0	0
Personnel:	185,000	32,000 (in kind)	140,000	10,000 (in kind)	367,000
Subcontracts:	123,000	0	179,000	0	302,000
Training:	75,000	100,000	90,000	0	265,000
Equipment:	50,000	0	15,000	10,000 (in kind)	75,000
Travel:	15,000	0	10,000	0	25,000
Evaluation mission(s):	10,000	0	20,000	0	30,000
Miscellaneous:	4,963	32,000 (in kind)	40,000	71,000 (in kind)	147,963
PAPP AOS (8%)	37,037	0	0	0	37,037
Project total (PDF + project costs):	**500,000**	**132,000**	**494,000**	**91,000**	**1,249,000**

Total GEF contribution is US$ 994,000

IMPLEMENTATION PLAN

Coordination activities between Lebanon and the Palestinian Authority and other countries in the region involved in similar projects will be held at the initiation of the project. Occasional meetings and exchange of visitors and experts will be held throughout the project. A final meeting between the project coordinators of both national components will be held at the end of the project to evaluate outcomes and exchange experience gained in process.

Lebanese Component

DURATION OF PROJECT (IN MONTHS): 24								
ACTIVITIES	PROJECT-MONTHS							
	3	6	9	12	15	18	21	24
1. Completion of guidelines	X	X	X					
2. Environmental economic and social assessments	X	X						
3. Sensitization of policy makers			X		X			
4. Sensitization of professionals		X	X		X		X	
5. Sensitization of general public		X		X		X		X
6. Training of personnel						X	X	X
7. Establishment of data base							X	X
8. Monitoring & evaluation		X		X		X		X

Palestinian Component

DURATION OF PROJECT (IN MONTHS): 24								
ACTIVITIES	PROJECT-MONTHS							
	3	6	9	12	15	18	21	24
1. Establishment of cost-effective energy codes for bldgs.	X	X	X	X				
2. Building local human and resource capacity in energy-saving modalities in buildings	X	X	(Occasional)					
3. Promotion of wide and voluntary adoption of cost-effective energy-saving modalities in buildings			X	X	X	X		
4. Preparation for the future adoption of Energy Codes for Buildings						X	X	X
5. Monitoring & evaluation		X		X		X		X

PUBLIC INVOLVEMENT PLAN

LEBANESE COMPONENT	PALESTINIAN COMPONENT
Stakeholder identification	
– *Co-executing agents:* Town Planning Dept., LIBNOR, Order of Eng. & Arch., ALME, CDR. – *Groups benefiting from project:* LIBNOR, Order of Eng. & Arch., ALME, Town Planning Department, Universities, Professionals from the building industry, NCSR, Development companies, Syndicate of Contractors, and private verification offices. – *Groups affected by project:* – Ministry of Public Works, NGOs, and the general public. – *Groups having interest in project*: Ministry of Hydro-Electric resources, Ministry of Environment, Ministry of Industry, and Ministry of Housing.	*Project Implementation Participants* - UNDP/PAPP, Executing Agency - The Palestinian Ministry of Local Government, umbrella implementing agency - The Palestinian Eng. Ass., Project Central Coordination Committee, and Subcontract - Local universities, Subcontract - Local NGOs, Subcontract - Private sector, Subcontract *Collaborators and beneficiaries* - The Palestinian Environmental Authority - The Palestinian Ministry of Housing - The Palestinian Energy Authority - Palestinian Municipalities and village councils - The Palestinian community
Information dissemination and consultation	
Consultations have so far included: LIBNOR, Order of Eng. & Arch., ALME, CDR, and Ministry of Public Works. Further consultations are foreseen with the above, and also with Town Planning Department and private verification offices.	The outreach activities of the project will be materialized through public awareness campaigns, including the dissemination of published information, easy to understand user-guides, newspaper adds and others. Community interaction and feedback is guaranteed through national and sub-national seminars and workshops. The representation of stakeholders in the project Central Coordinating Committee will insure an interactive consultation process.
Stakeholder participation	
Stakeholders involved in the project on a long-term basis are mainly LIBNOR, Order of Eng. & Arch., and Town Planning Department. Stakeholders involved in decision making are mainly Ministry of Public works and LIBNOR.	The MLG is the main stakeholder who would sustain and promote the objectives and outputs of the project after its completion. The remaining aforementioned stakeholders are involved in the project on an advisory level or subcontracted to carry out activities.
Social and participation issues	
Having the participation of development companies, such as ALYSSAR, who are responsible for the construction of low income housing, goes a long way towards promoting thermal comfort, and reducing energy bills for people with limited income. Also, the participation of development companies, such as SOLIDERE, who are responsible for the reconstruction of downtown Beirut, goes a long way to setting a model for smaller development companies to apply the Thermal standards.	The emphasis on establishing cost-effective energy codes for buildings is the only guarantee for the voluntary adoption of these codes due to the low per capita GNP in the Palestinian Territories. The involvement of the private and public sectors in the coordination and implementation activities of the project will lead to model energy codes for buildings that are considerate of the prevailing social, technical, and economic situation.

MONITORING AND EVALUATION PLAN

Lebanese component

Monitoring of the project will be conducted by a steering committee formed by representatives of the main stakeholders; namely, LIBNOR, Order of Eng. & Arch., ALME, Ministry of Public Works (Town Planning Department) and UNDP. This committee will formulate, at the beginning of the project, a detailed work plan with monthly achievement targets and time phasing of activities. The committee will meet on a monthly basis to assess work progress. Indicators to evaluate the impact of the project will be further elaborated in the course of preparing the project document.

Palestinian component

The UNDP/PAPP will be the executing agency of the project where project administration is carried out and project activities, finances, and the overall progress are monitored. The Palestinian Higher Council of Construction and the project's Central Coordinating Committee will provide the necessary guidelines and supervision of the project's technical work plan and activities in line with national and global interests. The UNDP/PAPP, the MLG and a third party such as the Palestinian Energy Authority or an international/national consultant would participate in the midterm and final review of the project.

Application of Lessons Learned

In order to achieve maximum impact, development of the proposed GEF Project will draw upon lessons learned in development and implementation of similar projects in the region and elsewhere. Experience will be drawn upon from the ongoing GEF-supported Energy Efficiency project in Egypt, which includes a component on energy codes. In addition, project design will benefit from the nearly finalized drafting of the project document for the Tunisia Building Codes project.

PROJECT CHECKLIST

PROJECT ACTIVITY CATEGORIES			
Biodiversity	Climate Change	International Waters	Ozone Depletion
Prot. Area zoning/mgmt.:	Efficient prod. & distrib.:	Water body:	Monitoring:
Buffer zone development:	Efficient consumption: X	Integrated land and water:	Country program:
Inventory/monitoring:	Solar:	Contaminant:	ODS phase-out:
Ecotourism:	Biomass:	Other:	Production:
Agro-biodiversity:	Wind:		Other:
Trust fund(s):	Hydro:		
Benefit-sharing:	Geothermal:		
Other:	Fuel cells:		
	Other:		
TECHNICAL CATEGORIES			
Institution building: X			
Investments:			
Policy advice: X			
Targeted research:			
Technical/management advice:			
Technology transfer: X			
Awareness/information/training: X			
Other:			

LIST OF ANNEXES

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ANNEX A
Logical Framework

Project Planning Matrix

Interventions Strategy	Objectively Verifiable Indicators	Means of Verification
Development Objective		
• Establishment and Adoption of energy codes for buildings • Reduction of CO2 emissions into the environment	• A set of energy codes and guidelines for buildings will be established in the PA Lebanon and endorsed by the Lebanese Government by the year 2001 • Annual energy saving of 0.02 MTOE for Lebanon, and 0.025 MTOE for PA.	• Published building codes and guidelines • Letter of endorsement of energy codes and guidelines by the Lebanese Government • Monitoring of residential energy bills
Immediate Objectives		
• Building local capacity in the field of energy-saving modalities in buildings • Wide public adoption of cost-effective energy-saving modalities in buildings • Transformation of construction industry	• Increased number of energy-efficient buildings • Increased demand on energy-efficient building material and designs • Improved energy performance in residential buildings • Increased public awareness of energy-saving modalities • Increased knowledge and expertise in energy-efficient modalities by civil engineers and contractors	• Survey of new houses and building permits • Market survey • monitoring of energy bills for residential buildings • Public attendance of workshops and demand on user guidelines and information sheets • Civil engineers attendance of workshops • Examination of new buildings designs and construction
Activities		
• Coordination between Lebanon and the Palestinian Authority • Build professional knowledge and expertise • Public awareness and dissemination of information	• Series of meetings, workshops, joint training programs and exchange of documents • Ability of local engineers to design and implement energy-efficient buildings • Published material and holding of public seminars on energy saving modalities in buildings	• Holding of seminars., meetings, training workshops and exchange of documents • Increased number of energy-efficient buildings • Public demand of published material and attendance of seminars

Lebanese component • Approval of thermal guidelines • Training for verification and certification • Establish a database	• A set of complete thermal guideline, approved by the government and supported with impact assessment and feasibility studies • Training program for verification and certification methods • A complete system of information database	• Published and distributed guidelines; letter of guidelines approval from the government; positive impact assessment and feasibility studies • In country capacity to certify compliance to thermal guidelines; and a verification and certification system is in place • Information availability to the public and professionals
Palestinian Component • Preparation for future adoption of energy codes for building act • Facilitative the introduction of energy efficiency programs in local universities	• Availability of studies and planned activities that would facilitate the future adoption of energy codes for building act • "Energy-Efficiency in Buildings" programs established in local universities	• Compiled energy-saving modalities in buildings supported by analysis of adoption barriers • Availability of capacity to teach courses and students and professionals enrolment in these training courses

ANNEX B-1

BUDGET BREAKDOWN PER ACTIVITY COMPONENTS - **LEBANON**

Activity	GEF	Co-financing
1 – Completion of the Thermal building guidelines (40,000 US$)	Subcontract: 29,000	Miscellaneous: 11,000 (LIBNOR)
2 – Environmental, economic and social assessments (50,000 US$)	Personnel: Int. consultant 25,000 Nat.consultants 10,000 Travel: 5,000	Personnel: Nat.consultant 10,000 (CDR)
3 – Sensitization of policy makers (20,000 US$)	Miscellaneous: 10,000	Miscellaneous: 10,000 Order of Engineer and Architects
4 – Sensitization of professionals (120,000 US$)	Personnel: Int. consultant 25,000 Nat.consultants 20,000 Training: 40,000 Miscellaneous: 20,000 Travel: 5,000	Miscellaneous: 10,000 Order of Engineers and Architects
5 – Sensitization of the general public (150,000 US$)	Subcontract: 150,000	
6 – Reinforcement of verification and certification offices through training of personnel (60,000 US$)	Training: 50,000	Miscellaneous: 10,000 Min. of Public Works
7 – Establishment of data base (25,000 US$)	Equipment: 15,000	Equipment: 10,000 (LIBNOR)
8 – Monitoring and evaluation (20,000 US $)	Miscellaneous: 20,000	
9 - Project personnel and facilities (100,000 US $)	Personnel: Manager 60,000 Miscellaneous: 10,000	Miscellaneous: 30,000 (LIBNOR and Order of Eng.&Arch.)
Project total	**US$ 494,000**	**US$ 91,000**

Co-financing is in-kind contribution from beneficiaries.

Baseline: FFEM is contributing around 1 million US$ in incremental cost for the Byblos pilot project.

ANNEX B-2

BUDGET BREAKDOWN PER ACTIVITY COMPONENTS – **PALESTINIAN AUTHORITY**

Activity	GEF	Co-financing
1 – Establishment of cost-effective energy codes for buildings (US$ 174,000)	Subcontract: US$ 6,000 Personnel: Int'l and/or regional consultants US$ 150,000	In-kind PEA and MLG: Office space and support personnel US$ 18,000
2 – Building local human and resource capacity in energy-saving modalities in buildings (US$ 166,000)	Personnel: Int'l and/or regional consultants US$ 30,000 Training: US$ 40,000 Equipment: US$ 50,000	In-kind PEA and MLG Tech staff US$ 28,000 Support staff and office space US$ 18,000
3 Promotion of wide and voluntary adoption of cost-effective energy-saving modalities in buildings by the Palestinian public (US$ 205,000)	Subcontract: US$ 80,000 Training: US$25,000	In-cash Training: US$ 100,000
4- Preparation for the future adoption of regulatory Energy Codes for Buildings Act (US$ 37,000)	Subcontract: Publications US$ 37,000	
5- Coordination activities (US$ 25,000)	Training: Initial Meeting: US$ 10,000 Training: Exchange visits US$ 15,000	
6- Regional travel by project personnel and evaluation mission (US$ 20,000)	Project Personnel 10,000 Int'l Consultant 10,000	
7- UNDP support cost (8% of project cost)	37,000	
Project total	**US$ 500,000**	**US$ 164,000**

Co-financing includes in-kind and cash contribution from beneficiaries.

ANNEX C

STAP TECHNICAL REVIEW

BY
DR. HISHAM KHATIB
MEMBER OF STAP ROSTER OF EXPERTS

PART I

GENERAL COMMENTS

This project is important for the Middle East / the Mediterranean Arab Region. This Region has hot summers and cold winters. Therefore it uses energy intensively for cooling in summer and heating in winter. Presently cooling is mostly done by inefficient air-conditioners, which can only be afforded by the few, but with affluence it is rapidly expanding. Heating is very inefficient, particularly in poor residential quarters and rural areas. It is usually done by kerosene heaters or charcoal open fires. All this leads to grave energy wastage. As important it has bad health and respiratory effects. With high population growth and improving incomes more homes are being built. These are being built without proper thermal insulation to retain heat in winter and not to warm up rapidly in summer. Continuing with the present practices will only lead to more energy being inefficiently consumed in buildings with increasing CO2 emissions.

The only way to contain this spiraling situation is to build homes that are thermally efficient. This can only be done by codes, which ultimately become obligatory standards. But before doing that there is urgent need for capacity building and public awareness. These are the primary means for achieving the objectives of this project.

I thoroughly reviewed the project document and strongly recommend that GEF endorses this project which is fully in line with UNDP/GEF objectives.

Having said that I have the following general comments which in no way infringe on the viability of the project and its significance to the regional economy and GEF strategies.

1. One of the most important objectives of this project, which has not been explicitly mentioned in the project document is that it will call for the application of *solar parameters* in buildings. Adoption of solar parameters is the most important aspect in designing buildings in the Middle East region in order to conserve energy. This will allow the designer to orient the building to receive and maintain maximum sun heat in winter and minimize it in summer. It also improves lighting. All this can be done at minimum cost (some times at no cost). This aspect should be emphasized.

2. The project intangible benefits are underestimated. There is no mention of the considerable health improvements that are brought about by reducing utilization of open kerosene heaters, open charcoal and wood fires. By thoroughly reducing present inefficient heating considerable health and safety benefits are going to ensue to households. Through efficient building, living standards and productivity in offices would be improved.

3. Another serious intangible benefit is the importance of the project to the balance of payments. Both Lebanon and Palestinian Territories are dependant on energy imports that are straining their balance

of payments. Reductions in energy imports through efficient utilization of energy at homes will assist in improving this.

4. I felt that the project document also underestimated the growth in demand for heating and cooling. These were estimated at 3%. A more realistic figure will be at least twice as much, i.e. 6% annually. Present figures of growth of demand for electricity are around 7% annually. With affluence, and business as usual, I would expect air conditioning penetration to grow at this average annually for the next two decades. This project will significantly contain and rationalize the energy component of this growth.

5. A major threat to the project integrity is the inability of the government to enforce these thermal codes even if they become standards. Illegal building, cheating and inadequate supervision and control of building sites may tempt many household builders and developers to evade compliance. Therefore strict compliance through enforcing approvals and supervision should be part of the project objectives.

6. One of the benefits of the project is that it would also help in creating other local industries – like thermal insulation materials. It will also create badly needed job opportunities and artisan qualities to the building industry in the region.

7. Another significant objective of the project, which needs emphasizing is its regional demonstration value. All Arab Mediterranean countries have similar weather and suffer from the same problems of inefficient heating and cooling in buildings. The project will act as demonstration project with more countries benefiting and adopting it in the future.

8. One of the main barrier to the success of the project, in my view, was not mentioned in the project document. It is the fact that the Lebanese electricity utility as well as the Palestinian utilities are only able to collect part of the bills of electricity consumption. Most of the rest is accounted for by non-technical losses (theft, unmetered connections, non-payment of bills). The inefficiency in bills collection will encourage the proliferation of air conditioning and substitution of other forms of heating fuels by electricity, thus leading to more emissions. Unless regional utilities do something significant about that (which is apparently is their intention) this project will not achieve its full objectives.

PART II

1. OVERALL IMPRESSION

The project idea is good and the project is badly needed.

2. RELEVANCE AND PRIORITY

The project is fully in line with the GEF objectives, as well as UNDP aims of fostering sustainable development. Such a project is badly needed by the Lebanese and Palestinian economies where there is much energy wastage in buildings, although they are totally dependant on imported energy.

3. BACKGROUND AND JUSTIFICATION

The project document satisfactorily represents the project background and its justification. It is also clear on the project's relevance and importance to the country's priorities. Further it explains why the project should be undertaken.

4. SCIENTIFIC AND TECHNICAL SOUNDNESS

The project objectives are generally speaking sound from a technical and scientific point of view. However, as I explained in my General Comments above that there is a need to emphasise the passive solar advantages of the project, as well as the need to improve the efficiency of electricity bills collection.

5. OBJECTIVES

The project objectives are sound. But they cannot be attained until the electricity utilities improve their collection effort and the state enforces the codes through legislation and proper supervision and monitoring.

6. ACTIVITIES

The activities are correct. They, however, need support by emphasising the passive solar part of the project. The benefits of the passive solar can be attained by minimum effort and investment. However this needs training and public awareness which the project tries to address. Also the project need to be supported by the electricity utilities by becoming more efficient in their collection of bills.

7. PARTICIPATORY ASPECTS

Stakeholder and community participation are very relevant to the project, I felt they were adequately represented. However there is need for more involvement of electricity utilities, without whose active participation (by tariffs and bill collection) this project cannot achieve its objective.

8. GLOBAL BENEFITS

Global environmental benefits in terms of CO2 emissions avoidance are identified and justified. In my view and experience, the actual achievable benefits (if the project attains its objectives) are going to be

much more significant than computed in the project document.

9. GEF STRATEGIES AND PLANS

The project fully fits within the context of the goals of the GEF and GEF Operational Strategies and programme priorities as well as the provisions of the UN Framework Convention on Climate Change.

10. REPLICABILITY

This is a regional project. All Mediterranean Arab countries have more or less the same weather and need to undertake actions as described in the project document. Therefore this project has sound replicability potential.

11. CAPACITY BUILDING

Capacity building not only of governmental agencies, but also of the civil society and its NGOs, are main objectives of this project. One of the main NGOs that will benefit out of this project are the Engineers and Architects institutions. Public awareness will significantly assist in capacity building.

12. PROJECT FUNDING

Project funding is appropriate.

13. TIME FRAME

The time frame is also adequate.

14. SECONDARY ISSUES

a. Linkages to other GEF focal areas are limited.
b. This is a regional project that has to demonstrate its benefits to enable adoption by other countries in the region without further delay
c. The innovativeness of the project is limited, but for the region it is quite an important project.

15. ADDITIONAL COMMENTS

I provided comprehensive general comments in Part I of this Review.

ANNEX C-1

RESPONSE TO TECHNICAL REVIEW

The General Comments of the reviewer have been clarified and addressed as follows:

Comment 1: With respect to the solar parameters in buildings, while it is recognized that this is indeed a relevant point, it is also recognized that a project of limited scope and magnitude will not be able to address this aspect as it will require a more complex and considerably larger project in view of the multiple design issues involved.

Comments 2, 3, 6 and 7: The reviewer has highlighted that project intangible benefits may be underestimated. It should be noted that all these incidental domestic benefits are indeed included and referenced in the Incremental Cost Analysis. However, it is emphasized that these benefits indeed are intangible and incidental domestic benefits, which can not be directly valued at this upstream point in time.

Comment 4: The project designers have taken a more modest approach to estimating growth demand for heating and cooling. If demand is exceeded by the estimated 3%, this will certainly provide even greater interest and impetus for the present project.

Comment 5: The text in the project brief has been strengthened to better reflect the respective Government/Authority's willingness to ensure strict compliance with the thermal codes, once instituted. Both the Lebanese Government and the Palestinian Authority understand that this forms a UNDP prerequisite and that project suspension could ensure if this is not implemented. (See also text in section entitled: "Sustainability analysis and risk assessment").

Comment 8: The reviewer points to issues pertaining to bill collection improvements have been addressed in the Project Outputs section on page 9. The reviewer is correct that this was an issue of major concern in the mid-1990s in Lebanon, as the country was emerging from the civil war. However, a number of improvements are now in place, and is estimated to reach 84% by 2001 especially in view of the fact that privatization of bill collections is now under serious consideration after the experience gained from privatizing bill collection in 1996 in the Bekaa and Akkar.

ANNEX D-1
CALCULATIONS OF GREENHOUSE GAS EMISSIONS IN LEBANON

Introduction

The proposed project centers around lifting existing barriers to the promotion and advancement of the adoption and application of the recently developed "Thermal building guideline". The proposed efficiency measures in the said "guideline" can achieve an estimated 25% reduction on heating and cooling energy demand per building unit.

Without the proposed project, the analysis estimates that the penetration rate of "guideline" application between 2000-2020 will not exceed 20% of new building units; with the proposed capacity building project, and for the same projected time frame, the analysis expects to achieve a 50% penetration rate of "guideline" application for new building units.

Building stock

From the 1996 building survey conducted by the Lebanese "Administration Centrale de la Statistique", one can see that the 1994 building stock consisted of some 0.48 million buildings comprising some 1.34 million building units. In terms of pattern of use, 75% of these building units were occupied by residential use, and the remaining 25% by commercial and institutional use.

For the purpose of this analysis, the building life span has been assumed to be 75 years for residential and commercial use alike. This gives a yearly building retirement rate of 1.3%. Moreover, and based on historical trends, the yearly building growth rate has been taken as 2.5% for the study period.

Table 1 reveals that the new building units entering the market between 1994 and 2000 is in the order of 1.60 million building units, and between 2000 and 2020, in the order of 1.28 million building units.

Table 1: Projected building growth.

	1994 million units	**2000** million units	**2010** million units	**2020** million units
No. of building units resulting from growth (+ 2.5%)	1.34	1.56	1.99	2.55
No. of building units remaining from old stock (-1.3%)	1.34	1.24	1.09	0.95
Resulting no. of new building units		**0.32**	**0.90**	**1.60**

Environment and energy

The energy consumed by the residential, commercial and institutional sector for space heating and cooling amounted to 13.77×10^6 GJ (0.30 Mtoe) in 1994. This energy was derived from three sources: electricity, gas/diesel oil and wood, whereby the amount of electricity used corresponded to 27% of total country electricity supply, and the amount of gas/diesel oil used corresponded to 15% of total country imports of gas/diesel oil (table 2).

Table 2: 1994 energy consumption for the provision of thermal comfort.

Residential, commercial and Institutional	**1994** Mtoe	**1994** million ton CO_2
Electricity	0.13	1.28
Gas/diesel oil	0.12	0.39
Wood	0.05	0.26
TOTAL	**0.30**	**1.93**

Energy sources: the first national inventory of greenhouse gases conducted in 1998, and a study performed in 1992 by "Electricite de France" (EDF) for "Electricite du Liban" (EDL)

For the purpose of this analysis, the energy growth rate for space heating and cooling purposes has been considered as 3% for the study period. Moreover, the market share of energy type used for the provision of thermal comfort has been assumed to slightly change as shown in table 3.

Table 3: Assumptions as to the market share of energy type used for space H/C.

	1994	**2000 – 2020**
% market share of electricity	44%	50%
% market share of gas/diesel	39%	40%
% market share of wood	17%	10%

Table 4 presents the projected energy demand by the building sector for the provision of thermal comfort, and table 5 presents the total energy consumed for space heating and cooling between 2000 and 2020, and the resulting CO_2 emissions.

Table 4: Energy demand for space heating and cooling under a 3% energy growth rate.

Residential, commercial and institutional	**1994** Mtoe	**2000** Mtoe	**2010** Mtoe	**2020** Mtoe
Electricity	0.13	0.18	0.24	0.32
Gas/diesel oil	0.12	0.14	0.20	0.26
Wood	0.05	0.04	0.05	0.07
Total	**0.30**	**0.36**	**0.49**	**0.65**

Table 5: Total energy demand and CO_2 emissions for space H&C.

Space heating & cooling 2000 - 2020	**Energy demand** Mtoe	**CO_2 emissions** Million tons
Total Electricity	5.19	50.7**
Total Gas/Diesel oil	4.14	13.87
Total wood	1.04	5.05
TOTAL	**10.37**	**69.62**
Average/year	**0.49**	**3.32**

**The carbon emissions due to electricity are derived from the 2000-2020 baseline electricity-supply analysis presented under the UNFCCC mitigation study -- for every 1KWh produced, 780g of CO2 are emitted.

Potential energy savings of "guideline" application

Table 6 shows the implications of the application of the "thermal building guideline" on energy demand. Both the baseline assumptions of 20% penetration rate of "guideline" application and the 50% penetration rate as a result of the proposed project are assessed. The calculation results show that the proposed project can achieve an additional 3.8% energy reduction in addition to the baseline energy reduction.

Table 6: Effect of "guideline" application.

2000 - 2020	**Baseline "guideline" application**	**Project "guideline" application**
% of new building units from total	50 %	50 %
Application rate of "guideline"	20 %	50 %
% energy reduction per building unit	25 %	25 %
Total energy saved	**0.26 Mtoe**	**0.65 Mtoe**
% energy reduction	2.5 %	6.3 %
Total CO_2 saved	**1.74 Million tons**	**4.35 Million tons**
Average annual CO_2 saved	**0.08 Million tons**	**0.21 Million tons**

Conclusion

At a building life span of 75 years, and a building growth rate of 2.5%, 1.28 million new building units would enter the market between 2000 and 2020.

At an energy growth rate of 3%, a total of 10.37 Mtoe would have been consumed for space heating and cooling between 2000 and 2020.

The proposed capacity building project can activate "guideline" application in order to achieve a 50% penetration rate instead of the 20% baseline penetration rate, achieving thus additional savings of 0.39 Mtoe between 2000 and 2020. This in turn would result in an additional reduction of 2.55 million tons of CO_2 between 2000 and 2020.

Table 7: Total Potential Energy Savings Attributable to Project (Summary table)

Project Time frame	2000 – 2002
Forecast Time frame	2000 – 2020
Projected Total size of sector in 2020	2.55 Million building units
Projected size of new building units from 2000	1.28 Million building units
% of new building units from Total	50 %
Likely penetration rate of "guideline" application	50 % of new building units
Potential per household energy savings	25 %
Estimated Total energy savings due to proposed project	0.39 Mtoe
Estimated annual energy savings due to proposed project	0.02 Mtoe
Estimated Total CO_2 savings due to proposed project	2.61 Million tons
Estimated annual CO_2 savings due to proposed project	0.13 Million tons

ANNEX D-2
CALCULATIONS OF GREENHOUSE GAS EMISSIONS
IN THE PALESTINIAN TERRITORIES

The calculation of the Palestinian reduction in Greenhouse gas emissions as a result of the implementation of this project is based on several assumptions as the baseline data to generate such information is incomplete. The Palestinian territories did not yet undertake the exercise of preparing their country report on climate change and thus valuable data are missing. Therefore the calculations of the reduction on Greenhouse emissions is based on the following:

1. The number of new building licenses granted in the West Bank and Gaza Strip from the first quarter of 1996 to the second quarter of 1997 reached 19,786, according to the records of the Palestinian Central Bureau of Statistics. The estimated need for housing units to cover the current shortage in housing is estimated at 200,000, not to include the future demand as a result of population growth.

2. Approximately 42% of the 926 KTOE of energy consumed in the Palestinian Territories is used for residential purposes.

3. Electricity, butane (natural gas), kerosene, timber and coal are the common energy sources for heating. Approximately 23.3% and 0.7% of the West Bank and Gaza Strip households, respectively, use kerosene for heating, while 52.1% and 38.3% respectively use timber and coal. Most cooling systems in the Palestinian Territories areas operate on electricity.

4. The consumption of energy between the various sectors is estimated as follows:

Table 1: By-sector breakdown of energy consumption

Sector	Energy Utilization	Energy Source
Transportation (40%)	370 KTOE	Petrol
Residential and small businesses (42%)	389 KTOE	Petrol and electricity
Large business and other (18%)	167 KTOE	Petrol and electricity

Energy Consumption

The assumptions used in the following calculations are estimations based on research and processed data close to the current conditions. These assumptions are:

1- Heating utilizes 18.75% (73 KTOE) of residential energy consumption. Of this, 15.3% (11.18 KTOE) are from petrol sources, 47.5% (34.7 KTOE) are from coal and wood, and 37.2% (27.2 KTOE) are from butane/electricity sources.

2- Cooling utilizes 6.25% (24.3 KTOE) of residential energy consumption with 100% from electric source.

Table 2: Energy consumed for heating and cooling by the residential sector in 1998.

Residential and small businesses	**1998** KTOE	**1998** Million ton CO2
Electricity	51.50	0.51*
Petrol	11.18	0.04
Wood	34.70	0.11
TOTAL	**97.38**	**0.66**

* Emission due to electricity is calculated at 780g of CO2 emitted for every 1 KWh produced.

The total number of population in the West Bank and Gaza Strip is around 2.9 million (Palestinian Central Bureau of Statistics) with an average household size of 6.2 individuals. Therefore the residential energy consumption is divided among 467,740 residential units.

Table 3: Projected building growth.

	1998 million units	**2000** million units	**2010** million units	**2020** million units
Building growth rate (2.5%)	0.470	0.494	0.632	0.809
Building retirement rate (-1.3%)*		0.458	0.402	0.353
Resulting no. of new household units		**0.036**	**0.230**	**0.456**

* Building life span has been assumed to be 75 years which gives a yearly building retirement rate of 1.3%.

Table 4: Projected yearly growth in energy demand for heating and cooling (@ 3%).

	1998 KTOE	**2000** KTOE	**2010** KTOE	**2020** KTOE
Electricity	51.50	54.63	73.43	98.69
Petrol	11.18	11.86	15.94	21.42
Wood	34.70	36.81	49.47	66.49
Total	**97.38**	**103.30**	**138.84**	**186.60**

The relative proportion of energy type used has been maintained the same throughout the projection period.

Table 5: Total energy demand and CO_2 emissions between 2000 and 2020.

Heating and cooling 2000 - 2020	**Energy demand** KTOE	**CO_2 emissions** Million tons
Total Electricity	1567	15.37
Total Petrol	340	1.07
Total Wood	1056	3.32
TOTAL	**2963**	**19.76**
Average/year	141	0.94

Considering that the GEF intervention through energy codes for buildings will lead to a maximum of 30% reduction in residential energy consumption; and assuming an adoption rate of 50% of energy efficient codes for buildings, then savings will reach 11 Ktoe per year as shown in table 6.

Table 6: Total Potential Energy Savings Attributable to Project (Summary table)

Project Time frame	2000 – 2002
Forecast Time frame	2000 – 2020
Projected Total size of sector in 2020	0.809 Million building units
Projected size of new building units from 2000	0.420 Million building units
% of new building units from Total	52 %
Likely penetration rate of "energy code" application	50 % of new building units
Potential per household energy savings	30 %
Estimated Total energy savings due to proposed project (2000/2020)	231 Ktoe or .231 Mtoe
Estimated annual energy savings due to proposed project	11 Ktoe or 0.011 Mtoe
Estimated Total CO_2 savings due to proposed project (2000/2020)	1.95 Million tons
Estimated annual CO_2 savings due to proposed project	0.1 Million tons

ANNEX E

Contrasts Between Energy Efficiency and Building Efficiency Projects

PA/EE	Lebanon/DSM	LEB/PA proposal
Development Objective To meet suppressed and still growing power and energy demands through reliable, efficient and rational energy consumption patterns, thereby reducing GHG emissions and protecting the local environment while at the same time reducing Palestinian dependence on imported power and fossil fuel.	***Development Objective*** - Reinforcing the national institutional capacity for the identification and removal of barriers pertaining to energy efficiency and sound energy planning. - Curbing GHG emissions resulting from inefficient end-use energy consumption in all sectors of the economy.	***Development Objective*** - Establishment and adoption of energy codes for buildings. - Reduction of CO_2 emissions into the environment.
Immediate Objectives - To improve **industrial, commercial, and residential sector energy efficiency** by 17% by reducing awareness, information, financial, business, technology, and other barriers to energy efficiency, eliminating nearly 80,000 tons of CO_2 /year. - To **improve residential sector energy efficiency** by 11% by reducing information, financial, equipment, and other barriers to energy efficiency, thereby reducing CO_2 emissions by more than 140,000 tons of CO_2 /year. - To facilitate a 2% reduction in **electricity distribution line losses** by identifying and evaluating potential priority projects for multilateral development bank or other funding, therefore reducing nearly 45,000 tons of CO_2/year. - To facilitate the above activities by promoting increased customer awareness and strategic actions by public and **private sector energy market participants** through an energy efficiency center.	***Immediate Objectives*** The project will assist the GoL in establishing a Lebanese Centre for Energy Conservation and Planning whose main functions would be: - Providing **engineering & energy marketing services.** - Strengthening policy aspects and increase **public awareness pertaining to energy conservation** issues.	***Immediate Objectives*** The **development and adoption of energy codes and thermal guidelines for buildings** will enhance energy efficiency and end-use performance. This can lead to an appreciable reduction in energy consumption and associated CO_2 emissions. Specifically: - Reduction of greenhouse gas emissions. - Establishment of energy codes for buildings. - Transformation of construction industry (Lebanese component).
Implementing Agency Palestinian Energy Authority	***Implementing Agency*** Ministry of Hydro-Electric Resources/Electricite du Liban	***Implementing Agency*** **Lebanon:** Department of Town Planning of the Ministry of Public Works **Palestinian Authority:** Palestinian Ministry of Local Government

ANNIVERSARY

برنامج مساعدة الشعب الفلسطيني

FAX MESSAGE from: UNDP / PAPP

To: Mr. Marcel Alers,
RBAS GEF Coordinator

Attn: Rana Ma'alouf,
Climate Change Coordinator

From: Timothy Rothermel,
Special Representative

Number of pages (including this one): 1

Subject: **UNDP/PAPP support to Energy Codes for Building Project**

FAX Number: 212 906 5487

Message Number:

Priority: Urgent: Routine:

Date: 22 October 1999

File: Energy Codes Project

Account:

Dear Mr. Alers,

I would like to seize this opportunity to congratulate you on your new appointment with the GEF.

In reference to the Energy Codes for Buildings project, we would like to reiterate our commitment and interest in the project and will positively consider the provision of co-financing up to US$ 100,000 upon project approval.

Best regards,

United Nations Development Programme

بسم الله الرحمن الرحيم

Palestinian National Authority

State Ministry For Environmental Affairs

السلطة الوطنية الفلسطينية

وزارة الدولة لشئون البيئة

No. : 594/1/99

Date : 4/10/1999

ATN 24674 — LAH.

الرقم

التاريخ 04-10-1999

RBC RBK

PRO/300/2

سلطة البيئة الفلسطينية
صـــادر
الرقم 493/99
التاريخ 4/10/99

To: Mr. Timothy Rothermel,
Special Representative
UNDP, Jerusalem
Fax: 280 089

From: Dr. Sufian Sultan, President
Palestine Environmental Authority
Fax: + 972 2 222 9279

Subject: Project Proposal"Energy Efficient Building Codes in The West Bank and Gaza Strip"

Dear Mr. Rothermel,

Best Compliments. It gives me the pleasure to write to you regarding the above project of assistance to Palestinians. We are particularly thankful to the UNDP/PAPP for the continuous efforts and concern put forth to support the environmental programs and current projects in Palestine and to help us to assure better sustainable development for our future generations.

I acknowledge receiving the project proposal document about" Energy Efficient Building Codes in the West Bank and Gaza Strip". Concurrently, according to our needs and priorities, it is extremely cardinal to compel the infrastructure and preserve the environment. So we are eager to start negotiation with you about the project processes whenever you decided upon arrangement of the steering committee.

Availing us to assure you our pleasure and satisfaction with our strong ties and mutual trust, accept sir all due respect and highest veneration. Sincerely.

Palestine - Gaza - Elnaser - Elthawra St. Tel. : فلسطين – غزة – النصر شارع الثورة متفرع من ش شارع النصر هاتف 2822000 2823000
E-mail pena@rannet.com Telfax : 2822002 تلفاكس :
Rammallah Nablis St رام الله - شارع نابلس هاتف 022981495 فاكس 022981494

OCT 06 '99 10:59AM UNDP PAPP JERUSALEM 972 2 280089 P.2

REPUBLIC OF LEBANON
MINISTRY OF ENVIRONMENT

THE MINISTER
1233/B

To	:	**Mr. Rachid Ayadi** Resident Representative a.i
Fax No	:	01 603 460
From	:	**Akram Shehayeb** Minister of Environment
Fax No.	:	+ 961 4 524 555
Subject	:	**Project proposal on "Capacity Building for the Adoption and Application of thermal Standards"**

Beirut 12 August 1998

Dear Mr. Ayadi,

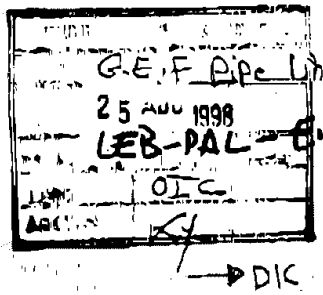
Referring to your letter dated April 16,1998 Ref: GEF Pipeline 278/KY/nk concerning the submission of comments on the project proposal on "Capacity Building for the adoption and application of thermal Standards", we would like to express our deep interest in cooperation with you for this project and any other related projects that contribute to the reduction of electricity consumption, thus reduction in the emissions of CO2 .

First of all we would like to inform you that Lebanon has ratified the Climate Change Convention on 15 December 1994 and not 1995 (page 1, no 4). As for the steering Committee comprising representative from (ALME, LIBNOR, CDR and The order of Engineers and Architects), it should be controlled or supervised by the Ministry of Environment

Within this context, we welcome any projects that contribute to the reduction and mitigation of GHG emissions.

Akram Shehayeb

Minister of Environment



Energy Eff. Building

OCT. -22' 99(FRI) 15:29 GEF/RBAS TEL:212 906 6286 P.002