MID-TERM EVALUATION

Philippines Efficient Lighting Market Transformation Project (PELMATP)

Government of the Philippines
United Nations Development Programme
Global Environment Facility

FINAL VERSION

February 2009

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
ADP	Assistant Project Director
AO	Administrative Order
APLAC	Asia and the Pacific Laboratory Accreditation Cooperation
APR-PIR	Annual Performance Report – Project Implementation Review
AWP	annual work plan
BOI	Board of Investments
BPI	Bank of the Philippine Islands
BPS	Bureau of Product Standards
BPSLAS	Bureau of Product Standards Laboratoy Accreditation Scheme
CCFI	Chamber of Commerce and Industry Foundation, Inc.
CCI	Chamber of Commerce and Industry
CDCP	Clean Development and Climate Program
CDM	Clean Development Mechanism
CEPALCO	Cagayan Electric Power and Light Company
CHED	Commission on Higher Education
C&I	commercial and industrial
CFL	compact fluorescent lamp
CMO	CHED Memorandum Order
CO	Country Office
CO_2	carbon dioxide
CSR	Corporate Social Responsibility
CWPO	Consumer Welfare and Promotions Office
DAO	Department Administrative Order
DBP	Development Bank of the Philippines
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DBM	Department of Budget and Management
DOE	Department of Energy
DPWH	Department of Public Works and Highways
DTI	Department of Trade and Industry
DSM	demand-side management
DSSC	Development Support Services Center
EC	energy conservation
ECAP	Energy and Clean Air Project
EC&EE	energy conservation and energy efficiency
EE&C	energy efficiency and conservation
EECD	Energy Efficiency and Conservation Division
EE	energy efficient
EEL	energy efficient lighting
ELI	Efficient Lighting Initiative
EMB	Environmental Management Bureau (of DENR)
ENPAP	Energy Efficiency Practitioners' Association of the Philippines, formerly known as:
ENMAP	Energy Management Association of the Philippines

Enercon	energy conservation
EPIMB	Electric Power Industry and Management Bureau
EPC	energy performance contract
ERC	Energy Regulations Commission
ERTLS	Energy Research and Testing Laboratory Services
ESCO	energy service company
EUMB	Energy Utilization and Management Bureau
FEU	Far Eastern University
FI	financial institution
FL	fluorescent lamp
GEF	Global Environment Facility
GHG	greenhouse gas
GK	Gawad Kalinga movement
GOP	Government of Philippines
GWH	gigawatt-hour
Hg	mercury
HID	high-intensity discharge lamp
HH	household
HPS	high-pressure sodium lamp
I	industrial
IEC	information, education and communication
IFC	International Finance Corporation
IIEC	International Institute for Energy Conservation
IIEE	Institute of Integrated Electrical Engineers
IIEEF	Institute of Integrated Electrical Engineers Foundation
ISO	International Standards Organization
ISTA	International Technical Advisor
IT	information technology
ITMS	Information Technology Management Service (of DOE)
kWh	kilowatt-hour
$ktCO_2$	kilotonnes of CO_2
LATL	Lighting Appliance Testing Laboratory
LED	light emitting diode
LFL	linear fluorescent lamp
LGU	local government unit
M&E	monitoring and evaluation
MERALCO	Manila Electric, Railways and Light Company (a.k.a. Manila Electric Company)
MEPS	minimum energy performance standard
MEZ-FAMEA	Mactan Economic Zone – Facilities, Maintenance and Environmental Association
MOA	Memorandum of Agreement
MRA	Mutual Resource Agreement
MWh	megawatt-hour
N.A.	not applicable
NATCCO	National Confederation of Cooperatives
NCR	National Capital Region
NEC	National Engineering Center
NEDA	National Economic and Development Authority
NEECP	National Energy Efficiency and Conservation Program

NEX	National Execution Manual
NGO	non-government organization
NPD	National Project Director
PAB	Policy Advisory Board (of PELMATP)
PAO	Philippine Accreditation Office
PCAPI	Pollution Control Association of the Philippines
PDD	Project Design Document
PDIC	Philippine Deposit Insurance Corporation
PELMATP	Philippine Efficient Lighting Market Transformation Project
PERC	Partnership for Eco-Responsive Company
PEREZ	Partnership for Responsive Eco-Zones
PICTS	Productivity Improvement and Conformity Testing
PLIA	Philippine Lighting Industry Association
PMO	Project Management Office (of PELMATP)
PNB	Philippine National Bank
PNOC	Philippine National Oil Company
PNS	Philippine National Standards
PR	public relations
R	Residential
R&D	research and development
REC	rural electrification cooperative
REDF	Rural Electrification Development Foundation
SRS	Science Research Specialist
TA	technical assistance
tCO_2	tons of carbondioxide
TESDA	Technical Education and Skills Development Authority
TIP	Technogical Institute of the Philippines
TOR	Terms of Reference
TV	television
TWG	Technical Working Group (of PELMATP)
UNDP	United Nations Development Programme
UP	University of the Philippines
USA	United States of America
USAID	U.S. Agency for International Development
USD	United States dollar
US$	US dollar
VA	voluntary agreement
VECO	Visayan Electric Company
VEEPL	Vietnam Energy Efficiency Public Lighting
W	Watt
WFP	work and financial plan
Yr	year

EXECUTIVE SUMMARY

See item 10 in Terms of Reference

The Government of the Philippines has embarked on an energy independence and savings reform agenda, aiming at a 60% self-sufficiency level by 2010, of which a strong efficiency and conservation is a key program. As a policy direction, the Government promotes the judicious conservation and efficient utilization of energy resources through adoption of the cost-effective options taking into consideration minimizing environmental impact. The use of energy efficient lighting (EEL) is one of the programs by the government and the private sector in promoting energy efficiency. EEL lamps, such as compact fluorescent lamps (CFLs, replacing incandescent bulbs) or slim linear fluorescent lamps (T8 LFLs, replacing T12 LFLs), low-loss ballasts, better luminaires and high-intensity discharge lamps systems are easy to install and retrofit in commercial, industrial, government and residential buildings.

Despite various efforts undertaken by the Government, barriers to the widespread utilization of EEL systems continue to exist. To address the above-mentioned barriers, the United Nations Development Programme (UNDP) and the Department of Energy (DOE) developed a project to promote the application of energy efficient lighting in the country's public sector entitled "Philippine Efficient Lighting Market Transformation Project" (PELMATP). The project was applied for Global Environment Facility (GEF) financial support. The preparation of the PELMATP project documentation started in September 2002 (after the GEF Secretariat had made available preparatory funding of USD 97,800) and the final draft was completed and submitted to UNDP-GEF in September 2003. After comments from the GEF Secretariat and GEF Council members were incorporated into the final document (GEF Executive Summary and UNDP Project Document), the project was endorsed in November 2004. Project activities got started with an Inception workshop held in May 2005.

As the project has gone past its mid-project implementation, a mid-term review is needed to review the progress of the project with its stated project activities, outputs and outcomes to date and to evaluate their adequacy and relevance, thereby providing advice and an opportunity for the project management team to complete any pending tasks and to address any eventual shortcomings before the completion of the project by the middle of 2010. Two independent consultants, Mr. Jan van den Akker (Netherlands) and Mr. Rogelio Z. Aldover (Philippines) were selected as evaluators and a mission was fielded in the first two weeks of November 2008. During the mission, extensive discussions were held with the PELMATP team, UNDP representatives from co-financing organizations and beneficiaries. In addition, project progress reports and other materials were reviewed.

The GEF Executive Summary mentions as the **goal** of the project (global environment objective) "the reduction in the annual growth rate of greenhouse gas (GHG) emissions from the energy sector through sustained and widespread utilization of energy efficient lighting (EEL) systems". The project **purpose** (development objective) is "the removal of barriers to widespread utilization of EEL systems".

To achieve the project purpose, PELMATP will comprise of 5 major components, each of which is a specific program consisting of specific activities designed to address the barriers to the widespread adoption of EEL systems in the Philippines.

PELMATP **progress towards achievement of results** can be rated as *satisfactory*. A summary of accomplishments per *component* is given below.

1. Existing policies, standards and guidelines are established and new ones enhanced:
   - Highlights on achievement include the issuance of Administrative Order (A.O. No. 183) on the use of EEL in government buildings; formulation and development of minimum energy performance standards (MEPS) for compact fluorescent lamps (CFLs), fluorescent lamps (FLs) and ballasts; energy efficient (EE) Roadway Lighting Guidelines implemented in Cagayan de Oro and associated training; labeling of products; helping catalyze the pronouncement made by the President to phase-out incandescent bulbs by the end of 2009; and warranty and eco-labeling guidelines for EEL products;
   - Almost all of the planned activities have been carried out and some even exceeding targeted level, except for some activities, e.g., local government units (LGUs) adhering to the guidelines; compliance in linear lamps and ballasts to Philippine National Standards (PNS) and voluntary agreements (VA) with manufacturers;
   - The committees and advisory group are well organized and very active and the regular meetings serve as important avenues for discussing common issues and making important decisions, thus, manifesting very good public/private partnership in and ownership of the EEL program by the stakeholders.
   - Tripartite MOA signed among DOE, the Department of Public Works and Highways (DPWH) and the Department of Interior and Local Government (DILG) will help ensure the effective implementation of efficient lighting systems both at the national and the local levels (this is in the absence of an Energy Conservation Law from which to base the inclusion of the Guidelines for Energy Conserving Design of Building in which efficient lighting is incorporated, including Roadway Lighting, in the building code).

2. EEL institutional and technical capacities on EEL applications are developed:
   - Capacity strengthening of DOE's Lighting Appliance Testing Laboratory (LATL) and acquiring ISO certification for EEL testing; technical assistance to manufacturers (Quantum, Fumaco, among others); EEL system training modules for students and practitioners; training of LATL, EECD, EMB, ERTLS, CWPO and ITMS officials/staff (workshops, seminars, study visits, conferences);
   - Almost all of the planned activities have been carried out and met the targeted level, except for targets in DOE-LATL accreditation to ISO/IEC 17025 (which is ongoing); local manufacturers investment in more EE ballast and fixture effected; energy savings calculators designed; mass purchasing agreements in private establishments; increased EEL usage level in industrial and commercial establishments;
   - LATL has established facilities for the testing of CFLs, ballasts, LFLs and luminaires as well as for the calibration of equipment and other laboratory tools, and made arrangements for the procurement of energy audit equipment (lighting related) of the Energy Efficiency and Conservation Division (EECD) of DOE;
   - LATL satisfactorily meets testing demand of Bureau of Product Standards (BPS) and private sector for performance testing of EELs (CFLs, linear/tubular fluorescent lamps, electronic ballasts, and lamps for street lighting). Market monitoring is with BPS. However, the length of time at which lighting products are tested needs to be reviewed/ revisited;
   - Demand-side management (DSM) activities will no longer be pursued since DSM is no longer attuned to the present situation of the power industry.

3. Consumer awareness of EEL applications improved:
   - *Palit-Ilaw* (Switch to EELs) created awareness and lessons learned; demonstration in public buildings (schools, hospitals, city halls); joint government-private sector promotion through media and seminars, workshops, and conferences in cooperation with local suppliers of EELs (e.g., Philips, Akari, G.E., Osram, Starlux, Omni, etc.);
   - Joint government-private sector promotion of EEL products; the participation in numerous fora manifested very strong cooperation and commitment; voluntary sharing of inputs from the companies involved in the changing to EELs in various establishments;
   - Increased sales of EEL products (though not yet evidenced in HID and luminaires) is evidence of the initial success in the promotional activities;
   - Regular exposure on TVs, Radios and print ads (which exceeded the targets)
   - Most of the planned activities met the targets, except website utilization on EEL industry and related government websites, while the inclusion of the subject Illumination Engineering Design in school curricula is now being implemented by various colleges, universities, and other educational institution offering electrical engineering course. The Commission on Higher Education issued Memorandum Order (CMO) No. 34 Series of 2008 regarding the Policies and Standards for the Degree of Bachelor of Science in Electrical Engineering Program which includes, among others, the inclusion of the Illumination Engineering Design in the Electrical Engineering Curricula for school year 2008-2009. The training module for this subject which was completed under the project was piloted in 10 colleges and universities. In addition, the Manual of Practice on Efficient Lighting, Guidelines on Energy Conserving Design of Buildings and Roadway Lighting Guidelines will be the reference materials for this subject, which were also prepared under the project.

4. EEL initiatives financing assistance program implemented:
   - Cooperation with consumer organizations and electricity cooperatives (package CFLs with the wiring of houses or with other consumer products); a study is ongoing and model arrangement will be implemented;
   - In relation to the first bullet, EEL distribution channels via consumer cooperatives are not yet moving, although consumer cooperatives have been identified and forging of partnership agreements through the signing of Memorandum of Agreement (MOA) have yet to be firmed up;
   - Financing guidelines have been designed and implemented but access to the loans are not yet happening while the development of the financing mechanisms are still ongoing;
   - EEL voluntary agreements and financing in industrial and commercial buildings are slowly picking up;
   - Energy Service Company (ESCO) guidelines on accreditation by the DOE have been issued.

5. EEL systems waste management assistance developed:
   - Awareness creation on proper disposal of CFLs; proposed expansion of waste recycling facility;
   - Guidebooks have been developed and distributed (through the Department of Environment and Natural Resources – Environmental Management Bureau (DENR-EMB);
   - Information campaigns being carried out and directory of lamp waste generation done;

- Strategies for EEL lamp waste management being studied.

The **implementation** has proceeded *satisfactorily* as well. In terms of timeline, activities have been implemented according to plan with some delays here and there and some activities cancelled (e.g., DSM), but more progress in other activities have been realized. Budget disbursements in general reflect the progress in executing activities. PELMATP has partnered well with a number of co-financiers and partners from government, lighting industry, private property management group, professional organizations, testing laboratories (DOE-LATL, BPS Testing Center, IIEE Foundation), consumer organizations, local government units (LGUs including cities and municipalities) and collaborative activity with other foreign assisted project. Co-financiers contributed more-or-less the planned in-kind (e.g., time of government staff) as well as cash, such as donation of lamps for the Palit-*Ilaw* program.

Although the Evaluators have quite a positive feeling about PELMATP's progress and implementation, as described above, there are some **issues** that need to be addressed and, together with the Evaluators' recommendations are given below:

Issues	Recommendations and actions
1. *Management:* some posts in the Project Management Office or PMO (such as the policy and environmental management task specialist or the IT specialist) are difficult to fill; high turnover rates in project personnel	• Look critically at salary offered to staff and fees to consultants; • Some flexibility can be shown in contracting; it may be easier to find a qualified person on a 'part-time' basis as a 'consultant' rather than asking a senior person to give up a job for a 'temporary' 2-3 year position with PELMATP; • Hire a more junior person (lower job requirements) and hire specialized consultants for the more advanced tasks
2. *Monitoring and evaluation:* as explained in Section 2.2, this is more than just measuring direct impacts, but also indirect impacts. Up to now, the methodology used for measuring direct impacts, let alone indirect impacts, is not clear	• Use GEF CO_2 estimation manual on direct and indirect impacts. See GEF/C.33/Inf.18 'Manual for Calculating GHG benefits of GEF Projects: Energy Efficiency and Renewable Energy projects' • The International Technical Advisor (ISTA) of the Vietnam Energy Efficiency Public Lighting project (VEEPL) is developing a M&E framework for that project. He should be approached to provide input into PELMATP as well. • Consultants should be hired to review and quantify progress and impact indicators (logframe), right now and again at the end of the project. The activity should include measurement of indirect impacts, such as consumer awareness creation (e.g., by means of a consumer / end-/user survey) and market penetration of EEL products

	(e.g., by trying to quantify the indicators 40 and 48 in Table II of the APR-PIR by means of analysis of sales statistics (customs, DTI, etc.) and analyzing the impact of PELMATP on user's decision-making. The study will also help to identify gaps and these in turn can be addressed in future work plans and the communication plan
3. *Sustainability*.	• An exit strategy needs to be formulated for the continuation of activities after the end of 2009 (when PELMATP will end) o Who of the government and private stakeholders will do what in EEL promotion and implementation (an organizational assessment and development study is recommended) o Integration of PELMATP within DOE o Database and website maintenance o Maintenance of equipment at LATL and EECD o Linking of current activities with future activities, such as the *Philippine Energy Efficiency Project*, which is proposed to be supported by ADB with a US$ 30 million dollar and will focus on efficient lighting and energy efficiency in buildings and industry o Updating of project materials (such as guidelines, manuals)
4. *Components* <u>Component 1</u> • Manufacturers find it difficult to compete with products coming from lower-cost countries (e.g., China, India, Vietnam) • Testing time of EEL products takes longer than really necessary	• Explore possibilities with DTI-Board of Investments incentives to local suppliers and manufacturers producers of certified luminaires and ballasts • Review testing procedures and lifetime test standards
<u>Component 2</u> • Procurement for national public buildings is done centrally by the DBM, not by the user (e.g., school, hospital). In many of the *Palit-Ilaw* activities, this problem may not have surfaced, because in most cases lamps were donated. • Some activities (e.g., DSM) have not been implemented for lack of support and change of regulation	• While the public building/office can indicate budget needs (and need for products), not always the best or most EE appliances may be provided. PELMATP could follow up how guidelines on EE in public buildings (developed under Component 1) are implemented in practice (also as part of the monitoring and evaluation activities).

Component 3 • Outreach effort	• A work plan should be drafted for the outreach activities of Component 3 detailing how to reach the various target groups (government officials, local officials, building owners, households, etc.) and to explore means of implementing using practical approaches and resourcefulness in view of limited funds
Component 4 • Lighting may only be a small part of the energy bill, depending on the type of industrial, commercial or public establishment. In such cases it may be easier to incorporate EEL as part of an overall energy audits and acquire loans for the whole package of proposed viable EE measures	• Try to address EEL and lighting activities in the wider context of EE, also as input in the upcoming ADB EE project (see footnote 19). In fact, PELMATP is already doing this in its activities under financing (capacity strengthening of financing institutions, ESCO and energy performance contracting promotions, and others), i.e., promoting EELs as part of the whole range of EE technologies and services that potentially exist in a building/ facility/ industry.
• Component 5 currently focuses on large users of EEL products, not on individual households and can be linked more closely with the activities of the other PELMATP components	• PELMATP could devote some funds to look into the issue of CFL/fluorescent lamp collection at household level (e.g., rebate for CFL returned). The CFL and/or fluorescent lamp recycling issue can be linked with warranty issue and be part of the CFL distribution scheme with consumer organizations and cooperatives • Awareness to dispose properly with the help of the LGU and the barangay level at designated disposal areas. This again should be linked with a work plan for Communication (see recommendation under Component 3) • Incorporate in eco-labeling (see Component 1). The awareness on hazards if spent EEL lamps are not properly disposed
5. *Replicability* • The proposed ADB-supported *Philippine Energy Efficiency Project* will ensure further replication by including an efficient lighting initiative that will boost lighting products in public buildings and residences as well have a public lighting retrofit program	• Assess impact of schemes with consumer organizations and cooperatives/utilities as well as EEL activities in buildings as part of monitoring and evaluation and feed results and lessons learned into the ADB supported Energy Efficiency Project

Some **lessons learnt** are:

- Priorities and environment changes (for example, it turned out during project implementation that DSM was no longer a priority given the restructuring in the power sector). If so, activities and budget allocation should be changed accordingly to other more relevant or new activities;
- Procurement of services and equipment in UNDP can be time-consuming and can cause delays in project implementation.
- Working with government departments/ agencies/ entities for certain sub-contract activities (such as monitoring of lighting standards development, lamp warranty, eco-labeling and lamp waste management) where they will eventually be the lead agency/ies to implement the activities as part of the structural changes (e.g., policies, standards, guidelines, etc.) have been, in most cases, tedious as these technical assistance activities are normally add-on to them and not among the priority programs/activities for that year;
- Similarly, it takes time for Government entities to implement proposed measures. For example, various standards for lighting products have been proposed, but up to now only standards for CFL and linear FLs have officially been approved. This becomes even more time-consuming when more than one government entity is involved;
- It takes time to really convince, gain consensus and get the trust and buy-in of stakeholders. It is important to have a champion within the implementing entity: in PELMATP's case, the Secretary of Energy himself. Getting the stamp of authority and political will of the top management are very important in transformation process in order to get key players' and stakeholders' buy-in.
- It should be noted that partnerships with umbrella organizations (private, professional organizations, chambers of commerce and industry, non-government organizations, etc.), including key government entities/agencies, employed by the project is another key element for the exercise to succeed.
- Donating lamps in pilot activities can be useful for a first demonstration and PR reasons, but potentially masks issues related to the higher cost of investment of EELs (for the owner and/or user) products in comparison with less efficient ones;
- Consolidation of actual energy savings due to lighting efficiency improvements by project partners and entities (residential, commercial and industrial sectors) that have by themselves initiated lighting retrofits or have switched to the use of efficient lighting systems, due either to the direct or indirect influence by PELMATP, and other indicators have been very tedious since compliance rate to lighting monitoring submittals have been very low.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 Background

See item 13 of the Terms of Reference

The Government of the Philippines (GOP) has embarked on an energy independence and savings reform agenda, aiming at a 60% self-sufficiency level by 2010, of which a strong efficiency and conservation is a key program. As a policy direction, the GOP promotes the judicious conservation and efficient utilization of energy resources through adoption of the cost-effective options taking into consideration minimizing environmental impact.

The primary goal of the government energy efficiency and conservation program, dubbed as the "Energy Conservation Way of Life", is to increase awareness and the attainment of 229 million barrels of fuel oil of total energy savings from the implementation of energy efficiency and alternative fuels programs for the period 2005-2014. It is projected that about 50.9 million tons of CO_2 equivalent greenhouse gas emissions will be avoided.

The strategies being pursued by the Department of Energy (DOE) to achieve this goal include:

- The aggressive promotion of energy conservation and energy efficient technology to effect higher energy savings both for the consumer and producer through information, education and communication campaigns;
- Intensify collaboration effort with the private sector in implementing energy efficiency programs through voluntary agreements;
- Continuous implementation and expansion of the appliance and equipment energy standards and labeling implementation of building energy usage standards;
- Integration of energy efficiency concepts in the procurement practices of the government;
- The provision of technical assistance in identifying, implementing and evaluating effective measures to improve energy use efficiency;
- The use of alternative fuel to reduce dependence on imported oil;
- The periodic program monitoring and evaluation to assess the effectiveness of the efficiency and conservation programs in the country as embodied in the National Energy Plan.

The use of energy efficient lighting (EEL) is one of the programs by the government and the private sector in promoting energy efficiency. EEL lamps, ballasts, luminaires and systems are easy to install and retrofit in commercial, industrial, government and residential buildings.

Earlier initiatives and major programs related to EEL include the National Energy Efficiency and Conservation Program (NEECP), Power Patrol, Government Energy Management Program (GEMP), Partnership for Responsible Eco-zones (PEREZ), Partnerships for Energy Responsive Company (PERC) and development of lighting standards and labeling. A major EEL project started in 2002 with the Efficient Lighting Initiative (ELI) funded by the Global Environment Facility (GEF) and executed by the International Finance Corporation (IFC) for a total support of US$15 million for three years in seven countries including the Philippines. ELI worked with lighting manufacturers, electric utilities, the public sector, NGOs, and educational institutions to

accelerate the growth of lighting markets in its seven target countries. ELI sought to have a sustainable, long-term impact, creating vibrant markets for EEL technologies and developed tools which were accessed by the Department of Energy (DOE) to have similar follow-up projects.

DOE is addressing the barriers to widespread utilization of EEL systems, which continue to exist despite the various government and private sector's programs/activities mentioned before. The barriers were identified through literature survey, interviews, round table discussions, survey questionnaires, and the logical framework analysis workshop with key stakeholders in the lighting industry, and from the assessment of roles of all stakeholders. A summary of barriers is given in Table 1.

1.2 Project objectives and strategy

To address the above-mentioned barriers, the United Nations Development Programme (UNDP) and the Department of Energy (DOE) developed a project to promote the application of energy efficient lighting in the country's public sector entitled "Philippine Efficient Lighting Market Transformation Project" (PELMATP). The project was applied for Global Environment Facility (GEF) financial support. The preparation of the PELMATP project documentation started in September 2002 (after the GEF Secretariat had made available preparatory funding of USD 97,800) and the final draft was completed and submitted to UNDP-GEF in September 2003. After comments from the GEF Secretariat and GEF Council members were incorporated into the final document (GEF Executive Summary and UNDP Project Document), the project was endorsed in November 2004. Project activities got started with an Inception workshop held in May 2005.

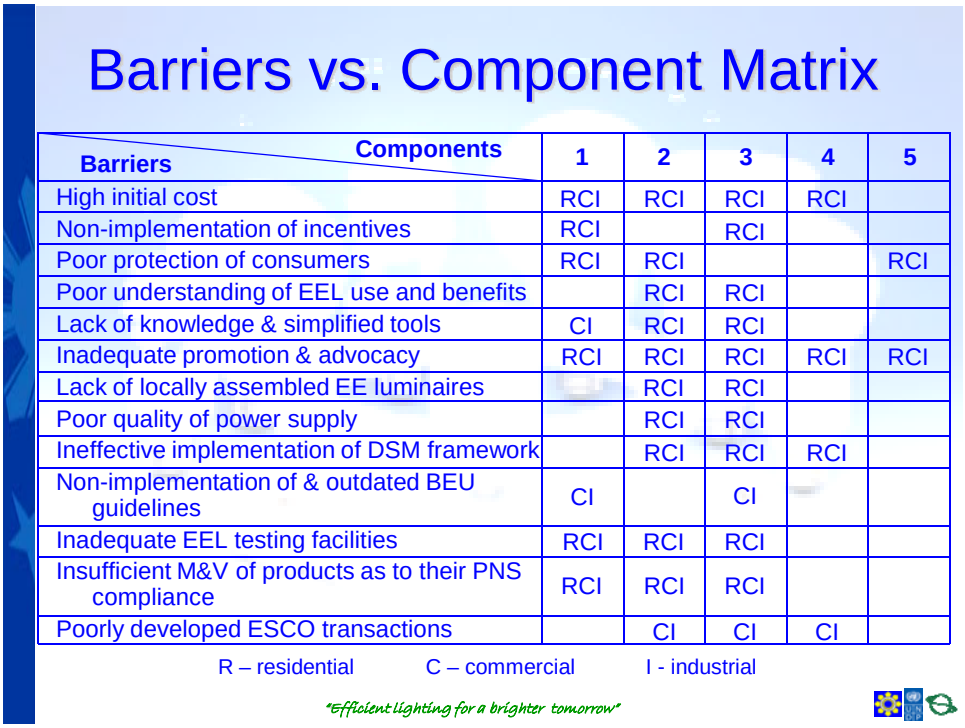
The GEF Executive Summary mentions as the **goal** of the project (global environment objective) "the reduction in the annual growth rate of greenhouse gas (GHG) emissions from the energy sector through sustained and widespread utilization of energy efficient lighting (EEL) systems". The project **purpose** (development objective) is "the removal of barriers to widespread utilization of EEL systems".

To achieve the project purpose, PELMATP is comprised of 5 major components, each of which is a specific program consisting of specific activities designed to address the barriers to the widespread adoption of EEL systems in the Philippines, as indicated in Table 1. The project's **components (outcomes) are**:

- COMPONENT 1: EEL POLICIES, STANDARDS AND GUIDELINES ENHANCEMENT. This involves the establishment of a functioning mechanism for sustained periodic review/updating and enforcement of policies, standards, guidelines and programs on EEL applications, and implementation of minimum energy performance standards (MEPS) for EEL products.

- COMPONENT 2: EEL APPLICATIONS INSTITUTIONAL AND TECHNICAL CAPACITY DEVELOPMENT. This component involves activities that will strengthen capacity of relevant Government agencies on EEL product testing, labeling and development and market monitoring and enforcement of standards with the consumers.

Table 1 Relation of project components with barriers to EEL



Barriers vs. Component Matrix

Barriers \ Components	1	2	3	4	5
High initial cost	RCI	RCI	RCI	RCI	
Non-implementation of incentives	RCI		RCI		
Poor protection of consumers	RCI	RCI			RCI
Poor understanding of EEL use and benefits		RCI	RCI		
Lack of knowledge & simplified tools	CI	RCI	RCI		
Inadequate promotion & advocacy	RCI	RCI	RCI	RCI	RCI
Lack of locally assembled EE luminaires		RCI	RCI		
Poor quality of power supply		RCI	RCI		
Ineffective implementation of DSM framework		RCI	RCI	RCI	
Non-implementation of & outdated BEU guidelines	CI		CI		
Inadequate EEL testing facilities	RCI	RCI	RCI		
Insufficient M&V of products as to their PNS compliance	RCI	RCI	RCI		
Poorly developed ESCO transactions		CI	CI	CI	

R – residential C – commercial I - industrial

"Efficient lighting for a brighter tomorrow"

Source: Noel Verdote, Mid-Term Review PELMATP Overview & Update, 3 November 2008

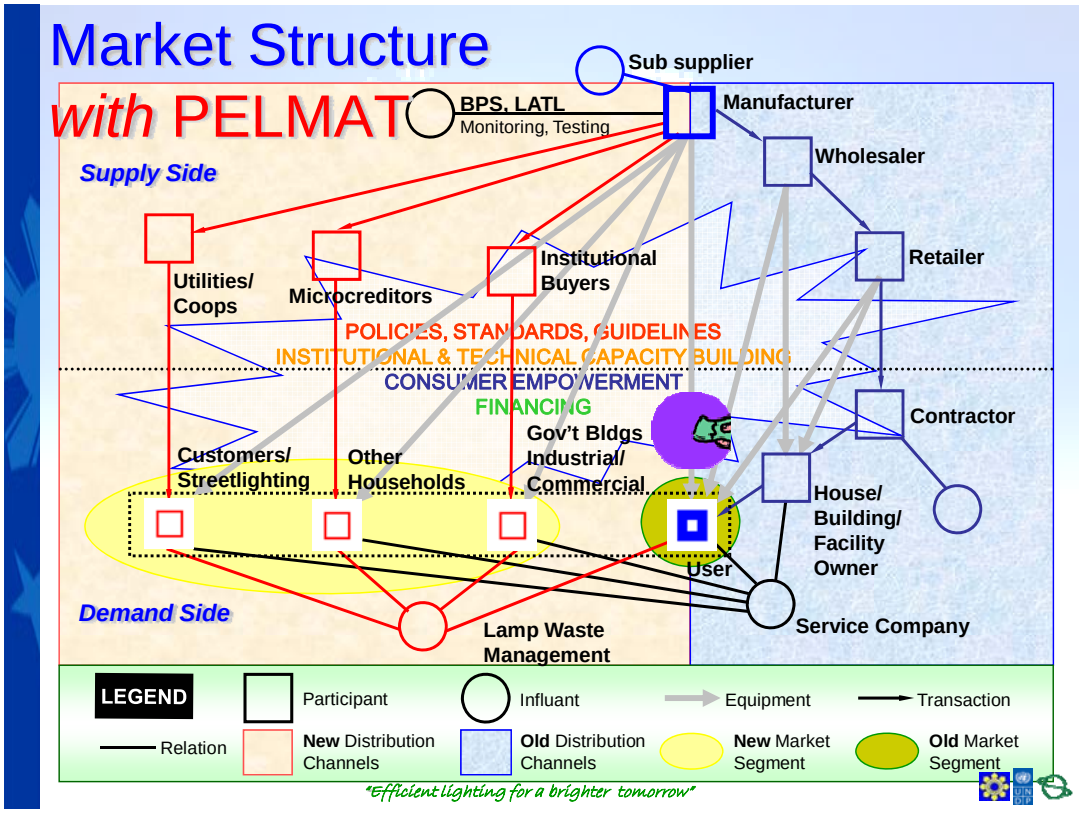
- COMPONENT 3: EEL APPLICATIONS CONSUMER AWARENESS IMPROVEMENT. This component involves activities aimed at empowering consumers in making informed decision in choosing EEL products.

- COMPONENT 4: EEL INITIATIVES FINANCING ASSISTANCE. This component includes the implementation of activities aimed at achieving better quality EEL products becoming affordable and accessible to consumers; and establishment/enhancement of collaboration and partnership among organizations for promoting the adoption of EEL products and the creation/facilitation of business opportunities in EEL product financing.

- COMPONENT 5: EEL SYSTEMS WASTE MANAGEMENT ASSISTANCE. This component is for mitigating the negative environmental impacts brought by utilization of EELs, particularly the handling and disposal of mercury (Hg) from waste EELs.

PELMATP specifically focuses on the promotion of EELs energy efficient version of linear fluorescent lamps (i.e., slim tube T8 tri-phosphor), compact fluorescent lamps (CFLs), high intensity discharge (HID) lamps, ballasts (low loss electromagnetic and electronic) as well as energy efficient luminaires. The project will accelerate integration of EEL promotion programs to the energy conservation and energy efficiency (EC&EE) programs of the DOE and enhance private sector's involvement and appreciation of the benefits of EELs. An overview of the intended impacts of market development is depicted in Figure 1. Moreover, the project also includes activities on the mitigation of the negative impacts of EEL waste disposal supplementing the plans and activities of the Department of Environment and Natural Resources (DENR), local government units (LGUs) and the private sector on management of special wastes.

Figure 1 Framework of PELMATP



Source: Noel Verdote, Mid-Term Review PELMATP Overview & Update, 3 November 2008

The energy savings (and GHG emission reduction) in public lighting would be derived from the installation of energy efficient lighting (EEL) equipment (energy-efficient lamps, high efficiency luminaries, automatic light efficiency control systems) in public places (streets, schools, offices and hospitals) as well as private houses. Energy savings aimed at are an estimated 2,704 GWh and equivalent CO_2 emission reduction of 497,000 tonnes of CO_2 (as mentioned in the Project Document).

Total investment during the execution of PELMATP project in 2005-2009 is estimated at USD 15.13 million, including a GEF contribution is USD 3.13 million[1].

1.3 Evaluation purpose and methodology

See item 11 in the Terms of Reference

As the project has gone past its mid-project implementation, a mid-term review is needed to review the progress of the project with its stated project activities, outputs and outcomes to date and to evaluate their adequacy and relevance, thereby providing advice and an opportunity for the project management team to complete any pending tasks and to address any eventual shortcomings before the completion of the project by the middle of 2010.

[1] A co-financing amount of USD 0.3 million was committed after ProDoc finalization (Source; APR-PIR 2007)

Two independent consultants, Mr. Jan van den Akker (Netherlands) and Mr. Rogelio Z. Aldover (Philippines) were selected as evaluators and a mission was fielded in the first two weeks of November 2008. During the mission, extensive discussions were held with the PELMATP team, UNDP representatives from co-financing organizations and beneficiaries. In addition, project progress reports and other materials were reviewed.

During the mission, the external evaluation mission drew up a table of contents that covers the issues to be addressed as mentioned in its Terms of Reference and follows the structure of this report:

- Introduction (background, project description, evaluation purpose and methodology)
- Findings on project progress
  - Project's performance in terms of results (achieving objectives and outputs by means of realized activities and inputs used) and impacts, quantitatively and qualitatively measured by indicators (as set in the project document and the annual project review documents)
  - Description of project impacts
  - Evaluators' assessment of the project design and execution (way of implementation and management, monitoring and evaluation, budget and cost-effectiveness, external factors, stakeholder involvement)
- Conclusions and recommendations
  - Conclusions, taking into account sustainability and replicability issues
  - Lessons learned and recommendations

The Evaluators adopted the following **methodology of evaluation** *(see (item 12) of ToR)*

i) Review of project documentation *(see item 8 of the ToR)*, such as the Project Document and Executive Summary, APR-PIRs (annual project implementation reviews),
ii) Meetings with the PELMATP team, main project partners and stakeholders

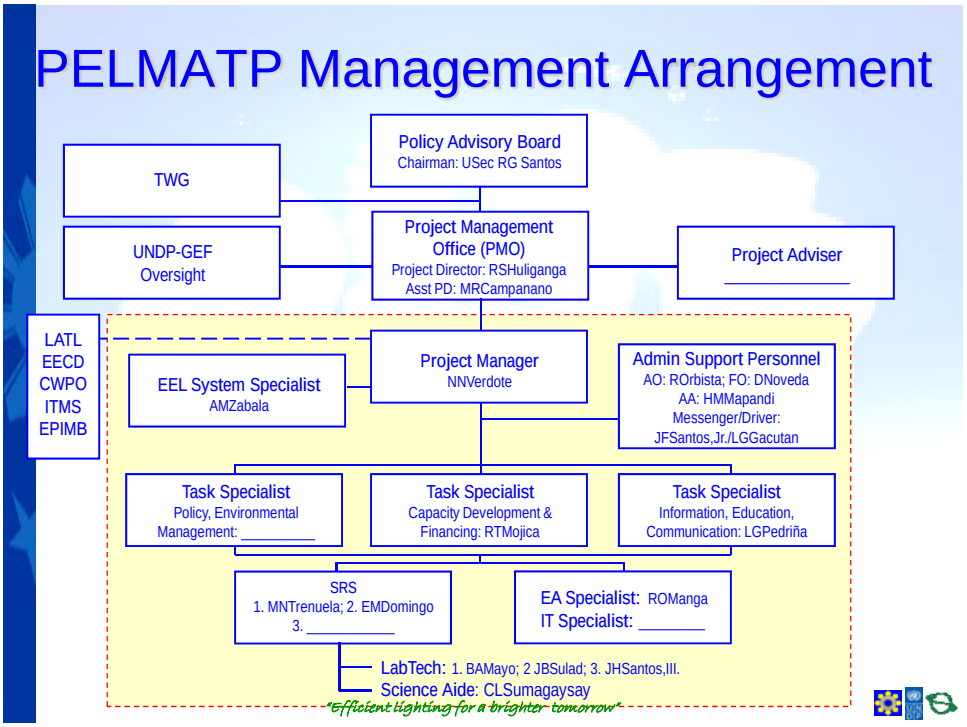
The report is divided into three sections. This first section provides general background of the project, purpose of evaluation, project implementation setup, partners/stakeholders and evaluation methodology. The next section dwells on findings regarding project management and achievements. These findings are described within the logical framework design of the project, as described in the Project Document and progress reports. In the third section, conclusions from the observations and findings are discussed in the context of project objectives. These also pertain to sustainability and replicability of project. The section ends with recommendations for the further direction of the Project and some lessons learnt.

1.4 Project set-up and stakeholders

Figure 2 provides an overview of the implementation arrangements of PELMATP. The Philippine Department of Energy (DOE), through its Energy Research and Testing Laboratory Services (ERTLS) is the national executing agency under the 'national execution' (NEX) modality. The Director of ERTLS acts as *National Project Director (NPD)*[2] who heads the *Project Management Office (PMO)* and is responsible for the successful execution and implementation of the project toward achieving project objectives, coordination of PELMATP with related activities and

[2] Ms. Raquel S. Huliganga

Figure 2 PELMATP Implementation Arrangements



Source: Noel Verdote, Mid-Term Review PELMATP Overview & Update, 03-11-2008

accountability of project resources. The NPD is supported by the Head of the Lighting & Appliance Testing Division of ERTLS as *Assistant Project Director*.[3]

Day-to-day operations of the PMO as well as the overall operational and financial management and reporting of the progress on activities and the use of UNDP funds are under the responsibility of the *Project Manager*[4]. A complete overview of the PMO staff is given in Figure 2. The reader should note that posts of IT specialist and Policy and Environment Management Specialists have been vacant for almost 2 years now).

A *Policy Advisory Board (PAB)* was set up to achieve coordination between the various project partners[5] and to ensure high-level guidance to the PMO and to ensure that the outputs produced meet the requirements of the government and all beneficiaries. The PAB is chaired by a DOE Undersecretary (USEC)[6]. The PAB meets on a regular basis and provides an opportunity to discuss the project progress reports, such as the Annual Performance Report (APR) and Project Implementation Review (PIR) reports. Major decisions regarding project implementation are approved by the PAB.

The UNDP Country Office (CO) in Philippines, together with the UNDP Regional Technical Advisor for Climate Change (Asia-Pacific) facilitates and monitors project implementation and

3 Ms. Mirna R. Campañano
4 Mr. Noel N. Verdote
5 Consisting of representatives of DOE, BPS-DTI, NEDA, DENR, ERC, PLIA and UNDP
6 Undersecretary Ramon G. Santos

provides oversight on behalf of GEF. The UNDP participates in project review, steering committee meetings, work and budget planning meetings and monitoring and evaluation visits. In addition, the UNDP CO provides a range of project services, such as recruitment of project personnel, overseas travel and procurement of equipment upon request from the PMO through its Development Support Services Center (DSSC).

DOE has established a Technical Working Group (TWG) to provide over-all guidance on key program activities including policy recommendations, fund commitments, and co-financing arrangements. The TWG consists of DOE (EUMB, EPIMB, EECD, CWPO, LATL & ITMS), UNDP, PLIA, DTI-BPS, DTI-BOI, MERALCO, DENR-EMB, ERC, ENPAP (formerly, ENMAP), IIEE, DILG, DBM and other stakeholders.

The following sources of financing are provided by PELMATP partners for the project's budget of USD 15.43 million (more details are provided in Table 9):

- GEF (managed by UNDP): USD 3.13 million

- Managed by partners (co-financing): USD 12.30 million, of which USD 10.16 cash and USD 2.14 million in-kind contributions:
  Government:
  - Department of Energy (DOE): USD 4.3 million (cash and in-kind)
  - Bureau of Product Standards: USD 0.04 million (cash)
  - Development Bank of Philippines (DBP): USD 3.91 million (cash)
  - Malabon City: USD 0.16 million (cash)
  - Valenzuela City: USD 0.03 million (cash)
  - UP College of Engineering and UP-NEC: USD 0.05 (cash)

  Professional organizations:
  - Philippine Lighting Industry Association (PLIA): USD 1.5 million (cash and in-kind)
  - ENPAP (ENMAP): USD 0.02 million (cash)
  - Institute of Integrated Electrical Engineers (IIEE): --

  Companies:
  - Quantum: USD 0.12 million (cash and in-kind)
  - Fumaco: USD 0.07 million (cash and in-kind)
  - Dolomatrix: USD 1.80 million (cash)
  - CPI Energy: USD 0.30 million (cash).

2. FINDINGS

2.1 Results achievement: status of project outcomes and outputs

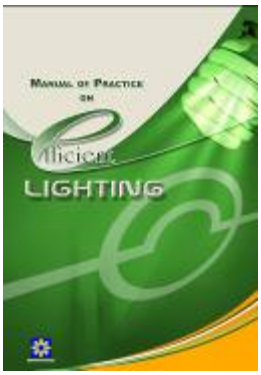
See item 4 and item 14a in ToR

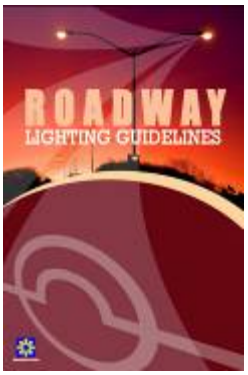
For each of the three outcomes, as mentioned in paragraph 1.2, this section assesses the progress in the implementation of the project's outcomes and outputs, following the format and information provided as given in the UNDP Project Document and as reported by the Project Management Office (PMO) in the annual Project Implementation Review (PIR), the Annual Performance Reports (APRs) and in a presentation presented to the Evaluation Team[7].

The formulation of outputs and corresponding indicators in the Tables 2 to 6 slightly differs from the wording used in APR-PIRs, the original UNDP Project Document and subsequent Work Plans, because these use different wording and numbering systems of outputs/activities. The Evaluators have tried to make a summary, by trying to capture the essence of the wording. This section tries to provide a quantitative overview, while Section 2.3 will provide a more qualitative in-depth assessment of the achievements of the outputs.

2.1.1 Outcome 1 Existing EEL system policies, standards and guidelines are enhanced and new ones established

The main activities of this component are geared towards putting in place the structural changes that will encourage and institutionalize efficient lighting use. A multi-sectoral working group (Technical Working Group or TWG) and a Policy Advisory Board (PAB) were established in





2005, providing technical recommendations and policy-related decisions, respectively, to support the project (see paragraph 1.4 for more details).

The 'Guidelines on Energy Conserving Design of Buildings', incorporating efficient lighting specifications, have been updated together with the 'Manual of Practice on Efficient Lighting' while the newly developed 'Roadway Lighting Guidelines' are for pilot implementation in

[7] *Mid-term Review, PELMATP Overview and Update,* presented by Mr. Noel N. Verdote, 03-11-2008

selected cities. These documents are now being distributed and their use disseminated throughout the country. Six regional trainings have been organized on the use of the Guidelines on Energy Conserving Design of Buildings and the Roadway Lighting Guidelines, with office of the local building officials, design professionals, academia, facility / building owners, managers/ administrators, and others, as participants (numbering on the average from 30 to 50 in each venue, to as high as 500 to several thousands for provincial and national assemblies, conventions, respectively).

Completed lamp warranty guidelines have been discussed in three (3) regional consultations/ public hearing by the end of 2008 prior to publication in two national dailies and its subsequent full implementation. Guidelines on Eco-labeling of lamps (CFL, linear fluorescent lamps and electronic ballasts), on the other hand, had been approved by the Board of Eco-Labeling Program of the Philippines and are now for consideration by the Government Procurement Service.

A Memorandum of Agreement (MOA) was signed among the Department of Energy (DOE), the Department of Public Works and Highways (DPWH) and the Department of Interior and Local Government (DILG) on 15 April 2008, for the effective implementation of the Guidelines on Energy Conserving Design of Buildings and the Roadway Lighting Guidelines, both at the national (DPWH) and the local (DILG) levels.

The Commission on Higher Education issued Memorandum Order (CMO), No. 34 Series of 2008, regarding the Policies and Standards for the Degree of Bachelor of Science in Electrical Engineering Program. The Memorandum Order signed by Chairman Romulo L. Neri, 15 July 2008, includes, among others, the inclusion of the Illumination Engineering Design in the Electrical Engineering Curricula for school year 2008-2009. DOE-PELMATP has been working with CHED, TESDA and the Board of Electrical Engineering since July 2005 for the inclusion of this subject including other energy related subjects. The Guidelines and Manual of Practice on Efficient Lighting Guidelines on Energy Conserving Design of Buildings, and Roadway Lighting Guidelines will be the reference materials for this subject.

Twenty-five Philippine National Standards (PNS), including the minimum energy performance standards or MEPS on lighting products, were developed. The project, in cooperation with the Department of Trade and Industry – Bureau of Product Standards (DTI-BPS), is in the process of forging voluntary agreements (VA) with lighting manufacturers/distributors for higher MEPS lighting products.

A milestone achievement of the project is the signing by President Gloria Macapagal-Arroyo of the Administrative Order (A.O.) No. 183 on 9 July 2007 which institutionalized the use of EEL systems in government facilities (national government, state universities and government-owned corporations). By mid-2008, a total of 115 government buildings nationwide implemented EEL projects. In February 2008, the President made the pronouncement to “phase out the use of incandescent bulbs by the end of 2009”. PELMATP crafted the A.O. and helped catalyze the said pronouncement, respectively.

Table 2 Performance Indicators of Component 1

Outputs (Project Document) **Indicator** (no. as in APR-PIR) *(output no. in Work Plan)* *Budget in USD*	**Value of indicators**	
3 Multi-sectoral working group on the promotion of widespread utilization and commercialization of EEL is operational *(output 1.1)* *Budget:* Work plan: 8,930 Spent: 4,455 (50%)	*Baseline:* • No such Working Group *Target:* • Technical Working Group and Policy Advisory Board operational by 2005 and every year thereafter • 20 meetings held by end-2009	*Achieved by June 2008:* • Established in 2005 • 15 Technical Working Group Meetings (TWG) and 7 Policy Advisory Board Meetings (PAB)
4 Guidelines and manuals for energy efficient lighting (EEL) applications *(output 1.2)* *Budget:* Work plan: 69,641 Spent: 68,088 (98%)	*Baseline:* • N.A. *Target:* • Two • 6 trainings for Local Government Units (LGUs) • 3 LGUs adhere	*Achieved by June 2008:* • Guidelines on Energy Conserving Design of Buildings and Manual of Practice on Efficient Lighting • 7 trainings and seminar-workshops nationwide in National Capital Region (NCR); Baguio City (2) times; Davao City; Cebu City; Bacolod City and Cagayan de Oro City • LGU (Cagayan De Oro City) adhere to the Roadway Lighting Guidelines (MOA signed in February 2008)
5-8 Lighting product standards updated and/or formulated and implemented *(output 1.3)* *Budget:* Work plan: 63,600 Spent: 65,664	*Baseline:* • N.A. *Target:* • 16 PNS standards updated/developed (of which 5 MEPS) • 75 % of models submitted for testing are PNS compliant • % of PNS compliant samples are MEPs complaint (CFLs, LFLs, ballasts 80%; HIDs and luminaires 75%) • 10% improvement in MEPs value	*Achieved by June 2008:* • Standards have been developed/updated, e.g., for CFLs, linear FLs and ballasts and approved by BPS. Except for CFLs, DOE and DTI have yet to finish preparation of the implementing rules and regulations for the rest of the lighting products listed.
9 Voluntary agreement (VA) scheme with lighting manufacturers/distributors implemented *(output 1.4, output 4.4)* *Budget:* Work plan: 16,071 Spent: 114 (1%)	*Baseline:* • N.A. *Target:* • 3 schemes on voluntary standards implemented	*Achieved by June 2008:* • Draft VA completed and circulated for comments

10-11 EEL systems in government buildings applied and implemented *(output 1.6)* *Budget:* Work plan: 36,250 Spent: 770 (2%)	*Baseline:* • N.A. *Target:* • 1 Executive Order on EEL in government buildings • At least 5 buildings carrying out the order and have EEL systems installed	*Achieved by June 2008:* • Some 119 buildings have implemented EEL measures (see also paragraph 2.2 on impacts)
12-13 Incentives for EEL products importers / manufacturers *(output 1.7)*	*Baseline:* • N.A. *Target:* • Policy and guidelines for incentives developed • At least 3 companies availing of incentives	*Achieved by June 2008:* • No incentives yet
14-15 EEL product consumer protection guidelines developed *(output 1.8)* *Budget:* Work plan: 34,108 Spent: 11,440	*Baseline:* • N.A. *Target:* • Guidelines on product warranty and eco-labeling formulated and implemented • At least one product with eco-labeling	*Achieved by June 2008:* • Guidelines on eco-labeling have been formulated • Three regional public hearings/consultations have been made to present and gather inputs to the final draft lamp warranty guidelines
16-17 Monitoring and evaluation of EEL policy impacts and implementation *(output 1.9)*	*Baseline:* • N.A. *Target:* • Annual report on project impacts • Recommendations on policy improvements	*Achieved by June 2008:* • One report on energy savings in government buildings (in compliance of A.O. No. 183) • MEPS for incandescent bulb being developed in support of statement by President to phase out incandescent by 2010

Planned activities

The activities of outputs 1.1, 1.3, 1.7, 1.8 and 1.9 will continue in 2008-2009.

2.1.2 Outcome 2 Institutional and technical capacities on EEL applications developed

The focus of this component has been on institutional and technical strengthening primarily of the DOE's Lighting Appliance Testing Laboratory (LATL), and the then DTI-BPS Laboratory Accreditation Scheme (BPSLAS), presently, the Philippine Accreditation Office (PAO). Through the project, PAO became signatory to the Asia and the Pacific Laboratory Accreditation Cooperation (APLAC) in 2005.

Since 2005, upgrading of the testing capability of LATL has been going on with the construction/ upgrade of the Lighting Testing Facility, to include the installations of compact fluorescent lamps (CFLs), ballasts, linear fluorescent lamps (LFLs) and luminaire testing facility

(Goniophotometer), with the latter (which was completed in December 2007) as the most expensive and the biggest testing facility provided under the project. The facility will cater to the testing requirements of lighting fixture and luminaire manufacturers/suppliers/distributors. As part of capacity development, DOE and other partner agency officials and staff were sent to trainings, both local and international (e.g., USA, Bangkok). Accreditation of LATL to ISO/IEC 17025 for fluorescent lamp ballasts and LFLs (including calibration of temperature, electrical, and pressure equipment) started in the last quarter of 2007 and is expected to be completed by the 3rd quarter of 2008.

Local manufacturers of lamp ballast and fixtures (Fumaco and Quantum, among others) were provided technical assistance and training to improve their stock in terms of efficiency and to make their products affordable and readily available. This activity has met delays due to the timing in the procurement of consulting services (international), but is now completed. In cooperation with the DOE, the PELMATP has conducted lighting energy audits in at least 8 commercial/privately-owned buildings as well as in 2 industrial sectors, one residential and 15 government buildings/facilities with a combined potential savings of 3.96 gigawatt-hour (GWh) per year.

Utilities have lost interest in demand-side management (DSM) due to deregulation-related activities in the power sector. Nonetheless, partnering with utilities continues to promote efficient lighting as part of the utilities' value added services to customers. As a variant on DSM, Local Government Units (LGUs) have shown interest in applying EE roadway lighting guidelines. For example, Cagayan de Oro passed a City Ordinance on Roadway Lighting (following the provisions of the Roadway Lighting Guidelines developed under PELMATP).

Delays have occurred in procuring consulting as well as technical assistance services (e.g., unavailability of contractor in the planned period of activities), resulting in a slide in implementation of the design of EEL Calculators for households (HH) and commercial and industrial establishments (C&I) as well as in the development of lighting product monitoring program, the agreement with DTI-BPS of which has recently been signed.

Energy audits are normally conducted under the project to highlight potential savings from changing to the use of energy efficient lighting. The said audit is normally a precursor in forging partnerships with commercial and industrial establishments.

Table 3 Performance indicators of Component 2

Outputs (Project Document) **Indicator** (no. as in APR-PIR) *(output no. in Work Plan)* *Budget in USD*	**Value of indicators**	
18-19 DOE-LATL accredited to ISO and by APLAC *(output 2.1)* *Budget:* Work plan: 51,460 Spent: 22,719 (44%)	*Baseline:* • N.A. *Target:* • Upgrade testing • Accreditation LATL for testing of ballasts and LFLs	*Achieved by June 2008:* • Accreditation process for ISO is ongoing

	(ISO/IEC 17025); DTI-BPSLAS acquires accreditation to APLAC	
20 Upgrade testing capability LATL *(output 2.2);* LATL satisfactorily meeting testing demands of BPS and private sector; *Budget:* Work plan: 1,258,806 Spent: 1.038,953 (83%) R&D works on local application of EEL systems *(output 2.3)* *Budget:* Work plan: 40,385 Spent: 0%	*Baseline:* • N.A. *Target:* • Improvement of testing capability of LATL (through the purchase of major equipment and construction of test facility for light sources and luminaires) • 90% of testing requests (CFLs, LFLs, ballasts, HIDs and luminaires)	*Achieved by June 2008:* • Training of DOE staff[8] • Improved facility for testing of CFLs, LFLs and light sources, and luminaires • Testing of CFLs, LFLs and ballasts
21-25 Local manufacturing capacity and lighting services industry strengthened; affordable EEL products put in the market *(output 2.5)* *Budget:* Work plan: 163,600 Spent: 43,098 (26%) Lighting products monitoring mechanism *(output 2.4)* *Budget:* Work plan: 43,541 Spent: 0%	*Baseline:* • N.A. *Target:* • 20% increase in (certified) EEL brands and products • 20% of products comply with international EE standards • At least 3 ratings for EEL products • 50% increase in investment • Database established of manufacturers, suppliers and products	*Achieved by June 2008:* • TA support on lamp ballast and fixture manufacturing. A database of manufacturers, suppliers and products was also established in relation to the said TA • Training on lamp ballast and luminaire manufacturing firms[9] • CFLs: increase by 28% from 303 models (2008) from 219 (2007)
26-27 EEL system activities implemented in DSM plans of utilities and RECs *(outputs 2.6 and 2.7)*; Design and implement EEL leasing model *(output 2.8)* *Combined budget:* Work plan: 108, 557 Spent: 67 (0%)	*Baseline:* • N.A. *Target:* • Review update DSM framework and train utilities on DSM plan preparation • At least 10 utilities and 5 RECs prepare DSM plan; distribute EEL products	*Achieved by June 2008:* • Due to changes in the power sector in Philippines these activities have been *de facto* cancelled

[8] (1) Photometry Testing Training attended by two LATL staff in NIST Maryland, USA (August 2007), (2) Regional Workshop in Quality: A Regional Analysis in Compact Fluorescent Lamps in Asian attended by DOE and PELMATP staff (Bangkok, Thailand, October 2007), (3) Study Mission on Lamp Waste Management Facilities and Energy Efficiency and Conservation (US, November 2007), (4) World Sustainable Energy Days Austria (attended by two DOE officials, March 2008), (5) Study Visits to Beijing and Shanghai (China, May 2008).

[9] In Taguig City (December 2007) with 30 participants and PNOC Lounge (January 2008), respectively.

28-30 Street lighting guidelines designed *(output 2.9; see also output 1.2)* *Budget:* Work plan: 14,285 Spent: 56 (0%)	*Baseline:* • N.A. *Target:* • 1 street lighting guideline in year 3 • 10 LGUs carrying out EE street lighting	*Achieved by June 2008:* • Completed template for local ordinance on the application of roadway lighting • Cagayan de Oro compliance to Roadway Lighting Guidelines developed through the passing of the City Ordinance, and EE street lighting(50 HPS) to be implemented
31 EEL calculators for HH & CI designed *(output 2.10)* *Budget:* Work plan: 6,000 Spent: 291 (0%)	*Baseline:* • N.A. *Target:* • 3 calculators designed by year 2	*Achieved by June 2008:* • Calculators by mid-2008 designed for HH, industry and commercial sectors by mid-2008
32 Training on EEL application for lighting system designers *(output 2.11)* *Budget:* Work plan: 3,786 Spent: 0%	*Baseline:* • N.A. *Target:* • 20 people trained by year 4 and 50 by year 5	*Achieved by June 2008:* • Planned to be started latter half of 2008
33-34 Mass purchasing agreements with manufacturers/suppliers *(output 2.12)*	*Baseline:* • N.A. *Target:* • 5 agreements and 3 companies implementing by year 4	*Achieved by June 2008:* • No agreements yet, but negotiations ongoing
35-38 EEL implemented in commercial and industrial (C&I) establishments *(output 2.13-2.14, 2.15)* *Budget, dissemination:* Work plan: 28,464 Spent: 13,809 (49%) *Budget, implementation:* Work plan: 53,864 Spent: 16,184 (30%)	*Baseline:* • N.A. *Target:* • 50% of investment in 9 industrial and 9 commercial demo sites recovered by year 5; 63% of lamps used in industrial and in commercial establishments are EE; • Information materials disseminated	*Achieved by June 2008:* • Energy audit conducted in Philippine Steel Corporation, and Maitland Smith, and pledge of commitment of support by the Mactan Economic Zone – Facilities, Maintenance and Environmental Association (MEZ-FAMEA) member; • Through various fora (conferences, conventions, exhibits, seminars/ workshops, etc.), PELMATP has disseminated EELs to over 25 C&I since the start of the project. • EEL systems application demonstrations in commercial sector, energy audit conducted in Gaisano, Cebu Holdings, St. Luke's Medical Center, Manila Science High School; Collaboration with Oro

		Chamber, Cebu Chamber and respective LGUs in a Pledge of Commitment to Support Lighting Efficiency

Planned activities

The activities of outputs 2.1 have reached their final stage, i.e., to achieve formal accreditation to the ISO/IEC norm. Outputs 2.2, 2.5 and 2.10 have been realized, while activities of 2.9 have been combined with activity 1.2. Activities of 2.4, 2.8 and 2.11 are pending or being started up, while 2.12-2.14 will continue during 2008-09.

2.1.3 Component 3 Consumer awareness on EEL products

On EEL advocacy and promotion, EEL promotion campaigns were made through radio, TV and print, championed by the Secretary of Energy, Honorable Angelo T. Reyes, himself. PELMATP and the concept of EELs have been disseminated, reportedly to more than 68 organizations/associations (through various forums and presentations), reaching an estimated over 68,000 potential users (commercial, industrial and residential) through annual conventions, conferences, expositions and conventions by, among others, the Institute of Integrated Electrical Engineers (IIEE), Consumer Trade Fair, CSR Expo, Earth Day celebration (Fuels for Life), international harmonization initiatives, and others. PELMATP has joined Philips in its nationwide CFL promotional campaign in May 2008, in support of the phasing out of the incandescent bulbs by the end of 2009. PELMATP educated the retailers on the value of the switch to the use of quality CFLs and 391 stores nationwide were reached by the activity for CFL orders. A similar Roadshow was conducted by Akari, where PELMATP, likewise participated.

PELMATP, with the support of the Philippine Lighting Industry Association, has also conducted sixteen (16) *Palit-Ilaw* (SWITCH to the use of EELs) Activities in selected places, e.g., markets, schools, hospitals, and residential sector (Smile Citihomes-Novaliches, New Dagonoy Public Market, Eusebio High School, Quezon City Hall, Gawad Kalinga Housing Baseco Compound, Makati City Hall, Cebu City Hall, DTI, Manila Science High School, Ramon Magsaysay High School,Technological Institute of the Philippines, National Center for Mental Health, Santos General Hospital, Bacolod North Public Market, Ospital ng Maynila, and Bgy. Cadre Site in Bayambang Pangasinan). PELMATP also helped facilitate the DOE's Palit-Ilaw activities in the 16 local government units of the National Capital Region, in time of the launching of the SWITCH Movement on July 16, 2008.

The PELMATP website was completed in March 14, 2006 and subsequently visited by stakeholders with over 1.4 million hits made since its creation. At the time of writing this report, the website was under redevelopment. The PELMATP subcontractor is in the process of restoring the website to resume service in coordination with ITMS[10] of DOE.

EEL course modules have been designed for senior electrical engineering students and vocational students. Two 'Training of Trainers' courses were conducted to prepare the professors who will facilitate the pilot-testing of the said modules to their respective schools (November 22-23, 2007

[10] Information Technology and Management Services

in Dagupan City for colleges/ universities in Region 1 and 2, and December 13-14, 2007 for colleges/ universities in National Capital Region). Although not yet totally adopted, these modules have been piloted in selected colleges/universities and technical schools (e.g., Mapua Institute of Technology, Technological Institute of the Philippines, FEU-East Asia, University of Makati, New Era University, Colegio de Dagupan, University of Pangasinan, Virgen Milagrosa University Foundation, University of Luzon, and the Philippine College of Science and Technology). With the CHED Memorandum Order No. 34 Series of 2008, which the includes the Illumination Engineering Design in the Electrical Engineering Curricula for school year 2008-2009, the EELs Modules developed under PELMATP will be officially used by the EE students.

PELMATP was featured in several TV and Radio Programs, and actively promoted the EELs not only through press and photo releases in prints, but also by placing paid advertisements in major newspapers.

Table 4 Performance Indicators of Component 3

Outputs (Project Document) **Indicator** (no. as in APR-PIR) *(output no. in Work Plan)* *Budget in USD*	**Value of indicators**	
39-40 EEL products jointly promoted by Government and private sector *(output 3.1)* *Budget:* Work plan: 20,000 Spent: 10,775 (54%)	*Baseline:* • N.A. *Target:* • 5 annual forums organized (one every year with 200 participants each) • *Palit-Ilaw* (Switch) activities (retrofitting EEL products donated by partners companies in markets, schools, hospitals or community centers) o Smile Citihomes, Novaliches (Aug. 2005) o Palengke, New Dagonoy Market (Dec. 2005) o Eusebio High (Feb. 2006) o Quezon City Hall (Mar. 2006) o Makati City Hall (Mar. 2007) o Cebu City Hall (Sept. 2006) o DTI (Oct. 2006) o Manila Science High School (Feb. 2007)	*Achieved by June 2008:* • Events organized, such as ENPAP - Energy Technology Conference (11-12/2007); Exhibitor in Consumer Trade Fair 2007 (SM Megamall, 11-14/10/07) and IIEE 32nd Annual National Convention 2007 (SMX, 7-10/11/2007); DOE Energy Week; PCAPI[11] • Promotion through umbrella organizations, such as League of Corporate Foundations (LCF), Gawad Kalinga Movement (GK), Chambers of Commerce and Industry (e.g., Cagayan de Oro CCIF, Cebu CCI, Mandaue CCI, Philippine CCI), export processing zones (MEZ-FAMEA), PLIA, USAID Eco-Asia Clean Development and Climate Program (CDCP), USAID-Energy and Clean Air Program (ECAP), International CFL Initiative • *Palit-Ilaw* activities done by PELMATP[12]

[11] A full list is given in the APP-PIR 2008; see footnotes 67 and 82.

[12] Examples: Smile Citihomes, Novaliches (Aug 05), Palengke, New Dagonoy Market (December 2005), Eusebio High School (February 2006), Quezon City Hall (March 2006), Makati City Hall (March 2007), Cebu City Hall (September 2006), DTI (October 2006), Manila Science High school (February 2007), Ramon Magsaysay High School

41-42 EEL products promoted to households *(output 3.2)* *Budget:* Work plan: 59,375 Spent: 18,312 (31%)	*Baseline:* • N.A. *Target:* • Materials developed and distributed (by utilities, RECs, others) • Tri-media promotional activities	*Achieved by June 2008:* • Meralco, Veco and Cepalco[13] have disseminated EELs and distributed EEL materials • Some 11,700 info kits, leaflets and brochures distributed[14] • Participation in some 50 seminars/exhibits[15] • Tri-media campaign o Television: Konsumer Atbp., Bandila Magandang Umaga Pilipinas, Para Sa Iyo Bayan, ABS-CBN News Channel or ANC and others)[16] o Radio: DZMM's Konsyumer Atbp[17]. o Newspaper and printed articles: Philippine Daily Inquirer, Manila Bulletin, Philippine Star and other tabloids
40, 43-44, 48 Consolidate and disseminate data on PELMATP *(output 3.3)* Monitor/evaluate implementation of EEL awareness program *(output 3.5)* *Budget:* Work plan: 9,715 Spent: 11,263 (93%)	*Baseline:* • N.A. *Target:* • % increase in sales of EEL products each attributed to the promotional activities mentioned in indicators 39-42: o CFL, LFL: 20% o Ballast, HID, luminaires: 10% • No. hits on PELMATP website	*Achieved by June 2008:* • % increase in sales (based on DTI data): o CFL, yr1: 44%, yr2: -5% o LFL, yr1: 15%, 62% o Ballasts: yr1: 59%, yr2: 11% o HID: yr2: 0% o Luminaires: yr2: 0% • About 1.38 million hits (mentioned in APR-PIR 2007)

(February 2008), TIP-Arlegui Campus (March 2008), National Center for Mental Health – Mandaluyong (March 2008), Santos General Hospital – Malolos, Bulacan (May 2008) and Ospital ng Maynila (June 2008).

13 Manila Electric Company, Visayas Electric Company and Cagayan de Oro Electric Power and Light Company

14 Except for the switch to CFL info in the message corner of the electric bills of Meralco, the infokits referred here were prepared and distributed by the PMO itself

15 A full list is given in the APP-PIR 2008; see footnotes 67 and 82

16 Appeared on TV: "Bandila" in Channel 2 (30 July 2007); "Magandang Umaga Pilipinas" in Channel 2 (31 July 2007); "On the Seat" in ANC (01 August 2007); Sec. Reyes on Palit-Ilaw at "One Morning" in PTV-4 (4 December 2007); Sec. Reyes on Palit-Ilaw at "Unang Hirit" in GMA-7 (6 December 2007); Dir. Huliganga and Engr. Manga on the Use of EELs at "One Morning" in PTV-4 (18 December 2007); Appeared on TV and guested in radio including the 3rd Anniversary Celebration of Konsyumer Atbp in Sky Cable Channel 26 Teleradyo and DZMM (1 March 2007); "TV Patrol Weekend News" (31 May 2008); "Newswatch" Saturday in Channel 9 (31 May 2008); TV appearance and radio hosting in DZMM and Sky Cable Channel 26, and "Konsyumer Atbp. (21 June 2008); Infomercial on the importance of CFL, as an initiative of PIA, DOE and several partner stations, aired for the month of June (2008); one 30-second advertisement on DZMM Primetime for the month of June (2nd week of June 2008); two 30-second advertisement on DZMM Primetime for the month of June (2nd and 3rd week of June 2008, respectively); News re Palit-Ilaw sa Ospital nang Maynila (Neswatch on Channel 9, ABC News and IBC News on 24 June 2008; Magandang Umaga Pilipinas in Channel 2 and Unang Hirit in Channel 7 on 25 June 2008

17 3rd Anniversary Celebration of "Konsyumer Atbp" in Sky Cable Channel 26 Teleradyo and DZMM (1 March 2008); "Konsyumer Atbp" in DZMM and Sky Cable Channel 26 Teleradyo (14 and 21 June 2008); two 30-second advertisement on DZMM Primetime for the month of June 2008 (2nd and 3rd week of June 2008)

	• About 3,800 hits on EEL industry and government websites	
45-46 EEL courses designed and implemented *(output 3.4)* *Budget:* Work plan: 8,000 Spent: 17,426 (93%)	*Baseline:* • N.A. *Target:* • Two modules developed and implemented at 6 schools • 15 schools include EEL subjects in their curricula	*Achieved by June 2008:* • Two modules developed and implemented in 10 schools[18] • Inclusion of Illumination Engineering Design subject in the New Draft Electrical Engineering Curricula (in final stages of development and to be implemented in school year 2008-2009 to senior electrical engineering students)

Planned activities

Activities 3.3 and 3.4 will be finalized by the end of 2008, while the activities under outputs 3.1, 3.2 and 3.5 will continue until the end of the project.

2.1.4 Component 4 Financing assistance for EEL initiatives implemented

In April and May of 2007 successively, 10 financing institutions from Metro Manila, Visayas and Mindanao were trained to improve their understanding and appreciation of the economic and financial benefits of EEL system initiatives. Specially designed training courses will be catered to financing institutions to teach them how to evaluate EEL system project proposals. On the design and implementation of EEL Micro-financing, a total of 27 cooperatives attended the consultations in Luzon and Mindanao. Training on the same topic have also been conducted in March 2008, one in Davao and one in Metro Manila attended by 6 and 3 cooperatives, respectively. The consultations were held to discuss with cooperatives the proposed financing model[19]. Partnerships have been forged, e.g., between Rural Electrification Development Foundation and OSRAM while that between NATCCO and OSRAM is still under negotiation.

Micro-financing models involving consumer organization and Rural Electric Cooperatives (RECs) are evolving as the sub-contract on Design and Implementation of Micro-financing Scheme (awarded to the International Institute for Energy Conservation, IIEC) is progressing. A first model involves the Rural Electrification Development Foundation (REDF) which has three multi-purpose cooperatives based in its franchise areas. REDF will purchase EEL products in bulk then the cooperatives will package the EEL products together with the house wiring which they sell on "micro-finance" basis to households. Another model involves the Bayanihan Housing Cooperative in Leyte and the Francis Xavier Housing Cooperative in Quezon City, where the

[18] Mapua Institute of Technology, Technological Institute of the Philippines, FEU-East Asia, University of Makati, New Era University, Colegio de Dagupan, University of Pangasinan, Virgen Milagrosa University Foundation, University of Luzon, Philippine College of Science and Technology

[19] UNDP, however, suggested that the model for the rural electric cooperative would be more appropriate for the EEL Leasing Model sub-contract activity under Component 2. Thus, IIEC presented to another cooperative in Cagayan de Oro, Mindanao, the First Community Cooperative (FICCO), and the latter has signified interest to be the model for Mindanao but is yet awaiting the decision of the Board of Directors.

cooperatives will purchase EEL products for the initial lighting requirements of their housing projects and the costs paid through monthly amortization. The third model involves cooperatives that will purchase an inventory of EELs which will be made part of consumer goods on credits.

Energy service companies (ESCO) have the potential to help realize end use efficiency (among others, lighting efficiency improvements/retrofits) practically at no cost to the client. An ESCO specialist, hired by PELMATP, has designed two draft model energy performance contracts for implementation by the Development Bank of the Philippines (DBP), which is in line with activities under the 'Model ESCO Transaction Project by DBP. However, due to some constraints encountered in the procurement of ESCO services, the Model ESCO Transaction is currently under negotiation. The ESCO specialist also developed draft guidelines for the utilization of the available credit facility in DBP that can be used for Energy Performance Contracting (EPC) services. Meanwhile, PELMATP prepared, together with the DOE Energy Efficiency and Conservation Division (EECD), the draft ESCO Accreditation, which was signed by Secretary Reyes on September 2008 (Department Circular No. DC2008-09-0004, ESCO Accreditation).

Table 5 Performance indicators of Component 4

Outputs (Project Document) **Indicator** (no. as in APR-PIR) *(output no. in Work Plan)* *Budget in USD*	**Value of indicators**	
47 Micro finance scheme implemented *(output 4.1)* *Budget:* Work plan: 31,857 Spent: 4,571 (14%)	*Baseline:* • N.A. *Target:* • Micro financing models designed and implemented	*Achieved by June 2008:* • Consultation with 27 cooperatives in Davao and Metro Manila; subcontract with IIEC to be carried out
49-51 ESCO-led projects are designed and implemented; associated guidelines *(output 4.2)* *Budget:* Work plan: 61,960 Spent: 6,826 (11%)	*Baseline:* • N.A. *Target:* • Three ESCOs utilize energy performance models • Five energy performance contracts for EEL projects (above US$ 300,000) • Guidelines for financing designed and implemented by at least 1 financial institution	*Achieved by June 2008:* • Drafted ESCO accreditation for DOE-Energy Utilization Management Bureau (EUMB) consideration and adoption; • Designed two draft model energy performance contracts for implementation by the Development Bank of the Philippines (DBP); • Developed Guidelines and framework to establish monitoring and verification protocols for future ESCO contracts. Guidelines are implemented by DBP • One ESCO (Tri-Gen) using the energy performance model; • Lighting retrofit was implemented at DBP (14.85 million pesos, financed by the Bank)

52-54 Financing institutions (FI) capacity on EEL built *Budget:* Work plan: 22,000 Spent: 21,295 (97%)	*Baseline:* • N.A. *Target:* • Five FIs have received training and are considering providing loans for EEL projects	*Achieved by June 2008:* • Education of 9 financing institutions[20] on the economic and financial benefits of EEL systems initiatives, through training conducted in Metro Manila and Cebu (including Mindanao participants as well) in the evaluation of EEL system project proposals and help them develop their EEL project portfolio
55-56 VAs with C&I buildings implemented	*Baseline:* • N.A. *Target:* • 15 VA with industrial and 15 with commercial buildings by year 4 • 10% reduction in lighting energy consumption	*Achieved by June 2008:* • Ongoing discussions / coordination with committed partners and documentation in progress, among others, Mactan Economic Zone – Facilities, Maintenance and Environmental Association (MEZ-FAMEA) along with GTZ • Metro Gaisano and Ayala Center Cebu (both in Cebu City); and Lim Ket Kai Center (Cagayan de Oro)
48,56-58 EEL systems financing assistance component is monitored and evaluated	*Baseline:* • N.A. *Target:* • 57% of lamps and ballasts used by HHs are EE • 50 C&I establishments availing of EEL financing • 15 projects that have recovered 50% of investment halfway their expected payback period	*Achieved by June 2008:* • No specific data on usage of EE lamps and ballast available

Planned activities

Activity 4.1 is about to be carried out in 2008; 4.3 was carried out in 2007, while 4.2, 4.4 and 4.5 will continue.

2.1.5 Component 5 Management and disposal of mercury (Hg) containing lamp wastes are environmentally acceptable

A policy study on the waste lamp management was completed by the end of 2007 and the final copy of the document was submitted to the Department of Environment and Natural Resources –

[20] Allied Bank, Bank of the Philippine Islands (BPI), Development Bank of the Philippines (DBP), Land Bank, Banco de Oro (BDO), Philippine Deposit Insurance Corporation (PDIC), Quezon City Development Bank, Philippine National Bank (PNB), and Wealth Bank

Environment Management Bureau (DENR-EMB) Director during the first quarter of 2008. The policy study and the accompanying proposed policy recommendations have served as inputs to the DENR-EMB activities, such as the Revised Procedural Manual on Hazardous Waste Management (Revised Department Administrative Order or DAO 04-36). It will also lead to the setting up of standardized procedures for testing mercury content in lamps and the development of IEC materials and a guidebook, which will be used as references by those implementing solid and hazardous waste management program.

Table 6 Performance indicators of Component 5

Outputs (Project Document) **Indicator** (no. as in APR-PIR) *(output no. in Work Plan)* *Budget in USD*	**Value of indicators**	
59-60 Policies and guidelines for managing Hg containing lamp wastes formulated and implemented *(output 4.1)* and results disseminated *(output 4.2)* *Budget:* Work plan: 59,501 Spent: 34, 917	*Baseline:* • N.A. *Target:* • Policy and guidelines formulated by year 3 and 4 respectively • About 100 guidebooks distributed by year 5; 500 posters/flyers produced; 65 TV/radio activities • Two seminars/training conducted	*Achieved by June 2008:* • Guidelines on lamp waste management and development of national and local guidelines developed • Department Administrative Order, Environment Management Bureau • About 1,200 copies of the guidebook; 1,600 posters/ flyers produced and distributed; • Seminars: CSR Expo (Sofitel Hotel, 07-07); 6th Transco Environmental Officers' Summit (Cagayan de Oro City, 09-07); Environmental Practitioners' Association (08-07)), including the National Workshop on Lamp Waste Management (04-07); Pollution Control Association of the Philippines, Subic (04-07); San Miguel Corp. Environmental Forum, (06-07)
61-63 Lamp waste recycling facility established	*Baseline:* • N.A. *Target:* • Two lamp processing facilities by year 5 • 1 lamp recycling facility operating in Luzon	*Achieved by June 2008:* • Processing facilities include DoloMatrix Phils; Cleanway Technology Corporation; Cleveland Envirotech Solutions; Environmental Solutions Philippines; Semirecycling Company; • DoloMatrix Phils., Inc., a PELMATP partner, is keen on procuring another lamp waste recycling (Hg recovery) facility to augment its exiting waste processing

		equipment.
61-64 EEL waste management monitored and evaluated	*Baseline:* • N.A. *Target:* • 30% of lamp wastes (large generators) properly disposed of by year 5	*Achieved by June 2008:* • N.A.

Planned activities

Activity 5.1 implemented in 2006-07, while 5.2 and 5.4 are ongoing; Activity 5.3 is deferred.

2.2 Impacts; monitoring and evaluation

Table 7 in this section provides an overview of the envisaged or potential environmental and socio-economic impacts of the project. The table attempts to summarize the higher-level *impacts (outcomes)* of the project in addition to the summary of project *outputs* given in the previous Tables 2 to 6. The list of impacts is taken from the APR-PIR, while the indicators in Table 7 are combined from the APR-PIRs and the outcome indicators as given in the project logical framework of Annex B of the GEF Executive Summary.

Table 7 Indicators of project impacts

Impact of the Project (based on the APR-PIR)	**Indicators** (relation with project objective and outcome indicator as mentioned in the GEF Executive Summary and/or UNDP Project Document)	**Verification** (as given in APR-PIRs , but with *assessment by the Evaluators*)
Market transformation: 0a. Use of lamps in households (HH) 0b. Use of lamps in commercial and industry (C&I)	Better quality EEL products become affordable and accessible to consumers by Year 2 *(Project objective, outcomes 1 and 4):* • HH: EE lamps, 19% (yr1), 28% (yr2), 32% (yr3), 48% (yr4) and 57% (yr5) • HH: EE ballasts: 11% (yr1), 22% (yr2), 33% (yr3), 45% (yr4) and 56% (yr5) • C&I: EE ballasts 30% (yr1), 38% (yr2), 47% (yr3), 55% (yr4), 63% (yr5) • C&I: EE ballasts: 36% (yr1), 45% (yr2), 52% (yr3), 60% (yr4) and 68% (yr5)	*The metrics table in the APR-PIR 2008 mentions:* • PNS compliant lamps increased from 219 in June 2007 to 303 models in April 2008 (27.72% increase). • Increase number of testing laboratories to three (3) to conduct performance testing of CFLs. (one government; two private). *Indicators 40 and 48 in the APR-PIR provide some data on the annual sales increases of EEL products (see Table 4 in this report), while indicator 6 provide some info on compliance of CFLs with national standards (Table 2). These are based on DTI-BPS data, but it is not clear from the APR-PIR how these data are calculated (e.g., relative increases are given, but no absolute sales figures) and how reliable these data are.*

1. Annual energy savings 2. Annual and cumulative CO_2 reduction	*Project objective:* • Total energy savings of 363 (yr1) 800 (yr2), 1,326 (yr3), 1,954 (yr4) and 2,704 MWh (11% reduction) • Corresponding CO_2 emission reduction of 62 (yr1), 137 (yr2), 243 (yr), 366 (yr4) and 497 tCO_2 annually • *Note by the Evaluators: assuming grid emission factors of 0.462 tCO_2/MWh, the target amount of 497 tCO_2 cannot be converted in the target savings of 2,704 MWh*[21]	• APR-PIR 2008 gives annual savings of 6,467 MWh (and using a grid emission factor of 0.462 tCO_2/MWh) and a CO_2 reduction of 2,987 tCO_2; • APR-PIR 2007 mention the amounts of 9,060 MWh and annual reduction of 4,200 tCO_2. This is strange. One would expect that the APR-PIR 2008 would mention a higher as more EEL would have been added in July '07-June '08 leading to higher savings.[22] • The APR-PIR 2008 mentions a cumulative CO_2 reduction 2005-June 2008 of 34,000 tCO_2, which adds the 2,987 July '07-June '08 tCO_2 reduction to the figure mentioned in the APR-PIR 2007, namely 31,200 tCO_2 and the APR-PIR annual value of 4,200 tCO_2 to the initial reduction figure mentioned in the 2006 APR-PIR, 27,000 tCO_2. • *It is not clear to the Evaluators how the savings of 27,000 tCO_2 and 152.8 GWh in the APR-PIR 2006 were estimated; based on what savings due to the dissemination of what EEL products? Second, using a grid emission factor of 0.462 tCO_2/MWh implies that the 2006 energy savings cannot be converted into the reported 27 $ktCO_2$ reduction.*[23]
3. Development of sectoral policies, laws and regulations	*Outcome/components 1 and 5:* • Establishment of a functioning mechanism for sustained periodic review/updating and enforcement of policies, standards, guidelines and programs on EEL applications, and implementation of product quality and energy performance standards for EEL products by Year 2. • Mitigation of the negative environmental impacts brought by utilization of EELs by Year 5.	*The impact metrics table of the APR-PIR 2008 mentions:* • Administrative Order No.183 • Presidential Pronouncement to Phase-out Incandescent Bulbs by the end of 2009 • Philippine National Standards on Lighting Products, including MEPS • Guidelines on Energy Conserving Design of Buildings • Roadway Lighting Guidelines • Philippine Electrical Code • IIEE-ELI Manual of Efficient Lighting Practice • Lamp Warranty Guidelines • Eco-labeling Guidelines

[21] Comment by the Project Manager: The emission conversion factor used ranged from 0.17 – 0.18 tCO_2 / MWh. In the 2005-2006 APR-PIR report, the conversion factor used was also 0.18 tCO_2 / MWh.

[22] Comment by the Project Manager: Generally the energy savings reported in the 2006 to 2008 APR-PIR were based on the data provided by DOE-EECD from various government agencies. In 2006-2007 various governnment agencies reported at least 4,645 MWh savings. In 2007-2008, these agencies reported a combined savings of 2,429 MWh. Hence, there was a decrease in energy savings which maybe attributed to changeover to EELs by these agencies.

[23] Comment by the Project Manager: First, in the 2005-2006 report the energy savings was based on the savings due to the use of CFLs (See footnote no. 21). Second, the conversion factor used was also 0.18 tCO_2 / MWh.

		• Energy Service Company (ESCO) Accreditation Criteria development • Lamp Waste Management Policy Study (which was made as an input to the Updated Department Administrative Order of the Department of Environment and Natural Resources – Environment Management Bureau or DENR-EMB) *(See also section 2.1.2 of this report)*
4. Improvement of awareness and understanding of technologies among producers and users	*Outcome/component 3:* • Empowerment of consumers in making informed decision in choosing EEL products.	*The Evaluators summarize the impact as follows*[24] • EEL promoted to domestic and other sectors through radio-TV-printed media campaign and to (public) institutions/organizations by means of the Palit-Ilaw activities, among others, and joint Government-private sector promotion of EEL products *(See also section 2.1.2 of this report)*
5. Expansion of business and supporting services for EEL	*Outcome/component 2:* • Strengthened capacity of relevant GOP agencies and other organizations on EEL product testing, labeling and development and market monitoring and enforcement of standards with the consumers by Year 5.	*The Evaluators summarize the impact as follows*[24]*:* • Improved Lighting Testing Laboratory (ISO/IEC accreditation sought) • EEL Systems Training Modules developed • Dialogue with lighting industry players and stakeholders has been initiated both with PLIA and non-PLIA members; • Technical assistance to DTI for the then DTI/BPSLAS' (presently the Philippine Accreditation Office) eventual recognition as signatory to APLAC-MRA (as noted above). • PELMATP was the catalyst for the construction of another testing lab by IIEEF for lighting products (in addition to the Seals, LATL) • Training of DOE and other government officials, both to local and international trainings/ conferences • Partnerships between the DOE and other foreign-assisted projects towards an international standards harmonization initiative in Asia and the Pacific (if not worldwide)
6. Increase of financing availability and financing mechanisms	*Outcome/component 4:* • Establishment of partnerships for promoting the adoption of EEL products and the creation/facilitation of business opportunities in EEL product financing by Year 5.	*The Evaluators summarize the impact as follows*[24]*:* • Consultations with consumer organizations and rural electrification cooperatives (RECs) are ongoing, in which households will obtain EEL products as part of the wiring in the

[24] The impact was included in the impact metrics table of the official APR-PIR template before, but does not appear anymore in the APR-PIR 2008 template*).*

		house or of a package of consumer goods; • Promotion of ESCO-led efficient lighting projects; • Promotion of EELs and the benefits/ business value thereof to financing institutions/ banks for them to include in their portfolio EEL project financing, if not ESCO financing (an example is the recent joining of the Bank of the Philippine Islands or BPI in PELMATP IEC activities for C&I and the Economic Zones to promote its Sustainable Energy Finance (project financing) in partnership with the International Finance Corporation.

To give an idea of the money savings associated with the use of EEL, let us look at the case of a household, replacing a 50 W incandescent bulb with an 11 W CFL. Assuming a usage of the lamp of 300 hours per month, the monthly energy consumption is reduced from 15 to 3.3 kWh. At the cost of electricity of 10 pesos per kWh, switching to a CFL saves 117 Pesos. If the household would replace 5 incandescent bulbs of 50 W each, it could obtain a savings of 585 Pesos per month. In addition, the lifetime of CFLs (about 6,000 hours) is much longer than that of the incandescent (about 1,000 hours) so the savings accrue over a time span of several years.

At the national level, lighting load represents perhaps 15% of the total electricity consumption. Significant shift to EEL projected by the PELMATP would mean an estimated 2,704 GWh energy savings. However, the current impact estimation procedure applied by the PELMATP team on the targets is not very accurate and leaves various gaps.

The impact assessment (as reported in the APR-PIR) basically limits itself to reporting the various policy instruments (e.g., guidelines, norms for labels, energy performance standards) whose development was supported by PELMATP, but not on other impacts, such as awareness creation, increase in financing and financing mechanisms and expansion in business opportunities and supporting services on energy efficient lighting.

In terms of energy reduction and corresponding greenhouse gas (CO_2) reduction, fairly accurate estimates are given on the *direct* impacts of the project. For example, the APR-PIR 2008 reports the annual savings for the period July '07-June'08 as 6,467 MWh. This is based on the following estimations:

Direct impacts, estimated annual savings	MWh
• GEMP energy spot check (in 155 governmental buildings)	
o National Capital region	2,185.4
o Elsewhere	244.2
• Analog devices (2005-2007)	2,790.0
• National Center for Mental Health	57.7
• Ramon Magsaysay High School	6.8
• Lim Ket Kai Center	966.5
• Santos General Hospital	47.2
• Bacolod City North Public Market	115.3
	54.3

• Ospital ng Maynila **Total**	**6,467.4**

While the Evaluators appreciate this estimate, they have the following important *observations*:

- It should be more clearly specified what the CO_2 emission factor is. The APR-PIR 2008 implicitly uses a factor of 0.462 tCO_2 per MWh[25]. However, checking two Project Design Documents (PDDs) of two CDM projects[26] registered by the CDM Executive Board, gives emission factors for the Luzon-Visayas grid varying between 0.555 and 0.655 tCO_2. Obviously, choosing the right emission factor substantially influences reported greenhouse gas emission reduction. The PMO has requested UNDP to provide value of CO_2 emission factor used by the other projects under the Environment Unit.
- While CDM projects limit themselves to reporting emission reductions as *direct* results of energy efficient or other sustainable energy investments, GEF projects differ from CDM projects in important ways. Typical GEF projects not only include investments that can be associated with a demonstration activity, but include capacity building and institutional strengthening activities that cannot be measured in terms of direct GHG impacts, such as putting in place government policies and financial mechanisms. In other words, PELMATP should not only measure the *direct* impacts, but take into account the *direct post-project* and *indirect* effects as well. For example, the energy savings of 6,467 MWh are direct impacts (e.g., the *Pilat-Ilaw* and other schemes); savings resulting from a micro-finance scheme with a consumer organizations (as in Component 4) are direct post-project, while savings resulting from a market shift accomplished by the introduction of MEPS (supported by PELMATP) can be considered indirect impacts.

As will be discussed in the next Chapter, the Evaluators recommend undertaking an impact analysis and survey to measure these types of indirect impacts.

2.3 Project design and relevance

2.3.1 Project relevance

Since its inception, the PELMAT Project has remained relevant to the overall energy efficiency and conservation thrusts of the Government as it contributes to the general energy savings and equivalent greenhouse gases (GHG) emission reduction objectives of the government. Since lighting applies to all sectors of the economy (public, residential, commercial and industrial), the need to bring together the different stakeholders, technology providers and end-users becomes a challenge if there is no realistic and credible approach in addressing the issues and motivating a change of attitude towards significant market transformation for energy efficient lighting (EEL). The Evaluators noted that the government and private sector found the project responsive to their needs in terms of finding themselves active part in and benefiting from the collective and participative approaches of the project. In terms of project inputs, this partnership sees the serious commitment and program ownership by the different stakeholders in the level of co-financing

[25] The source for the value of 0.462 is from "2005 Revised Feasibility Study on Talubin River Basin Mini-Hydropower Project for CDM in the Philippines" and also consider the Luzon and Visayas grid.

[26] Nasulo Geothermal and North Wind Bangui projects, respectively

share to the project requirements at 80%. The PELMAT Project, therefore, provides the important venue and interaction for the different stakeholders to influence the appropriate market transformation in lighting practices.

The Project also includes environmental responsibility not only in the climate change aspect but also in the policy and institutional aspects of the property disposal of mercury-containing lamp wastes (which is hazardous waste) which could be a big problem in the future, hence the need to properly address it under the EEL program.

The Project has paved the way for the adoption of policies, legislations and energy performance standards by the Government and has helped to a large extent in achieving the institutionalization of the EEL program through the project activities such as the shift to EEL systems in the schools, hospital, city lighting and companies. As whole, the integrated approach of the Project in addressing the structural, technological and behavioral dimensions of the lighting market transformation has been very effective through the various strategies the project has effectively been designed and used.

2.3.2 Conceptualization

See items 5f and 5e in ToR

The project design and the logical framework finalized in 2004 that were used as basis for the definition of activities and project planning for PELMATP remained relevant up to this stage of project implementation. The PELMATP Project Document follows the standard formulation of UNDP/GEF projects in terms of concepts, performance indicators and quantified targets over the five year period. The conceptualization has been illustrated well in the strategic planning framework (also referred to as the logical framework) in a result/output-oriented design.

The Terms of Reference (TORs) of the project management, technical assistance and consultancy services are quite detailed and have helped to clarify the work involved. It should be noted that these provide only basic information and do not necessarily constitute the final definition of the tasks which evolves from the progress of other related works and be updated to reflect the current needs of the Project.

The detailed PELMAT Project Document has been very useful in understanding by and gaining commitment from the different stakeholders, consultants, management, staff and other parties towards seeing common directions and objectives, and thus, achieving efficiency and effectiveness in implementing the project. However, the Project Document only presents the basic concepts of the project strategies which are necessary in starting up a project but may have to be updated and be made clearer in terms of the output, outcome and output-outcome link with more information and experience that are gained during the mid-course of project implementation.

In fact, being mid-term, the results of the project should be viewed on the higher plane of impacts and outcome rather than focusing merely on achieving targets and indicators of activities as the measure of real progress of the PELMAT project involving a market transformation intervention. An observation related to conceptual design made by the Evaluators is in the lack of clarity in the procedure of estimating the impacts of the Project in terms of energy saving and GHG reduction

in both the Project Document targets and the actual reported figures in the APRs which need to be clarified (as discussed in later sections).

2.4 Effectiveness of project implementation

2.4.1 Progress towards results; factors affecting project implementation; management

See items 4, item 5a, 5b, 5g, 6a, 6b in the ToR

The PELMAT Project implementation and achievement of results are proceeding well and according to plan, though with some delays and a justified cancellation of some activities, e.g., the DSM activities planned with some of the utilities. Some issues that could affect timely implementation and achievement of results that the Evaluators took note of are the following:

- Some posts (on Task Specialist in Policy and Environmental Management, and IT Specialists) are difficult to fill and there is generally a high staff turnover rate;
- Procurement of equipment and services can be time-consuming and has caused some delays;
- Priorities and regulations change and would need adjustments in activities and budget allocation/approval;
- Government entities take time in approving and implementing proposed measures such as EEL standards, more so with many government units involved; and
- Stakeholders could take longer time in being convinced in some proposals or in arriving at a consensus or buy-in in approaches.

As a whole, there are no major outstanding issues, obstacles, bottlenecks, etc., on the consumer, government or private sector or the electricity industry that could affect the successful PELMAT project implementation and achievement of project results.

The existing high cost of energy and the need to reduce cost of production or cost of living in the country generally provide the impetus to save and conserve energy. So, one reason of the relative success of PELMATP is that it was a seed planted in fertile ground, i.e., a society receptive to energy efficiency. On its turn, the PELMAT Project, alongside other similar projects of the Government of Philippines (GOP), has contributed to the issuance of well pronounced policy and mandates that make the overall market environment even more conducive to efficiency, in particular efficient lighting.

From the point of view of project design pertaining to external project factors, most of the critical assumptions/risks made during project formulation proved to hold true except for a change of regulation in the energy market. This free market approach was not considered yet during the formative stage of the EEL concept. Hence, the activities on demand-side management (DSM) included in PELMAT which appear like mandatory regulations have to be played down to be consistent with government policy. Ongoing discussions on how the same intent of the EEL program within the context of the DSM purposes could be pursued are being done as a matter of project arrangement and modified activities. The Project pursued related undertakings such as the activities developed or proposed to be developed with the local government units (e.g., street lighting in Cagayan de Oro), consumer organizations and rural electrification cooperatives, utilities and electric cooperatives (EELs and EELs promotions as part of value-added services to

customers). The city and provincial activities of the project has reached the current programs in community development of the LGUs involved, poverty reduction in villages and residential areas such as the Gawad Kalinga, etc.

The existing project management arrangements and coordination mechanisms remain adequate and appropriate within the project management structure and inter-agency decision making involvement and commitment. The presence of the Project Advisory Board and its good track record in discussing issues, in harmonizing policies and approaches and in making collective decisions as the project implementation adapts to changing policy situations and directions will be advantageous to the sustainability of the project outcomes.

The Evaluators see the advantage and need of carrying over similar management structure and coordinating mechanism after the project, as EEL activities are institutionalized from project-based to a permanent and sustainable program of government.

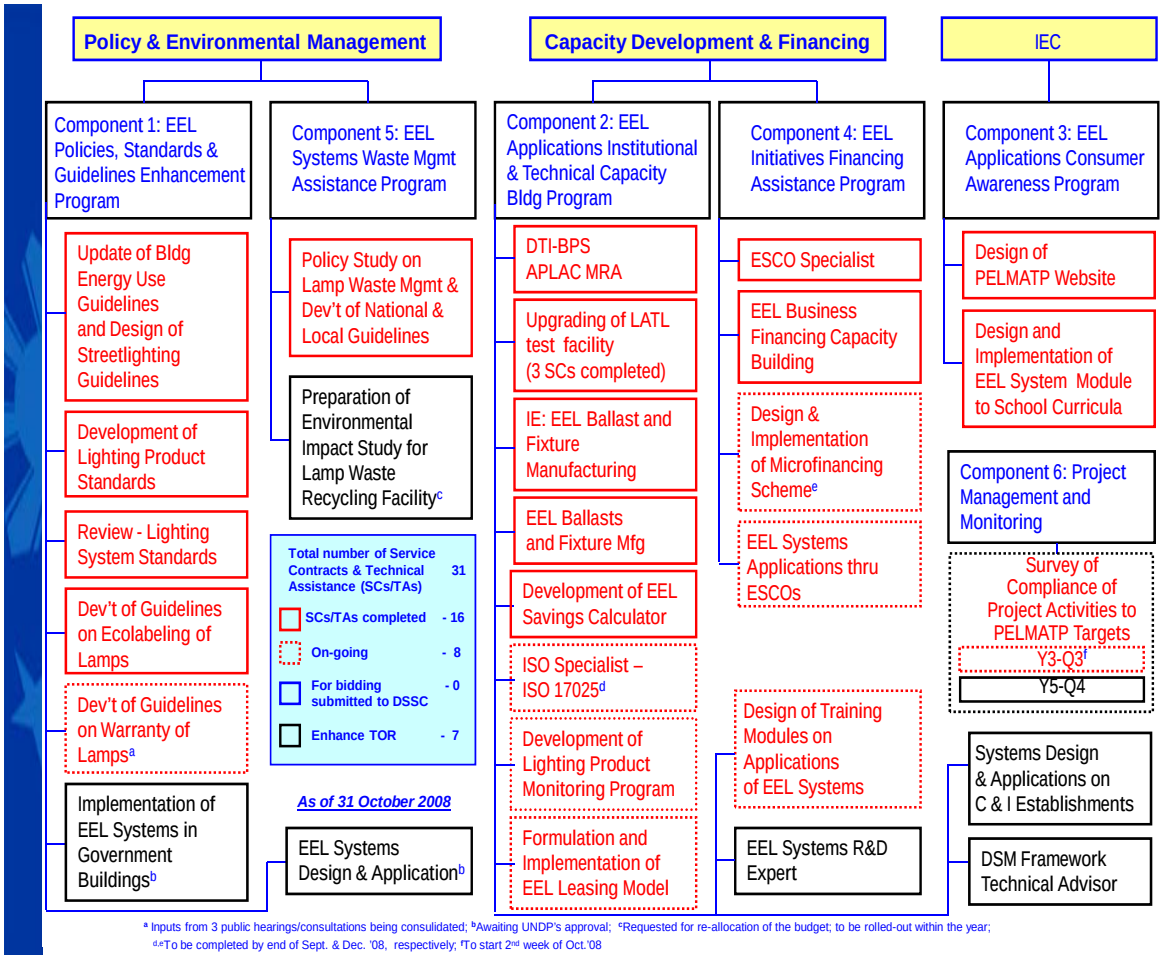
As standard practice for all UNDP GEF-supported projects, the system and process of the annual reviews through the Annual Performance Report and Project Implementation Review (APR/PIR) has also been proven very effective in the case of the PELMAT Project with some improvement suggestions mentioned in the previous sections. The discussions and data gathering that went through it become a very important internal assessment and problem solving mechanism that encompass progress reporting, administrative and financial systems as an important tool for project management.

The risk assessment and mitigation planning in the PELMAT project management is also found adequate and helping the stakeholders understand the overall adaptive management approach for the UNDP-GEF project in general.

2.4.2 Strategic positioning and partnerships; use of consultants

The partnership strategy is working for the PELMAT Project advantageously as designed. PELMATP has effectively partnered with a number of relevant stakeholders and co-financiers from the government, e.g., DOE agencies and units, Department of Trade and Industry – Bureau of Product Standards (DTI-BPS), Department of Environment and Natural Resources. Considering the expertise of some stakeholders, their participation in the project went beyond mere participation in committees by rendering technical assistance to the project as a way of the project outsourcing the necessary tasks and meet project objectives and timetable. For example, DTI-BPS has been very active in the development of Philippine National Standards (PNS) for lighting products, including the Minimum Energy Performance (MEPS), and the IIEE in training and capacity building. The direct partners from the private industry (such as Fumaco, Quantum and DoloMatrix) are providing the necessary inputs as a sign of strong cooperation and commitment to project goals and objectives. Communication and coordination mechanisms among the stakeholders and consultants are effective and producing desired results. As can be seen in the quantity of meetings that exceeded normal expectations, the needs and benefits derived in continually improving the avenues of communication and decision making and feedback have been observed to be satisfactory.

Figure 3 Overview of subcontracts under the PELMAT Project



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Regarding the use of consultants and subcontracts, an overview of is given in Figure 3.

2.4.3 Financial planning and delivery of co-financing

See item 6i in the ToR

The tables 8 and 9 provide an overview of the actual expenditures and the planned budget (GEF and co-financing) per component and output, respectively. In general, the Evaluators observed that budget expenditures per output are in line with the progress under each output as reported in section 2.

Table 8 Project budget and actual expenditures

[US$]	GEF budget	Disbursements (till 30-06-'08)
Component 1	*228,600*	*150,533*
1.1	8,930	4,455
1.2	69,641	68,088
1.3	63,600	65,664
1.4	16,071	115
1.5-1.6	36,250	770
1.8	34,108	11,440
Component 2	*1,772,730*	*1,135,177*
2.1	51,460	22,719
2.2	1,258,806	1,038,953
2.3	40,385	-
2.4	43,541	-
2.5	163,600	43,098
2.6-2.8	108,557	67
2.9	14,285	56
2.10	6,000	291
2.11	3,768	-
2.12-2.15	82,328	29,993
Component 3	*97,090*	*57,776*
3.1	20,000	10,775
3.2	59,375	18,312
3.3, 3.5	9,715	11,263
3.4	8,000	17,426
Component 4	*115,817*	*32,692*
4.1	31,857	4,571
4.2	61,960	6,826
4.3-4.5	22,000	21,295
Component 5	*69,501*	*34,917*
5.1	59,501	34,917
5.2	10,000	-
Project management	*846,898*	*440,895*
- Project administration	697,778	394,220
- Motoring and evaluation	119,500	36,431
- Project results evaluation	17,120	513
- Audits	12,500	9,732
TOTAL	**3,130,636**	**1,851,991**

Source: PELMAT project, Terms of Reference

Table 9 Co-financing and disbursements

[US$ million]	Total	Cash	In-kind	Disbursements (till 30-06-'08)
DoE	4.30	2.80	1.50	3.286
BPS-DTI	0.04		0.04	0.039
DBP	3.91	3.91		0.127
Malabon City	0.16	0.16		
Valenzuela City	0.03	0.03		
UP - College of Eng.	0.05		0.05	0.001
PLIA	1.50	1.00	0.50	0.658
ENPAP/ENMAP	0.02		0.02	0.009
IIEE	-			
Quantum	0.12	0.11	0.01	0.01
Fumaco	0.07	0.05	0.02	0.01
Dolomatrix	1.80	1.80		
CPI Energy	0.30	0.30		0.038
TOTAL	**12.30**	**10.16**	**2.14**	**4.178**

Source: APR-PIR (2008)

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Main conclusions

The following summarizes the main findings of the evaluation, regarding project progress towards results as well as project implementation and management.

3.1.1 Progress towards results; factors affecting project implementation

See items 4 and 5

PELMATP *progress towards achievement of results* as presented in detail in paragraph 2.1 giving an overview of PELMATP's outputs and corresponding progress indicators. A summary of this assessment is given in the table below:

Components (Outcome)	**Activities Accomplished**
Component 1 (EEL policies standards and guidelines enhanced)	• Highlights on achievement include Administrative order in the use of energy efficient lighting (EEL) in government buildings; formulation of MEPS (CFLs, FLs, ballasts); Memorandum of Agreement on Roadway Lighting Guidelines[27] (implemented in Cagayan de Oro) and associated training; labeling of products; plan to phase-out incandescents; warranty and eco-labeling guidelines; • Almost all of the planned activities have been carried and often have exceeded the targeted level, with exceptions such as the LGUs adhering to the guidelines; PNS compliance in linear lamps and ballasts, implementation of voluntary agreements and of the guidelines on the availment of incentives; • The committees and advisory group (TWG, PAB) are well organized and very active to be the important venue for discussing common issues and decision making, thus, manifesting very good public/private partnership in and ownership of the EEL program by the stakeholders.
Component 2 (EEL institutional and technical capacities on EEL applications developed)	• Capacity strengthening LATL and ISO certification for EEL testing, TA to manufacturers (Quantum, Fumaco) and associated training; EEL system training modules for students and practitioners; • Almost all of the planned activities have been implemented, meeting the targeted level, except for targets in DOE-LATL accreditation to ISO/IEC 17025 (which is ongoing); local manufacturers investment in EE ballast and fixtures; energy

[27] Roadway Lighting Guidelines was actually under Component 2 under DSM, but it was later decided to include its development under Component 1 along with the updating of the Guidelines on Energy Conserving Design of Buildings.

	savings calculators designed; mass purchasing agreements in private establishments; EEL usage level in industrial and commercial establishments; • LATL has established facilities for the testing of CFLs, ballasts, LFLs and luminaires as well as for the calibration of equipment and laboratory tools; • LATL is satisfactorily meeting testing demand of BPS for EEL and market monitoring, R&D and standards development; though private sector expectation on the speed of testing of products needs to be improved; • Cancellation of the DSM activities due to change of regulation of the power supply market in the Philippines;
Component 3 (EEL applications consumer awareness improvement)	• *Palit-Ilaw* (Switch to EELs) created awareness and lessons learned, demonstration in public buildings (schools, hospitals, city halls), joint government-private sector promotion through media and workshops, in cooperation with manufacturers (Philips, among others); • Joint government-private sector promotion of EEL products; the overwhelming participation in numerous fora manifested very strong cooperation and commitment; voluntary sharing of inputs from the companies involved in the changing to EEL in various establishments.; • Increased sales of EEL products (though not yet shown in the sale of HID and luminaries) is evidence of the initial success in the promotional activities; • Most of the planned activities met the targets except, PELMATP's own website as well as the utilization on EEL industry and related government websites; inclusion of EEL training in school curricula.
Component 4 (EEL initiatives financing assistance program implemented)	• Cooperation with consumer organization and electric cooperatives (package CFLs in wiring of houses or with consumer products). A study on the matter by IIEC is pending; • EEL distribution channels via consumer cooperatives are not yet moving; • Financing guidelines have been designed and implemented but access to the loans are not yet happening while the development of the financing mechanisms are still ongoing; • EEL VAs and financing in industrial and commercial buildings are slowly picking up.
Component 5 (EEL waste management assistance program established)	• Awareness creation on proper disposal of CFLs; proposed expansion of waste recycling facility; • Guidebooks have been developed and distributed; • Information campaigns and directory of lamp waste generation done; • Strategies for EEL lamp waste management being studied.

There have been some delays in the implementation of activities developed under Components 1, 2 and 4. On the other hand, some targets mainly under Components 3 and 5 have been exceeded. On the overall, the Evaluators rated the PELMATP progress towards achievement of results, considering the use of inputs (budget, human resources and subcontracts) as being **satisfactorily**.

3.1.2 *Project management and partnerships*

See items 6, 7, 14b and 14c

Implementation is proceeding **satisfactorily** as well; in general, according to plan with some delays here and there and some activities cancelled (e.g., DSM), but with more progress in other activities. In general, the *design* (as written down in Project Document) remains valid. In general, the policy environment for energy efficiency (EE) in Philippines (and for EE lighting in particular) is quite conducive. Thus, PELMATP has had the advantage of being started off on fertile grounds and its outputs are being taken up in policy formulation of the Departments involved, although final decision making at the top level is often a slow process and as such beyond the control of the PELMATP.

PELMATP has *partnered* well with a number of co-financiers and partners from government (DOE, DTI, BPS, DPWH, DENR), institutes and associations, laboratories (LATL), consumer organizations, cities and manufacturers, PLIA. Co-financiers contribute as more-or-less planned in-kind (e.g., time of government staff) as well as cash (e.g., donation of lamps under *Palit-Ilaw*).

3.2 Issues and recommendations

See item 14d and 14 in ToR

Although the general opinion of the Evaluators about PELMATP's progress and implementation is satisfactory, there are issues that need attention for the project to have a potential larger, impact on energy efficiency in the Philippines. These issues, and our recommendations on how to address them, are given in the table below:

Issues	**Recommendations and actions**
1. *Management:* some posts (such as the 'policy and environmental management' expert or the IT specialist) are difficult to fill; high turnover rates in project personnel	• Look critically at salary offered to staff and fees to consultants and discuss with UNDP and DOE[28]; • Some flexibility can be shown in contracting; it may be easier to find a qualified person on a 'part-time' basis as a 'consultant' rather than asking a senior person to give up a job for a 'temporary' 2-3 year position with PELMATP; • Hire a more junior person (lower job requirements) and hire specialized consultants for the more advanced tasks.
2. *Monitoring and evaluation:* as explained in section 2.2, this is more than measuring direct impacts, but also indirect impacts. Up to now, the methodology used for measuring	• Use GEF CO_2 estimation manual on direct and indirect impacts. See GEF/C.33/Inf.18 'Manual for Calculating GHG benefits of GEF Projects: Energy Efficiency and renewable energy projects';

[28] The PMO mentioned that this had already been done but the PMO is constrained to giving much higher salaries than what is stipulated in the ProDoc. In fact, the salary for the IT Specialist has already been adjusted and yet there are no takers.

direct impacts, let alone indirect impacts, is not clear	• The International Technical Advisor (ISTA), Mr. Shahab Qureshi, of the Vietnam Efficient Lighting project (VEEPL) is developing a M&E framework for that project. He could provide input into PELMATP's impact monitoring as well. • *Consultants should be hired to review and quantify progress and impact indicators (logframe), right now and again at the end of the project*. The activity should include measurement of indirect impacts, such as consumer awareness creation (e.g., by means of a consumer / end- / user survey) and market penetration of EEL products (e.g., by trying to quantify the indicators 40 and 48 in the table II of the APR-PIR by means of analysis of sales statistics (customs, DTI, etc.) and analyzing the impact of PELMATP on user's decision-making. The study will also help to identify gaps and these in turn can be addressed in future work plans and the communication plan.
3. *Sustainability*.	• An exit strategy needs to be formulated for the continuation of activities after the end of 2009 (when PELMATP will end) o Who of the government and private stakeholders will do what in EEL promotion and implementation (an organizational assessment and development study is recommended) o Integration of PELMATP within DOE o Database and website maintenance o Maintenance of equipment at LATL o Linking of current activities with future activities, such as the ADB-supported energy efficiency project[29] o Updating of project materials (such as guidelines, manuals)
4. *Component s* <u>Component 1</u> • Manufacturers find it difficult to compete with products coming from lower-cost countries (e.g., China,	• Explore possibilities with DTI and Bureau of Investment (BOI) to give tax or other incentives to producers of certified EEL products; • Review testing procedures and lifetime test standards;

[29] The *Philippines Energy Efficiency Project (PEEP)*, now in its formulation stage, will be implemented by the Government with an Asian Development Bank (ADB) loan of US$ 30 million, if approved, and will continue many activities that were initiated or taken up under PELMATP. The project will consist of 3 main components:

- Efficient Lighting Initiative: 1.1 retrofit lighting in government buildings, US$ 3 million; 1.2 residential lighting: CFLs and LEDs, US$ 13 million; 1.3 public lighting retrofit program, US$ 1.5 million and 1.4 energy efficiency testing and lamp waste management, $ 4 million;
- Energy Efficiency in Buildings and Industry: 2.1 energy efficiency financing (establish a Super ESCO as part of PNOC and obtain quasi-banking license), US$ 5.6 million; 2.2 Efficient buildings initiative, US$ 0.5 million
- Communication and social mobilization: US$ 2.5 million

Implementation support and contingencies are an estimated US$ 9.9 million. In addition, the Government will contribute US$ 6.5 million for funding of the lamp waste management facility and testing lab as well as for communication and social mobilization

India, Vietnam) • Testing time of EEL products takes longer than really necessary	
Component 2 • Procurement for national public buildings is done centrally by the DBM[30], not by the user (e.g., school, hospital). In many of the *Palit-Ilaw* activities, this problem may not have surfaced, because in most cases lamps were donated. • Some activities (e.g., DSM) have not been implemented for lack of support and change of regulation	• While the public building/office can indicate budget needs, not always the best or most EE appliances may be provided. PELMATP could follow up how guidelines on EE in public buildings (developed under component 1) are implemented in practice (also as part of the monitoring and evaluation activities). Maybe PELMATP can facilitate fee rationalization by entities concerned to follow full cost recovery schemes and create revolving fund that could be directly used for maintenance and repair instead of reverting back to National Treasury through DBM.
Component 3 • Outreach effort	• A work plan should be drafted for the outreach activities of Component 3 detailing how to reach the various target groups (government officials, local officials, building owners, households, etc.) and to explore means of implementing using practical approaches and resourcefulness in view of limited funds
Component 4 • Lighting may only be a small part of the energy bill, depending on the type of industrial, commercial or public establishment. In such cases it may be easier to incorporate EEL as part of an overall energy audits and acquire loans for the whole package of proposed viable EE measures	• Try to address EEL and lighting activities in the wider context of EE, also as input in the upcoming ADB EE project (see footnote 19)[31]
• Component 5 currently focuses on large users of EEL products, not on individual households and can be linked more closely with the activities of the other PELMATP components	• PELMATP could devote some funds to look into the issue of CFL collection at household level (e.g., rebate for CFL returned). The CFL recycling issue can be linked with warranty issue and be part of the CFL distribution scheme with consumer organizations and cooperatives; • Awareness to dispose properly with the help of the LGU and the barangay level at designated disposal areas. This again should be linked with the Communication Plan (see recommendation under Component 3); • Incorporate in eco-labeling (see Component 1). The awareness on hazards if spent EEL lamps

[30] Department of Budget and Management

[31] In fact this has been the approach PELMATP has taken in its EEL campaign in economic zones (Mactan, Baguio, Cavite, Tarlac). PELMATP has engaged DOE's Energy Efficiency and Conservation Division or EECD to conduct lectures and hand-on energy audits on building/facility equipment/systems other than lighting. Also, the DOE's Consumer Welfare Promotions Office is also always tapped during IEC campaigns to households.

	are not properly disposed
5. *Replicability* • The proposed ADB-supported *Philippine Energy Efficiency Project* will ensure further replication by including an efficient lighting initiative that will boost lighting products in public buildings and residences as well have a public lighting retrofit program	• Assess impact of schemes with consumer organizations and cooperatives/utilities as well as EEL activities in buildings as part of monitoring and evaluation and feed results and lessons learned into the ADB supported Energy Efficiency Project.

3.3 Lessons learnt

See item 14e in the ToR

Some lessons learnt are:

- Priorities and environment changes (for example, it turned out during project implementation that DSM was not longer a priority given the restructuring in the power sector). If so activities and budget allocation should be changed accordingly to other or new activities;
- Procurement of services and equipment in UNDP can be time-consuming and can cause delays in project implementation;
- Working with government departments/ agencies/ entities for certain sub-contract activities (such as monitoring of lighting standards development, lamp warranty, eco-labeling and lamp waste management) where they will eventually be the lead agency/ies to implement the activities as part of the structural changes (e.g., policies, standards, guidelines, etc.) have been, in most cases, tedious as these technical assistance activities are normally add-on to them and not among the priority programs/activities for that year;
- Similarly, it takes time for Government entities to implement proposed measures. For example, various standards for lighting products have been proposed, but up to now only standards for CFL and linear FLs have officially been approved. This becomes even more time-consuming when more than one government entity is involved;
- It can time to really convince, gain consensus and get the trust and buy-in of stakeholders. It is important to have a champion within the implementing entity: in PELMATP's case, the Secretary of Energy himself. Getting the stamp of authority and political will of the top management are very important in transformation process in order to get key players' and stakeholders' buy-in;
- It should be noted that partnerships with umbrella organizations (private, professional organizations, chambers of commerce and industry, non-government organizations, etc.), including key government entities/agencies, employed by the project is another key element for the exercise to succeed;
- Donating lamps in pilot activities can be useful for a first demonstration and PR reasons, but potentially masks issues related to the higher cost of investment of EE (for the owner and/or user) products in comparison with less efficient ones;
- Consolidation of actual energy savings due to lighting efficiency improvements by project partners and entities (residential, commercial and industrial sectors) that have by themselves initiated lighting retrofits or have switched to the use of efficient lighting systems, due either to the direct or indirect influence by PELMATP, and other indicators have been very tedious since compliance rate to lighting monitoring submittals have been very low.

ANNEX A. TERMS OF REFERENCE (TOR)

The original text of the ToR has been amended in the sense that the numbered items highlighted in light blue and yellow has been added to be able to refer to it in the main body of the report, but otherwise the original text has been left in place.

1. Introduction

1.1. Country Context

Conservation and efficient utilization of energy have always been among the major strategies of the Government of the Philippines (GOP) to the realization of energy self-efficiency and reduced environmental impacts of energy generation and utilization. The progress made in the area of energy conservation and energy efficiency (EC&EE) was however slowed down by several events, which among others, led to private sector becoming hesitant to invest on EC&EE technologies because of economic uncertainty and the basic fact that money is in short supply. The government recognized that the shortfall of various programs in the past would continue unless certain forms of intervention will be implemented to address the following:

a) Inadequate information on energy management services market such as energy end-use indicators and base level energy intensity for all sectors;
b) Inadequate interest in energy efficiency;
c) Slow penetration of EC&EE technologies due to lack of financing, lack of incentive information delivery system and lack of data on monitoring and verification; and
d) Lack of awareness on the impact of efficient energy utilization on the environment and the country's limited resources.

The use of energy efficient lighting (EEL) is one of the programs by the government and the private sector in promoting energy efficiency. The EEL systems are the easiest to install/retrofit among other energy efficient equipment used in households and in commercial and industrial establishments. However, barriers to its widespread utilization exist despite various government and private sector's programs and activities in the past (Please see Project Brief – Barriers to Widespread Use of Energy Efficient Lighting Systems in Annex E). Without intervention, efforts on EEL will continue, as in the past, promoted in a fragmented manner through the EC&EE programs of the Department of Energy (DOE), such as: (a) Energy management services; (b) Information and education campaign; (c) Government ENERCON Program; (d) Energy Labeling and Standards; and (e) Demand Side Management, along with the implementation of other energy efficiency technologies. It is up to the public and the private sector to decide and prioritize which will best fit to their daily operations and financial capabilities.

1.2. Project Summary

The project addresses the barriers to widespread utilization of energy efficient lighting systems (EELs) in the Philippines. It will cover energy efficient versions of linear fluorescent lamps(standard vs. the slim tubes), compact fluorescent lamps (CFL), high intensity discharge (HID) lamps, ballasts (low loss electromagnetic and electronic), and luminaires. The Project will accelerate integration of EEL programs to the planned DOE activities, enhance private sector's involvement and appreciation of the benefits of EEL and ensure that environmental impacts associated with the use of EELs are mitigated. The project will achieve its objectives by: updating of policies, standards/guidelines; institutional capacity building; consumer education and information dissemination; developing and implementing financing mechanisms; and, mitigating environmental impacts of the project. The implementation of the Project will result to an aggregate energy savings of 29,000 GWh equivalent to 21% reduction relative to the Philippines energy efficiency scenario from 2003 to 2012. The equivalent GHG emission reduction is about 4,600 Gg of CO_2 equivalent.

1.3. Project Expected Outcomes and Outputs

The project outcomes and outputs covered by the entire project duration include:

Outcome 1: Existing EEL Systems, Policies, Standards and Guidelines are enhanced and new ones are established.

Review and update existing policies, standards and guidelines; develop/ formulate new ones to promote use of energy efficient lighting; and formulate appropriate quality and energy performance standards and labeling for lighting products and improvements in consumer protection policies to help protect consumers as well as manufacturers from proliferation of non-certified lighting products.

- Multi-sectoral working group on the promotion of widespread utilization and commercialization of EEL is operational by 2005 and every year thereafter.
- Lighting system specification in the Guidelines on Energy Conserving Design of Buildings and Utility System and IIEE- ELI Manual of Practice on Efficient Lighting by 2006.
- Lighting product standards are updated and implemented.
- Voluntary Agreement (VA) scheme with lighting manufacturers and distributors implemented.
- EEL systems in government buildings applied and implemented.
- Incentives for EEL product importers/manufacturers and lamp waste recyclers established.
- Consumer protection guidelines established.
- EEL policy and standard implementation monitoring and evaluation established.

Outcome 2: Institutional and technical capacities on EEL applications developed.
Build the capacity of DOE-LATL, ERC, local lighting manufacturers, households and commercial/industrial establishments on the promotion of the utilization of EEL systems.

- Testing, labeling and market monitoring of EEL systems established.
- Local lighting product manufacturers produce affordable EEL systems in the market.
- EEL system activities implemented in DSM Plans of utilities and RECs.
- EEL savings calculator designed and disseminated to households and commercial and industrial establishments by 2006.
- Lighting system designers trained on EEL application.
- Mass purchasing of EEL systems implemented.
- EEL programs implemented in commercial and industrial (C&I) establishments.
- Institutional and technical capacity on EEL applications established, monitored and evaluated.

Outcome 3: Consumer awareness on EEL applications improved.
Encourage collaboration of both government and the private sector in the promotion of EEL products through, among others, a project website, to provide fast and easy access to PELMATP activities and EEL technology information, and regular consultations with the public to monitor and improve the program.

- EEL products jointly promoted by government and the private sector.
- Information on EEL systems consolidated and disseminated.
- EEL training included in school curricula.
- Improvements on consumer awareness on EEL applications monitored and evaluated.

Outcome 4: EEL initiatives financing assistance program implemented.
Design and establish financing mechanisms to assist EEL system project proponents in coping with the first cost of EEL systems, including activities on micro-financing of EEL products by consumer cooperatives, and financing bigger EEL projects through available credit facilities of DBP.

- EEL micro-financing scheme is implemented.
- ESCO-led projects are implemented.
- Capacity on EEL business financing established at banking institutions in the country.
- VA agreements with Commercial and Industrial (C&I) are developed and implemented.
- EEL systems financing assistance program is monitored and evaluated.

Outcome 5: Management and disposal of mercury (Hg) containing lamp wastes are environmentally acceptable.
Primarily address the management of EEL wastes in coordination with ongoing activities by the National Solid Waste Commission, the Environmental Management Bureau, the LGUs and all other initiatives by development agencies on solid waste management and by NGOs.

- Policies and guidelines for managing Hg containing wastes are implemented.
- Lamp waste recycling facility established by 2007.
- EEL Systems Waste Management Program is monitored and evaluated.

The Project has been designed to be complementary to ongoing and planned energy efficiency and energy conservation programs of the GOP. In particular, this market transformation project will lay important structural and technical as well as behavioral groundwork for future EEL-related projects in the country.

2. Project Status

PELMATP is now in its Year 4 of implementation since its start in January 2005 (actual start was in April 2005). The status of accomplishments of the PELMATP Project as of June 30, 2007 was reported in the 2006 Annual Project Report and Project Implementation Review (APR/PIR 2007) vis-à-vis the end-of-project Year 5 Target Level and is summarized as follows:

Outcome 1: Existing EEL Systems, Policies, Standards and Guidelines are enhanced and new ones are established.

The main activities of this component are geared towards putting in place the structural changes that will encourage and institutionalize efficient lighting use. A multi-sectoral working group (Technical Working Group or TWG) and a Policy Advisory Board or PAB have been established since 2005, providing technical recommendations and policy-related decisions, respectively, to support the project.

The Guidelines on Energy Conserving Design of Buildings, incorporating efficient lighting specifications, had been updated together with the Manual of Practice on Efficient Lighting while the newly developed Roadway Lighting Guidelines are for pilot implementation in selected cities. These documents are now being distributed and their use disseminated throughout the country.

Twenty five (25) Philippine National Standards (PNS), including the minimum energy performance standards or MEPS on lighting products were developed. The project in cooperation with the Department of Trade and Industry – Bureau of Product Standards (DTI-BPS) is in the process of forging voluntary agreements (VA) with lighting manufacturers/distributors for higher MEPS lighting products.

A milestone achievement of the project is the signing by President Gloria Macapagal-Arroyo of the Administrative Order (A.O.) No. 183 which directs the use of EELs in government facilities, an AO drafted by the PELMATP. In 2007, a total of 110 government buildings nationwide implemented EEL projects.

Completed lamp warranty guidelines is scheduled for public hearing during the 2nd quarter of 2008 prior to full implementation. Guidelines on Eco-labeling of lamps (CFL, linear fluorescent lamps and electronic ballasts), on the other hand, had been approved by the Board of Eco-Labeling Program of the Philippines and for consideration by the Government Procurement Service.

Outcome 2: Institutional and technical capacities on EEL applications developed.

The focus of this component is on institutional and technical strengthening primarily of the DOE's Lighting Appliance Testing Laboratory (LATL), and the then DTI-BPS Laboratory Accreditation Scheme (BPSLAS), presently, the Philippine Accreditation Office (PAO). Through the project, PAO became signatory to the Asia and the Pacific Laboratory Accreditation Cooperation (APLAC) in 2005. Since 2005, upgrading of the testing capability of LATL has been going on, to include the installations of CFL, Ballast, Fluorescent Lamp and Luminaire Testing Facilities, with the latter which was completed in December 2007 as the most expensive and the biggest facility provided under the project. As part of capacity development DOE and other partner agency officials and staff were sent to trainings, both local and international.

Accreditation of LATL to ISO/IEC 17025 for fluorescent lamp ballasts and linear fluorescent lamps (including calibration of temperature, electrical, and pressure equipment starting last quarter of 2007 and expected to be completed 3rd quarter of 2008). While that for CFL testing had been completed in 2002 with support from PELMATP (including accreditation renewal payment for the next three years).

Local manufacturing for lamp ballast and fixtures were provided technical assistance to improve their stock, and make them more affordable and readily available. This activity was, however, delayed but is almost completed to date.

In cooperation with the DOE, the PELMATP conducted lighting energy audits in at least eight (8) commercial/privately-owned buildings, two (2) industrial sectors, one residential sector, as well as fifteen (15) government buildings/facilities with a combined potential savings of 3.96 GWh/yr.

Partnering with utilities was the alternative strategy resorted to by the PELMATP to promote efficient lighting as part of the utilities' value added services to customers since demand side management (DSM) has since been overshadowed by deregulation-related activities.

Delays in procuring consulting as well as technical assistance services (i.e., unavailability of contractor) resulted to the slide in the implementation of the design of EEL Calculators for households (HH) and C&I, which is presently being finalized; and the development of lighting product monitoring program, the agreement with DTI-BPS of which has recently been signed.

Through various fora (conferences, conventions, exhibits, seminars/ workshops, etc.), PELMATP has disseminated EELs to over 25 C&I since the start of the project.

Outcome 3: Consumer awareness on EEL applications improved.

On EEL advocacy and promotion, PELMATP and EELs have been disseminated to more than 68 organizations/associations through various fora, and presentations annually. IEC activities reached an estimated of more than 68,000 potential users (commercial, industrial and residential) through annual conventions, conferences, expositions and conventions by, among others, the Institute of Integrated Electrical Engineers (IIEE), Consumer Trade Fair, CSR Expo, Earth Day celebration (Fuels for Life), international harmonization initiatives, and others.

PELMATP has also conducted sixteen (16) Palit-Ilaw Activities in selected places, e.g., markets, schools, hospitals, residential sector, Smile Citihomes-Novaliches, New Dagonoy Public Market, Eusebio High School, Quezon City Hall, Makati City Hall, Cebu City Hall, DTI, Manila Science High School, Ramon Magsaysay High School and Technological Institute of the Philippines) .
Also, EEL promotion campaigns were made through radio and TV as well as the project website. The PELMATP website has been completed in March 14, 2006 and subsequently visited by stakeholders with over 1.4 million hits made since its creation.

EEL course modules have been designed for senior electrical engineering students and vocational students. Two (2) Training of Trainors were conducted to prepare the professors who will facilitate the pilot-testing of the said Modules to their respective schools (November 22-23, 2007 in Dagupan City for colleges/ universities in Region 1 and 2, and December 13-1, 2007 for colleges/ universities in National Capital Region). These modules have been piloted in selected colleges/universities and technical schools. (e.g., Mapua University, Technological Institute of the Philippines, FEU-East Asia, University of Makati, New Era University, Colegio de Dagupan, University of Pangasinan, Virgen Milagrosa University Foundation, University of Luzon, and Philippine College of Science and Technology) .

Outcome 4: EEL initiatives financing assistance program implemented.

On the design and Implementation of EEL Micro-financing, two consultations have been conducted in March 2008, one in Davao and one in Metro Manila attended by twenty-seven (27) cooperatives. The consultations were held to discuss with cooperatives the proposed financing model.

The ESCO Specialist has designed two draft model energy performance contracts for implementation by the Development Bank of the Philippines (DBP), which is in line with the activity for a Model ESCO Transaction Project" by DBP. However, due to some constraints encountered in the procurement of ESCO services, the Model ESCO Transaction will be implemented in the activity for ESCO Applications currently under negotiation.

The ESCO Specialist also developed draft user friendly guidelines for the utilization of the available credit facility in DBP that can be used for Energy Performance Contracting (EPC) services. Guidelines and framework to establish monitoring and verification protocols for future ESCO contracts were also developed for the financing institution.

In April and May of 2007 successively, 10 financing institutions from Metro Manila, Visayas and Mindanao were trained to improve their understanding and appreciation of the economic and financial benefits of EEL system initiatives. Specially designed training courses will be catered to financing institutions to teach them how to evaluate EEL system project proposals.

Outcome 5: Management and disposal of mercury (Hg) containing lamp wastes are environmentally acceptable.

The policy study on the waste lamp management was completed end of 2007 and final copy of the document was submitted to the Department of Environment and Natural Resources – Environment Management Bureau (DENR-EMB) Director during the first quarter of 2008.

The policy study and the accompanying proposed policy recommendations served as inputs to the DENR-EMB activities in the formulation of policy guidelines and programs for lamp waste management. It will also lead to the setting up of standardized procedures for testing mercury content in lamps and the development of IEC materials and a guidebook, which will be used as references by those implementing solid and hazardous waste management program.

3. Objectives of the Mid-Term Review (MTR)

The objectives of this Mid-Term Review (MTR) are in line with the following overarching objectives of the monitoring and evaluation of GEF projects:

a. Promote accountability for the achievement of GEF objectives through the assessment of results, effectiveness, processes and performance of the partners involved in GEF activities. Project results will be monitored and evaluated for their contribution to global environmental benefits;
b. Promote learning, feedback and knowledge sharing on results and lessons learned among the GEF and its implementing partners, as basis for decision-making on policies, strategies, program management, and projects and to improve knowledge and performance.

As defined in the GEF Monitoring and Evaluation (M&E) Policy, an evaluation is a systematic and impartial assessment of an activity, project, program, strategy, policy, sector, focal area or other topics. It aims to determine the relevance, impact, effectiveness, efficiency and sustainability of the interventions and contributions of the involved partners. An evaluation should provide evidence-based information that is credible, reliable and useful, enabling the timely incorporation of findings, recommendations and lessons into the decision-making processes.

4. Scope of the MTR

The scope of the MTR covers the entire UNDP/GEF-funded project and its components as well as the co-financed components of the project.

It will review and evaluate the Project implementation taking into account the status of the project activities, outputs and resource disbursements made up to December 31, 2007.

The review and evaluation will involve analysis at two levels: component level and project level. On the component level, the following shall be assessed:

- Whether there is effective relationship and communication between/among components so that data, information, lessons learned, best practices and outputs are shared efficiently, including cross-cutting issues (item 1)
- Whether the performance measurement indicators and targets used in the project monitoring system are specific, measurable, achievable, reasonable and time-bound to achieve desired project outcomes (item 2)
- Whether the use of consultants has been successful in achieving component outputs (item 3)

The evaluation will include such aspects as appropriateness and relevance of work plan, compliance with the work and financial plan with budget allocation, timeliness of disbursements, procurement, coordination among project team members and committees, and the UNDP country office support. Any issue or factor that has impeded or accelerated the implementation of the project or any of its components, including actions taken and resolutions made should be highlighted. In order to assess the performance of the project in terms of budget and corresponding components/activities, the following table can be used as guide, or the Evaluation Team may devise an appropriate format, in presenting it.

4. COMPONENTS/ACTIVITIES		5. BUDGET		
Planned Activities	**Actual Accomplishment**	**As per WFP**	**Actual Expenditures**	**% of Actual vs. Project Budget**
Component 1				
Mobilize and Operationalize PELMATP TWG	Multi-sectoral working groups (Policy Advisory Board and Technical Working Group) have been actively involved in providing technical and policy related recommendations	8,930	4,455.26	50%
Update Lighting Systems specification in the building energy use guidelines	Completed the updating of Guidelines on Energy Conserving Design of Buildings and the IIEE-ELI Manual of Practice on Efficient Lighting	69,641	68,088.46	98%
Review, update and implement lighting product standards	25 new formulated and updated existing PNS, including MEPS	50,000	53,836.36	108%
	Developed lighting system Standards	13,600	11,827.78	87%
Develop and implement VA scheme with lighting manufacturers and distributors	Developed voluntary agreement (VA) scheme with lighting manufacturers and distributors	16,071	114.76	0.7%
Demonstrate and implement EEL systems in government buildings	Prepared Administrative Order and IRR, the AO No. 183 of which was eventually signed by the President directing the use of energy efficient lighting systems (EELs) in government facilities (Palit-Ilaw)	36,250	769.99	2%
Formulate and implement incentives for EEL product importers and manufacturer and lamp waste recyclers				
Formulate and implement consumer protection guidelines	Developed draft guidelines on warranty of lamps	5,000 24,108	3,976.81 2,371.96	80% 10%
	Developed draft guidelines on eco-labeling of lamps	5,000	5,091.62	102%
Component 2				
Accreditation of DOE-LATL	BPSLAS (now PAO) Accreditation to APLAC	51,460	22,719.09	44%
Upgrade testing capability of DOE LATL	Improvement of testing capability of LATL through the purchase of major equipment and construction of test facility for light sources and luminaires	1,258,806	1,038,952.78	83%
Conduct R & D Works on local applications on EEL Systems		40,385		0%
Develop lighting product monitoring program		43,541		0%
Establish local manufacturing capacity and lighting services industry	Support to local lighting product manufacturers through the establishment of a comprehensive database of lighting product manufacturers, assessment of capabilities of local lighting product manufacturers, potential improvements and efficient designs for locally made lighting products, capacity building for lighting manufacturers (ongoing)	163,600	43,098.35	26%
Review/ update DSM Framework and plan templates		66,557	67.13	0.1%

Training DSM Plan Templates		27,000		0%
Design and implement EEL Leasing Model		15,000		0%
Design and Implement Street lighting guidelines	Completed the template for local ordinance on the application of Roadway Lighting Guidelines (combined with Activity 1.2)	14,285	55.68	0.4%
Design of EEL Savings Calculator		6,000	291.26	0.5%
Design of Training Module on Application of EEL System		3,786		0%
Disseminate PELMATP Program and EEL system application demonstration activities to C & I establishments	Implementation of EEL Programs in the Industrial Sector through EEL systems application demonstration in industries, energy audit conducted in Philippine Steel Corporation, and Maitland Smith, and pledge of commitment of support by the Mactan Economic Zone – Facilities, Maintenance and Environmental Association(MEZ-FAMEA) members	28,464	13,808.55	49%
Implement EEL systems application demonstration to industrial and commercials establishments	- EEL systems application demonstrations in commercial sector, energy audit conducted in Gaisano, Cebu Holdings, St. Luke's Medical Center, Manila Science High School. - Collaboration with Oro Chamber, Cebu Chamber and respective LGUs in a Pledge of Commitment to Support Lighting Efficiency	53,864	16,184.90	30%
	Initiated the dialogue with lighting industry stakeholders, both Philippine Lighting Industry Association (PLIA) and non-PLIA member which is envisioned to lead to a single lighting industry association (initially, it may take the form of coalition)			
Component 3				
Joint promotion of EEL products by government and private sector	Joint government-private sector promotion of EEL technologies through annual fora, including the lighting convention with IIEE, ENMAP (presently, the Energy Efficiency Practitioners Association of the Philippines or ENPAP), DOE Energy Week, Pollution Control Association of the Philippines (PCAPI), Consumer Trade Fair, and umbrella organizations like the League of Corporate Foundations (LCF), Gawad Kalinga Movement (GK), Chambers of Commerce and Industry (e.g., Cagayan de Oro CCIF, Cebu CCI, Mandaue CCI, Philippine CCI), export processing zones (MEZ-FAMEA), PLIA and non-PLIA, USAID Eco-Asia Clean Development and Climate Program (CDCP), USAID-Energy and Clean Air Program (ECAP), International CFL Initiative, among others.	20,000	10,775.72	54%
	Another activity that includes the joint government-private sector promotion is the "Palit-Ilaw Activities," where a certain portion of a target marketplace, school, hospital or community is chosen for			

	retrofitting initiatives. The EEL products used for the Palit-Ilaw activities came from the partners companies in the lighting industry. **Palit-Ilaw Activities done by PELMATP** 1. Palit-Ilaw sa Smile Citihomes, Novaliches (Aug. 31, 2005) 2. Palit-Ilaw sa Palengke, New Dagonoy Market (Dec. 8, 2005) 3. Palit-Ilaw sa Eusebio High (Feb. 23, 2006) 4. Palit-Ilaw sa Quezon City Hall (Mar. 7, 2006) 5. Palit-Ilaw sa Makati City Hall (Mar. 26, 2007) 6. Palit-Ilaw sa Cebu City Hall (Sept. 26-28, 2006) 7. Palit-Ilaw sa DTI (Oct. 18, 2006) 8. Palit-Ilaw sa Manila Science Highschool (Feb. 21, 2007)			
	Initiated the awareness of Lamp Waste Management through presentation in national convention and forum.			
Promote EEL products to household	IEC materials developed and distributed to various stakeholders	59,375	18,311.72	31%
	Intensified project promotion through tri-media campaign 1. Television:Konsumer Atbp., Bandila Magandang Umaga Pilipinas, Para Sa Iyo Bayan, ABS-CBN News Channel or ANC and others) 2. Radio: DZMM's Konsyumer Atbp. 3. Newspaper: Philippine Daily Inquirer, Manila Bulletin,and other tabloids			
	Partnership with distribution companies, such as, Manila Electric Company (MERALCO), Visayas Electric Company (VECO) and Cagayan de Oro Electric Power and Light Company (CEPALCO) in the inclusion of the campaign of Palit-Ilaw and efficient light use to be placed in the message box of their respective electrical bills, and possibly doing IEC with PELMAT as part of their value added services to clients			
Consolidate and disseminate data generated from results of PELMATP and other related activities	Operational project website	9,715	11,263.25	116%
Design, test and implement EEL courses	Inclusion of Illumination Engineering Design subject in the New Draft Electrical Engineering Curricula to be implemented in school year 2008-2009 to senior electrical engineering students	8,000	7,426.36	93%
Component 4				
Design and implement of micro financing model	Consultation with 27 cooperatives in Davao and Metro Manila for draft microfinancing scheme model	31,857	4,571.15	14%
Develop and implement ESCO Led projects	Drafted ESCO accreditation for DOE-Energy Utilization Management Bureau	61,960	6,825.74	11%

	(EUMB) consideration and adoption Designed two draft model energy performance contracts for implementation by the Development Bank of the Philippines (DBP), which is in line with the activity for a Model ESCO Transaction Project" by DBP. Developed Guidelines and framework to establish monitoring and verification protocols for future ESCO contracts.			
Build capacity of EEL business financing institutions	Education of 9 financing institutions on the economic and financial benefits of EEL systems initiatives, through training conducted in Metro Manila and Cebu (including Mindanao participants as well) in the evaluation of EEL system project proposals and help them develop their EEL project portfolio Assist DBP in the design of EEL financing promotional materials	22,000	21,295.39	97%
Component 5				
Formulate and implement policies and guidelines on managing Hg containing lamp wastes	Partnership arrangements with the Department of Environment and Natural Resources-Environment Management Bureau (DENR-EMB) for the lamp waste management program development	35,000 24,501	32,751.38 2,165.88	94% 9%
	Developed guidelines on lamp waste management and development of national and local guidelines			
Establish lamp waste processing facility	Partnership arrangements with DoloMatrix on the transport, recycling and disposal of lighting products.	10,000		0%
	Started disseminating proper lamp waste management/disposal to various sector.			
Component 6				
Project Management and Administration		697,778	394,219.95	56%
Project Monitoring and Evaluation: Survey of compliance of project activities		50,000 69,500	36,431.09	73% 0%
Evaluation of Project Results		17,120	512.58	3%
Financial and Management Audits		12,500	9,732.05	78%
TOTAL		**3,130,654**	**1,841,993.00**	**59%**

On the project level, it will assess the project performance in terms of: (a) Progress towards achievement of results, (b) Factors affecting successful implementation and achievement of results, (c) Project Management framework, and (d) Strategic partnerships.

4.1 *Progress towards achievement of results* (internal and within project's control) (item 4)

- Is the Project making satisfactory progress in achieving project outputs vis-à-vis the targets and related delivery of inputs and activities? (item 4a)
- Are the direct partners and project consultants able to provide necessary inputs or achieve results? (item 4b)

- Given the level of achievement of outputs and related inputs and activities to date, is the Project likely to achieve its Immediate Purpose and Development Objectives? (item 4c)
- Are there critical issues relating to achievement of project results that have been pending and need immediate attention in the next period of implementation? (item 4d)

4.2 *Factors affecting successful implementation and achievement of results* (beyond the Project's immediate control or project-design factors that influence outcomes and results) (item 5)

- Is the project implementation and achievement of results proceeding well and according to plan, or are there any outstanding issues, obstacles, bottlenecks, etc. on the consumer, government or private sector or the electricity industry as a whole that are affecting the successful implementation and achievement of project results? (item 5a)
- To what extent does the broader policy environment remain conducive to achieving expected project results, including existing and planned legislations, rules, regulations, policy guidelines and government priorities? (item 5b)
- Is the project logical framework and design still relevant in the light of the project experience to date? (item 5c)
- To what extent do critical assumptions/risks in project design make true under present circumstances and on which the project success still hold? Validate these assumptions as presently viewed by the project management and determine whether there are new assumptions/risks that should be raised? (item 5d)
- Is the project well-placed and integrated within the national government development strategies, such as community development, poverty reduction, etc., and related global development programs to which the project implementation should align? (item 5e)
- Do the Project's purpose and objectives remain valid and relevant, or are there items or components in the project design that need to be reviewed and updated? (item 5f)
- Are the Project's institutional and implementation arrangements still relevant and helpful in the achievement of the Project's objectives, or are there any institutional concerns that hinder the Project's implementation and progress. (item 5g)

4.3 *Project management* (adaptive management framework) (item 6)

- Are the project management arrangements adequate and appropriate? (item 6a)
- How effectively is the project managed at all levels? Is it results-based and innovative? (item 6b)
- Do the project management systems, including progress reporting, administrative and financial systems and monitoring and evaluation system, operate as effective management tools, aid in effective implementation and provide sufficient basis for evaluating performance and decision making? (item 6c)
- Is technical assistance and support from project partners and stakeholders appropriate, adequate and timely? (item 6d)
- Validate whether the risks originally identified in the project document and, currently in the APR/PIRs, are the most critical and the assessments and risk ratings placed are reasonable.(item 6e)
- Describe additional risks identified during the evaluation, if any, and suggest risk ratings and possible risk management strategies to be adopted. (item 6f)
- Assess the use of the project logical framework and work plans as management tools and in meeting with UNDP-GEF requirements in planning and reporting.(item 6g)
- Assess the use of electronic information and communication technologies in the implementation and management of the project.(item 6h)
- On the financial management side, assess the cost effectiveness of the interventions and note any irregularities. (item 6i)
- How have the APR/PIR process helped in monitoring and evaluating the project implementation and achievement of results? (item 6j)

4.4 *Strategic partnerships* (project positioning and leveraging (item 7)

- Are the project partners and their other similar engagements in the Philippines, strategically and optimally positioned and effectively leveraged to achieve maximum effect of the energy efficiency program objectives for the country? (item 7a)
- Asses how project partners, stakeholders and co-financing institutions are involved in the Project's adaptive management framework (item 7b)
- Identify opportunities for stronger collaboration and substantive partnerships to enhance the project's achievement of results and outcomes..(item 7c)

- Are the project information and progress of activities disseminated to project partners and stakeholders? Are there areas to improve in the collaboration and partnership mechanisms?

5. Review and Evaluation Methodology

The MTR Team is expected to become well versed as to the project objectives, historical developments, institutional and management mechanisms, activities and status of accomplishments. Information will be gathered through document review, group and individual interviews and site visits. Review relevant project documents and reports will be based on the following sources of information: review of documents related to the Project and structured interviews with knowledgeable parties.

The MTR Team will conduct an opening meeting with the National Project Director (NPD), PELMATP Project Management Office (PMO), and relevant officials of the DOE - Energy Research and Testing Laboratory Services (ERTLS), Lighting and Appliance Testing Laboratory (LATL), Energy Utilization Management Bureau (EUMB), Information Technology and Management Services (ITMS), Electric Power Industry Management Bureau (EPIMB) and Consumer Welfare Promotions Office (CWPO) to be followed by an "exit" interview to discuss the findings of the assessment prior to the submission of the draft Final Report.

Prior to engagement and visiting the DOE/PELMATP Project, the MTR Team shall receive all the relevant documents including at least: (item 8):

- PELMATP Project Document and Project Brief
- Annual Work and Financial Plans
- Annual Project Report/Project Implementation Review (API/PIR) for 2006 and 2007.

To provide more details, as may be needed, the following will be made available for access by the MTR Team:

- Executive summary of all quarterly reports
- Internal monitoring results
- Terms of Reference for past consultants' assignments and summary of the results
- Past audit reports.

The MTR Team should at least interview the following people (item 9)

- PELMATP National Project Director
- PELMATP PMO Project Manager
- ERTLS/LATL Chief and Designated Staff
- Technical Specialists for each component
- Administrative Officer
- Financial Officer
- PAB Members
- TWG Members
- UNDP Country Office in Manila in-charge of the PELMATP Project
- Project Co-financiers
- Partner Agencies, Contractors, Consultants, Technical Assistance Providers

With the aim of having an objective and independent evaluation, the MTR Team is expected to conduct the project review according to international criteria and professional norms and standards as adopted by the UN Evaluation Group.

6. MTR Team

The MTR Team will be composed of one International Lead Consultant and one National Consultant. The Team is expected to combine international standards of evaluation expertise, excellent knowledge of the Energy Efficiency and Conservation (EE&C), Market Transformation and Climate Change projects and national context of EE&C and market transformation project and program implementation in the Philippines.

At the minimum, the members of the MTR Team shall have the following professional background and responsibilities:

A. International Lead Consultant

Qualifications/Profile

- Post-Graduate in Engineering, Management or Business;
- Minimum of ten years accumulated and recognized experience in energy efficiency and conservation, market transformation and climate change projects;
- Minimum of five years of project evaluation and/or implementation experience in the result-based management framework, adaptive management and UNDP or GEF Monitoring and Evaluation Policy;
- Familiarity in similar country or regional situations relevant to that of the Philippines;
- Experience with multilateral and bilateral supported EE&C and climate change projects;
- Comprehensive knowledge of international EE&C industry best practices; and
- Advanced report writing skills in English.

Responsibilities

- Documentation review;
- Leading the MTR Team in planning, conducting and reporting on the evaluation;
- Preparation of Detailed Workplan and deciding on division of labor within the Team and ensuring timeliness of reports;
- Use of best practice evaluation methodologies in conducting the evaluation;
- Leading presentation of the draft evaluation findings and recommendations in-country;
- Conducting the debriefing for the UNDP Country Office in Manila and PELMATP Project Management; and
- Leading the drafting and finalization of the MTR Evaluation Report.

B. National Consultant

Qualifications/Profile

- Post-graduate in engineering, management or business, or college degree in said areas with at least ten years of project development and implementation;
- A minimum of five years of project management experience in EE&C, market transformation or related climate change projects;
- EE&C, market transformation and climate change training and technical experience;
- Knowledge of EE&C industry and projects;
- Multilateral and bilateral funded project development and implementation; and
- Familiarity with Philippine national development policies, programs and projects.

Responsibilities

- Documentation review and data gathering;
- Contributing to the development of the evaluation plan and methodology;
- Conducting those elements of the evaluation determined by the International Lead Consultant;
- Contributing to presentation of the evaluation findings and recommendations at the evaluation wrap-up meeting; and
- Contributing to the drafting and finalization of the evaluation report.

The members of the MTR Team must be independent from both the policy-making process and the delivery and management of the UNDP/GEF assistance. Therefore, candidates who had any direct involvement with the implementation of the PELMATP Project will not be considered.

7. Schedule and Deliverables

The PELMATP MTR will commence in June 16, 2008. An evaluation report will be produced after a month (July 15, 2008), highlighting important observations, analysis of information and key conclusions including its recommendations. Based on the scope of the MTR described above, the Evaluation Report will include, among others (refer to Annex 1 for detailed report outline):

- Findings on the project implementation achievements, challenges, and difficulties to date;
- Assessments of the progress made towards the attainment of outcomes;
- Recommendations for modifications and the future course of action;
- Lessons learned from the project structure, coordination between different agencies, experience of the implementation, and output/ outcome and,

The report will be initially shared with the DOE to solicit comments or clarifications and will be presented to the UNDP Country Office (CO) in Manila for further deliberations. Consequently, the final MTR Report (in three copies) will be made and submitted to the UNDP CO with a copy furnished to the DOE.

There will be two (2) main deliverables:

- **Mid-Term Review Report, including an executive summary, fulfilling the evaluation requirements set out in this Terms of Reference (TOR). The final report is to be cleared and accepted by UNDP CO in Manila before final payment. The final report (including executive summary, but excluding annexes) should not exceed 50 pages.**
- **A power-point presentation of the findings of the evaluation. Depending upon the complexity of the findings, UNDP CO in Manila may consider organizing a half-day stakeholders meeting at which to make a presentation to the partners and stakeholders.**

8. Budget

All costs to be incurred in the conduct of the MTR shall be charged against the PELMATP Project funds allocated for such activity. Payment of the MTR Team's professional fees shall be made in accordance with the Service Contract to be issued for this purpose.

Annex 1: Annex 3: Format for Mid-Term Evaluation Report

Length: To better support use of the evaluation, the main report should not exceed 50 pages.

1. **Executive summary** (item 10)

2. **Purpose of the evaluation** (item 11)
   - Restate the purpose of the mid-term project evaluation
   - How this evaluation fits into project cycle and project planning/review activities

3. Evaluation methodology (item 12)
   - Methods used
   - Workplan
   - Team composition

4. Background (item 13)
   - Country context (policy, institutional environment with relevance to UNDP/GEF programme intervention)
   - Project rationale (national EE&C programs, goals, strategies, use of efficient lighting, contribution to the national EE&C and climate change programs, etc – as foreseen in project document)
   - Project status (implementation, financial)

5. Evaluation (item 14)
This section of the report to be structured as per the scope of the evaluation outlined in TOR (Section 4).

5.1 Results achievement (item 14a)
   - Include table listing development and immediate objectives, outputs and indicators. Include end-of-project targets and latest data on target achievements to date.
   - Output achievements (with reference to Annual workplan, and evaluative evidence)
   - Likelihood of outcome/immediate objective and development objective achievement
   - Other critical issues related to results achievement

5.2 Factors affecting successful implementation and results achievement (item 14b)
   - External factors
   - Project-related factors

5.3 Strategic positioning and partnerships (item 14c)

5.4 Sustainability of results and exit strategy/post project planning (item 14d)

5.5 Lessons (item 14e)

Extract critical lessons at two levels:
   - Project-level lessons
   - Partner-specific lessons

5.6 Recommendations (item 14f)
Make recommendations to improve the project based on the evaluation and lessons.

Annexes
To include, at minimum:
- Evaluation Follow-up Matrix
- Terms of Reference (item 15)
- List of people interviewed/focus group discussions, etc. (item 16)
- References (item 17)

Format for the Evaluation Summary

This is a 4-5-page summary of the Evaluation Report. This is distinct from the Executive Summary, and should serve as a self-contained summary that may be read without reference to the main report. The Evaluation Summary should follow this outline:

1. Project data sheet
2. Background to the project
3. Description of the project
4. Purpose of the evaluation
5. Key findings of the evaluation mission
6. Lessons learned
7. Recommendations of the mission
8. Evaluation team composition

ANNEX B. ITINERARY OF THE EVALUATION TEAM AND LIST OF DOCUMENTS

B.1 Mission schedule and list of people met

See items 9 + 16 in the ToR

Sat 01-11-08	Arrival of the International Consultant, Mr. J. van den Akker, in Manila
Sun 02-11-08	Work coordination of Mr. van den Akker with National Consultant, Mr. Rogelio Aldover
Mon 03-11-08	• Meeting of Evaluation Team at UNDP with Amelia Supetran (Portfolio Manager), Imee Manal (Program Analyst – Environment), and Morito Francisco (Program Associate – Environment) and PELMATP's Noel N. Verdote (Project Manager), Arturo M. Zabala (EEL Systems Specialist), and Reby C. Orbista (Administrative Officer) • Meeting of Evaluation Team with PELMATP Team: Mirna R. Campañano (LATL Head and Assistant Project Director), Mr. Noel N. Verdote (PMO Project Manager), Arturo M. Zabala (EEL Systems Specialist), Rosario T. Mojica (Task Specialist – Capacity Building and Financing), Laiden Pedrina (Task Specialist – Information, Education and Communication), Reby C. Orbista (Administrative Officer), Rodolfo O. Manga (Energy Audit Specialist) • Meeting of Evaluation Team with the PELMAT PMO Director and Staff and Undersecretary Ramon G. Santos, Chairman of the PELMAT Project Advisory Board • Meeting of Evaluation Team on PELMAT Project Briefing with representatives different DOE units: Mirna R. Campañano (Chief, LATL), Genesis Ramos (LATL Sr. SRS), E. R. Soyosa (LATL Sr. SRS), Helen Arias (CWPO Division Chief), M.A. Vita (CWPO SRS I), R. S. Añano (ITMS OIC Director), Robert San Juan (ITMS), Max Marquez (EECD Sr. SRS), Allan Bacudo (EECD SRS), Angelito Espino (EPIMB SRS II), A. O. dela Vega (LATL SRS), and PELMAT PMO
Tue 04-11-08	• Meeting of Evaluation Team with Department of Trade and Industry/ Bureau of Product Standards: Samson Paden (Head Standards Enforcement and Consumer Assistance and Jake Velasco (Caretaker, Standards Development Division) • Meeting of Evaluation Team with Project TA Contractor on development of energy savings calculator and EEL Training: IIEE Member: Engr. Ansay • Meeting of Evaluation Team with Energy Efficiency Practitioners Association of the Philippines (ENPAP): Helen Arias CWPO Division Chief);: Raymond Marquez (Institute of Integrated Electrical Engineers (IIEE) Immediate Former President) and Architect Edgardo Reformado (President, United Architects of the Philippines/Green Architecture Movement) • Meeting of the Evaluation Team with Energy Management Bureau: Ernesto Jarabe (Chief, Finance and Administrative Division) and J. Salvador Passe, Jr. (Supervising Environmental Management Specialist, Environmental Quality Division) and DoloMatrix Philippines, Inc.: Kyla Matias (Environmental Mangement Officer)
Wed 05-11-08	• Meeting of Evaluation Team with Ospital ng Maynila: Dr. Fidel Chua (OIC Director) and Dr. Anita So (Chief of Administrative Division) • Meeting of Evaluation Team with Ramon Magsaysay High School: Josefina

	Perlado (Principal) and Edgar Alonzo (Department Head, Technology and Livelihood Education and Chairman, Physical Facilities Committee) • Meeting of Evaluation Team with Department of Environmental Services, Makati City Government: Mildred Castillo (Division Head, Support Services Division) and Edgardo Guidran (Head, Maintenance Division) • Meeting of Evaluation Team with a Contractor on Capacity Building, Productivity Improvement and Conformity Training Services, Inc. (PICTS): Wilhelmina Erna (General Manager) • Meeting of the Evaluation Team with representatives of Philippine Lighting Industry Association (PLIA): Teddy Lim (President), and Triana Cateron; Quantum (Engr. Rodolfo) and Fumaco: Leopoldo Chua and Robert Tieng (President)
Thu 06-11-08	• Work coordination of Mr. van den Akker with National Consultant, Mr. Rogelio Aldover and Synthesis of Evaluation Report
Fri 07-11-08	• Meeting of Evaluation Team with PELMAT PMO Staff on respective tasks: Arturo M. Zabala (EEL Systems Specialistl), Laiden G. Pedrina (Task Specialist, IEC), Rosario T. Mojica (Task Specialist, Capacity Building and Financial Mechanisms), Reby C. Orbista (Administrative Officer) and Rodolfo O. Manga (Energy Audit Specialist)
Sat 08-11-08	• Synthesis of Evaluation Report
Sun 09-11-08	• Synthesis of Evaluation Report
Mon 10-11-08	• Presentation on Initial on MTR Findings and Debriefing by Evaluation Team to PELMAT Management and DOE: Undersecretary Ramon G. Santos (Chairman of the PELMAT Project Advisory Board) and Dir. Raquel S. Huliganga (Director, Energy Research and Testing Laboratory Services (ERTLS), I. C. Soriano (LATL Sup. SRS), R. M. Sevilla (LATL Sr. SRS), R.C. Perez (LATL SRS I), Max Marquez (EECD Sr. SRS), F. Domingo, Jr. (CWPO Sr. SRS), and UNDP: Imee Manal (Programme Manager - Environment) and Morito Francisco (Programme Associate - Environment) and PELMAT PMO
Tue 11-11-08	• Synthesis of Evaluation Report
Wed 25-06	• Departure for Netherlands by Mr. Van den Akker

B.2 List of documents reviewed by Evaluation Team

See items 8 and 17 in the ToR

1. Management Letter on the Audit of UNDP Project with Atlas Award ID No. 00037987: Philippine Efficient Lighting Market Transformation Project (PELMATP), Commission on Audit. April 26, 2006.
2. PELMATP Overview and Update – PPT Presentation, Noel Verdote, PELMAT PMO Director. November 3, 2008.
3. Project Document: CC/OP-5 "Philippine Efficient Lighting Market Transformation Project (PELMATP)" PIMS No. 1128. October 11, 2004.
4. Completion Report on Philippine Efficient Lighting Market Transformation Project (PELMATP) Inception Workshop. June 2, 2005.
5. UNDP-GEF Annual Project Report and Project Implementation Review (APR/PIR) 2006 (1 July 2005 – 30 June 2006). August 31, 2006.
6. UNDP-GEF Annual Project Report and Project Implementation Review (APR/PIR) 2007 (1 July 2006 – 30 June 2007). August 31, 2007.
7. UNDP-GEF Annual Project Report and Project Implementation Review (APR/PIR) 2008 (1 July 2007 – 30 June 2008). August 31, 2008.
8. Draft Design and Monitoring Framework. Project No. 42001. Philippines: Energy Efficiency Project. Asian Development Bank. July 2008.