

**Ukraine**

**Mid-Term Evaluation Report**

**Project Title: Transforming the Market for Efficient Lighting**

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**by**

**Suresh Hurry, Ph.D., Consultant/Evaluator**

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## List of Abbreviations

EEL	Energy Efficient Lighting
CDR	Combined Delivery Report
CFL	Compact Fluorescent Lamp
CMU	Cabinet of Ministers of Ukraine
CO <sub>2</sub>	Carbon Dioxide
CTA/IC	Chief Technical Adviser/International Consultant
DehrzStandard	State Standard
GHG	Greenhouse Gas
GWh	Gigawatt-hour
IL	Incandescent Lamp
IO	Implementing Organisation
kWh	Kilowatt-hour
LED	Light Emitting Diode
MTE	Mid-Term Evaluation
Mtn	Million Tons
NAER	State Agency on Energy Efficiency and Energy Saving
NEFCO	Nordic Environment Finance Corporation
NGO	Non-Governmental Organisation
NPD	National Project Director
OECD	Organisation for Economic Cooperation and Development
PM	Project Manager
PB	Project Board
QA/QC	Quality Assurance/Quality Control
RTA	Regional Technical Adviser
SEIA	State Environment Investment Agency
SanPin	Sanitary Regulations and Standards
SNiP	Construction Norms and Regulations
TMEL	Transforming the Market for Efficient Lighting
ToR	Terms of Reference
UAH	Ukrainian Hrivnya (local currency)
UNDP	United Nations Development Programme

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## **1. Executive Summary**

### **Brief description of project**

The goal of this project is to help transform the market towards more energy efficient lighting technologies by removing barriers which will contribute towards a reduction in national greenhouse gas (GHG) emissions. This will be achieved through promoting a gradual phase-out of inefficient lighting products in residential and public buildings. GEF participation in pilot projects at municipal buildings, including schools, will remove existing barriers in seven pilot cities/municipalities and provide for the replication of defined approaches and measures in other major cities of Ukraine.

In addition to reflecting national priorities in Ukraine, the project will also build upon the existing goals and activities of UNDP, with environmental sustainability being one of the eight millennium development goals (MDGs) that UNDP is playing a central role in helping to promote. Moreover, the project will provide an innovative approach to implementing energy efficiency activities and be an important part of the UNDP-GEF portfolio complementing and building upon the lessons learned from other similar UNDP-GEF energy efficient lighting projects in Kazakhstan, Poland and Russia. For example, the project design addresses policy improvements in parallel with concrete actions to raise the quality of energy efficient (EE) lighting products on the market while providing initiatives for overcoming the larger upfront cost of quality EE lighting products. In previous GEF EE projects, addressing the regulatory and overcoming the upfront cost barriers were seen as more critical for success than, for example, mainly focusing on awareness raising activities.

The project will do so by developing and adopting energy efficient performance and product quality standards, including implementing national and regional policies for phasing-out inefficient light sources, and promoting effective enforcement and control mechanisms. The supply chain for energy efficient lighting will be strengthened through market research and monitoring, and support for the development of new energy efficient lighting products. Efficient lighting technologies will be piloted in several Oblasts, including Berdyansk, Gorlovka, Ivano-Frankivsk, Kiev, Lviv, Lugansk and Zaporozhye, through residential, public buildings and street lighting initiatives, and replicated broadly.

The five Outcomes of the project are:

- (1) Improved national policy framework for promoting EE lighting.
- (2) Improved Quality Assurance and Quality Control systems for imported and locally-produced lighting products.
- (3) Energy efficient lighting demonstrations are implemented in the municipal sector, including educational institutions.
- (4) Improved EE lighting product penetration in the residential sector.
- (5) Dissemination and replication of project results.

A summary of the present project status under each of the 5 above-mentioned Outcomes is provided below:

- A few laws/decrees have been drafted by the project dealing with promotion of energy efficient lighting sources, energy labelling of lamps and luminaries, and collection and safe disposal of mercury-containing CFLs, but almost none of these has yet gone through extensive discussions at the Government level with a view towards approval. Hence, it is not known when any kind of enforcement can take place.
- It is reported that state laboratories are well-equipped to test lighting products. However, private laboratories have no interest in upgrading their facilities, as they deliver certificates simply upon payment of a fee and without actually performing any tests. Consequently, the market remains flooded with low-quality lamps. After lengthy procurement delays, an agreement was recently signed with TEST (a consumer protection NGO) to commence testing of lighting equipment and disseminate results to consumers.
- Some small lighting demonstration projects dealing with kindergarten, staircase and street lighting, automatic control of street lights and traffic lights using LEDs have been initiated in various Oblasts, but a lot more remains to be done to demonstrate comprehensive upgrades of municipal buildings with energy efficient lighting.
- Surveys undertaken in 2013 following a massive awareness campaign to sensitise the public on the benefits of CFLs/LEDs indicate that demand for EE lamps has increased by 11% compared to the previous year and that over the same timeframe, the consumer base for EE lamps has increased by 5%. However, regulations/standards that would provide consumers with the confidence they require that they are purchasing quality products simply do not exist.
- A project website ([www.lampochki.org.ua](http://www.lampochki.org.ua)) has been developed, but the information it contains has not been very recently updated, e.g. all on-going pilots and project staff list are not accurately reflected. Hence, the information it contains is not totally current.

### **Context and purpose of the evaluation**

In accordance with UNDP/GEF Monitoring and Evaluation policies and procedures, all projects with long implementation periods of 5 years and above are strongly encouraged to conduct mid-term evaluations. In addition to providing an independent in-depth review of implementation progress, such evaluations respond to GEF Council decisions on transparency and better access to information during implementation.

The purpose of a mid-term evaluation is to assess progress towards the achievement of stated project activities, outputs and outcomes, to evaluate their adequacy and relevance, to identify and document lessons learned to date (including lessons that might improve design and implementation of other UNDP/GEF projects), and to make recommendations regarding specific actions that might be taken to improve the project. It is expected to serve as a means of validating or filling the gaps in the initial assessment of relevance, effectiveness and efficiency obtained from monitoring. The mid-term evaluation provides the opportunity to assess early signs of project success or failure and prompt any necessary corrective actions.

## Main conclusions, recommendations and lessons learned

### Conclusions and Recommendations

#### 1. Outcome 1: Improved National policy framework for promoting EE lighting.

**Conclusions:** Since it became operational, the project collaborated with the Government to have several pieces of legislation drafted. Among them are:

- Draft amendment to Resolution of the Cabinet of Ministers of Ukraine (CMU) on collection, disposal and utilisation of electrical equipment waste, to include collection and safe disposal of mercury- containing lamps. The draft was submitted in September 2012 and a decision is still awaited.
- Draft Law of Ukraine “On amendment to some laws of Ukraine with regard to promoting energy efficient lighting sources”. The draft was submitted in May 2013 and a decision is still awaited.
- Draft Law of Ukraine “On the adoption of the draft Law of Ukraine on energy efficiency in residential and public buildings”, to include energy efficient lighting. This draft has already gone through its first reading in the Verhovna Rada – Resolution No. 4683-VI of 15 September 2013.
- Draft Resolution of the CMU on the adoption of regulations with regard to energy labelling of electrical lamps and lighting fixtures. The draft was submitted in November 2013 and approval is expected “soon”. However, in view of the difficult situation presently prevailing in the country, it is anybody’s guess how “soon” this approval will be secured.
- SNiP (Construction Norms and Regulations) on “Natural and Artificial Lighting”, which will include specific minimum energy performance requirements of lighting systems in municipal buildings, new residential construction and street lighting, is presently under formulation.

The project has engaged the private sector like Maxus, Osram and Philips, whose active participation is crucial in transforming the market for energy efficient lighting. They welcome the project’s efforts to address issues related to energy efficient lighting. For example, at Maxus’ request, the project solicited the Government anti-monopoly committee to restrict the import of substandard lighting equipment. This was in line with the private sector’s indication that it did not require direct support from the project; instead, the project can assist in its dialogue with the Government to put in place and implement the appropriate regulatory mechanisms and standards.

There is as yet no support at the Government level for a phase-out of incandescent lamps (at the present time, these are not banned in the country), despite efforts made by the project. This may be related to strong lobbying efforts from Iskra, the only incandescent lamp producer in Ukraine. Also, due to some administrative bottlenecks, Ukraine has not yet joined UNEP’s en.lighten initiative; however, in view of en.lighten’s focus on market transformation, this situation should be reassessed. With regard to collection and recycling of used CFLs, due to their harmful mercury content, regulations are in place for commercial and industrial buildings. However, no such regulations exist yet for residential buildings and the project is working towards having them in place.



On the other hand, over 2 years since start of project activities, work on developing a national road map for EE lighting market transformation and on introducing legislation/initiating a campaign to have Oblenergos (Oblast electricity grid operators) improve the quality of electricity supplied to public and residential consumers has barely started. There is no valid reason for this delay and the project should redouble efforts to get this activity on track.

The private sector is unanimous in indicating that mechanisms for adoption and enforcement of Regulations and Standards that would constitute the engine of growth to the utilisation of quality products for energy efficient lighting in all sectors of the economy are inadequate and need to be developed/strengthened. It is in this area that the private sector looks towards UNDP for support.

**Recommendation:**

There is not much the project can do to get the Government to promptly approve the required decrees/regulations that it has formulated. The Ministry of Ecology and Natural Resources, the project's parent Ministry, may be able to assist at the level of the Cabinet of Ministers, but may not meet with much success given the present difficult times prevailing in the country. However, the project should continue focusing on the deliverables that are under its control. For example, attention should be devoted to getting work on developing the national road map for EE lighting market transformation moving without any further delay; this should include, among others, a plan for phasing-out incandescent lamps.

**2. Outcome 2: Improved Quality Assurance & Quality Control systems for imported and locally-produced lighting products.**

**Conclusions:** In its efforts to support NAER and DerzhStandard in the development of improved environmental, energy efficiency and quality standards and norms for lighting products, the project was to compare current Ukrainian EE lighting standards with EU best practices for quality, environmental and health standards. While the Evaluator was informed that this activity has been completed, no written report was available for review. One wonders then how the project is supporting the 2 above-mentioned Government institutions in the absence of any written documentation. This should be remedied without delay.

One of the modalities for enforcement would be to have modern independent, accredited testing laboratories to create a level playing field for testing both imported and locally-produced lamps and lighting fixtures. At the present time, there are numerous sub-standard (and inexpensive) imported lighting products that flood the market and create an unhealthy competition for the local private sector. This issue was identified during project formulation and allocation was made in the project document "to improve the Ukrainian institutional capabilities for auditing and assessing the quality of imported EE lighting products". At the present time, there are 3 Government accredited laboratories, one each in Kiev (UkrMetrTestStandard), Lvov (DP Lvivstandardmetrologiya) and Poltava (Poltava Standard Metrology) that are equipped

to test lighting products and deliver certification that they meet standards that are presently in place. And the Evaluator was told that these do not require any equipment upgrade. However, there are also several private laboratories throughout the country that provide a similar service, with the exception that they do not perform any tests and simply issue a certification, upon payment of a fee, that the products meet the required standards. In fact, the Evaluator was informed that these private laboratories have no desire to conduct tests; basically, they are a money-making machine. This is clearly an improper situation that the project needs to address with the Government.

**Recommendations:**

A survey undertaken in 2012 by a testing laboratory Consultant under the Russia EE Lighting Project showed that none of the Government or private testing laboratories had all the latest up-to-date equipment for testing lighting lamps/fixtures. However, in the case of Ukraine, the project confirms that all 3 Government accredited laboratories require no upgrade.

While the Evaluator has no intention to second-guess the findings of the project, it seems odd that all 3 Government laboratories require absolutely no upgrade, unless they were recently upgraded utilising Government or some other donor-related funds. Unless this is the case, it may be worthwhile to recruit a local or international consultant with expertise in testing laboratories (e.g. the Russian Consultant who worked under the Russia project) to validate the project's findings that all 3 Government-accredited laboratories in Ukraine do not require any equipment upgrade.

**3. Outcome 3: Implementation of efficient lighting demonstrations in the municipal sector.**

**Conclusions:** This Outcome was originally designed to implement lighting demonstrations in the municipal educational sector. However, during the Inception Workshop, a decision was made to expand coverage beyond schools to include other municipal targets, such as buildings, street lighting and traffic lights.

Piloting activities have started in, for example, Berdyansk with the replacement of incandescent lamps with CFLs for lighting of the municipal square, in Gorlovka with the testing of LEDs for traffic lighting and automatic control of street lighting, in Lugansk with LED-based street lighting and automatic control, etc. Energy efficient lighting has also been piloted in a kindergarten in Lugansk, in residential staircase and conference room lighting in Kiev as well as pilots in the Lvov and Ivano-Frankovsk Oblasts. Again in Gorlovka, the project has co-financed a feasibility study for expanding street lighting under a proposed UAH 3 million (approx. \$ 345,000) credit from NEFCO.

These pilots have provided municipal authorities with valuable experience on the potential benefits that energy efficient lighting provide in terms of reduced budgetary expenditures and pay-back periods. Now that the momentum has picked up, it is expected that the pace of modernising the street lighting fixtures will gather speed. Representatives of all 3 towns visited expressed great satisfaction of the residents towards the quality of lighting provided by the new units. They also indicated that their annual expenditures for street lighting have substantially decreased.

**Recommendations:**

With the objective of replication in mind, the project may wish to capitalize on the success of the piloting initiatives and organise workshops, inviting the participation of neighbouring (and not so neighbouring) towns to have the “pilot” towns share their experiences on the benefits derived from energy-efficient municipal lighting and how to go about implementing such initiative utilising their own budgetary resources. This will, no doubt, produce a snow-ball effect and provide a boost to the private sector in terms of provision of consultancy services and sale/installation of equipment.

One question that repeatedly came up from stakeholders involved in the pilots was whether UNDP could provide additional resources to expand the pilots. This potentially implies that the municipalities view UNDP’s support to the efficient lighting initiative as one from where access to additional grant financing can be obtained for expanding coverage. Hence, the project should ensure that municipal stakeholders are thoroughly and clearly briefed on the objectives of the pilots; these are designed to facilitate their learning process that will enable them to plan future replication and expansion on the basis of their own resources.

**4. Outcome 4: Improved EE Lighting product penetration in the Residential Sector.****Conclusions:**

The project has invested some \$ 779,000 on a massive awareness campaign to sensitise the public on the benefits of CFLs/LEDs. On the basis of a survey undertaken in 2013, the project indicates that demand for EE lamps has increased by 11% compared to the previous year and that over the same timeframe, the consumer base for EE lamps has increased by 5%. Surveys also indicate that the level of public awareness has increased by 7%, with 3.6% directly attributed to the campaign and 3.4 % as a result of campaigns of EE lighting producers. In addition, the project issued in early December a tender for an “All Ukrainian Educational Awareness Campaign in schools on Energy Efficient Lighting”. The objective of this activity is to design educational curricula, among others, on EE lighting for primary, secondary and high school students.

**Recommendations:**

While the project has done an excellent job in raising awareness, in previous GEF EE lighting projects, addressing the regulatory barriers and overcoming the “quality-cost” barrier were seen as more critical for success than, for example, mainly focusing on awareness raising activities. In the present case, the danger is that because activities under Outcomes 1, 2 and 3 have not kept pace, sub-standard products continue to flood the market, some of them not even lasting a month while costing several times more than present incandescent lamps. Consumers do have choices when purchasing lamps, but will get frustrated when products that advertise efficiency and longevity do not deliver. Awareness raising is only part of the equation in transforming the market for energy efficient lighting. Hence, the project should ensure that awareness activities should go hand in hand with putting in place a conducive environment in terms of regulations and standards. In addition, the project should start developing a road map that would ensure sustained awareness raising after the project has come to an end.

## **5. Outcome 5: Dissemination and Replication of the Project Results.**

### **Conclusions:**

The project has set up a website ([www.lampochki.org.ua](http://www.lampochki.org.ua)) that contains information about the project, project team, some (not all presently-ongoing) pilots, etc. – it was indicated that approx. 90% of Ukrainian households have access to the internet, but the number of “hits” is not monitored. This would have been a useful monitoring tool which the project may wish to consider introducing. In addition, it appears that not all project reports (brief summaries may sometimes be sufficient) are posted, nor the composition of the project team has been recently updated.

The project also co-financed and participated, among others, in the “All-Ukrainian Conference on Energy Efficiency” in June 2013 (municipal EE lighting was one of the subject of discussions) and co-financed a drawing competition on EE lighting among school children in March 2013.

### **Recommendation:**

There may be a need to more frequently update the website with latest information on the project in general and with easy to understand, for the general public, information on project achievements. Hopefully, this will provide an additional push to the interest of the stakeholders/consumers in the website.

## **6. Project Management.**

**Project Office:** The project is managed by a Project Manager and nine other staff (Annex 6), all working full time. The Project Office is located at the premises of the Ministry of Ecology and Natural Resources and is available to the project “rent-free”, except for the initial refurbishment of the office space at the start of the project and payment of utilities. A “Municipal Project Coordinator” was very recently added to the project team to focus on pilots and formulate sustainable replication plans during the project lifetime and beyond.

### **Recommendations:**

The Project Manager may wish to exercise better oversight over activities undertaken by his team. For example, there is no obvious reason why the road map for EE lighting market transformation (Outcome 1) could not start much earlier, at the very beginning of project activities, rather than wait for 2 years down the road; the recruitment of the consultant to undertake this assignment is only now in the process of getting initiated. Another example is related to undertaking a comparison between Ukrainian and EU lighting standards (Outcome 2). While this activity has been completed, no report is available. So, in the absence of a report, how does the project plan to assist its partners in the Government in deciding on the appropriate standards for Ukraine? And finally, the project should do a better job (hopefully, the newly-appointed Municipal Project Coordinator would focus on that, among others) to provide a much-needed boost to piloting/replication activities under Outcome 3. In addition, the objective of the pilots should be clearly explained upfront to counterparts and the latter be advised to put arrangements in place on their own to continue with any positive experience that the

pilots have generated. This last observation results from the Evaluator being repeatedly asked if UNDP could provide additional funding to expand the pilots.

To provide focused direction and ensure timely implementation of project activities over the remaining project time-frame, project management needs to be reassessed and strengthened. In this connection, the project may wish to consider recruiting a non-resident Chief Technical Adviser/International Consultant who would support the Project Manager in the crucial areas related to Outcomes 1 to 3 (and others as well). S/he should be available for a specific number of days per year (e.g. on a retainer contract) to provide technical and targeted management guidance to the project from her/his home office and, as required, through brief missions to Ukraine. It is also hoped that with such an arrangement, project implementation will pick up momentum, with the result that project outputs could very well be achieved with the remaining project time-frame.

- **Financial Management.**

As per CDR figures for 2011 through 2014, expenditures per individual Outcome are as follows:

<b>Activity</b>	<b>Total Expenditures (\$) (Govt. + UNDP – rounded to nearest thousand).</b>	<b>UNDP Expenditures (\$) for Consultants, Service Contracts for Project Staff and Contracts with Vendors (rounded to nearest thousand).</b>
Component 1: National Policy Framework for Promoting EE Lighting.	296,452	275,885
Component 2: Improve the National Quality-Assurance and Quality Control systems for imported and produced lighting products in Ukraine.	255,529	237,384
Component 3: Design and Implement EE Lighting demonstrations in municipal sector focusing on public schools.	104,584	85,895
Component 4: Improve EE lighting product penetration in the Residential Sector.	295,128	282,396

Component 5: Disseminate and Replicate the Project Results	920,326	888,263
Activity 6: Project Management Unit	248,530	168,066
<b>TOTAL</b>	<b>2,120,550</b>	<b>1,937,890</b>

The UNDP expenditures in the above Table relate only to Consultants, Service Contracts (Consultants and Experts, in short), including Travel/DSA for project staff and Contracts with Vendors; audit fees, office rent and expenses, etc. have been excluded from the computation.

Excluding costs associated with project management, it can be computed from the above Table that UNDP funds in the amount of \$ 1,769,824 were spent on Consultants, project Staff and Vendors, and almost 50% of this expenditure was made under Component 5 "Disseminate and Replicate the Project Results". This is a disproportionate amount which includes expenditures of \$ 779,000 on "Awareness" and dissemination of the little results achieved to date. Moreover, replication has not followed since only \$ 104,584 have been spent on demonstrations, with 82% of this amount utilised on Consultants/Project Staff/Vendors.

**Recommendation:**

Moving forward, the project should carefully evaluate its needs for Consultants/Experts and these should be appropriately defined to expedite activities under Outcomes 1 through 3 in order, especially in those areas that would provide the desired transformational impact with regard to EE lighting. The support of a non-resident Chief Technical Adviser/International Consultant, if recruited, would be very valuable and timely in ensuring that project funds are utilised in an effective manner.

**Project Board (PB).**

The PB is chaired by the National Project Director (NPD) and has met twice per year since project inception, except that in 2013 no meeting was held. As presently constituted, the PB is made up of representatives of only the Ministry of Ecology and Natural Resources, and UNDP. As there are presently many other stakeholders participating in the project, it would be desirable to enlarge the PB membership to include these, viz. Ministry of Economic Development and Trade, Ministry of Education and Science, other key ministries and agencies (NAER, SEIA) , City/Oblast Administrations, NGOs, energy efficiency centres, national and international producers of lighting technologies (private sector). The PB may decide whatever status it wishes to confer on these stakeholders to enable their participation, the bottom line being that the PB will then benefit from a wider input of views from the different concerned entities.

**Recommendation:**

It is recommended that the PB consider enlarging its membership as outlined above. In addition, the project should ensure that the PB systematically meet at regular intervals (at least twice a year) to provide pertinent directions to the project.

**Lessons Learned.**

1. The project has had in the past some 12 full-time staff and is at the present time at the level of 10 staff, all full-time. Then, one wonders why the project has been lagging in certain areas, mainly with regard to Outcomes 1 (policy framework), 2 (quality control/quality assurance) and 3 (pilots). Could this be the result of insufficient guidance from project management, either because the extent of the issues involved were not properly recognised or deliverables and deadlines were not properly set? In any case, this situation needs to be remedied through strengthening of project management. With regard to Outcome 1, it is agreed that approval of draft decrees/regulations by the Cabinet of Ministers is beyond the control of the project. However, it is important to realise that it will be extremely difficult to bring about market transformation without having the proper policy/legislation and quality control of lamps sold in the market in place.

*Suggested corrective action:* The project has very recently outlined activities in the 2014 AWP against deadlines (Annex 9). To ensure timely implementation of these activities, the project should consider recruiting a non-resident Chief Technical Adviser/International Consultant who would support the Project Manager (draft ToRs are provided in Annex 10) in these 3 crucial areas (and others as well). S/he should be available for a specific number of days per year (e.g. on a retainer contract) to provide technical and targeted management guidance to the project from her/his home office and, as required, through brief missions to Ukraine. The objective of this support would be to ensure that the momentum in project implementation (at least those activities that are under the control of the project) picks up with a view to achieving the end-of-project targets during the remaining 2 years of project life.

2. In the implementation of a project, it is important to ensure that outputs are achieved. However, the purpose of these outputs is to serve as inputs to the achievements of certain targets, with the latter providing an indication on how well the project achieved its desired results. Hence, the outputs represent a vehicle to achieve an end, be it mid-term or end-of-project, but do not constitute an end in themselves. The project has produced many reports, some are voluminous, in printed form (was it not sufficient to have them in electronic form only?), but no matter how many reports have been produced, unless they have transformed the behaviour of the market for energy efficient lighting, it is difficult to confirm that the established targets are going to be achieved.

*Suggested corrective action:* Project outputs in terms of reports, for example, play an important role in implementation. However, when commissioning reports, project management should ensure that these will directly contribute towards achievement of the established targets, rather than being peripheral to them.

3. It is important to implement awareness activities through TV and Radio shows, brochures, leaflets, publications, etc. to sensitise the public on the benefits of energy efficient lighting and fixtures. However, awareness raising is only part of the equation in transforming the market for energy efficient lighting. Hence, the project should ensure that awareness activities go hand in hand with putting in place a conducive environment in terms of regulations and standards. Otherwise, consumers run the risk of purchasing what they perceive as EE lamps, based on the awareness campaign, and get quickly frustrated when these same lamps hardly last a few weeks, because of the absence of a regulatory mechanism that bans these low quality lamps from entering the retail chain in the country.

*Suggested corrective action:* Ensure that activities under all project Outcomes are implemented in synchronism with one another. Of course, there will always be disparities in implementation, but these should not be allowed to get too wide so as to backfire instead of assisting each other.

4. It is a good idea to have a project website where all stakeholders can obtain information on project activities, especially in a country where there is reportedly a high percentage of internet connectivity among the population. At the present time, for example, the pilot sites and composition of the project team are not current. The website should be updated more frequently to include, among others, summaries of project activities, reports, achievements, etc.

*Suggested corrective action:* The project should henceforth consider periodically updating the postings on the website to ensure that it remains current.

## **2. Introduction**

### **Project background**

The project document states that Ukraine is one of the countries in Europe with the lowest level of energy-efficiency. The Ukrainian energy sector contributes 69% of overall GHG emissions (299.7 million tons of CO<sub>2</sub>), including the emissions from electricity production, which in 2007 amounted to 101.7 million tons of CO<sub>2</sub>.

Energy-efficient lighting is usually given lower priority in Ukraine compared to measures for energy-efficiency related to heating supply. Energy consumption from lighting is not as seasonal compared to heating, but still impacts electricity production and distribution. Therefore, EE lighting measures are an important (and often under-prioritized) policy tool. If implemented on a grand-scale in Ukraine it would free-up additional electrical capacity for other uses or result in a decrease in GHG emissions from fuel savings.

Consequently, there is untapped potential for the development and implementation of new energy efficient technologies in Ukraine, including energy-efficient lighting. While reliable statistics do not exist, it is estimated that more than 20% of electricity produced in Ukraine goes to lighting. The Ukrainian government supports energy efficiency through some policy measures, but in general funds are lacking for implementing large-scale energy-efficiency programs. In line with the Government's priorities, this project addresses an often overlooked issue in the reduction of greenhouse gas emissions through



large-scale improvements in energy efficient lighting in Ukraine's residential and communal sector.

According to estimates in 2008, the size of the domestic market for lighting sources was worth \$ 210 million and 355 million pieces were purchased in a country of 46 million people. In Ukraine there is only one full-line producer of compact fluorescent lamps (Gazotron Lux) which occupies 5% of the CFL market. Another local manufacturer of lighting products (Iskra) produces ILs, but also assembles CFLs from imported components. The rest of the energy-saving lighting products are imported. Therefore 95% of energy-saving lamps are imported to the Ukrainian market, but the capacity to provide quality control of these imports is insufficient. In addition current standards for CFLs in Ukraine are not as high as those found in other European countries.

The prevalence of inefficient and outdated lighting technologies results in highly inefficient energy use patterns and vast energy saving potential. In public buildings alone, power demand for lighting is approximately 7 W/m<sup>2</sup>/100 lx, which is almost three times higher than the OECD average of 2.5 W/m<sup>2</sup>/100 lx. Overall, the generation of 1 M lm of light flux in Ukraine requires almost 40 kWh, compared to 25-26 kWh in the European Union.

Substantial savings, from 75% to 90% compared with conventional practices, can be achieved through the use of new energy efficient technologies, as demonstrated in several OECD and developing countries. Energy Efficient Lighting (EEL) programmes, aimed at phasing-out incandescent lamps and other inefficient technologies, can reduce energy use by 30% within 5 to 7 years, while enhancing the quality of lighting.

There are several regulations/decrees that have been passed to promote energy savings in the country. Among them are: The Regulation of the Cabinet of Ministers of Ukraine of 16.10.2008 №1334-p "Regarding approval of primary directions of activities in the energy efficiency field and energy saving for 2008-2009"; The Regulation of the Cabinet of Ministers of Ukraine of 17.12.2008 №1567-p "Regarding program of improvement of energy efficiency and reduction of energy resources consumption"; and Decree No 243 dated March 01, 2010 approved by the Cabinet of Ministers addressing the State economic energy efficiency programme for 2010-2015. However, none of these are specifically geared towards an action plan, inclusive of enforcement, standards and disposal of used CFLs, to implement energy efficient lighting in the municipal sectors of the economy.

### **Purpose of the evaluation**

As outlined in the ToRs, the purpose of a mid-term evaluation is to "identify potential project design problems, assess progress towards the achievement of objectives, identify and document lessons learned (including lessons that might improve design and implementation of other UNDP/GEF projects), and to make recommendations regarding specific actions that might be taken to improve the project". The mid-term evaluation is also expected "to serve as a means of validating or filling the gaps in the initial assessment of relevance, effectiveness and efficiency obtained from monitoring. It provides the opportunity to assess early signs of project success or failure and prompt necessary adjustments".

## **Key issues to be addressed**

Evaluations of GEF projects, whether mid-term or final, explore five major criteria:

- (i) Relevance: the extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.
- (ii) Effectiveness: the extent to which an objective has been achieved or how likely it is to be achieved.
- (iii) Efficiency: the extent to which results have been delivered with the least costly resources possible.
- (iv) Results: the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short- to medium-term outcomes, and longer-term impacts including global environmental benefits, replication effects and other local effects.
- (v) Sustainability: the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

## **The outputs of the evaluation and how will they be used**

The evaluation will provide a comprehensive overall assessment of the project and an opportunity to critically assess administrative and technical strategies, issues and constraints associated with such a large initiative involving several partners. It will also provide recommendations for strategies, approaches and/or activities to improve the potential of the project to achieve the expected outcomes and meet the objective within the project timeframe. Findings of this evaluation will be incorporated as recommendations for enhanced implementation of planned activities during the remaining timeframe of the project.

## **Methodology of the evaluation**

In preparing the evaluation, the Evaluator focused on reviewing the Project Document, Inception Report, Annual Project Reviews, Project Information Reports and Annual Work Plans. In addition, during the course of the mission in Ukraine, he familiarised himself with several Decrees/Regulations issued by the Cabinet of Ministers and documents prepared by the project team. He also met with the National Project Director, had discussions with Representatives of Municipalities in the Oblasts of Berdyansk, Gorlovka and Lugansk and the project management team.

The project's "Strategic Results Framework" does not provide a set of mid-term targets for each of its Outcomes. For the review, the Evaluator compared the results achieved to date with the end-of-project results that are expected to be achieved in 2.5 years from now and used the methodology of triangulation of information and data, thus requiring verification of at least three sources of information: perception, validation and documentation, and validated the information through cross-referencing of data sources.

The evaluation was completed over a period of 25 work days, including a mission to Ukraine from 9 through 19 February 2013. Due to the situation prevailing in the country, the proposed debriefing scheduled on 18 February 2014 upon completion of the mission

could not be held; however, the Evaluator shared his summary findings with the CO in an email prior to his departure from Kiev.

### **Structure of the Evaluation**

In accordance with the GEF MTE methodology and the ToRs, the evaluation process was structured to focus on the implementation of activities described in the Project Document and the Strategic Results Framework. The Evaluation Report itself is structured in accordance with GEF's requirements and along the lines indicated in Annex 1 of the ToRs.

## **3. The Project and its Development Context**

### **Project Start and its Duration**

The project document was signed on 31 March 2011. Project activities were initiated on 18 November 2011 when the Inception Workshop was organised and the first meeting of the Project Board was held. Actual implementation commenced in early 2012, will continue over a period of 5 years and is scheduled for completion in March 2016, i.e. 5 years after signature of the project document.

### **Implementation Status**

The project is almost mid-way through its implementation schedule. Some progress has been made in the implementation of activities and, obviously, substantial work remains to be accomplished by the scheduled completion date. For example, the project has engaged the private sector whose active participation is crucial in transforming the market for energy efficient lighting – the main private sector players indicated that they did not require direct support from the project; however, in their view, the project can and does assist them in their dialogue with the Government to put in place and implement the appropriate regulatory mechanisms and standards.

Some regulations exist for a gradual phase-out of inefficient lighting and for collection and recycling of CFLs, in view of their potentially high mercury content. However, enforcement of the regulations remains a challenge. The private sector is unanimous in indicating that mechanisms for enforcement of the Regulations and Standards, that would constitute the engine of growth to the utilisation of quality products for energy efficient lighting in all sectors of the economy, are inadequate and need to be developed/strengthened. It is in this area that the private sector looks towards UNDP for support.

### **Project Extension**

The project document was signed on 31 March 2011 and project activities are due for completion on 31 March 2016, i.e. in exactly two years' time. In case corrective action is implemented soonest, as outlined in the "Recommendations" under "Project Management", there is a strong likelihood that substantial results can be achieved towards transforming the market for EE lighting. If the situation is allowed to continue under the present business-as-usual scenario, the same results will take longer to get achieved, probably requiring a project extension of at least one year.

Should project extension be granted automatically when there are still funds remaining under the project budget? In the Evaluator's view, the answer is "No": availability of

project budget may be a sufficient condition for project extension, but it is not a necessary one. However, such a necessary condition resides in the demonstration of the willingness of project management to take corrective action and provide proof that this has really been implemented over the course of time.

It is recognised that many projects encounter delays in implementation due to circumstances that were not foreseen during project formulation. However, once the bottlenecks are identified, like in the present case under the mid-term evaluation, but corrective action is slow to get implemented, then it becomes difficult to justify a project extension, even when a budget is still available.

*Recommendation:* In one year from now, UNDP should undertake a mini-review (this may be undertaken by the RTA when the annual PIR is submitted) to determine what corrective actions have been implemented and the results they have produced. Should these show to be satisfactory, then UNDP-GEF may consider a one-year extension to complete activities. Under the assumption that this is not the case, UNDP-GEF may decide that no further continuation of the project will serve in achieving meaningful results.

### **Problems that the project seeks to address**

The project aims at reducing energy consumption and associated GHG emissions in the Ukrainian lighting sector. These are planned to be achieved through improving efficient lighting standards and policy framework, strengthening the supply chain for energy efficient lighting, increasing energy efficient lighting in residential and public buildings, and adopting/replicating energy efficient street lighting in various Oblasts.

### **Immediate and development objectives of the project**

As outlined in the project document, “the project’s objective is to help transform the market towards more EE lighting technologies by removing barriers which will contribute to the goal of reducing GHG emissions. Actions will be taken by the project to promote a gradual phase-out of inefficient lighting products in residential and public buildings. GEF participation in pilot projects at (~~schools~~) *municipal buildings* will remove existing barriers in seven pilot cities/municipalities and provide for the replication of defined approaches and measures in other major cities of Ukraine. In addition to reflecting national priorities in Ukraine, the proposed project also builds upon the existing goals and activities of UNDP, with environmental sustainability being one of the eight millennium development goals (MDGs) that UNDP is playing a central role in helping to promote. This project will also provide an innovative approach to energy efficiency projects, and be an important part of UNDP-GEF portfolio complementing and building upon the lessons learned from other similar UNDP-GEF projects in Poland, Philippines, Russia, Romania and Vietnam. For example, the project design addresses policy improvements in parallel with concrete actions to raise the quality of EE lighting products on the market while providing initiatives for overcoming the larger upfront cost of quality EE lighting products. In previous GEF EE projects overcoming the upfront cost barrier was seen as more critical for success than e.g. only providing awareness raising activities”. As per the project document, it is expected that by replacing the incandescent lamp technology with CFLs

(and eventually with LEDs), the project would contribute to the reduction of 4.15 million tons of CO<sub>2</sub> over the project's lifetime (2011 – 2016) from reduced electricity consumption in the municipal sector.

## **Main Stakeholders**

The main stakeholders involved in the implementation of the project are grouped in the following 3 categories, viz:

1. Government and institutional stakeholders: These consist mainly of the Ministry of Ecology and Natural Resources, Ministry of Communal Services, Ministry of Education, NAER (State Agency on Energy Efficiency and Energy Saving), SEIA (State Environment Energy Agency), Municipalities of the Oblasts of Donetsk, Zaporozhe, Ivano-Frankivsk, Kiev and Lvov, and several other Government institutions (e.g. Dehrzstandard, Test Laboratories). The Ministry of Ecology and Natural Resources is the GEF Focal Point in the country and is tasked with putting in place, through the Cabinet of Ministers, the appropriate policies, regulations and standards that will regulate the market for quality lamps and lighting fixtures that would be gradually certified for introduction throughout the country.
2. Private Sector: The project is working with several private sector partners with strong interest in a vibrant market for energy efficient lighting. These include Gazotron- Lux (producer of CFLs), Electron-Svitlo (producer of LEDs) and SEA (producer of smart street lighting management systems). Others include Maxus, Osram and Philips whose activities in Ukraine are limited to the sale and marketing of lights and lighting fixtures – they do not have in-country production facilities because of what they consider the small size of the market -, but see a huge potential for marketing and use of their energy efficient products in the country. They all want to see UNDP support directed towards working with the Government to create an enabling environment that would ensure a healthy competition among producers of quality lighting products, as opposed to the importation of low quality goods flooding the market with inexpensive, sub-standard products. Gazotron-Lux, for example, has a complete production line for CFLs, but is struggling because of competition from importers of low quality products.
3. Academia and NGOs: The project has been working closely with the institutions listed below:
  - Institute of Energy Management and Audit of the Kiev Polytechnic Institute - to prepare training materials on energy efficient lighting, organise training courses for energy managers and to initiate drafting a road map for phasing out of inefficient lighting technologies.
  - State Academy for Post-graduate Education on Environment - to draft technical regulations for limiting the percentage of mercury content in CFLs and to draft a law on the disposal of mercury from CFLs.
  - Institute of Colloid Chemistry - regarding the technical analysis of mercury disposal equipment, e.g. bulb eater.
  - TEST.org.ua - to commence testing of lighting equipment and dissemination of test results.

- Ecological League, together with Eco-Varta, - to implement an art contest among school pupils on efficient lighting and to organise an All-Ukrainian Conference on mercury waste management.
- Club Babylon - to organise and coordinate piloting activities in Lugansk, including those funded by the UNDP-GEF Small Grants Programme.
- Agency for Regional Development - to implement staircase lighting in Lvov Oblast.

## 4. Findings

### 4.1 Project Formulation

#### Project Relevance

While reliable statistics do not exist, it is estimated that more than 20% of electricity produced in Ukraine goes to lighting. According to 2008 estimates (ref. Project Document), the size of the domestic market for lighting sources was worth \$210 million and 355 million pieces were purchased in a country of 46 million people. Incandescent lamps are widely used in the country: approx. 99% in the residential sector, 83% in the agricultural sector, 44% in industries and 40% in public buildings. The average usage of incandescent lamps in Ukraine is 75%, while it is less than 50% in developed countries.

The share of EEL products in the total market remains negligible. There is only one full-line producer of compact fluorescent lamps (Gazotron Lux) which occupies 5% of the CFL market. Another local manufacturer of lighting products (Iskra) produces ILs, but also assembles CFLs from imported components. The rest of the energy-saving lighting products are imported. Consequently, 95% of energy-saving lamps (CFLs) are imported but the capacity to provide quality control of these imports is insufficient. In addition current standards for CFLs in Ukraine are not as high as those found in other European countries. The Government supports energy efficiency through some policy measures, but in general funds are lacking for implementing large-scale energy-efficiency programmes. Thus, in line with the Government's priorities, this project addresses an often overlooked issue in the reduction of greenhouse gas emissions through large-scale improvements in energy efficient lighting in Ukraine's residential and communal sector.

#### Project Effectiveness

The project has brought together the Government, private sector, NGOs and other stakeholders to address the important issue of providing the population with quality lighting at reduced cost in the long run, while simultaneously reducing the country's appetite for energy used for that purpose. This initiative has also the potential to substantially decrease the country's emission of greenhouse gases. It also envisaged capitalising on the opportunity for the sector to benefit from additional resources from carbon finance; unfortunately, the carbon finance market has substantially dropped since the project was formulated some 5 years ago. Should the carbon finance market recover, there will be opportunities for the project to benefit from it; however, this is all very uncertain at the present time.



## Implementation Approach

Implementation is geared towards working with the Government to set up the proper environment in terms of policy and regulations that would enable the private sector to move from producing and selling incandescent lamps, for example, in the Ukrainian market to one where these lamps will be gradually replaced with energy efficient lighting products of approved quality. The supply chain will be strengthened and the pilots in municipal buildings and street lighting in the various Oblasts are designed to provide a level of confidence to the consumers to embrace the new products that would provide a better level of lighting comfort at, hopefully, a reduced cost on a life-cycle cost basis and, at the end of the day, lead to replication in the country.

## Country Ownership/Drivenness

As per the project document, “In the area of climate change, Ukraine's National Communication to UNFCCC in 2009 identifies energy efficiency as one of the important mitigation options for reducing greenhouse gas (GHG) emissions in the country. In addition, to address the issue of a national policy on climate change, as well as to reinforce the national climate change administrative structure and ensure the fulfilment of obligations under UNFCCC, the Government instituted the Inter-Ministerial Commission on Climate Change headed by the Deputy Prime Minister. The Commission, which meets on a regular basis, is made up of representatives of the appropriate ministries and departments, the Cabinet of Ministers, Verkhovna Rada (Parliament), the Administration of the President of Ukraine, and the National Academy of Sciences.

Improvement in energy efficiency on both supply and demand side is an important development objective presently being pursued by the Ukrainian government. Achieving this objective would contribute to lower dependence on imported fuel and reduction in GHG emissions, and have a significant social impact.

The main directions defined by the government of Ukraine for fulfilment of the tasks on improvement of energy efficiency include, among others: economic incentives to introduce energy efficiency technologies at enterprises, improving taxation and tariff policy, promoting wide-scale application of leasing operations, obtaining investment support from lending institutions, improvement of the efficiency of generation and delivery, mass-scale introduction of energy metering, improvement of subsidy allocation mechanism to create incentives to energy saving by subsidized households, awareness raising through mass media, etc. Also included is support to commercialisation of activities in the area of energy efficiency through the modality of energy performance”.

## Replication Approach

In view of the fact that the needs in regards to energy efficient lighting in the various sectors of the economy are almost endless, the evident conclusion is that the replication potential is huge.

In the municipal buildings sector, it is too soon to discuss replication as no piloting regarding retrofitting has been implemented yet, except for staircase lighting where lights are on 24 hours a day and a kindergarten in Lugansk Oblast where incandescent lamps

have been replaced with CFLs. However, given the interest of all stakeholders, there is hardly any doubt that replication will be successful, in view of the enabling environment that the project is trying hard to put in place.

With regard to street lighting and limited piloting of traffic lights, the experience accumulated to date has been very positive and, with proper dissemination of the results already achieved, replication in other cities/towns will likely not have any problem taking off. However, the biggest challenge is that the municipalities participating in the pilots be cognisant of the fact that while support will be provided during project implementation, they need to start putting in place plans for replication utilising their own resources once the project has ended.

### Cost-effectiveness

Information provided in Table 2 below shows a total expenditure of \$ 1,323,301 related to contracts with vendors. Of these, only \$ 33,532 (out of a project budget allocation of \$ 1.8 million) have been spent towards Outcome 3 related to piloting, while over \$ 805,000 have been spent on Outcome 5: Replication and Dissemination of project results. Of these, almost \$ 780,000 have been spent on “Awareness”. Suffice it to say that the project budget allocated only \$ 773,000 to Outcome 5 and expenditures to date against this Outcome have already exceeded this allocation only mid-way through the project.

The above analysis points to extensive efforts needed over the remaining project time-frame to implement piloting as originally designed during project formulation. If the project were to deviate from this as a result of adaptive management, then valid reasons need to be provided to justify it. In addition and indicated earlier, awareness activities should not run away with the show, but go hand in hand with putting in place a conducive environment in terms of regulations and standards that would enable consumers to purchase lighting equipment with confidence that they are getting value for money in terms of quality and performance. In short, awareness is a necessary but not a sufficient condition to transform the EE lighting market.

Finally, the total project allocation budget of \$ 450,000 for Project Management is just at its 50% level mid-way through the project, with these expenditures standing at just under \$ 229,000 (Table 3 below).

### Linkages between Project and other Interventions within the Sector

The project has established linkages the UNDP-GEF Small Grants Programme on energy efficient lighting, the State Programme on LEDs that aims to promote in-country vertical LED production – at the present time, LEDs are assembled from imported components at Vatra in Ternopol, Western Ukraine ([www.vatra.te.ua](http://www.vatra.te.ua)).

The project has also established close working relationships with similar UNDP-GEF energy efficiency lighting projects currently under implementation in Georgia, Kazakhstan and Russia. Unfortunately, due to administrative reasons, the project has been unable to interact with the UNEP-GEF global lighting initiative en.lighten.



## Management Arrangements

The project is managed by a team consisting of a Project Manager and 9 project staff, all working full-time (Annex 6). The project has no CTA and, to date, has had no need for international consultants. The project office is located at the premises of the Ministry of Ecology and Natural Resources in Kiev.

## 4.2 Project implementation

### Project Execution

The Project is implemented under the Country Programme Action Plan 2006-2010 with the Ministry of Ecology and Natural Resources as the National Implementing Partner (NIP). The NIP is responsible for the overall management of the project, primarily with regard to the responsibility for the achievement of the outputs (results), impact and objectives. Also, the NIP is accountable to UNDP for the use of project resources.

A Project Board (PB) provides high-level guidance to the implementation of project activities and ensures coordination among the various project partners. It also reviews project progress reports to ensure that the outputs produced meet the requirements of the Government and all beneficiaries. The project document indicates (para.100) that “Potential members of the Project Board are reviewed and recommended during LPAC”. However, the minutes of the LPAC held on 14 February 2011 make no mention of the PB membership other than its proposal “to include GEF NGO network into Project Board/Advisory Board”.

Since project inception, PB meetings were held on 14 February 2011 (following the LPAC meeting), 18 November 2011, 12 June 2012, 7 December 2012 and 7 February 2014; no meeting was held in 2013. As presently constituted, the PB is made up of representatives of only the Ministry of Ecology and Natural Resources (Implementing Partner) and UNDP (Implementing Entity). In this connection, it would be desirable to enlarge the PB membership to include the Ministry of Economic Development and Trade, Ministry of Education and Science, other key ministries and agencies (NAER, SEIA), City/Oblast Administrations, NGOs, energy efficiency centres, national and international producers of lighting technologies.

Neither the project document, nor the minutes of the PB indicate who should chair or chaired the meetings. However, the PB did discuss progress in project implementation and reviewed/approved the Annual Work Plan for the forthcoming year.

### Project Implementation: Status of Project Outcomes and Rating

While the present status of project activities is discussed in Table 1 and in para. 4.3 that follows, a summary under each of the four Outcomes is provided below:

- A few laws/decrees have been drafted by the project dealing with promotion of energy efficient lighting sources, energy labelling of lamps and luminaries, and collection and safe disposal of mercury-containing CFLs, but almost none of these have yet gone through extensive discussions at the Government level with a view towards approval. Hence, it is not known when any kind of enforcement can take place.

- It is reported that state laboratories are well-equipped to test lighting products. However, private laboratories have no interest in upgrading their facilities, as they deliver certificates simply upon payment of a fee and without actually performing any tests. Consequently, the market remains flooded with low-quality lamps. After lengthy procurement delays, an agreement was recently signed with TEST (a consumer protection NGO) to commence testing of lighting equipment and disseminate results to consumers.
- Some small lighting demonstration projects dealing with kindergarten, staircase and street lighting, automatic control of street lights and traffic lights using LEDs have been initiated in various Oblasts, but a lot more remains to be done to demonstrate comprehensive upgrades of municipal buildings with energy efficient lighting.
- Surveys undertaken in 2013 following a massive awareness campaign to sensitise the public on the benefits of CFLs/LEDs indicate that demand for EE lamps has increased by 11% compared to the previous year and that over the same timeframe, the consumer base for EE lamps has increased by 5%. However, regulations/standards that would provide consumers with the confidence they require that they are purchasing quality products simply do not exist.
- A project website ([www.lampochki.org.ua](http://www.lampochki.org.ua)) has been developed, but the information it contains has not been very recently updated, e.g. all on-going pilots and project staff list are not accurately reflected. Hence, the information it contains is not totally current.

**Table 1: Outcomes, Mid-Term Targets, Present Status of Achievement of Mid-Term Targets and Rating**

**Note:** Crossed-out text in Table 1 below relates to information contained in the Strategic Results Framework of the project document. Italicised text reflects updates as a result of comments made/feedback received during the Inception Workshop. The present status of project activities and rating related to individual Outcomes are more appropriately reflected under their relevant Outputs; hence, this is where they have been provided.

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
<b>OBJECTIVE OF THE PROJECT:</b> <b>To transform the Ukrainian market towards efficient lighting technologies and the phase-out of inefficient lighting.</b>	Estimated quantity of energy saved and corresponding GHG reductions from the project activities.	Approximately 26.04 TWh/yr electricity used for ILs.	To reduce this to 21.08 TWh/yr by phasing-out and replacing <del>ILs</del> <i>non-EE</i> with EE Technology.	0.5 TWh over lifetime of pilots implemented. Assumptions: Useful life: CFL - 8 years, LED - 25 years. Household lights stay on 4 hours/day, Outdoor lighting - 10 hours/ day and staircase lights are on 24/7. <b>Overall Rating:</b> Moderately satisfactory.
<b>OUTCOME 1: Improve the National policy framework for promoting EE lighting.</b>	Passing of new EE promoting legislation.	Current legislation.	National Road-map for EE lighting & market transformation is accepted by the Gov't.	
<b>Output 1.1: Develop and submit a national road-map for EE lighting market transformation.</b>	National Road-map for EE lighting & market transformation is developed.	Energy Strategy for 2030 and NEA decrees.	To develop an EE lighting specific road-map that is integrated with overall Ukraine Gov't priorities for energy security & savings.	The ToRs for the national road map have been formulated, but no work has started as the recruitment of a consultant has still not been initiated. This activity needs to commence soonest; otherwise, there is a risk that the end-of-project target will not be met. <b>Rating:</b> Moderately satisfactory.

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
<b>Output 1.2: Develop and prepare for governmental acceptance draft legislation for improving the electricity supply for Ukrainian consumers</b>	Draft legislation is prepared and submitted.	Current legislation	To improve the rights of consumers vis-à-vis Oblenergos and to provide enforcement of electricity supply standards.	Tenders for this assignment to ensure quality of electricity supply that affect CFLs were received in mid-February 2014 and no evaluation of these have been undertaken yet. It may take another 2-3 months before any work on this subject gets going. Recommendations will be submitted to the Ministry of Economic Development and Trade for review and acceptance by Government. <b>Rating:</b> Moderately satisfactory.
<b>Output 1.3: Develop and submit for governmental acceptance an energy efficient lighting scheme that is harmonized with European standards and norms for EE lighting and the usage of such products.</b>	Draft legislation is prepared and submitted.	Current legislation	To improve the rights of consumers vis-à-vis Oblenergos and to provide enforcement of electricity supply standards.	A Draft Resolution on the adoption of regulations with regard to labelling of lamps and luminaries was submitted to the Cabinet of Ministers (CMU) in November 2013. A Draft Law of Ukraine on “Amendment to some Laws of Ukraine with regard to promoting EE lighting sources” was submitted to the CMU in May 2013. Finally, a law of Ukraine “On the adoption of the draft Law of Ukraine on energy efficiency in residential and public buildings” went through its first reading in the Verhovna Rada on 15 September 2013 (No. 4683-VI). However, it is not known when the CMU will finalise these. <b>Rating:</b> Moderately satisfactory.
<b>Output 1.4: Improve waste-handling directives for lighting products.</b>	Draft legislation is prepared and submitted.	Current legislation which lacks specific regulations for CFLs, etc.	To properly classify and promote programs to recycle/dispose of CFLs and other	A draft resolution on “Collection, disposal and utilisation of electrical waste” regarding used CFLs was submitted to the CMU in September 2012. <b>Rating:</b> Moderately satisfactory.

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
			<i>mercury-containing lighting equipment.</i>	
<b>OUTCOME 2: Improved Quality Assurance &amp; Quality Control systems for imported and produced lighting products in Ukraine.</b>	Decrease in supply/availability <i>and/or demand</i> of sub-standard EE lighting products in Ukraine.  Increase in product quality/price ratios (i.e. product life, lumens, spectral output, etc.).	Needs to be established by project through sampling & product supply statistics.	Increase in EE lighting product standards in the market, and a marked decrease in grey market products.	
<b>Output 2.1: Support the development of improved environmental, energy-efficiency and quality standards and norms for lighting products.</b>	New Standards for EE lighting are developed for DehrzStandard & NEA.	Current Standards	An incentive scheme is implemented for products & a penalty scheme is implemented for sub-standard products	The project compared Ukrainian EE lighting standards with EU best practices for quality, environmental and health standards. However, while this activity has been completed, no report is available. So, in the absence of a report, it is not clear how the project proposes to assist DehrzStandard in developing new EE lighting standards. An incentive scheme will be designed in the second half of 2014. <b>Rating:</b> Unsatisfactory.
<b>Output 2.2: Improve the Ukrainian institutional capabilities for auditing and assessing the quality of imported EE lighting products.</b>	1) Equipment delivered to DehrzStandard selected testing facility. 2) Independent testing of EE lighting samples in stores allowed in Ukraine	Lack of equipment and accreditations which do not match lab capabilities	Testing and certification of products is started and maintained.	At the present time, there are 3 Government-accredited laboratories, one each in Kiev (UkrMetrTestStandard), Lvov (DP Lvivstandardmetrologiya) and Poltava (Poltava Standard Metrology) that are equipped to test lighting products and deliver certification that they

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
				<p>meet standards that are presently in place. The project has determined that they do not require any equipment upgrade.</p> <p>The tender for independent testing run into procurement problems. The project has now entered into an agreement with TEST (a consumer protection NGO) to commence testing of lighting equipment.</p> <p><b>Rating:</b> Satisfactory (with a proviso that a consultant should validate the fact that all 3 Govt.-accredited laboratories do not require any equipment upgrade. This may be so in Ukraine, but the Russia case suggested otherwise).</p>
<b>Output 2.3: Support for local development of <i>production of EE lighting projects equipment &amp; modernization of national lighting industry</i></b>	<p>1) Workshops held at interested lighting manufacturers</p> <p>2) <del>Business plans</del> <i>Technical Assistance</i> developed for selected companies.</p>	Incandescent lighting manufacturers with limited future if ILs are phased out by policy initiatives	At least one IL manufacturer has new EE lighting product line	<p>Workshops were organised with manufacturers (Gazotron, Iskra, Maxus, Osram and Philips) and need for modernised standards and norms for EE lighting products was reinforced. Concern was expressed over the influx of low-quality products. There is only one producer of incandescent lamps (Iskra) in the country. As ILs are not banned in the country, Iskra has no interest in venturing into a new EE lighting product line.</p> <p><b>Rating:</b> Moderately satisfactory</p>
<b>Output 2.4: To create an improved system for <del>CFL</del> collection, recycling and/or disposal of mercury-containing lighting equipment.</b>	A new municipal system for CFL collection, recycling, and/or disposal is launched.	Lack of current systems	A locally adapted system that is sustainable is developed from best practices in other countries.	<p>A review of CFL collection and recycling schemes in Western European countries have been undertaken and a funding scheme for collection and recycling is being formulated.</p> <p><b>Rating:</b> Moderately satisfactory</p>

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
<b>OUTCOME 3: Implement efficient lighting demonstrations in the municipal educational sector</b>	1) Interior lighting systems for municipal <del>schools</del> <i>objects</i> are upgraded to new EE lighting systems. 2) Energy-savings are monitored and reported.	Baselines will need to be established during the project for participating institutions.	50 <del>schools</del> <i>objects</i> in <i>at least 7</i> municipalities have the lighting systems upgraded with EE lighting systems.	
<b>Output 3.1: Provide bankable municipal projects for co-financing by existing credit facilities.</b>	Municipalities receive co-financing/credit lines to support EE lighting projects developed by the project.	Different options exist but most Ukrainian municipalities are typically not seen as strong counterparties for lines of credit.	Municipalities that need co-financing for EE lighting projects can receive it on a case by case basis and/or programmatic basis from World Bank, UkrEximBank, NEFCO, etc.	In Gorlovka, the project has co-financed a feasibility (report not available with PMU) study for expanding street lighting under a proposed UAH 3 million (approx. \$ 345,000) credit from NEFCO. UkrEximBank is the World Bank's local partner and its loans require a 40% down payment from any developer. <b>Rating:</b> Satisfactory
<b>Output 3.2: Design and implement pilot demonstration projects in <i>at least 7</i> participating municipalities that targets school buildings.</b>	Number of <del>schools</del> <i>projects</i> with successful upgrading/refurbishment of <del>school</del> lighting systems. Energy savings per <del>school</del> <i>object</i> .	Baselines for energy-savings will need to be established during the project for participating institutions.	50 <del>schools</del> <i>projects</i> in <i>at least 7</i> municipalities have the lighting systems upgraded with EE lighting systems.	A selection has been made for typical project sites/municipal buildings and a tender process will be initiated to provide them with turn-key EE lighting solutions. This is coming a bit late in the project cycle and efforts should be made to expedite activities. <b>Rating:</b> Unsatisfactory
<b>Output 3.3: Provide independent performance audits of the pilot projects</b>	1) Number of audits performed. 2) All audit non-conformities are resolved satisfactorily.	Zero audits	50 audits at 50 <del>schools</del> <i>objects</i> , i.e. at least once per <del>school</del> <i>object</i> per project lifetime.	While 9 pilot projects have been initiated in 8 Municipalities, "investment-grade" audits for techno-economic feasibility studies related to lighting retrofits have not yet started. These audits are scheduled for mid-2014. Again, project activities

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
				should be expedited. <b>Rating:</b> Unsatisfactory
<b>OUTCOME 4: Improve EE Lighting product penetration in the Residential Sector</b>	1) Increase in residential EE lighting sales delivered via the project. 2) Corresponding energy-savings caused <i>by the Project's activities. for e.g. CFLs disseminated by the project.</i>	Current market statistics for growth in EE lighting sales in Ukraine. <i>Baselines for savings will need to be established during the project for participating institutions.</i>	To double the market growth rate of EE lighting equipment in Ukraine (currently 10-15% year on year)  To disseminate at least 40 million additional <del>CFLs</del> EE light lamps to residences.	
<b>Output 4.1: Design and implement the <del>CFL</del> EE light bulb dissemination program for residential consumers.</b>	1) Establishment of retail chain EE lighting promotion program  2) Amount/volume of EE lighting purchased via the program	No dissemination program exists.  Annual trends for residential market-share growth of EE lighting technology prior to project.  Consumer awareness survey to be conducted by	Establishment of retail chain EE lighting promotion program available for most consumers.  Target 2 municipalities initially and spread to top 5 population centres by the end of the project.	Some retail chains (e.g. Foxtrot –consumer electronics supermarket) are implementing a micro-finance facility with the support of Platinum Bank and lighting producer Maxus for residential customers to purchase EE light lamps on credit. However, the minimum credit is UAH 500, whereas the price of a CFL is UAH 40 and that of LED is UAH 100. Surveys conducted in 2012 and 2013 show that the demand for EE lamps has increased by 11%, whereas the number of new buyers of EE lamps has increased by 5%.



Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
		the project to establish the baseline level of awareness for EE lighting technologies.	Increase in awareness & positive attitudes toward EE lighting technology by consumers.	<b>Rating:</b> Satisfactory
<b>Output 4.2: Introduce EE lighting and Green Light Label component in educational curricula</b>	Creation of the educational material.  Number of institutions accepting the educational curricula throughout Ukraine.	To be established by the project.	<i>Educational materials created and passed for inclusion in educational programs.</i>	An All-Ukrainian Educational Campaign on EE Lighting in schools was conducted in early December 2013. Several activities for implementation have been identified, including school material, informational booklets, educational films, etc. – implementation is yet to start. The target is schools in all 25 regions of the country. <b>Rating:</b> Satisfactory
<b>Output 4.3: Design and implement municipal PR campaigns on EE lighting</b>	Scope of the PR Campaign (i.e. how many cities, outlets, and media-types?)  Effectiveness of the PR Campaign (as measured by baseline and follow-up awareness surveys from 4.1).	Currently no other PR campaigns are known to be planned but this will be re-confirmed by the project.	Campaign visible in the top 10 municipalities in Ukraine by population.  A measurable increase of 20% in awareness by consumers in the municipalities.	An All-Ukrainian Public Awareness Campaign on EE Lighting was conducted from December 2012 through June 2013 covering all 25 regions of the country. This included TV/Radio advertisements, informational booklets, leaflets, newspaper articles, interviews, etc. Surveys indicate that the level of public awareness has increased by 7%, with 3.6% directly attributed to the campaign and 3.4 % as a result of campaigns of EE lighting producers. <b>Rating:</b> Satisfactory

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
<b>Output 4.4: Tailor selected global EE lighting promotional activities to Ukrainian consumers</b>	<p>Scope of the PR Campaign (i.e. how many cities, outlets, etc.)</p> <p>Volume of sales data for the targeted products.</p>	To be established by the project.	Increase in sales of EE lighting products by 20% at the participating outlets.	<p>A second phase of the All-Ukrainian Public Awareness Campaign on EE Lighting has been developed in cooperation with Maxus, a lighting equipment producer. It will include TV commercials, posters and distribution of leaflets/calendars in supermarkets.</p> <p>While the demand for EE lamps has increased by 11%, the volume of sales data is yet to be assessed.</p> <p><b>Rating:</b> Satisfactory</p>
<b>OUTCOME 5: Dissemination and Replication of the Project Results</b>	<p>Information publications &amp; training workshops for municipality staff.</p> <p>Expansion/replication of the EE lighting school projects to new municipalities.</p> <p>New EE lighting projects co-funded by carbon finance.</p>	<p>Various publications exist regarding EE Lighting but little which show successful projects in Ukraine.</p> <p>Currently no EE lighting projects in Ukraine have been started using JI &amp; carbon finance.</p>	<p>At least 2 information publications for municipalities.</p> <p>At least 10 training workshops in different municipalities not targeted previously by this project.</p> <p>Expansion/replication of the EE lighting school projects to 20 new municipalities.</p>	
<b>Output 5.1: Implement project website</b>	Website up and maintained regularly	No website	Website updated with historical, current, and planned project activities & progress	<p>A project website (<a href="http://www.lampochki.org.ua">www.lampochki.org.ua</a>) has been developed; however, some information that it contains is slightly outdated.</p> <p><b>Rating:</b> Moderately satisfactory</p>

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
			Knowledge base developed for Ukraine and International Practitioners	
<b>Output 5.2: Design the second stage of demonstration project covering at least 20 municipalities across Ukraine</b>	<p>Municipal applications to participate in the new projects/program.</p> <p>Selection results from the application process selecting 100+ schools.</p> <p>Initial lighting site-audits at the participating schools.</p>	<p>Currently similar projects of such scale do not exist in Ukraine.</p> <p>During the project lifetime the pilot projects in Component 3 will assist with establishing average lighting &amp; energy usage baselines at the schools.</p>	<p>Over 40 applications from municipalities to participate in the program.</p> <p>Applications result in 20 municipalities participating &amp; supporting the program. 100 to 200 schools participate (Depending on funding e.g. approximately \$100,000 per school.)</p>	<p>It is not clear why this Output is under “Dissemination and replication of project results” when it should have been appropriately termed “replication of project experience” and included under Outcome 3 which should have been labelled “Implement efficient lighting demonstrations <b>and replication</b> in the municipal sector. Be that as it may, the project has developed informative booklets 32 pages in length and 10,000 copies of these have been distributed. How do these concretely assist in securing bona-fide applications from municipalities for eventual implementation? Unfortunately, this does not respond to the indicators and make no dent towards the end-of-project targets. For relevant information regarding this Output, please refer to the “Present status” column under Output 3.3.</p> <p><b>Rating:</b> Unsatisfactory.</p>
<b>Output 5.3: Support and work with local organizations that focus on energy efficiency in the public sector</b>	The number of and type of organizations which cooperate with GEF/UNDP project.	Currently no cooperation exists.	Cooperate and support at least 2 regional/national organizations (i.e. offices & staff in several locations).	Cooperation has been initiated with several organisations such as the All-Ukrainian Ecological League, State Ecological Academy of Post-Graduate Education and Management regarding best practices on collection and disposal on mercury-containing CFL lamps.

Project Strategy	Objectively Verifiable Indicators			
Goal	To address the issue of reducing greenhouse gas emissions through EE lighting market transformation.			
	Indicator	Baseline	End-of-Project Targets	Present Status (at Mid-Term Review) and Rating
			Cooperate with at least 1 organization in the 12+ pilot municipalities (Component 3.2 & Component 4.1)	<b>Rating:</b> Satisfactory
<b>Output 5.4: Develop and conduct seminars for municipal governments regarding EE projects and opportunities for leveraging carbon finance, and other alternative finance</b>	<p>Development of the training program.</p> <p>Number of seminars.</p> <p>Participants at the seminars</p> <p>New project ideas &amp; financing proposals developed as the outcome from seminars.</p>	<p>Various carbon finance seminars have taken place in Ukraine over the last few years. But few, if any, were focused on providing workable financing solutions for EE lighting projects in municipalities.</p>	<p>At least 10 seminars in 10 municipalities.</p> <p>At least 2 new projects developed &amp; implemented as a result of the seminars.</p>	<p>Carbon finance seminars were held with Eco-Forum in 2012 and NEFCO in April 2013. However, because of the present situation regarding the almost non-existent carbon finance market, no more initiatives are being pursued until there is clarity in the future.</p> <p><b>Rating:</b> Moderately satisfactory</p>

## Project Administration

UNDP is responsible for administering the project and for reporting to GEF. The Project Team is supervised by the Project Manager who works under the overall direction of UNDP. Project implementation is undertaken by an Implementing Entity (UNDP), with the Ministry of Ecology and Natural Resources being the Implementing Partner.

## Project Planning

An Annual Work Plan is prepared at the end of the year by project management for activities to be implemented the following year and submitted to the Project Board for approval. As per the project document, the Project Board (PB) is supposed to meet “every 6 months” (para. 100), whereas para. 119 indicates “Annual Project Board meetings ... will be held”. The PB has met regularly since project inception, except that no meeting was held in 2013.

## Financial Management

The original total project budget is \$ 31,000,000, consisting of \$ 6,500,000 from GEF, \$ 20,975,000 from the Government (both central and municipal), \$ 250,000 from UNDP, and the private sector Ltd. “STK-Ukraine” and LLG “Gazotron-Lux” contributing \$1,125,000 and \$ 2,150,000 respectively. Of the total of almost \$ 21 million from the Government, only \$ 234,000 have materialised to date. Moreover, there has been not yet been any co-financing from the private sector (Annex 5).

The project has been under implementation since early 2012 and is approximately mid-way through its 5-year project duration. Expenditures incurred under the UNDP budget since project start amount to \$ 2,121,000. This represents a project delivery of 33%, indicating that the project is somewhat behind schedule with only one-third of UNDP-GEF funds disbursed at almost the half-way point. This figure would have been much lower had it not been for the \$ 778,932 spent on “Awareness”.

This low delivery figure is the result of the fact that piloting (implementation of works and installation of lighting systems) in Municipalities have seriously lagged behind, with only \$ 33,532 (barely 2 %) disbursed to date, out of a project allocation of \$ 1.8 million. If and when this activity picks up momentum, the disbursement picture should greatly improve.

## Monitoring and Evaluation

Monitoring of progress in project implementation is undertaken by the Project Manager under the overall responsibility of the National Project Director (NPD) and the supervision of UNDP, and is based on the project's Annual Work Plan. Monitoring of project activities is further accomplished through periodic progress reports to the Ministry of Ecology and Natural Resources, as the Implementing Partner, as well as through the APR/PIR.

The project is undergoing a mid-term evaluation, which is the subject of this report, and a final evaluation is scheduled to be held at project completion.

## Identification and Management of Risks (adaptive management)

The first risk that the project faces relates to policy and standards governing the sale of EE lighting equipment in the country. While the project is making efforts to have the right

policy in place, the problem hinges upon how fast the Government can move to approve the decrees/regulations.

The second risk relates to piloting. To date, small pilots have been implemented. However, if the end-of-year targets under Outcome 3 were to be achieved, with “50 projects in at least 7 municipalities have the lighting systems upgraded with EE lighting systems and 50 audits at 50 objects, i.e. at least once per object per project lifetime”, the project should roll up its sleeves and work really hard during the remaining time-frame.

## **4.3 Results**

### **Attainment of Outputs, Outcomes and Objectives**

#### **Outcome 1: Improved National policy framework for promoting EE lighting.**

1. Output 1.1: The ToRs for the national road map were recently formulated, but no recruitment has taken place yet. This has resulted in no work being undertaken, over 2 years since project start, towards having a road map in place by the end of the project.
2. Output 1.2: Proposals have been received from bidders to undertake drafting of legislation targeting Oblenergos (Oblast electricity grid operators) to improve quality of electricity supply to residential and public consumers. However, these proposals have not been reviewed yet, with the result that drafting of the legislation has still not commenced.
3. Output 1.3: An analysis on national policies on EE lighting in the EU, Russia and USA was undertaken. On the basis of this analysis, a Draft Law of Ukraine “On amendment to some laws of Ukraine with regard to promoting energy efficient lighting sources” was submitted to the Cabinet of Ministers in May 2013 and a decision is still awaited. In addition, a Draft Resolution on the adoption of regulations with regard to labelling of lamps and luminaries was submitted to the Cabinet of Ministers (CMU) in November 2013, a Draft Law of Ukraine on “Amendment to some Laws of Ukraine with regard to promoting EE lighting sources” was submitted to the CMU in May 2013 and, finally, a law of Ukraine “On the adoption of the draft Law of Ukraine on energy efficiency in residential and public buildings” went through its first reading in the Verhovna Rada on 15 September 2013 (No. 4683-VI).
4. Output 1.4: A “Draft Resolution on collection, disposal and utilisation of electrical equipment waste” has been submitted to the Cabinet of Ministers in September 2012. This draft resolution deals with the collection, handling and disposal of CFLs and other potentially hazardous lighting products.

#### **Outcome 2: Improved Quality Assurance & Quality Control systems for imported and locally-produced lighting products.**

1. Output 2.1: The project compared Ukrainian EE lighting standards with EU best practices for quality, environmental and health standards. However, while this activity has been completed, no report is available. So, in the absence of a report, it

is not clear how the project proposes to assist DehrzStandard in developing new EE lighting standards. An incentive scheme will be designed in the second half of 2014.

2. Output 2.2: At the present time, there are 3 Government-accredited laboratories, one each in Kiev (UkrMetrTestStandard), Lvov (DP Lvivstandardmetrologiya) and Poltava (Poltava Standard Metrology) that are equipped to test lighting products and deliver certification that they meet standards that are presently in place. The project has determined that they do not require any equipment upgrade.

The tender for independent testing run into procurement problems. The project has now entered into an agreement with TEST (a consumer protection NGO) to commence testing of lighting equipment.

3. Output 2.3: Workshops were organised with manufacturers (Gazotron, Iskra, Maxus, Osram and Philips) and the need for modernised standards and norms for EE lighting products was reinforced. Concern was expressed over the influx of low-quality products.

There is only one local producer of incandescent lamps (Iskra). As ILs are not banned in the country, Iskra has no interest in venturing into a new EE lighting product line.

4. Output 2.4: A review of CFL collection and recycling schemes in Western European countries have been undertaken and a funding scheme for collection and recycling is being formulated.

### **Outcome 3: Implement efficient lighting demonstrations in the municipal educational sector.**

1. Output 3.1: In Gorlovka, the project has co-financed a feasibility study (report not available with PMU) for expanding street lighting under a proposed UAH 3 million (approx. \$ 345,000) credit from NEFCO. UkrEximBank is the World Bank's local partner in Ukraine and its loans require a 40% down payment from a developer.
2. Output 3.2: A selection has been made for typical project sites/municipal buildings and a tender process will be initiated to provide them with turn-key EE lighting solutions.
3. Output 3.3: While 9 pilot projects have been initiated in 8 Municipalities, "investment-grade" audits necessary for undertaking techno-economic feasibility studies related to lighting retrofits have not yet started. These audits are scheduled for mid-2014.

### **Outcome 4: Improved EE Lighting product penetration in the Residential Sector.**

1. Output 4.1: Some retail chains (e.g. Foxtrot consumer electronics supermarket) are implementing a micro-finance facility with the support of Platinum Bank (this facility is presently available to bank customers in Dnepropetrovsk, Donetsk, Kharkov, Kiev, Lvov and Odessa) and lighting producer Maxus for residential customers to purchase EE light lamps on credit. However, the minimum credit is UAH 500, whereas the price of a CFL is UAH 40 and that of LED is UAH 100.

Surveys conducted in 2012 and 2013 show that the demand for EE lamps has increased by 11%, whereas the number of new buyers of EE lamps has increased by 5%.

2. Output 4.2: An All-Ukrainian Educational Campaign on EE Lighting in schools was conducted in early December 2013. Several activities for implementation have been identified, including school material, informational booklets, educational films, etc. – implementation is yet to start. The target is schools in all 25 regions of the country.
3. Output 4.3: An All-Ukrainian Public Awareness Campaign on EE Lighting was conducted from December 2012 through June 2013 covering all 25 regions of the country. This included TV/Radio advertisements, informational booklets, leaflets, newspaper articles, interviews, etc.  
Surveys indicate that the level of public awareness has increased by 7%, with 3.6% directly attributed to the campaign and 3.4 % as a result of campaigns of EE lighting equipment producers.
4. Output 4.4: A second phase of the All-Ukrainian Public Awareness Campaign on EE Lighting has been developed in cooperation with Maxus, a lighting equipment producer. It will include TV commercials, posters and distribution of leaflets/calendars in supermarkets. While the demand for EE lamps has increased by 11%, the volume of sales data is yet to be assessed.

#### **Outcome 5: Dissemination and Replication of the Project Results.**

1. Output 5.1: A project website ([www.lampochki.org.ua](http://www.lampochki.org.ua)) has been developed, but the information it contains has not been very recently updated, e.g. all on-going pilots and project staff list are not accurately reflected. Hence, the information it contains is not totally current.
2. Output 5.2: It is not clear why this Output is under “Dissemination and replication of project results” when it should have been appropriately termed “Dissemination and replication of project experience” and included under Outcome 3, which should have been labelled “Implement efficient lighting demonstrations and replication in the municipal sector”.  
Be that as it may, the project has developed informative booklets, 32 pages in length, and 10,000 copies of these have been distributed. How do these concretely assist in securing bona-fide applications from municipalities for eventual implementation? Unfortunately, this does not respond to the indicators and make no dent towards the end-of-project targets. For relevant information regarding this Output, please refer to the “Present status” column under Output 3.3.
3. Output 5.3: Cooperation has been initiated with several organisations such as the All-Ukrainian Ecological League, State Ecological Academy of Post-Graduate Education and Management regarding best practices on collection and disposal of mercury-containing CFL lamps.
4. Output 5.4: Carbon finance seminars were held with Eco-Forum in 2012 and NEFCO in April 2013. However, because of the present situation regarding the



almost non-existent carbon finance market, no more initiatives are being pursued until there is clarity on this issue in the future.

### **Project's Impact**

**Policy/Regulations:** The private sector is hopeful that policies and regulations for promoting energy efficient lighting for both outdoor and indoor use will eventually be put into place. When this happens, regulations governing the import of CFLs/LEDs will hopefully get enforced, with the result that the flow of sub-quality products will gradually dry out.

**Supply chain:** The supply chain is being strengthened and the increasing awareness of lighting practitioners on the benefits of energy efficient lighting is bound to make a positive impact on the whole lighting industry, provided that quality control is exercised.

**Piloting:** The successful implementation of pilots in all spheres of the national economy will open the doors to greater acceptance of energy efficient lighting by the whole population. This in itself will have a great impact in reducing energy consumption substantially, accompanied by a corresponding decrease in GHG emission.

### **Prospects for Sustainability**

At the level of central government, indications are that implementation of energy efficient lighting will be sustainable in the long run. The Government is hopeful that, despite the present difficult situation, the necessary policies will be put in place and once mechanisms for enforcement of Regulations have been strengthened, the market should pick up. There is also the potential for private sector ESCOs – some may even be set up as subsidiaries of in-country lighting companies – to step in and move the process forward. Should this happen, it would obviate the need for the regional/local administrations to make budgetary allocations for this purpose.

Sustainability of the project will also derive from the fact that required capacities would have been developed among practitioners of energy efficient lighting through an array of educational and capacity development activities. In addition, the “upgraded” knowledge of the general public through awareness-raising (not promotional or advertising) material, coupled with their being fully informed of the results of the piloting activities, will go a long way towards achieving sustainability of this initiative.

Finally, sustainability of the initiative will get enhanced if/when the potential for carbon finance improves in the future.

## **5. Conclusions and Recommendations**

For ease of reference, the conclusions and recommendations follow the Outcomes, as they are elaborated in the project document, and the description of the “Present Status”, as discussed in the corresponding right-hand-side of column in Table 1 above.

### **5.1 Outcome 1: Improved National policy framework for promoting EE lighting.**

**Conclusions:** Since it became operational, the project collaborated with the Government to have several pieces of legislation drafted. Among them are:

- Draft amendment to Resolution of the Cabinet of Ministers of Ukraine (CMU) on collection, disposal and utilisation of electrical equipment waste, to include collection and safe disposal of mercury- containing lamps. The draft was submitted in September 2012 and a decision is still awaited.
- Draft Law of Ukraine “On amendment to some laws of Ukraine with regard to promoting energy efficient lighting sources”. The draft was submitted in May 2013 and a decision is still awaited.
- Draft Law of Ukraine “On the adoption of the draft Law of Ukraine on energy efficiency in residential and public buildings”, to include energy efficient lighting. This draft has already gone through its first reading in the Verhovna Rada – Resolution No. 4683-VI of 15 September 2013.
- Draft Resolution of the CMU on the adoption of regulations with regard to energy labelling of electrical lamps and lighting fixtures. The draft was submitted in November 2013 and approval is expected “soon”. However, in view of the difficult situation presently prevailing in the country, it is anybody’s guess how “soon” this approval will be secured.
- SNiP (Construction Norms and Regulations) on “Natural and Artificial Lighting”, which will include specific minimum energy performance requirements of lighting systems in municipal buildings, new residential construction and street lighting, is presently under formulation.

The project has engaged the private sector like Maxus, Osram and Philips, whose active participation is crucial in transforming the market for energy efficient lighting. They welcome the project’s efforts to address issues related to energy efficient lighting. For example, at Maxus’ request, the project solicited the Government anti-monopoly committee to restrict the import of substandard lighting equipment. This was in line with the private sector’s indication that it did not require direct support from the project; instead, the project can assist in its dialogue with the Government to put in place and implement the appropriate regulatory mechanisms and standards.

There is as yet no support at the Government level for a phase-out of incandescent lamps (at the present time, these are not banned in the country), despite efforts made by the project. This may be related to strong lobbying efforts from Iskra, the only incandescent lamp producer in Ukraine. Also, due to some administrative bottlenecks, Ukraine has not yet joined UNEP’s en.lighten initiative; however, in view of en.lighten’s focus on market transformation, this situation should be reassessed. With regard to collection and recycling of used CFLs, due to their harmful mercury content, regulations are in place for commercial and industrial buildings. However, no such regulations exist yet for residential buildings and the project is working towards having them in place. Buildings.

On the other hand, over 2 years since start of project activities, work on developing a national road map for EE lighting market transformation and on introducing legislation/initiating a campaign to have Oblenergos (Oblast electricity grid operators) improve the quality of electricity supplied to public and residential consumers has barely

started. There is no valid reason for this delay and the project should redouble efforts to get this activity on track.

The private sector is unanimous in indicating that mechanisms for adoption and enforcement of Regulations and Standards that would constitute the engine of growth to the utilisation of quality products for energy efficient lighting in all sectors of the economy are inadequate and need to be developed/strengthened. It is in this area that the private sector looks towards UNDP for support.

**Recommendation:**

There is not much the project can do to get the Government to promptly approve the required decrees/regulations that it has formulated. The Ministry of Ecology and Natural Resources, the project's parent Ministry, may be able to assist at the level of the Cabinet of Ministers, but may not meet with much success given the present difficult times prevailing in the country. However, the project should continue focusing on the deliverables that are under its control. For example, attention should be devoted to getting work on developing a national road map for EE lighting market transformation moving without any further delay; this should include, among others, a plan for phasing-out incandescent lamps.

**5.2 Outcome 2: Improved Quality-Assurance & Quality Control systems for imported and locally-produced lighting products.**

**Conclusions:** In its efforts to support NAER and DerzhStandard in the development of improved environmental, energy efficiency and quality standards and norms for lighting products, the project was to compare current Ukrainian EE lighting standards with EU best practices for quality, environmental and health standards. While the Evaluator was informed that this activity has been completed, no written report is available for review. One wonders then how the project is supporting the 2 above-mentioned Government institutions in the absence of any written documentation. This should be remedied without delay.

One of the modalities for enforcement would be to have modern independent, accredited testing laboratories to create a level playing field for testing both imported and locally-produced lamps and lighting fixtures. At the present time, there are numerous sub-standard (and inexpensive) imported lighting products that flood the market and create an unhealthy competition for the local private sector. This issue was identified during project formulation and allocation was made in the project document "to improve the Ukrainian institutional capabilities for auditing and assessing the quality of imported EE lighting products". At the present time, there are 3 Government accredited laboratories, one each in Kiev (UkrMetrTestStandard), Lvov (DP Lvivstandardmetrologiya) and Poltava (Poltava Standard Metrology) that are equipped to test lighting products and deliver certification that they meet standards that are presently in place. And the Evaluator was told that these do not require any equipment upgrade. However, there are also several private laboratories throughout the country that provide a similar service, with the exception that they do not perform any tests and simply issue a certification, upon payment of a fee, that the products meet the required standards. In fact, the Evaluator was informed that these private laboratories have no desire to conduct tests; basically, they

are a money-making machine. This is clearly an improper situation that the project needs to address with the Government.

**Recommendations:**

A survey undertaken in 2012 by a testing laboratory Consultant under the Russia EE Lighting Project showed that none of the Government or private testing laboratories had all the latest up-to-date equipment for testing lighting lamps/fixtures. However, in the case of Ukraine, the project confirms that all 3 Government accredited laboratories require no upgrade.

While the Evaluator has no intention to second-guess the findings of the project, it seems odd that all 3 Government laboratories require absolutely no upgrade, unless they were recently upgraded utilising Government funds. Hence, it may be worthwhile to recruit a local or international consultant with expertise in testing laboratories (or the Russian Consultant who was recruited under the Russia project) to validate the project's findings that all 3 Government-accredited laboratories in Ukraine do not require any equipment upgrade.

**5.3 Outcome 3: Implement efficient lighting demonstrations in the municipal sector.**

**Conclusions:** This Outcome was originally designed to implement lighting demonstrations in the municipal educational sector. However, during the Inception Workshop, a decision was made to expand coverage beyond schools to include other municipal targets, such as buildings, street lighting and traffic lights.

Piloting activities have started in, for example, Berdyansk with the replacement of incandescent lamps with CFLs for lighting of the municipal square, in Gorlovka with the testing of LEDs for traffic lighting and automatic control of street lighting, in Lugansk with LED-based street lighting and automatic control, etc. Energy efficient lighting has also been piloted in a kindergarten in Lugansk and in residential staircase and conference room lighting in Kiev as well as pilots in the Lvov and Ivano-Frankovsk Oblasts. Again in Gorlovka, the project has co-financed a feasibility study for expanding street lighting under a proposed UAH 3 million (approx. \$ 345,000) credit from NEFCO.

These pilots have provided municipal authorities with valuable experience on the potential benefits that energy efficient lighting provide in terms of reduced budgetary expenditures and pay-back periods. Now that the momentum has picked up, it is expected that the pace of modernising the street lighting fixtures will gather speed. Representatives of all 3 towns visited expressed great satisfaction of the residents towards the quality of lighting provided by the new units. They also indicated that their annual expenditures for street lighting have substantially decreased.

**Recommendations:**

With the objective of replication in mind, the project may wish to capitalize on the success of the piloting initiatives and organise a workshops, inviting the participation of neighbouring (and not so neighbouring) towns to have these "pilot" towns share their experiences on the benefits derived from energy-efficient municipal lighting and how to go about implementing such initiative utilising their own resources. This will, no doubt,

produce a snow-ball effect and provide a boost to the private sector in terms of provision of consultancy services and sale/installation of equipment.

One question that repeatedly came up from stakeholders involved in the pilots was whether UNDP could provide additional resources to expand the pilots. This potentially implies that the municipalities view UNDP's support to the efficient lighting initiative as one from where access to additional grant financing can be obtained for expanding coverage. Hence, the project should ensure that municipal stakeholders are thoroughly and clearly briefed on the objectives of the pilots; these are designed to facilitate their learning process that will enable them to plan future replication and expansion on the basis of their own resources.

#### **5.4 Outcome 4: Improve EE Lighting product penetration in the Residential Sector.**

##### **Conclusions:**

The project has invested some \$ 779,000 on a massive awareness campaign to sensitise the public on the benefits of CFLs/LEDs. On the basis of a survey undertaken in 2013, the project indicates that demand for EE lamps has increased by 11% compared to the previous year and that over the same timeframe, the consumer base for EE lamps has increased by 5%. Surveys also indicate that the level of public awareness has increased by 7%, with 3.6% directly attributed to the campaign and 3.4 % as a result of campaigns of EE lighting producers. In addition, the project issued in early December a tender for an "All Ukrainian Educational Awareness Campaign in schools on Energy Efficient Lighting". The objective of this activity is to design educational curricula, among others, on EE lighting for primary, secondary and high school students.

##### **Recommendations:**

While the project has done an excellent job in raising awareness, as indicated above, in previous GEF EE projects, addressing the regulatory barriers and overcoming the "quality-cost" barrier were seen as more critical for success than, for example, mainly focusing on awareness raising activities. In the present case, the danger is that because activities under Outcomes 1, 2 and 3 have not kept pace, sub-standard products continue to flood the market, some of them not even lasting a month while costing several times more than present incandescent lamps. Consumers do have choices when purchasing lamps, but will get frustrated when products that advertise efficiency and longevity do not deliver. Awareness raising is only part of the equation in transforming the market for energy efficient lighting. Hence, the project should ensure that awareness activities should go hand in hand with putting in place a conducive environment in terms of regulations and standards. In addition, the project should start developing a road map that would ensure sustained awareness raising after the project has come to an end.

#### **5.5 Outcome 5: Dissemination and Replication of the Project Results.**

##### **Conclusions:**

The project has set up a website ([www.lampochki.org.ua](http://www.lampochki.org.ua)) that contains information about the project, project team, some (not all presently-ongoing) pilots, etc. – it was indicated

that approx. 90% of Ukrainian households have access to the internet, but the number of “hits” is not monitored. This would have been a useful monitoring tool which the project may wish to consider introducing. In addition, it appears that not all project reports (brief summaries may sometimes be sufficient) are posted, nor the composition of the project team has been recently updated. The project also co-financed and participated, among others, in the “All-Ukrainian Conference on Energy Efficiency” in June 2013 (municipal EE lighting was one of the subject of discussions) and co-financed a drawing competition on EE lighting among school children in March 2013.

**Recommendation:**

There may be a need to more frequently update the website with latest information on the project in general and with easy to understand, for the general public, information on project achievements. Hopefully, this will provide an additional push to the interest of the stakeholders/consumers in the website.

## **5.6 Project Management.**

**Conclusions:**

The project is managed by a Project Manager and several other staff (Annex 6), all working full time. The Project Office is located at the premises of the Ministry of Ecology and Natural Resources and is available to the project “rent-free”, except for the initial refurbishment of the office space at the start of the project and payment of utilities. A “Municipal Project Coordinator” was very recently added to the project team to focus on pilots and formulate sustainable replication plans during the project lifetime and beyond.

**Recommendations:**

The Project Manager may wish to exercise better oversight over activities undertaken by his team. For example, there is no obvious reason why the road map for EE lighting market transformation (Outcome 1) could not start much earlier, at the very beginning of project activities, rather than wait for 2 years down the road; the recruitment of the consultant to undertake this assignment is in the process of getting initiated. Another example is related to undertaking a comparison between Ukrainian and EU lighting standards (Outcome 2). While this activity has been completed, no report is available. So, in the absence of a report, how does the project plan to assist its partners in the Government in deciding on the appropriate standards for Ukraine? And finally, the project should do a better job (hopefully, the newly-appointed Municipal Project Coordinator would focus on that, among others) to provide a much-needed boost to piloting/replication activities under Outcome 3. In addition, the objective of the pilots should be clearly explained upfront to counterparts and the latter be advised to put arrangements in place on their own to continue with any positive experience that the pilots have generated. This last observation results from the Evaluator being repeatedly asked if UNDP could provide additional funding to expand the pilots.

To ensure timely implementation of project activities, project management needs to be reassessed and strengthened. In this connection, the project may wish to consider recruiting a non-resident Chief Technical Adviser/International Consultant who would provide direction and support the Project Manager in the crucial areas related to

Outcomes 1 to 3 (and others as well). S/he should be available for a specific number of days per year (e.g. on a retainer contract) to provide technical and targeted management guidance to the project from her/his home office and, as required, through brief missions to Ukraine. It is also hoped that with such an arrangement, project implementation will pick up momentum, with the result that project outputs could very well be achieved with the remaining project time-frame.

## 5.7 Financial Management.

As per CDR figures for 2011 through 2014, expenditures related to contracts with vendors are as follows:

**Table 2: Expenditures related to Contracts with Vendors**

<b>Outcome 1: National Policy Framework for promoting EE lighting</b>	
Study of International and Ukrainian legislation and regulations on fluorescent lamps collection, disposal and utilization	23,229
Study of National And International norms, standards and legislation promoting EE technologies in lighting	56,934
Study of existent labeling schemes of lighting sources their implementation and outcomes proposing suitable for Ukraine	65,771
Development of EE law database	4,152
<b>Total</b>	<b>150,086</b>
<b>Outcome 2: Improved QA/QC framework for EE lighting market</b>	
Technical assessment of Bogorodchany village street lighting system	602
Analysis of Bulb eater effectiveness	3,446
Development of Ukrainian national regulation of waste utilization/recycling of mercury containing lighting sources	155,328
Purchasing of Bulb Eater	1,469
All-Ukrainian Conference on Waste Handling	15,567
<b>Total</b>	<b>176,412</b>
<b>Outcome 3: Implement EE lighting in the municipal sector</b>	
Installation of outdoor fixtures in Nesherv	4,561
Technical expertise of pilot project in Gorlivk	1,960
Smart light units for Luhansk	3,974
Wiring for pilot Project Nesherv	3,838
LED street lamps Sadgawa	2,941
CFLs for Berdyansk park	3,063
Entrance lighting Dobrotvir	2,952
Lighting project in UNDP Alexanyan room	3,263
Outdoor LEDs for Luhansk	4,828
Round table with NEFCO	1,948
Round table with producers of EE lighting sources	203
<b>Total</b>	<b>33,532</b>
<b>Outcome 4: Improve EE lighting product penetration in the residential sector</b>	
Identify opportunities and threats, strengths and weaknesses, which stimulate or prevent from the development of consumers market of energy efficient lighting	24,143

accordingly	
Research on energy efficient lighting product market in Ukraine and factors which impact on its development	39,667
Study of strategies for introduction of economically justifiable EE lighting technologies in Ukraine	44,468
Study of the influence of all Ukrainian energy efficient lighting public awareness campaign exerted on public awareness level and opinion on energy efficient light lamps	25,539
Children contest on EE pictures	4,276
<b>Total</b>	<b>138,093</b>
<b>Outcome 5: Replication and Dissemination of project results</b>	
ToR for TMEL site creation	4,912
Recommendations on ToR for All-Ukrainian Public Awareness Campaign	4,006
Development of TMEL Web Site	4,007
All-Ukrainian Public Awareness Campaign (contract with MMCG)	778,932
Design of energy saving calculator for TMEL website	369
Design for polygraph production	2,025
Round table with municipalities	2,228
Round table on utilization of mercury containing lamps	1,630
Conference in Ukrainian house on energy efficiency	7,389
<b>Total</b>	<b>805,498</b>
<b>Inception Workshop</b>	
Inception Workshop	19,679
<b>Total</b>	<b>19,679</b>
<b>Grand total</b>	<b>1,323,301</b>

**Expenditures related only to individual Consultants are as follows:**

- Outcome 1: \$ 7,500 for drafting ToR on improving consumer rights for electricity supply;
- Outcome 2: \$ 5,335 for ToR on assessment of electricity quality in Ukrainian grids; and
- Mid-term Evaluation: \$ 7,340.

Finally, expenditures related to the PMU (staff costs, travel, DSA, equipment, utilities, etc.) are provided in Table 3 below.



**Table 3: PMU staff and administrative costs**

<b>Activity</b>	<b>Service Contracts, Individual Contracts, administrative expenses, DSA/travel costs (including individual consultancies listed immediately above).</b>
Outcome 1: National Policy Framework for promoting EE lighting.	146,365
Outcome 2: Improved QA/QC framework for EE lighting market.	79,117
Outcome 3: Implement EE lighting in the municipal sector.	71,053
Outcome 4: Improve EE lighting product penetration in the residential sector.	157,035
Outcome 5: Replication and Dissemination of project results.	114,828
Project Management Unit admin. costs	228,851
<b>TOTAL</b>	<b>797,249</b>

Information provided in Table 2 above shows a total expenditure of \$ 1,323,301 related to contracts with vendors. Of these, only \$ 33,532 (out of a project budget allocation of \$ 1.8 million) have been spent towards Outcome 3 related to piloting, while over \$ 805,000 have been spent on Outcome 5: Replication and Dissemination of project results. Of these, almost \$ 780,000 have been spent on “Awareness”. Suffice it to say that the project budget allocated only \$ 773,000 to Outcome 5 and expenditures to date against this Outcome have already exceeded this allocation only mid-way through the project.

The above analysis points to extensive efforts needed over the remaining project time-frame to implement piloting as originally designed during project formulation. If the project were to deviate from this as a result of adaptive management, then valid reasons need to be provided to justify it. In addition and indicated earlier, awareness activities should not run away with the show, but go hand in hand with putting in place a conducive environment in terms of regulations and standards that would enable consumers to purchase lighting equipment with confidence that they are getting value for money in terms of quality and performance. In short, awareness is a necessary but not a sufficient condition to transform the EE lighting market.

Finally, the total project allocation budget of \$ 450,000 for Project Management is just at its 50% level mid-way through the project, with these expenditures standing at just under \$ 229,000 (Table 3).

**Recommendation:**

Moving forward, the project should carefully re-evaluate its focus on piloting, as this seems to fall short of what the project originally intended to implement. Also, it should clearly determine its requirements for Consultants/Experts/Vendors/Project Staff within the project allocations and these should be appropriately defined to expedite activities under Outcomes 1 through 3 in order, especially in those areas that would provide the desired transformational impact with regard to EE lighting.

**Project Board (PB)**

The PB is chaired by the National Project Director (NPD) and has met twice per year since project inception, except that in 2013 no meeting was held. As presently constituted, the PB is made up of representatives of only the Ministry of Ecology and Natural Resources, and UNDP. As there are presently many other stakeholders participating in the project, it would be desirable to enlarge the PB membership to include these, viz. Ministry of Economic Development and Trade, Ministry of Education and Science, other key ministries and agencies, City/Oblast Administrations, NGOs, energy efficiency centres, national and international producers of lighting technologies (private sector). The PB may decide whatever status it wishes to confer upon these stakeholders to enable their participation, the bottom line being that the PB will then benefit from a wider input of views from the different concerned entities.

**Recommendations:**

It is recommended that the PB consider enlarging its membership as outlined above. In addition, the project should ensure that the PB meet at regular intervals (at least twice a year) to provide pertinent directions to the project.

**Corrective actions for the design, duration, implementation, monitoring and evaluation of the Project**

The project was well-formulated from the very beginning, with careful thinking going into the issues that need to be addressed, the challenges laying ahead, the benchmarks for end-of-project status and the duration of activities. Likely through oversight, implementation of LED technology for energy efficient lighting was not included as one of the very promising options. However, this was promptly brought to light and corrective action was taken at the Inception Workshop.

During its formulation, the project programmed utilising the benefits of energy efficient lighting in terms of CO<sub>2</sub> emission reduction to access carbon finance. Unfortunately, during implementation, the carbon trading market took a big hit, with the result that emission reduction is presently trading at a ridiculously low price of € 3 – 4/ton. Hence, the project has not been able to capitalise on additional resources that could have been generated. However, these resources could become available if the carbon market were to rebound in the future.

In addition, at the Inception Workshop, the Project Board decided that rather than giving a narrow focus to pilots involving municipal schools, this focus should be widened to target

municipal buildings inclusive of schools. Accordingly, appropriate revisions were introduced in the “Strategic Results Framework” to incorporate this decision.

### **Actions to strengthen or reinforce benefits from the project**

There are 3 crucial areas in project implementation that can make a real difference when it comes to transforming the market for energy efficient lighting and this does not imply that the other elements are less important. These are the policy/regulatory issues (it is recognised that bottlenecks at the level of CMU will be a hard nut to crack), quality control and piloting.

Hence, it may be advisable for project management to consider recruiting a non-resident CTA/International Consultant to support the project in these 3 crucial areas. The best option would be to have the International Expert on a retainer contract for a specific number of days (e.g. some 50 work days and 2 missions per year, with clearly-defined objectives) to provide targeted inputs that would advance the subject of market transformation for energy efficient lighting.

### **Proposals for future directions underlining main objectives**

It may be beyond the scope of the project, but it may still be useful to consider if the project could do some ground work, at a later stage, with the private sector to venture into ESCOs for refurbishing lighting at various municipal institutions and for street lighting. Of course, this will only materialise when the private sector has concrete data, accumulated on the basis of the pilots, which would enable it to perform economic and financial analyses to determine IRRs under various scenarios of equity and debt financing and any subsidies/incentives that may be available in terms of reduced value-added tax, income tax, etc.

Such an approach, if it materialises, will be of great interest to industries, municipalities, etc. in that it would enable them to benefit from a greatly improved lighting service without incurring any upfront investment costs.

## **6. Lessons learned**

1. The Evaluator undertaking the mid-term evaluation of the Ukraine project also undertook the MTE for the Russia EE Lighting project in November 2012. In the case of Russia, project activities “suffered”, in the view of the Evaluator, from the abundant use of telecommuting. In the present case, telecommuting is not an issue and all project staff –all 10 of them (at some point there were 12 staff) - commute to the project office daily.

May be, all 10 project staff are required to achieve the objectives of the project. Or, may be, a trimmer project office could be more effective in delivering results, especially those related to Outcomes 1 to 3? What is the optimum number of staff does the project require? Does each staff has to be assigned to only one project Outcome? So many questions with difficult answers!

*Suggested corrective action:* Project management does need strengthening; otherwise, the achievement of project results in 2 years from now will get seriously compromised. Should the project decide to go with the recommendation of recruiting a non-resident CTA/International Consultant, that person could be entrusted to come up with a manning

table that would justify the optimum number of staff that the project requires during its remaining time-frame, without jeopardising, but, in fact, making achievement of project results more efficient.

2. In the implementation of a project, it is important to ensure that outputs are achieved. However, the purpose of these outputs is to serve as inputs to the achievements of certain targets, with the latter providing an indication on how well the project achieved its desired results. Hence, the outputs represent a vehicle to achieve an end, be it mid-term or end-of-project, but do not constitute an end in themselves. No matter how many reports have been produced, but unless they have transformed, or attempted to transform, the behaviour of the market for energy efficient lighting, it is difficult to confirm that the established targets have been achieved.

*Suggested corrective action:* Project outputs in terms of reports, for example, play an important role in implementation. However, when commissioning reports, project management should ensure that these will directly contribute towards achievement of the established targets, rather than being peripheral to them.

3. It is important to implement awareness activities through TV and Radio shows, brochures, leaflets, publications, etc. to sensitise the public on the benefits of energy efficient lighting and fixtures. However, awareness raising is only part of the equation in transforming the market for energy efficient lighting. Hence, the project should ensure that awareness activities go hand in hand with putting in place a conducive environment in terms of regulations and standards. Otherwise, consumers run the risk of purchasing what they perceive as EE lamps, based on the awareness campaign, and get quickly frustrated when these same lamps hardly last a few weeks, because of the absence of a regulatory mechanism that bans these low quality lamps from entering the retail chain in the country.

*Suggested corrective action:* Ensure that activities under all project Outcomes are implemented in synchronism with one another. Of course, there will always be disparities in implementation, but these should not be allowed to get too wide so as to backfire instead of assisting each other.

4. It is a good idea to have a project website where all stakeholders can obtain information on project activities, especially in a country where there is reportedly a high percentage of internet connectivity among the population. At the present time, for example, the pilot sites and composition of the project team are not current. The website should be updated more frequently to include, among others, summaries of project activities, reports, achievements, etc.

*Suggested corrective action:* The project should henceforth consider periodically updating the postings on the website to ensure that it remains current.

**Table 4: Project Ratings**

Project Component or Objective	Rating
<b>Ratings of Relevance, Efficiency and Effectiveness*</b> (6 - Highly Satisfactory, 5 - Satisfactory, 4 - Marginally Satisfactory, 3 - Marginally Unsatisfactory, 2 - Unsatisfactory, 1 - Highly Unsatisfactory)	
<b>Project Formulation</b>	
<b>Overall Project Formulation (Relevance)</b>	5
- Conceptualization/design	5
- Stakeholder participation	5
<b>Project Implementation</b>	
<b>Implementation Approach (Efficiency)</b>	4
- Use of the logical framework	4
- Adaptive management	4
- Use/establishment of information technologies	5
- Operational relationships between the institutions involved	5
- Technical capacities	5
<b>Monitoring and Evaluation</b>	5
<b>Stakeholder Participation</b>	5
- Production and dissemination of information	5
- Local resource users and NGOs participation	5
- Establishment of partnerships	5
- Involvement and support of governmental institutions	5
<b>Project Results</b>	
<b>Overall Achievement of Objective and Outcomes (Effectiveness)</b>	4
- Objective	4
- Outcome 1	4

- Outcome 2	4
- Outcome 3	4
- Outcome 4	5
- Outcome 5	5
<b>Sustainability Ratings**</b>	
(4 - Likely, 3 - Moderately Likely, 2 - Moderately Unlikely, 1 - Unlikely)	
<b>Sustainability</b>	
- Financial sustainability	4
- Institutional sustainability	4
- Socio-economic sustainability	4
- Ecological sustainability	4
<b>Overall Project Achievement and Impact</b>	4