# United Nations Development Programme

# Terminal Evaluation of UNDP/GEF Project: Market Transformation of Energy Efficient Appliances in Turkey (EVÜdp)

(Project ID: 4014)

# Terminal Evaluation Report

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**December 2015**

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# ABBREVIATIONS

| Acronym | Meaning |
|---|---|
| APR | Annual Progress Report |
| AWP | Annual Work Plan |
| CCM | Climate change mitigation |
| CDM | Clean Development Mechanism |
| CDR | Combined Delivery Report |
| CER | Certified emission reduction |
| CTA | Chief Technical Advisor |
| DGI | Directorate General for Industry |
| DGIS | Directorate General of Inspection and Safety |
| DGRE | Directorate General for Renewable Energy |
| EA | Executing Agency |
| EBRD | European Bank for Reconstruction and Development |
| ECEEE | European Council for an Energy Efficient Economy |
| EE | Energy efficiency |
| EEDAL | International Conference on Domestic Appliances and Lighting |
| EnVer | Energy Efficiency Portal |
| EOP | End of project |
| ErP | Energy related Product |
| ESCO | Energy service company |
| EU | European Union |
| GDP | Gross domestic product |
| GEF | Global Environment Facility |
| GHG | Greenhouse gas |
| GoT | Government of Turkey |
| IEA | International Energy Agency |
| INC | Initial National Communication |
| LED | Light emitting diode |
| LPAC | Local Project Advisory Committee |
| M&E | Monitoring and evaluation |
| MENR | Ministry of Energy and Natural Resources |
| MoSIT | Ministry of Science, Industry and Technology |
| MRV | Monitoring, reporting and verification |
| MTE | Mid-term evaluation |
| MTEEA | Market Transformation of Energy Efficient Appliances |
| MV&E | Monitoring Verification and Enforcement |
| NEX | National Execution |
| NGOs | Non-governmental organizations |
| NIM | National Implemented Modality |
| NPD | National Project Director |
| NPM | National Project Manager |
| ProDoc | UNDP Project Document for “Market Transformation of Energy Efficient Appliances in Turkey” |
| PIR | Project Implementation Reports |
| PM | Project Manager |
| PMSP | Proactive market surveillance program |
| PMU | Project management unit |

| Acronym | Meaning |
|---|---|
| PPM | Project Planning Matrix |
| PSC | Project Steering Committee |
| RTA | Regional Technical Advisor |
| S&L | Standards and labelling |
| SGP | GEF Small Grants Programme |
| SIDA | Swedish International Development Agency |
| SMART | Specific, measurable, attainable, relevant and time-bound |
| SNC | Second National Communication |
| TE | Terminal Evaluation |
| ToR | Terms of Reference |
| TSE | Turkish Standards Institute |
| TURKBESD | Association of Turkish White Goods Manufacturers |
| TURKAK | Turkish Accreditation Agency |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |
| USD | United States dollars |
| WEEE | Waste electrical and electronic equipment |

# SYNOPSIS

**Title of UNDP supported GEF financed project:** Market Transformation of Energy Efficient appliances in Turkey

**UNDP Project ID:** PIMS 4014

**GEF Project ID:** 3565

**Evaluation time frame:** December 2010 to December 2015

**CEO endorsement date**: December 30, 2009

**Project implementation start date**: March 11, 2010

**Project end date**: December 31, 2015

**Date of evaluation report:** December 28, 2015

**Region and Countries included in the project:** Turkey

**GEF Focal Area Objective: CCM-4:** Promote energy efficient low-carbon transport and urban systems

**Implementing partner and other strategic partners:**
- Implementing agency: United Nations Development Programme (UNDP)
- Executing agency: Ministry of Energy and Natural Resources, Directorate General for Renewable Energy (DGRE), Government of Turkey (under NIM modality)

**Evaluation team members:** Mr Roland Wong, International Consultant

**Acknowledgements**:
The Evaluator wish to acknowledge with gratitude the time and effort expended by all project participants and stakeholders during the course of terminal evaluation. In particular, the Evaluator wishes to thank Mr. Necmettin Tokur would and Ms. Birce Albayrak from UNDP Turkey for arranging mission meetings in Ankara and Istanbul. The Evaluator would also like to thank all stakeholders including DGRE, MoSIT, TSI, the UNDP-GEF Regional office in Istanbul, Ankara University, Boğaziçi University, Istanbul Aydın University, Kadir Has University, Özyeğin University, and the entire Project Management Team for their hospitality, informative and passionate discussions on their experiences in implementing the Project. I hope that this report will contribute towards the strong efforts of the Government of Turkey to maximize their potential in energy efficiency.

# EXECUTIVE SUMMARY

This report summarizes the findings of the Terminal Evaluation Mission conducted during the November 1-13, 2015 period for the UNDP-GEF Project entitled: Market Transformation of Energy Efficient Appliances in Turkey (hereby referred to as the MTEEA Project, EVÜdp or the Project), that received a USD 2.71 million grant from the Global Environmental Facility (GEF).

## Project Description

The MTEEA Project was designed specifically to "*reduce household electricity consumption and related greenhouse gas emissions of Turkey by accelerating and ensuring the market transformation towards more energy efficient appliances."* with the following targets:

- An indirect target of "*1.7 million tonnes $CO_2$" (using causality factor of 60%) by appliances sold during the Project";* and
- A 2 to 28% reduction of the average unit electricity consumption by 2013 compared to the estimated baseline development.

This was to be achieved according to actions proposed in the Project Document of March 2010. The MTEEA Project commenced in December 2010 with the Inception Phase, with completion of the Project scheduled for December 2015. These changes are summarized on Table A.

**Table A: Comparison of Intended Project Outcomes from the Inception Report to Actual Outcomes**

| Intended Outcomes in March 2010 ProDoc | Actual Outcomes as of November 2015 |
|---|---|
| **Outcome 1:** Enhanced institutional capacities in Turkey to develop and implement effective appliance EE policies. | **Actual Outcome 1:** Institutional capacities have been enhanced with the MoSIT in the areas of transposing ErP policies from EU regulations into Turkish legislation, setting eco-design and energy labelling requirements, adoption of S&L laws and regulations, and improved outreach to the private sector manufacturers in white appliances. |
| **Outcome 2:** A structured enforcement and verification program with adequately trained staff and other resources. | **Actual Outcome 2:** A structured enforcement and verification program within MoSIT that includes a robust market surveillance activities, well-equipped testing laboratories with TSE for white appliances entering the Turkish market, and a large MoSIT cadre of trained market surveillance officers and equipment testing staff for compliance checking |
| **Outcome 3:** Raised awareness of the end-users and the supply chain and strengthened capacity of the local manufacturers to develop and implement specific promotional activities to enhance the sale of energy efficient appliances. | **Actual Outcome 3:** Raised awareness of consumers and retail sales staff on the benefits of energy efficiency of white appliances and strengthened capacity of local manufacturers and DGRE in their abilities to effectively promote the sales of energy efficient appliances. |
| **Outcome 4:** Institutionalization of the support provided by the project, including monitoring, learning, adaptive feedback and evaluation. | **Actual Outcome 4:** Project activities have been institutionalized by MoSIT through the market surveillance program, equipment testing of various white appliances, and the systematic reporting of reduced energy consumption and GHG emissions from the use of EE white appliances. In addition, there are 5 universities that have enhanced their |

| | |
|---|---|
| | curricula with courses on EE appliances |

## Evaluation Ratings

*The overall rating of the Project is highly satisfactory (HS)*. This is based on the following outcomes:

- The Project design of April 2010 (based on information from 2008 and 2009) was well integrated to include a full complement of activities that were necessary to transform the appliance market towards energy efficient equipment;
- The impact of the Project to affect institutional changes within MoSIT to set up a Department of Market Surveillance of EE Products, and to dedicate full-time staff towards the transposing of EU regulations into Turkish legislation;
- The impacts of awareness raising efforts of the Project that can be linked to the increased sales of EE products;
- The positive impacts of the successful implementation of a proactive market surveillance program (PMSP) with improved equipment testing facilities in Turkey. This includes integration of an MV&E strategy and PMSP developed and implemented under the Project into MoSIT's market surveillance strategy, plans and programs, trends increasing compliance of EE products to mandatory eco-design and energy labelling requirements, increasing participation of manufacturers in the voluntary testing of new appliances entering the market, and the elimination of "free riders" or appliances that circumvent eco-design and energy labelling requirements;
- The generation of market monitoring data that tracks the sale of EE appliances, energy consumption and GHG emissions. While this market monitoring data is in compliance with the "Regulation on Increasing Efficiency in Use of Energy and Energy Resources", the data provided by manufacturers only reports yearly sales data by energy classes to DGRE. As such, this regulation does not provide DGRE with precise data to enhance their Market Monitoring Database.

*The overall Project sustainability rating is likely (L).* This is primarily due to:

- Turkish legislation on eco-design and energy labeling requirements in place to guide both manufacturers and retailers on the energy performance standards of appliances that can be sold on the Turkish market;
- Market surveillance trends indicating increased compliance of appliances on the market to Turkish legislation on eco-design and energy labeling requirements;
- High public awareness of EE appliances and their life cycle costs;
- Curricula on EE appliances that is embedded in five prominent universities in Turkey; and
- Appliance manufacturers undertaking voluntary testing of new equipment prior to market entry.

Table A provides a summary of the terminal evaluation of the MTEEA Project.

## Conclusions

- The Project has provided the Government with the necessary focus to accelerate appliance market transformation in Turkey towards EU energy efficiency standards. This included the provision of technical assistance for transposing EU regulations into Turkish legislation, exposure to best practices and technical assistance to implement a market surveillance program, and awareness raising activities in collaboration with the private sector. Without the Project, the Government would have carried on with its business-as-usual activities and

market transformation of appliances would have been implemented at a much slower rate due to capacity limitations of the Government;

**Table A: Evaluation Ratings[1]**

| **1. Monitoring and Evaluation** | ***Rating*** | **2. IA & EA Execution** | ***Rating*** |
|---|---|---|---|
| M&E design at entry | 5 | Quality of UNDP Implementation | 6 |
| M&E Plan Implementation | 6 | Quality of Execution - Executing Entity | 6 |
| Overall quality of M&E | 6 | Overall quality of Implementation / Execution | 6 |
| **3. Assessment of Outcomes** | **Rating** | **4. Sustainability[2]** | **Rating** |
| Relevance | 6 | Financial resources | 4 |
| Effectiveness | 5.5 | Socio-political | 4 |
| Efficiency | 5.8 | Institutional framework and governance | 4 |
| Overall Project Outcome Rating | 5.8 | Environmental | 4 |
| | | Overall likelihood of sustainability | 4 |

- The Project has laid a solid foundation for EE appliance market transformation through:
  - Accelerating EU regulations into Turkish Energy Labeling and EcoDesign regulations. This provided all manufacturers in the Turkish market with minimum energy performance standards for a number of energy intensive white appliances. Moreover, MoSIT is now enabled in the future to more efficiently transpose EU regulations into Turkish legislation;
  - Enhancement of the knowledge of MoSIT field inspectors on EU Eco-Design and Energy Labeling Directives, and their increased confidence on implementing an effective proactive market surveillance program (PMSP) that is based on best international practices, and that effectively removes “free riders” or products that do not comply with Turkish eco-design and energy labelling requirements from the Turkish retail market;
  - Encouragement of the private sector to manufacture appliances to changing standards. The private sector now perceives this environment to be a more level playing field for the sale of their products;
  - TURKBESD reporting sales of EE appliances to a market monitoring database that provides credible reports on market trends for EE appliances as well as estimates of energy consumption and GHG emissions. In effect, this database provides the tools for the Government of Turkey to quantify market transformation of EE appliances, and in future other EE equipment;

- To achieve this level of success and market transformation, the Project has successfully assisted government in bringing all relevant stakeholders (MoSIT, DGRE, TURKBESD,

[1] Evaluation rating indices (except sustainability – see footnote 2): 6=*Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives; 5=*Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives; 4=*Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives; 3=*Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives; 2=*Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives; 1=*Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

[2] Sustainability Dimension Indices: *4 = Likely (L):* negligible risks to sustainability; *3 = Moderately Likely (ML):* moderate risks to sustainability; *2 = Moderately Unlikely (MU):* significant risks to sustainability; and *1 = Unlikely (U):* severe risks to sustainability. *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

TSE) including the private sector to a common platform that facilitated useful dialogue on common goals. This had the effect of improving the effectiveness and pace of market transformation for white appliances in Turkey;

- TURKBESD and other industry associations are only obliged under the "Regulation on Increasing Efficiency in use of Energy and Energy Resources" to report appliances sold by energy consumptive class to DGRE. As such, there is scope to have sales data broken down into product groups which have specific energy consumption information, thereby enhancing DGRE's market monitoring database with more precise information:
  - The difficulty of implementing this recommendation is the reluctance of manufacturers in sharing specific sales information that is considered to be proprietary;
  - Custody of the market monitoring database after the EOP has not yet been finalized. There have been discussions between MoSIT, DGRE and the PMU on transferring the market monitoring database to the Energy Efficiency Portal (EnVer) that is currently being hosted under DGRE and the UNDP-GEF project "Improving Energy Efficiency in Industry";
  - No confirmed institutional linkage between DGRE and MoENR who are responsible for reporting GHG emissions to UNFCCC on behalf of the Government. If information on the market monitoring database is posted within the EnVer portal, the evaluators are not clear on the formalities to transmit reports from the EnVer portal to the MoENR for the purposes of national communications and reporting GHG emissions.

## Recommendations

***Recommendation 1: Improve quality of energy and GHG data received from industry associations and other sources:***

- The DGRE should oblige the manufacturers (either by regulation or communication on their website) to submit sales weighted average energy consumption data by energy classes. Notwithstanding the reluctance of manufacturers to release such information for proprietary reasons, the DGRE can conduct further discussions with the manufacturers on this issue. Specifically, DGRE should discuss the means to report weighted sales information for specific product groupings that have a smaller range of energy consumption class. This would be an improvement over the current sales data which only includes the sale of an energy consumption class (i.e. A+, A++, etc.) where there is an assumed average energy consumption over a wide range and sizes of appliances;
- One approach could be also to hire private market research companies to collect this data;
- MoENR who are responsible for reporting GHG emissions to UNFCCC should be consulted on issues related with quality assurance of GHG data reported to them.

***Recommendation 2: Continue public awareness raising activities to sustain efforts to change consumer behaviour:***

- Continued Government involvement in public awareness programmes is required especially considering the continual improvement of appliances in terms of energy efficiency, and the coverage of new appliances that will soon be covered under EU legislation for energy efficiency;
- Facilitate support for awareness raising programmes conducted by universities. This would include amongst other support, finding corporate partners who will provide these universities with support after the EOP. For example:
  - Boğaziçi University has developed a mobile phone application to provide consumers with energy efficiency information for a number of appliances. With the completion of

the project, the University developers of the phone app will need support to continually update the app with new information;
- Özyeğin University has developed a mobile energy demonstration centre, the LEDiod, which is moved to the various cities around Turkey to show how energy efficient products such as LED lights and televisions are made. After the EOP, the developers of the LEDoid will need support for the continual upkeep, product updating, and transport of the LEDoid to various communities around Turkey;.

- Support networking events for these universities and other key stakeholders such as appliance manufacturers, consumer protection agencies, ESCOs and relevant government agencies that will foster symbiotic relationships towards promoting energy efficiency in appliances and other consumer goods in Turkey

***Recommendation 3: Support appliance re-cycling program so that it expands to all alliance manufacturers.*** Even though it is mandatory under the Turkish regulation that was transposed from the EU WEEE Directive for manufacturers to recycle old appliances, enforcement needs to be improved to ensure that there is a linkage between the purchase of a new appliance and the proper disposal of an old plants. This will provide assurances to MENR that there are no leakages in the reporting of GHG emissions from new appliance sales (i.e. no reuse of old appliances or the improper disposal of old appliances such as refrigerators that would lead to more GHG emissions). The evaluator to this point has identified Arçelik is the only private sector manufacturer that is properly disposing of old refrigerators. Reporting and supporting of an appliance recycling program for other manufacturers in Turkey would be beneficial and important to the market transformation efforts undertaken by this Project.

***Recommendation 4: Assess the feasibility of testing of used appliances by TSE for energy performance.*** While the testing of new appliances has been strengthened through this Project, it is a well-known fact that there is a deterioration in appliance energy performance over time. The government should be interested in knowing what the deterioration of energy performance of appliances would be over time. PMSP activities would benefit from the testing of used white appliances to better understand their deterioration rates in energy performance. The undertaking of "*accelerated life cycle testing*" for the purposes of failure behaviour of appliances throughout their life cycle, however, is known to be very costly. MoSIT as well as TSE should continually inform itself on the benefit cost analysis of accelerated life cycle testing, with the purposes of making this investment in the future.

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## Lessons Learned

With the completion of a successful appliance market transformation project, there are many lessons to be learned from its design and implementation:

- *Design of a market transformation project needs to be integrated with all elements required for such a transformation*. From the perspective of MoSIT personnel, there were previous projects that attempted market transformation of appliances in Turkey. The reason these projects did not lead to desirable outcomes was due to the fact that these projects did not have a full complement of activities to facilitate market transformation. The MTEEA Project design included awareness raising, market surveillance and equipment testing activities on the same project, all activities of which are complementary to each other. The Government has expressed its appreciation for the integrated design of this project and its timeliness that accelerated the development of market surveillance, equipment testing and market transformation of the Turkish white appliances market;

- *The design phase of a market transformation project needs to include the careful analysis of all relevant stakeholders.* For some of the GEF industrial energy efficiency projects, responsibilities generally get divided between the agency responsible for energy issues and another responsible for industrial production. In recent times, the efficiency of industrial production has increasingly included energy issues which historically has not been the domain of ministries responsible for the industrial sector. As such, there are a number of GEF energy efficiency projects in the industrial sector globally where inter-ministerial cooperation is an important aspect. In the case of the MTEEA Project, the implementing entity of the project was DGRE with the implementing partner being MoSIT, the agency responsible for supporting industrial production in Turkey. In particular, the implementing entity DGRE had few if any legal instruments and jurisdiction on appliance energy efficiency, with MoSIT being directly responsible for enforcement of eco-design and energy labeling regulations. Although the PMU successfully managed these difficulties by expending considerable efforts to reach consensus between all relevant stakeholders and implement Project activities with no or little delays, careful stakeholder analysis to identify the appropriate implementing entity and implementing partners is of utmost importance to reduce project risks of inefficient implementation. This would include the identification of an implementing entity who are directly responsible for enforcement of applicable legislation that would effectively correlate to the interests of the private sector;

- *The key activity in a market transformation project is to bring all stakeholders to the same table in the spirit of understanding the agendas of other stakeholders, and to provide a forum for creating an environment of common interests and compromise.* The Project was able to bring these disparate stakeholders onto a common platform that ensures: (i) fair competition on the market which is for the benefit of all manufacturers/suppliers because the products will be actually tested and market surveillance activities would no longer be limited to checking existence of an energy label; (ii) the design of the training programme for testing staff would be supported by manufacturers and equipment suppliers to strengthen TSE's ability to correctly test their products and boost confidence for the market players; (iii) TSE would have more sophisticated testing facilities to better serve MoSIT in market surveillance activities as their exclusive testing authority (as opposed to the previous status of TSE who found themselves out of this process without future business opportunities in both national and international conformity assessment markets); and (iv) much better control over the marketplace for MoSIT with improved knowledge of their field inspectors that would improve their implementation of market surveillance activities complete with product testing;

- *Implementing a small-scale grant programme has excellent potential to achieve a multiplier effect and enhance the sustainability of project results.* One of the original targets of the MTEEA Project was to have "energy efficiency aspects increasingly included into the curricula of relevant educational institutions" (Output 4.2). Without any strategies to meet this target, the PMU received PSC approval to implement a mini-grant programme for the universities that included the compulsory embedding of EE appliances into the curricula and to address and implement different aspects of Appliance Energy Efficiency that would include socioeconomic, engineering, public awareness raising and gender considerations. The design of the Grant Programme enabled the MTEEA Project to multiply the effects of the Project results through dissemination of EE appliance messages of the Project to younger generations via compulsory and elective courses. The implementation of the small-scale grant programme can be viewed as a successful example of leveraging GEF funds to enhance outcomes and objectives;

- *The importance of early delivery of concrete outputs on a project increases the commitment of all relevant stakeholders on a project.* On the early phases of the MTEEA Project, the rapid delivery of inception phase outputs within 7 months (such as the definition of project teams, completion of ToR's and procurement notices and contracting of outsourced assistance) allowed the PMU to implement the study tours as well as accelerate the transposition of EU eco-design and energy labelling regulations. This accelerated delivery of outputs facilitated commitments other stakeholders including TSE towards investment in upgraded testing equipment, Arçelik coverage of all costs related to the public awareness raising campaign which led to surplus funds being available for the small-scale grant programme and the Project being able to extend its scope to cover EE in small domestic appliances and development of a scheme to monitor the household energy consumption from domestic appliances;

- *The competence and diligence of the Project management personnel is critical in the implementation of project activities.* The experience of PMU personnel was most appropriate in the implementation of the MTEEA Project. This included an excellent technical background of PMU personnel as well as experience in working with MoSIT which allowed the PMU personnel to identify the critical needs of all project partners and relevant stakeholders. The MTEEA PMU was able to identify the need for acceleration of transposition of EU eco-design and energy labeling regulations, add an additional training component on the training of MoSIT on the management of a market surveillance programme, add training of market inspectors for MoSIT, and implement consumer surveys with gendered disaggregated information and a small-scale grant programme to enhance public awareness raising outcomes of the Project;

- *Adaptive management of GEF projects can be improved through detailed preparation of one-year work plans.* The MTEEA Project PMU prepared one-year work plans which facilitated adaptation to the progress from the previous year, and adaptively manage the activities of the following year to the needs of the stakeholders. By preparing detailed one-year work plans in close consultation with the PSC and RTA, the PMU was able to be flexible in terms of its implementation of the Project. This approach to work planning allowed the PMU to add project activities not originally contemplated in the original Project document such as the Grant Programme, management training for a market surveillance program, addressing EE in small domestic appliances, and the monitoring of household energy consumption from domestic appliances;

- *Since market transformation usually takes more than 4 years, future GEF projects should be designed with a duration of 5 to 6 years.* The MTEEA Project was designed as a 4-year project but was successfully implemented as a 5-year project. If the original Project design have been designed for 5 or 6 years, the 2 extensions of the MTEEA Project would not have been necessary. Moreover, the MTEEA Project expended around 7 to 8 months to staff the PMU (while other similar GEF projects sometimes take more than 1 to 1.5 years to recruit a PMU team). A more efficient process for recruiting PMU staff should be considered at the startup of all GEF projects. This should include the screening and shortlisting of PMU staff candidates prior to the commencement of a GEF project.

# 1. INTRODUCTION

This report summarizes the findings of the Terminal Evaluation Mission conducted during the November 2-11, 2015 period for the UNDP-GEF Project entitled: market transformation of energy efficient appliances in Turkey (hereby referred to as MTEEA, EVÜdp or the Project), that received a USD 2.71 million grant from the Global Environmental Facility (GEF).

The Project was developed in 2009-10 by UNDP as a nationally executed (NEX) project (now referred to as National Implemented Modality or NIM). The Project Document (ProDoc) provides details to reducing household electricity consumption and related GHG emissions of Turkey through the acceleration and ensuring market transformation towards more efficient appliances. The Project commenced operations in March 2010 with the conclusion of the Inception Phase that was marked by an Inception workshop held in December 2010. The Project completion is scheduled for December 31, 2015.

## 1.1 Background

Improvements in the standards of living in Turkey over 10 years have increased the country's energy consumption and GHG emissions. Turkey's GHG emissions have increased from 225 Mtonnes $CO_{2eq}$ in 2000 to over 358 Mtonnes $CO_{2eq}$ in 2012, an increase of 58.5%[3]. Emissions from electricity generation have increased from 26 Mtonnes $CO_{2eq}$ in 1990 to over 83 Mtonnes $CO_{2eq}$ in 2009, a three-fold increase. Electricity generation comprises over 28% of Turkey's GHG emissions.

Since 1987, nearly all Turkish households have had access to electricity. With rising standards of living, the average Turkish household has had increasing access to electrical appliances such as refrigerators, ovens, washing machines, driers and air conditioners. As a result, average household electricity consumption in Turkey has risen from 1,518 kWh in 2000 to 2,010 kWh in 2008, an average rise of 3.6% over an 8-year period. Prior to the commencement of the Project, the government had undertaken measures to steer appliance sales towards more modern, less energy-consuming household appliances since the 1990s; however, the government's ability to regulate, monitor and enforce the sale and use of these appliances was limited. This has led to products on the market that do not meet EU standards for energy performance, a loss of consumer confidence in the purchase of these appliances, and, consequently, a lower market share.

MTEEA had aims to reduce GHG emissions through increased sales of energy efficient appliances in the country. To achieve this goal, MTEEA was designed to improve the institutional capacities for the development and implementation of effective EE appliance policies, to strengthen existing enforcement and verification programs designed to improve compliance to EE policies, and to strengthen awareness of EE appliances through the entire supply chain (i.e. local manufacturers, wholesalers, retail outlets, consumer groups), and disseminating lessons learned. MTEEA has been operational for more than 5 years with the Inception Workshop taking place in December 2010.

[3] https://unfccc.int/files/ghg_emissions_data/application/pdf/tur_ghg_profile.pdf

MTEEA was implemented under a NIM modality with most Project activities focused on the Directorate General of Renewable Energy (formerly known as the General Directorate of Electrical Power Survey and Development Administration) under the Ministry of Energy and Natural Resources (MENR) as the Executing Agency and MoSIT, the ministry responsible for transposing and enforcing eco-design and labeling regulations, and where most of the project activities towards capacity building will be focused under the coordination of Executing Agency and its coordination role with other agencies whose activities are tied to the various project outputs including:

- The Directorate General of Industry in MoSIT[4] who are in charge of transposing EU S&L regulations into Turkish legislation and General Directorate for Safety and Inspection of Industrial Products who are responsible for market surveillance under EU S&L regulations;
- The Turkish Standards Institute who are transposing EU test procedures into a Turkish context;
- The Turkish Accreditation Agency (TURKAK) who is responsible for accrediting local laboratories, inspection and certification services to EU standards.

In addition, non-governmental groups are critical to MTEEA including:

- The Association of Turkish White Goods Manufacturers (TURKBESD) who provide sales data on EE appliances;
- Arçelik, a private company that has numerous retail outlets and are willing partners in raising awareness of the S&L drive for EE appliances.

## 1.2 Terminal Evaluation

### 1.2.1 Purpose of the Evaluation

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a Terminal Evaluation (TE) upon completion of implementation of a project to *provide a comprehensive and systematic account of the performance of the completed project by evaluating its design, process of implementation and achievements vis-à-vis GEF project objectives and any agreed changes during project implementation.* As such, the TE for this Project will serve to:

- promote accountability and transparency, and to assess and disclose levels of Project accomplishments;
- synthesize lessons that may help improve the selection, design and implementation of future GEF activities;
- provide feedback on recurrent issues across the portfolio, attention needed, and on improvements regarding previously identified issues;
- contribute to the GEF Evaluation Office databases for aggregation, analysis and reporting on effectiveness of GEF operations in achieving global environmental benefits and on the quality of monitoring and evaluation across the GEF system.

[4] Ministry of Industry and Trade (MoIT) was reorganized as Ministry of Science Industry and Technology (MoSIT) as a result of Decree Law published in Turkish Official Gazette on 4 June 2011

This TE was prepared to:

- ⇒ be undertaken independent of Project management to ensure independent quality assurance;
- ⇒ apply UNDP-GEF norms and standards for evaluations;
- ⇒ assess achievements of outputs and outcomes, likelihood of the sustainability of outcomes; and if the Project met the minimum M&E requirements;
- ⇒ report basic data of the evaluation and the Project, as well as provide lessons from the Project on broader applicability.

The TE mission was fielded to Istanbul and Ankara, Turkey between the 2nd and 11th of November 2015. The Terms of Reference (ToRs) for the TE are contained in Appendix A. Key issues addressed on this TE include:

- The actual impact of Project activities; and
- The contribution of the Project to the sustainability of actual measures undertaken at the time of this Evaluation.

Outputs from this TE will provide an outlook and guidance in charting future directions on sustaining current efforts by MoSIT and DGRE on market surveillance programs and the promotion of energy efficiency in Turkish manufactured products.

### 1.2.2 Evaluation Scope and Methodology

The methodology adopted for this evaluation includes:

- Review of project documentation (i.e. APR/PIRs, meeting minutes of PSC) and pertinent background information;
- Interviews with key project personnel including the Project Manager, technical advisors (domestic and international), and Project developers;
- Interview with relevant stakeholders from Government; and
- Field visits to selected Project sites and interviews with beneficiaries.

A full list of documents reviewed and people interviewed is given in Annex B. A detailed itinerary of the Mission is shown in Appendix C. The Evaluation Mission for the UNDP-GEF project was comprised of one international expert.

### 1.2.3 Structure of the Evaluation

This evaluation report is presented as follows:

- An overview of Project activities from commencement of operations in December 2010;
- An assessment of Project results based on Project objectives and outcomes through relevance, effectiveness and efficiency criteria;
- Assessment of sustainability of Project outcomes;
- Assessment of monitoring and evaluation systems;
- Assessment of progress that affected Project outcomes and sustainability; and
- Lessons learned and recommendations.

This evaluation report is designed to meet GEF's "Guidelines for GEF Agencies in Conducting Terminal Evaluations, Evaluation Document No. 3" of 2008:

http://www.thegef.org/gef/sites/thegef.org/files/documents/Policies-TEguidelines7-31.pdf

The Evaluation also meets conditions set by the UNDP Document entitled "UNDP GEF – Terminal Evaluation Guideline" (http://erc.undp.org/resources/docs/UNDP-GEF-TE-Guide.pdf) and the UNDP Document entitled "Handbook on Planning, Monitoring and Evaluating for Development Results", 2009:

(http://www.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf)

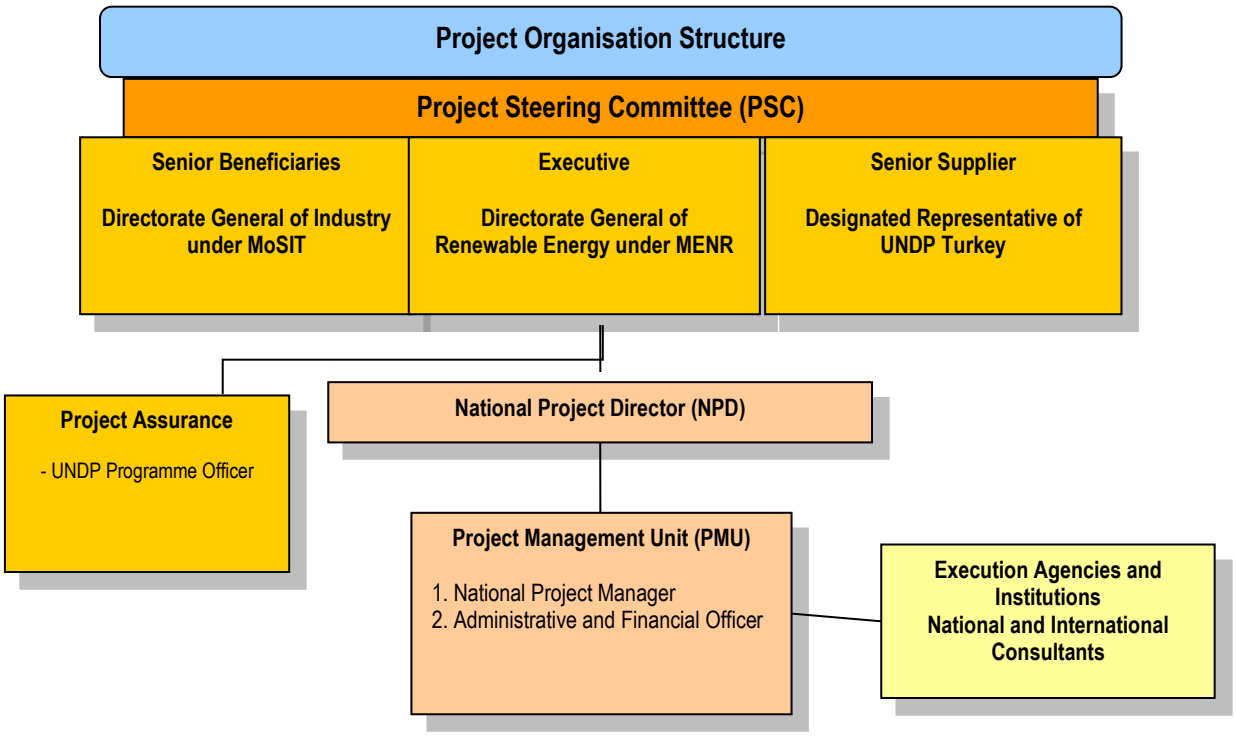
and the "Addendum June 2011 Evaluation":

http://www.undp.org/evaluation/documents/HandBook/addendum/Evaluation-Addendum-June-2011.pdf

### 1.2.4 Project Implementation Arrangements

Implementation arrangements for the MTEEA Project were under national implementation modality (NIM) that involved UNDP Turkey as the Implementing Agency, the Directorate General of Renewable Energy (DGRE) as the Executing Agency, and the Ministry of Science, Industry and Technology (MoSIT) as an Executing Partner. An organogram of MTEEA implementation arrangements is provided on Figure 1.

**Figure 1: Management Arrangements for the "Market Transformation of Energy Efficient Appliances in Turkey" Project**


Project Organisation Structure
Project Steering Committee (PSC)
Senior Beneficiaries
Directorate General of Industry under MoSIT
Executive
Directorate General of Renewable Energy under MENR
Senior Supplier
Designated Representative of UNDP Turkey
Project Assurance
- UNDP Programme Officer
National Project Director (NPD)
Project Management Unit (PMU)
1. National Project Manager
2. Administrative and Financial Officer
Execution Agencies and Institutions
National and International Consultants

# 2. PROJECT DESCRIPTION AND DEVELOPMENT CONTEXT

## 2.1 Project Start and Duration

The MTEEA project document (ProDoc) was signed in March 2010 with an assumed 4-year duration. The actual Project operations, however, did not commence until December 2010, 8 months later with the Inception Workshop. The current termination date of the MTEEA Project is 31st of December 2015.

## 2.2 Problems that Project Sought to Address

In 1995, Turkey signed the EU-Turkey Customs Union Agreement. This agreement along with EU accession negotiations served as primary drivers behind Turkey's efforts in transposing EU directives on energy efficiency standards and labels that were in force in 2009[5], during the period when the MTEEA Project was being prepared. The basis for the transposition of these EU directives was established by the Law # 4703 on "Preparation and Implementation of the Technical Regulations on Products", after which relevant EU directives were transposed into the national legislation for selected household appliances, including[6]:

- Electric refrigerators, freezers and their combinations (2002 and 2005);
- Washing machines, electric tumble driers and combined washer-driers (2003);
- Dish washers (2003);
- Lamps (2003); and
- Air Conditioners (2007).

Notwithstanding these directives that mandate the use of labels and define the thresholds for different energy classes, the Government of Turkey was left to implement these directives that included the formulation and adoption of Ecodesign and energy labeling regulations, raising public awareness, training of retail chains and the checking and verification of compliance to new regulations. Moreover, EU directives at that time accepted that the governments react to known incidences of noncompliance without the need for a structured verification and enforcement program. As a result, the uptake of energy efficient appliances in Turkey was poor. One indicator of this was the average annual increase in household electricity consumption in Turkey of 3.6% between 2000 and 2008. Despite these efforts, the government was unable to keep products off the Turkish market that did not meet EU standards for energy performance.

The MTEEA Project was designed specifically to accelerate market transformation towards more energy efficient appliances resulting in the outcome of reducing household electricity consumption and related greenhouse gas emissions from Turkey. To achieve these objectives, the MTEEA Project provided an integrated design to:

[5] The EU regulatory framework concerning labelling of energy-related products was set in the Council Framework Directive 92/75/EEC "On the Indication by Labelling and Standard Product Information of the Consumption of Energy and Other Resources by Household Appliances", under which the particular implementing measures for selected appliances are introduced in the so-called "daughter directives".

[6] The year of adoption in Turkey is indicated in the brackets

- improve institutional capacities for the development and implementation of effective EE appliance policies. This would help the Government to overcome the shortage of qualified personnel to develop and implement EE appliance policies that were aligned to EU legislation;
- strengthen existing enforcement and verification programs designed to improve compliance to stronger EE policies. This would help the Government to overcome the barrier of a lack of capacity to effectively enforce EE appliance policies that would include market surveillance and equipment testing;
- strengthen awareness of EE appliances through the entire supply chain (i.e. local manufacturers, wholesalers, retail outlets, consumer groups), and disseminating lessons learned. The project would ensure the full understanding of the life cycle benefits of the use of EE appliances that would include its energy consumption; and
- institutionalize all Project activities including awareness raising to increase the likelihood of sustainability of activities to accelerate market transformation towards energy efficient appliances. This would ensure that Project stakeholders such as the Government, academic institutes and appliance manufacturers would be equipped with the necessary knowledge of EE appliances to implement market transformation activities after the EOP.

## 2.3 Objectives of MTEEA

Based on a revised project planning matrix (PPM) approved by the PSC in December 2010, the objective of the MTEEA Project was designed specifically to "reduce household electricity consumption and related GHG of Turkey by accelerating and ensuring the market transformation towards more energy efficient appliances." with the following targets:

- An indirect target of "1.7 million tonnes $CO_2$/year" (using causality factor of 60%) by appliances sold during the Project"; and
- A 2 to 28% reduction of the average unit electricity consumption by 2013 compared to the estimated baseline development.

The revised MTEEA log-frame from January 2011 is contained in Appendix F.

## 2.4 Main Stakeholders

The main stakeholders of the MTEEA Project that were interviewed (unless otherwise noted) during the TE mission included:

- General Directorate of Renewable Energy or DGRE (Executing Agency) under the MENR;
- General Directorate of Industry or DGI (Executing Partner) under the Ministry of Science, Industry and Trade (MoSIT);
- The Turkish Standards Institute (TSE) under MoSIT;
- The Turkish Accreditation Agency (TURKAK), a financially and administratively autonomous agency responsible for accrediting local laboratories, inspection and certification services to EU standards;

- The Association of White Goods (TURKBESD), which provides sales data for the EE appliances product groups within the scope of the Project;
- Arçelik, a private company that has numerous retail outlets and is a willing partner in raising awareness of the S&L drive for EE appliances

## 2.5 Expected Results

To achieve the overall objective of reducing household electricity consumption and related greenhouse gas emissions of Turkey by accelerating and ensuring the market transformation towards more energy efficient appliances, the MTEEA Project was designed for the removal of barriers with the following expected **Project outcomes** (based on the revised December 2010 PPM as follows:

- Outcome 1: Enhanced institutional capacities in Turkey to develop and implement effective appliance EE policies;
- Outcome 2: A structured enforcement and verification program with adequately trained staff and other resources;
- Outcome 3: Raised awareness of the end-users and the supply chain and strengthened capacity of the local manufacturers to develop and implement specific promotional activities to enhance the sale of energy efficient appliances;
- Outcome 4: Institutionalization of the support provided by the Project, including monitoring, learning, adaptive feedback and evaluation.

# 3. FINDINGS

## 3.1 Project Design and Formulation

The design of the MTEEA Project was prepared in 2009 and 2010 in close consultation with the "General Directorate of Electrical Power Resources Survey and Development Administration" (which was the former name of the current Directorate General of Renewable Energy (DGRE) under the Ministry of Energy and Natural Resources) and the Directorate General of Industry (under the former Ministry of Industry and Technology).

Moreover, the implementation approaches to the Project were again discussed during the Inception Workshop of December 2010 with the main relevant government agencies, retailers and consumer groups, including the DGRE (under the MoENR), MoSIT, TURKBESD and Arçelik. All stakeholders accepted the design and implementation approach of the Project which at the time was set for 4 years, a relatively short time to complete market transformation. Notwithstanding the short 4-year project period for a market transformation project, the Project received strong support from all stakeholders.

### 3.1.1 Analysis of Project Planning Matrix

The Project Planning Matrix (PPM) in the Prodoc was slightly revised during the inception phase of the project in December 2010 and January 2011. The PPM is contains a sufficient number of indicators and targets to support market transformation towards energy efficient household appliances. However, the wording of most of the indicators do not meet SMART criteria[7]; however, the "intent" of the indicators and targets set in the PPM were sufficiently clear for the Project team to plan activities. Some examples include:

- The indicator "availability of required data" from Output 1.2 is not relevant for time bound. However, Project resources were placed towards the formulation of a structured market monitoring system. A more relevant indicator would have been a "functional structured market monitoring system";
- The indicator "status of the pilot project" from Output 2.3 is not specific or measurable. Project resources, however, were used to set up compliance checking and enforcement schemes for six targeted appliances. As such, a key component to market transformation was to be implemented. A more specific and measurable indicator would have been the "number of appliances with compliance checking and enforcement schemes", which in this case would have been a target of 6 appliances;
- The indicator of Output 3.3 is "impact of the content of the website in consumers purchasing decisions", an indicator that is not measurable and time bound. A more appropriate indicator would have been "% of consumers interviewed who are more aware of the usefulness of the consumers website…..", which could lead to Project resources being used to conduct a consumer awareness survey;
- The indicator of Output 4.2 is "the level of inclusion of appliance energy efficiency aspects into the curricula of relevant educational institutions" is not measurable, attainable or relevant. A more appropriate indicator would have been number of students enrolled in courses on energy efficiency aspects…..".

[7] Specific, Measurable, Attainable, Relevant and Time-bound

In conclusion, the strong competence of the PMU staff in implementing market transformation activities was the primary reason that this Project was successfully implemented notwithstanding a PPM that lacked SMART indicators. In addition, the PMU were able to formulate their own SMART indicators to effectively monitor their progress.

### 3.1.2 Risks and Assumptions

There are risks and assumptions in the revised PPM of the Inception Report that are mostly related to sustained interest of key stakeholders in participating in financing the promotion of EE appliances. Considering the progress and achievements of the Project, the risks and assumptions covered in the original PPM appeared to be sufficient.

### 3.1.3 Lessons from Other Relevant Projects Incorporated into MTEEA Design

According to senior personnel in DGI, previous projects to assist in the market transformation on white appliances in Turkey did not include all the elements required to complete the market transformation. They included an example of a previous project which provided capacity building for market surveillance activities but with no assistance to strengthen equipment testing facilities. Another example included a project with technical assistance to strengthen equipment testing facilities but with no assistance for market surveillance activities. The design of the MTEEA Project used lessons learned from these previous projects to provide an integrated and comprehensive design that incorporates all elements required for market transformation of EE appliances.

### 3.1.4 Planned Stakeholder Participation

Stakeholder participation was to be facilitated through the revised MTEEA Project design activities including:

- Training workshops for MoSIT personnel on market surveillance;
- Participation of government stakeholders in international and national workshops and study tours; and
- Joint marketing campaigns with the private sector for selected EE appliances.

With regards to the increasing inclusion of EE appliances into the curricula of educational institutes (Output 4.2), the Project document does not define how academia stakeholders would be participating on the Project. During the Project design, implementation of a small scale grant programme was not envisaged.

### 3.1.5 Replication Approach

The Project design envisaged a replication approach where the lessons learned on the MTEEA Project would be of direct interest to other countries. This would have required the MTEEA Project to be implemented with close monitoring and evaluation of the Project results. In addition, the Project design also sought to facilitate continuing contacts and cooperation between different stakeholder groups at the national and international level through organization of seminars, workshops and other public events that would bring together policymakers, potential investors and donors.

### 3.1.6 UNDP Comparative Advantage

The comparative advantage of UNDP's involvement on MTEEA is its focus on long-term involvement and close collaboration with the Government of Turkey and local stakeholders on energy efficiency and other climate change mitigation developments. UNDP has undertaken a number of similar type projects in other developing countries to provide a focus on improving the energy efficiency of the industrial sector. UNDP has a strong track record of developing local capacity, and effectively working with multiple stakeholders from public and private sectors, technical experts, civil society, and grassroots level organizations. In the context of energy efficiency promotion in Turkey, UNDPs approaches to these projects play to its strength including a multi-dimensional development perspective, and its ability to address cross-sectoral issues and inclusiveness in constituency building.

### 3.1.7 Linkages between MTEEA Project and Other Interventions within the Sector

The MTEEA Project design from the Inception Report identifies links to the national government initiative to Turkish regulations with energy labelling and eco-design regulations of the European Union. These new European regulations (from the Customs Union between Turkey and the EU) and energy labelling regulations (under Directive 2010/30/EU) are listed in the Project Inception Report of January 2011.

### 3.1.8 Management Arrangements

The original management arrangements of the MTEEA Project consisted of the DGRE as the Executing Agency and the Directorate General of Industry under MoSIT as the Executing Partner. The Project Steering Committee (PSC) was to be established to monitor Project progress, guide implementation and support the Project towards achieving targeted outputs and outcomes. In this regard, the PSC was designed to be comprised of DGRE, MoENR, DGI (under the MoSIT), UNDP Turkey, the Association of White Goods Manufacturers (TURKBESD) and Arçelik A.Ş.

From a Project design perspective, the evaluator notes that this arrangement differs from other similar projects globally under GEF. The primary difference is that the executing agency for the MTEEA Project is with a ministry related to energy while the primary activities of the MTEEA Project lie with a ministry related to industrial development. The MTEEA Project was successfully implemented, primarily due to the strong efforts of the executing agency (DGRE), executing partner (MoSIT) and the PMU of the MTEEA Project. However, from an institutional perspective, activities of the MTEEA Project were centred around the definition of energy standards of energy efficient appliances, surveillance of the appliance market, and increased capacity for testing of appliances for compliance to new energy standards. Since all these activities fall under various directorates of MoSIT, implementation efficiency of the MTEEA Project would have improved if MoSIT were the executing agency..

## 3.2 Project Implementation

The following events and issues were significant in the context of how the MTEEA Project was implemented:

- The rapid achievement of a number of Project outcomes up to 2013. This would include amongst other Project achievements, the enhanced institutional capacities within MoSIT to develop and implement policies related to increased energy efficiency of appliances in Turkey (Outcome 1) and the rapid adoption of a structured enforcement and verification program to ensure compliance of new appliances entering the Turkish market with new energy labelling regulations (Outcome 2);
- Extension of the Project to utilize surplus funds at the end of 2013 to augment and ensure sustainability of the Project activities. Due to the efficiency on which Project funds were expended up to 2013, funds were available to enhance outcomes of increased user awareness of energy efficient appliances and the embedding of appliance energy efficiency into the curricula of relevant educational institutes. The approval of the use of the surplus funds for a small grant programme to 5 universities in Turkey to carry out these additional activities required the extension of the project from its original terminal date of December 2014 to the new terminal date of December 2015.

### 3.2.1 Adaptive Management

The activities proposed in the original Project design were based on the status of white appliance energy efficiency initiatives in 2009 and 2010. This included:

- Low government capacity to transpose EE standards for white appliances to Turkish legislation;
- Low government knowledge of EE appliances, and approaches to facilitating market transformation towards EE appliances in the Turkish market including market surveillance;
- Low capacity of institutions for testing appliance equipment for energy performance standards;
- Poor outreach to private sector manufacturers of white appliances.

Throughout the duration of the MTEEA Project, UNDP adaptively managed a number of Project issues including:

Identification of specific EU regulations in 2011 that required transposing into Turkish for national regulations on energy labelling and eco-design requirements;

- The exclusion of financial mechanisms to catalyze market transformation towards energy efficient appliances. This was based on an assessment of the data on market surveillance activities that substantial market transformation was underway;
- The provision of additional training to MoSIT inspection officers to meet the demands for additional market surveillance under the “Proactive Market Surveillance Program” (PMSP);
- The formulation of a small-scale grants programme to universities to utilize surplus Project funds to enhance the sustainability of public awareness raising activities and embedding of energy efficiency appliances in university curricula;
- Preparation of detailed annual work plans with the intent of accelerating earlier achievement of Project targets and objectives.

### 3.2.2 Partnership Arrangements

Planned stakeholder participation was implemented as planned. Most importantly, the planned partnerships formed augmented the intended Project outcomes including:

- The partnership with Arçelik, one of the largest white appliance manufacturers in Turkey. Arçelik were instrumental in working closely with the Project and the Government on the development of eco-design and energy labelling requirements for appliances. In addition, they undertook significant initiatives to raise awareness on energy efficiency in white appliances;
- Five well-known universities in Turkey that were beneficiaries of the small scale grant programme (covered under Outcomes 3 and 4) to provide unique measures on raising awareness of energy efficiency in white appliances.

### 3.2.3 Feedback from M&E Activities Used for Adaptive Management

Feedback for M&E activities has been provided through:

- QPRs that were regularly issued during the Project;
- PIRs and APRs from 2011 to 2015;
- PSC meeting minutes; and
- The Mid-Term Evaluation (MTE) report from July 2012.

These reports contained the details for monitoring revised Project activities and recommending adaptive management measures to ensure efficient implementation of the revised Project designs. These reports contain an adequate amount of detail on the thought processes that affected project implementation.

The MTE report is also considered feedback for adaptive management of the Project. It contained 3 recommendations for consideration by the PMU to:

- Improve the quality of energy and GHG data received from industry associations and other sources;
- Explore possible financial incentives to accelerate EE appliance market transformation; and
- Consider a possible extension of the Project to achieve all objectives.

In conclusion, the Project had sufficient feedback from M& E activities to adaptively manage the Project.

### 3.2.4 Project Finance

MTEEA had a GEF budget of USD 2.71 million that was utilized over its 60-month duration, managed by the PMU under a “NEX modality” and approval by the PSC for various technical assistance activities and workshops, and implementing a small-scale grant programme to enhance public awareness of EE appliances including EE appliance curricula in 5 universities in Turkey.

Table 1 provides an overview of expenditures of the GEF Project budget of USD 2.71 million from December 2010 to November 2015. The remaining USD 155,000 is to be utilized for the final workshop, preparation of knowledge products and the PMU costs. *The cost effectiveness of the Project has been highly satisfactory* in consideration that the intended outcomes of the Project were achieved by late 2013. The remainder of the funds were used to enhance the sustainability of all the Project activities, namely the small scale grant programme to the 5 universities to support EE awareness raising and embedding of EE appliances into university curricula.

Actual Project co-financing was exceeded by 78% over the ProDoc estimate of USD 2.95 million. Higher co-financing estimates were due to the contributions from other government partners including DGI under MoSIT and TSE with regards to the transposition of EU regulations into Turkish legislation and their contributions to the setup and coordination of the market surveillance system. Co-financing details can be found on Table 2.

**Table 1: GEF Project Budget and Expenditures for MTEEA Project (in USD as of October 31, 2015)**

| Outcome | Budget (from Inception Report) | 2010* | 2011 | 2012 | 2013 | 2014 | 2015** | Total Disbursed | Total Remaining |
|---|---|---|---|---|---|---|---|---|---|
| Outcome 1: Enhanced institutional capacities in Turkey to develop and implement effective appliance EE policies. | 350,000 | 19,449 | 103,280 | 227,647 | 34,854 | 2,400 | 22,500 | 410,131 | |
| Outcome 2: A structured enforcement and verification program with adequately trained staff and other resources | 1,064,000 | 0 | 23,526 | 189,810 | 81,766 | 591,028 | 45,713 | 931,843 | |
| Outcome 3: Raised awareness of the end-users and the supply chain and strengthened capacity of the local manufacturers to develop and implement specific promotional activities to enhance the sale of energy efficient appliances. | 820,000 | 1,050 | 14,185 | 79,584 | 129,942 | 53,039 | 27,260 | 305,060 | |
| Outcome 4: Institutionalization of the support provided by the project, including monitoring, learning, adaptive feedback and evaluation. | 276,000 | 0 | 11,689 | 41,625 | 30,662 | 527,959 | 95,482 | 707,417 | |
| Project Management Unit | 200,000 | 21,840 | 18,903 | 62,248 | 54,575 | 37,348 | 5,790 | 200,704 | |
| Total (Actual) | 2,710,000 | 42,339 | 171,583 | 600,913 | 331,799 | 1,211,774 | 196,745 | 2,555,153 | 154,847 |
| Total (Cumulative Actual) | 2,710,000 | 42,339 | 213,922 | 814,835 | 1,146,634 | 2,358,408 | 2,555,153 | | |
| Annual Planned Disbursement (from Inception Report) | n/a | 54,500 | 529,000 | 1,252,200 | 874,300 | | | | |
| **% Expended of Planned Disbursement** | **n/a** | | | **48%** | **38%** | **n/a** | **n/a** | | |

Remarks: * Commencing March 10, 2010.
** Up to October 31, 2015

**Table 2: Co-Financing for MTEEA project (as of November 30, 2014)**

| Co-financing (type/source) | UNDP own financing (million USD) | | Government (million USD) | | Partner Agency[20] (million USD) | | Private Sector (million USD) | | Total (million USD) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual |
| Grants [21] | 0.020 | 0.016 | 0.434 | 1.950[22] | 0.205 | 0.240 | 0.600 | 0.645[23] | 1.259 | 2.851 |
| Loans/Concessions | | | | | | | | | | |
| • In-kind support | | | 0.515 | 0.845[24] | 0.372 | 0.378 | 0.700 | 1.049[25] | 1.587 | 2.272 |
| • Other | | | | | | | 0.100[26] | 0.132[27] | 0.100 | 0.132 |
| **Totals** | 0.020 | 0.016 | 0.949 | 2.795 | 0.577 | 0.618 | 1.400 | 1.826 | 2.946 | 5.255 |

[20] DGRE contributions
[21] Includes all cash contributions
[22] Includes in-kind contribution from MoSIT of USD 567,000 and from TSE of USD 1.15 US million
[23] Actual cash contribution from Arçelik
[24] Includes contributions from MoSIT of USD 545,000 and from TSE of USD 125,000
[25] Contribution from Arçelik on awareness raising activities and policy dialogue with government
[26] Planned contribution from TURKBESD mainly related to awareness raising activities and policy dialogue with government
[27] Actual in-kind contribution from TURKBESD

### 3.2.5 M&E Design at Entry and Implementation

Despite PPM issues raised in Section 3.1.1 of this report on the lack of SMART's indicators, the Project had specific directions on M&E functions. According to the Inception Report of January 2011, M&E was to be conducted in accordance with established UNDP and GEF procedures by the PMU and UNDP Turkey with support from the UNDP/GEF Regional Coordination Unit in Istanbul. The Inception Report provided additional clarity on the M&E of Project activities including:

- The M&E of the Project will be carried out through the PSC meetings to be held in every 6 months;
- The PMU will meet regularly at least twice a month to evaluate the progress in the previous month and forecast what might be expected in the coming month;
- The Project Administrator and the UNDP Turkey Office of the Environmental and Sustainable Development Programme Manager will meet at least once in three months and evaluate progress in the Project, suggesting solutions to any problems that may have arisen; and
- A regularly updated system would be developed to monitor Project activities;

Project monitoring documentation included PIRs, PSC minutes and AWPs with detailed descriptions of Project activities and planned activities.

As such, *the rating for M&E plan design and implementation is rated as satisfactory and highly satisfactory respectively*. Ratings according to the GEF Monitoring and Evaluation system[28] are as follows:

- *M&E design at entry – 5;*
- *M&E plan implementation – 6.*

### 3.2.6 Performance of Implementing and Executing Entities

*The performance of DGRE as the Executing Entity on this Project is rated highly satisfactory.* The role of DGRE as the Executing Entity was to ensure the Project was executed according to the Project document and UNDP guidelines for NEX projects. One NPD was assigned from DGRE to manage the Project throughout its entire duration. Despite the aforementioned institutional inefficiency of having DGRE as the Executing Agency (as mentioned in Section 3.1.8), the involvement of DGRE on this Project was positive. This was reflected in their chairing of PSC meetings that resulted in timely approval of Project annual work plans, budgets, and market surveillance plans; adaptive management judgment of the Project including the use of surplus funds for the grant programme to enhance public awareness raising outcomes; and approval of additional Project inputs including international consultants and new partnerships. This has resulted in the achievement of all the outcomes and objectives of the Project.

[28] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory.

*The performance of MoSIT as an Executing Partner is ranked as highly satisfactory.* MoSIT was proactive involvement in the transposition of EU regulations to Turkish legislation, and was the key agency in the successful implementation of the PMSP. As a key beneficiary of the Project, MoSIT was able to demonstrate strengthened capacity to set and implement policies for energy efficient appliances, and to coordinate and enforce these new policies. Their role and efforts were essential to the success of this project.

*The performance of the Implementing Entity, UNDP, is ranked as highly satisfactory.* The primary reasons for this rating are:

- The recruitment of excellent PMU staff who were able to bring all stakeholders together in a spirit of teamwork and cooperation and to get all parties to understand each other's agenda. Moreover, the Project Manager had previously worked with MoSIT, providing him with an in-depth understanding of the Ministry;
- Timely, diligent and adaptive management and coordination of Project activities that most notably included the inclusion of the grant programme for universities to enhance awareness raising for EE appliances;
- Organization of highly relevant activities of international study tours that influenced MoSIT's approach to the adoption of EU regulations and approach to market surveillance activities; and
- The dissemination of positive messaging by UNDP Turkey and UNDP's Regional Centre in Istanbul on the positive outcomes and best practices coming from the MTEEA Project. This has resulted in the recruitment of the Project Manager of the MTEEA Project as a Chief Technical Advisor for the GEF project "Standards and Labelling for Promoting Energy Efficiency in Russia" (GEF project #3216).

Ratings of the Project's Implementing and Executing agencies are as follows:

- *National Executing Entity (DGRE)* - 6;
- *National Executing Partner (MoSIT)* - 6
- *Implementing Entity (UNDP)* – 6.

## 3.3 Project Results

Assessment of Project achievements and shortcomings are provided in this section against the revised December 2010 Project log-frame. Each outcome was evaluated against individual criterion of:

- *Relevance* – the extent to which the outcome is suited to local and national development priorities and organizational policies, including changes over time;
- *Effectiveness* – the extent to which an objective was achieved or how likely it is to be achieved;
- *Efficiency* – the extent to which results were delivered with the least costly resources possible.

The Project outcomes were rated based on the following scale:

- *6: Highly Satisfactory (HS)*: The project has no shortcomings in the achievement of its objectives;
- *5: Satisfactory (S)*: The project has minor shortcomings in the achievement of its objectives;

- *4: Moderately Satisfactory (MS)*: The project has moderate shortcomings in the achievement of its objectives;
- *3: Moderately Unsatisfactory (MU):* The project has significant shortcomings in the achievement of its objectives;
- *2: Unsatisfactory (U)* The project has major shortcomings in the achievement of its objectives;
- *1: Highly Unsatisfactory (HU):* The project has severe shortcomings in the achievement of its objectives.

### 3.3.1 Overall Results

Project Objective: Reduction of household electricity consumption and related greenhouse gas emissions of Turkey by accelerating and ensuring the market transformation towards more energy efficient appliances.

| **Intended EOP Outcome:** | ***Actual EOP Outcome:*** |
|---|---|
| Depending on the product category, 2-28% reduction of the average unit energy consumption by 2013 compared to the estimated baseline development. | ⇒ *A highly satisfactory outcome was achieved. Using products developed by the Project, namely the market monitoring system, reductions in the average unit energy consumption from Project activities was estimated using a baseline of projected sales without the Project, and the actual sales of a particular product category as reported by TURKBESD. Product categories where lower unit energy consumption was recorded in 2013 included refrigerators (-12.7%), freezers (-13.2%), washing machines (-6.7%), and dishwashers (-3%).* |
| Stabilizing or reducing the total electricity consumption of the targeted appliances. | ⇒ *A highly satisfactory outcome was achieved in the reduction of total energy consumption of refrigerators, freezers, washing machines and dishwashers. It should be noted that more energy efficient models of these appliances were available during the period 2010 to 2013, and that the reduction of the unit energy consumption of these appliances had started in 2012. The market monitoring system was also set up to monitor energy consumption and GHG emission reductions from tumble dryers, ovens, air-conditioners and televisions. No energy reductions were recorded for these appliances since the sale of more energy efficient models of these appliances (A+. A++ and A+++) have not yet been included in the market surveillance system in Turkey;* |
| Estimated min. 1.7 Mtonnes of incremental reduction of $CO_2$ (with a causality factor of 60%) by the appliances sold during the project. | ⇒ *A highly satisfactory outcome was achieved in the incremental and indirect reduction of $CO_2$ of 2.75 million tonnes (up to the end of 2014) on the basis of the increased sale of EE appliances.* |

*Rating:* *relevance: 6*
*effectiveness: 6*
*efficiency: 6*
*overall rating: 6*

Table 3 summarizes the GHG reduction estimates (using GEF guidelines) that are estimated from MTEEA outcomes. Since the Project was focused on policy, institutional and knowledge barriers, only "top-down" indirect emission reductions were to be generated during the Project.

**Table 3: Summary of $CO_2$ Reductions from the Project**

| Emission Description | Actual | Target |
|---|---|---|
| Direct emission reduction due to Project activities, t $CO_2$[29] | 0 | 0 |
| Direct post-project emission reduction[30] due to Project activities, t $CO_2$ | 0 | 0 |
| Indirect emission reduction due to Project activities, t $CO_2$: Top-down | 2,752,697[31] | 1,700,000[32] |
| Bottom-up | 0 | 0 |
| **TOTAL EMISSION REDUCTIONS DUE TO UNDP-GEF PROJECT, t $CO_2$** | **2,752,697** | **1,700,000** |

**Table 4: Summary of energy savings and $CO_2$ reductions from the MTEEA Project**

| Appliance | 2011- 2014[33] | | 2011-2020[34] | |
|---|---|---|---|---|
| | GWh | tonnes of $CO_2$ | GWh | tonnes of $CO_2$ |
| Refrigerator-freezers | 2,912 | 2,355,986 | 12,266 | 8,452,405 |
| Deep freezers | 645 | 578,098 | 3,072 | 2,159,614 |
| Washing machines | 1,263 | 1,140,936 | 3,239 | 2,429,111 |
| Tumble driers | 0 | 0 | 0 | 0 |
| Dish washers | 522 | 483,497 | 1,418 | 1,067,112 |
| Electric ovens | 0 | 0 | 0 | 0 |
| Televisions | 0 | 0 | 0 | 0 |
| Air-conditioners | 5 | 29,312 | 2,609 | 1,726,867 |
| **TOTAL** | **5,347** | **4,587,829** | **22,604** | **15,835,109** |

*Total estimated GHG emission reduction is 2,752,697 tonnes $CO_2$ (4,587,829 tonnes $CO_2$ x causality factor of 60%.* In conclusion, *the overall rating of Project results is highly satisfactory*, primarily due to the Project outcome of the exceedance of the GHG target of 1.7 million tonnes of $CO_2$.

[29] No direct emission reductions due to design of policies for project, and no direct interventions implemented

[30] These are cumulative GHG reductions for a 10-year period after the EOP generated from sustainable transport initiatives financed by revolving funds setup from GEF resources. No such funds were setup by STB.

[31] These were estimated using the market monitoring system developed by the Project, and with data from TURKBESD. This estimate does not include sales for 2015.

[32] This target was based on a causality factor of 60%

[33] These are energy and GHG reductions estimated during the Project period

[34] These are life time energy and GHG reductions estimated for appliances sold during the Project period over an assumed service life of 10 years

### 3.3.2 Outcome 1: Enhanced institutional capacities in Turkey to develop and implement effective appliance EE policies

| Intended Outcome 1: | *Actual Outcome 1:* |
|---|---|
| A structured market monitoring system | ⇒ *A highly satisfactory outcome has been achieved with the enhanced capacity of MoSIT officers to adopt EU eco-design and energy labelling regulations, to use these regulations and to monitor and assess the impact of these new regulations. This was augmented through the development of a market monitoring system and database where information from TURKBESD was entered on the sale of various product categories;* |
| Agreements with the private sector on the implementation of voluntary agreements and/or specific promotional campaigns and incentives schemes, for instance, for the accelerated replacement of old inefficient appliances | ⇒ *A highly satisfactory outcome has been achieved with private sector and academia partners of the Project on specific promotional campaigns to accelerate the replacement of inefficient appliances throughout Turkey. While there was provisions in the project to develop incentive schemes with the private sector to increase sales of EE appliances, these were not required given the effectiveness of the messaging of the promotional campaigns conducted by the Government and Arçelik. In 2014, the PSC made a decision to use surplus funds as grants to universities to augment awareness raising of EE appliances and embed EE appliances into their curricula. After a screening process to select the universities, agreements were made with five universities to implement specific promotional campaigns to promote EE appliances. Details of these programs are provided in the descriptions of actual Outcomes 3 and 4.*<br>⇒ *A highly satisfactory outcome has been achieved as a result of extended scope which covered the EE in small domestic appliances concept. In this context, regulations on standby/off mode eco-design and on energy labelling on the Internet were transposed, a workshop on "EE in Small Domestic Appliances" was organized for representatives of small domestic appliances manufacturers and government as well as TSE and training sessions were provided for field inspectors of MoSIT on enforcement of eco-design and energy labelling of small domestic appliances.* |

*Rating:* *relevance:* *6*
*effectiveness:* *6*
*efficiency:* *6*
*overall rating:* *6*

A significant portion of Project activities within this component included the transposing of EU eco-design and energy labelling regulations into Turkish. This included refrigerators, dishwashers, washing machines, tumbler dryers, televisions, air-conditioners, domestic ovens, and range hoods that are now in force. A complete list of these regulations can be found in Table 5.

The Directorate General of Inspection and Safety assigned 3 personnel to transpose these EU regulations. Personnel from this directorate had said that without the Project, the

transposition of these regulations would have taken much longer, in the order of 5 to 10 years. The added value of Project involvement was the pace in the transposition of the legislation, and the strengthening of the legislation from a technical perspective. The study tour of MoSIT staff to National Measurement and Regulations Office in the United Kingdom provided an excellent foundation for their understanding of implementing these EU regulations. The Directorate General of Inspection and Safety is now in a position to undertake the transposition of EU regulations for new appliances as well as updates for existing appliances.

The Project has also provided technical assistance into the setup of the wet product EE testing laboratory as well as an air-conditioning EE testing laboratory which were completed in June 2014 and November 2014 respectively. The setup of these laboratories has enabled TSE to provide market surveillance services to MoSIT. The setup of these laboratories also facilitated the testing of new products from appliance manufacturers to ensure their compliance with new energy labelling and eco-design regulations.

**Table 5: List of EU eco-design and energy labelling regulations transposed by the MTEEA Project**

| **Eco-Design** | |
|---|---|
| **EU Regulation** | **In force in Turkey from** |
| 643/2009 – Refrigerating appliances | 23 September 2011 |
| 1015/2010 – Washing Machines | 23 September 2011 |
| 1016/2010 – Dishwashers | 23 September 2011 |
| 206/2012 – Air Conditioners | 19 July 2013 |
| 932/2012 – Tumble Driers | 17 July 2013 |
| 66/2014 – Domestic ovens hobs range hoods | 14 January 2015 |
| 642/2009 – Televisions | 23 September 2011 |
| 801/2013 – Networked Standby | Final Draft (expected to be published before the end of this year) |
| **Energy Labelling** | |
| 1060/2010 – Refrigerating appliances | 22 June 2012 |
| 1061/2010 – Washing machines | 22 June 2012 |
| 1059/2010 – Dishwashers | 22 June 2012 |
| 626/2011 – Air conditioners | 24 December 2013 |
| 392/2012 – Tumble Driers | 15 May 2013 |
| 65/2014 – Domestic ovens and range hoods | 14 January 2015 |
| 1062/2010 – TV | 22 June 2012 |
| 518/2014 – Online Labeling | 16 December 2015 |

### 3.3.3 Outcome 2: A structured enforcement and verification program with adequately trained staff and other resources

| **Intended Outcome 2:** | ***Actual Outcome 2:*** |
|---|---|
| A finalized proposal for consolidating the compliance checking and enforcement scheme for products and retailers including testing of products under energy | ⇒ *A highly satisfactory outcome was achieved in the finalization of a proposal for an enforcement scheme for compliance checking of products and retailers. This proposal was used as a basis for the design of a proactive market surveillance program (PMSP) that was to be used to check the compliance of appliances for sale with new energy* |

| | |
|---|---|
| labelling regulations, | *labelling regulations.* |
| Agreed and upgraded procedures and organizational arrangements for testing of products regarding energy efficiency performance | ⇒ *A highly satisfactory outcome was achieved in the procedures and organizational arrangements for the testing of products selected by market surveillance officers in retail stores for compliance with new energy labelling regulations.* |
| Testing the agreed compliance checking and enforcement schemes for all targeted (6) appliances in selected locations | ⇒ *A highly satisfactory outcome was achieved in the compliance checking and enforcement schemes for 6 targeted appliances including refrigerators, washing machines, dishwashers, electric ovens, televisions and air conditioners.* |
| Trained staff of both the selected testing laboratories and MoIT's branch offices to implement the compliance checking program. | ⇒ *A highly satisfactory outcome was achieved in the training of 300 MoSIT personnel from 81 branch offices to implement the PMSP, and 24 TSE personnel in conducting equipment testing in the wet appliance and air conditioning laboratories.* |

*Rating:* *relevance:* *6*
*effectiveness:* *6*
*efficiency:* *6*
*overall rating:* *6*

Prior to the Project, the Directorate General of Inspection and Safety (DGIS) had stated that their market surveillance activities were based on old EU standards without eco-design. In addition, there were no systematic and proactive market surveillance activities, inadequate equipment testing facilities, and enforcement of product standards through sanctions and penalties for noncompliance. Market surveillance officers had previously only had knowledge of certain products such as certain models of washing machines and refrigerators.

A significant achievement of the Project was the effectiveness of the study tour for DGIS personnel to the National Measurement and Regulation Office in the UK in charge of market surveillance activities. The study tour exposed DGIS personnel to best practices in market surveillance that included a sectoral approach to appliances, and improved enforcement through the setting of eco-design and energy labelling requirements. This encouraged MoSIT to set up a new department named the Department of Market Surveillance of EE Products which now has 4 full-time staff as well as 2 part-time staff to coordinate national market surveillance activities. The training provided by the Project to MoSIT staff on market surveillance has enabled them to sectorally approach enforcement of EU EE regulations; MoSIT officers are now able to address, for example, energy efficiency issues for a wider range of washing machines or refrigerators instead of just a few models. One important division under this Department is the Division of Eco-Design Regulation Products has had the impact of making appliance manufacturers compete with each other to create fair competition. With this mandate, market surveillance of retailers and their appliance manufacturers has become more acceptable.

The first phase of the PMSP was set up in 2013 to include testing of the 6 targeted appliances, namely refrigerators, washing machines, dishwashers, electric ovens, televisions and air conditioners. The test results delivered by TSE in November 2013 for

refrigerators, electric ovens and televisions indicated compliance rates of 60%, 55% and 80% respectively with eco-design and energy labelling requirements.

With the establishment of the wet products testing laboratory in June 2014, washing machines and dishwashers were tested by TSE with a compliance rate of 80% and 60% respectively. The second year of testing for refrigerators in 2014 showed a compliance rate of 100%. Testing of air conditioners in 2014 which was outsourced by TSE, showed a compliance rate of 80%. TSE will no longer have to outsource the testing of air conditioners as it has received assistance from the Project in the setup of an air-conditioning testing laboratory in Istanbul.

A second phase of the PMSP was undertaken but revised from the first phase to focus more on nonconformities of tested appliances and the measurement of changes in the compliance rate that would improve the profile of market changes. For example, the compliance rate of electric ovens in 2014 was 80% compared to 55% as reported in the first phase of PMSP in 2013. The impact of this market surveillance information has increased the confidence of appliance manufacturers to voluntarily submit their products to TSE for testing before placing them on the market. This is an excellent outcome especially for the sustainability of Project activities to increase the market share of EE products after the EOP.

The surplus of Project funds in late 2014 allowed the Project to conduct additional training sessions for additional appliances including vacuum cleaners, range hoods, network standbys, and online labelling.

### 3.3.4 Outcome 3: Raised awareness of the end-users and the supply chain and strengthened capacity of the local manufacturers to develop and implement specific promotional activities to enhance the sale of energy efficient appliances

| Intended Outcome 3: | *Actual Outcome 3:* |
|---|---|
| Completed surveys to assess the level of awareness and key "drivers" of the consumers for the purchase of different products in prior and after the campaign; | ⇒ *A highly satisfactory outcome has been achieved with the completion of a 2014 consumer awareness survey which now ranks energy efficiency as a top priority of consumers in comparison with the equivalent survey in 2012 that ranked energy efficiency as a third priority amongst consumers;* |
| Joint marketing campaigns with the manufacturers and retail chain (with related material for advertising and in-store use) highlighting the energy efficiency aspects and the life-cycle costs approach; | ⇒ *A highly satisfactory outcome has been achieved with joint marketing campaigns with manufacturers, retail chains and 5 universities in providing information on energy efficiency aspects and life cycle cost approaches that is accessible to the public. This includes a number of innovative approaches adopted by the 5 universities Ankara University, Boğaziçi University, Istanbul Aydın University, Kadir Has University, and Özyeğin University under the grant programme of the Project (see Box 1 for additional details);* |
| A web site to support consumer's choice with test results and other product information, pricing, easy to use calculation tools etc. with an emphasis on energy efficiency. | ⇒ *A highly satisfactory outcome has been achieved with the Project website that provides information on consumers can assess appliance energy efficiency, and reports on the results of product testing. Augmenting the Project website are the awareness raising activities from the 5 universities utilizing grants from the Project that employ unique ways to engage public attention to the importance of appliance energy efficiency;* |

| | |
|---|---|
| Trained sales staff in the retail chain (complemented, as applicable, by specific incentives such as premiums for the sales personnel for the sale of EE products) to market the products on the basis of their energy performance and related life-cycle costs beside other characteristics; | ⇒ *A satisfactory outcome has been achieved in the training of retail chain staff on marketing appliances on the basis of their energy performance and life cycle costs;*<br>⇒ *A satisfactory outcome has been achieved in the fact that financial incentives and financing models have not been required to catalyse the market in the sale of energy efficiency appliances. The Project had completed a study on appropriate financing incentives and mechanisms; however with strong sales data in the EE appliances, the PSC made the decision in 2013 not to implement these financial mechanisms;*<br>⇒ *One area of the phase-out of old inefficient appliances that could have been improved upon was the promotion of disposal of old appliances such as refrigerators. The evaluation team could only establish that one company, Arçelik, was actively disposing of old refrigerators. Disposal of old appliances is important to ensure that they are not reused in another household or that they are not disposed of in a manner that is environmentally hazardous.* |
| Specific promotional campaigns to expedite phase-out of old inefficient appliances, including, as applicable, specific financial incentives and/or utility (DSM) driven delivery and financing models | ⇒ *A highly satisfactory outcome has been achieved as a result of extended scope which also covered development of household energy consumption monitoring scheme for household appliances and completed procurement of monitoring equipment. Implementation of the monitoring scheme will be done under UNDP/GEF EE Buildings Project in 2016 which also represents synergy and collaboration between UNDP/GEF EE Projects. Implementation of this monitoring scheme will contribute DGRE to include behavioural energy efficiency theme in their public awareness raising strategy.* |

*Rating:* *relevance:* *6*
*effectiveness:* *5*
*efficiency:* *6*
*overall rating:* *5.7*

The Project conducted several awareness raising promotions for EE appliances including TV spots, distributed label flyers that were distributed by MoSIT provincial offices to regional appliance stores during market surveillance activities, and posted web banners on EE appliances on the most popular Turkish websites. As of late 2014, there were a number of unique measures undertaken by the 5 universities under the grant programme for raising awareness of EE appliances. This included the posting of a computer game for children on energy efficiency, awareness raising of EE appliances targeting women, and an energy efficiency phone app (see Box 1).

Complementary to these awareness raising efforts, the Project also provided training for sales staff in appliance retail outlets in late 2012 in 2 phases: Phase 1 for training of a pilot group of salespersons, and Phase 2 for training of trainers to deliver EE sales training to salespersons to ensure wider dissemination. The positive results of these awareness raising efforts was reflected into consumer awareness survey reports the first one in 2012 (which highlighted energy efficiency is only being a third priority of consumers) and a second one in 2014 that ranked energy efficiency as a first priority amongst consumers. There was also information on the surveys that showed improved understanding amongst

consumers on the correlation energy consumption of household appliances and climate change.

### 3.3.5 Outcome 4: Institutionalization of the support provided by the project, including monitoring, learning, adaptive feedback and evaluation

| Intended Outcome 4: | *Actual Outcome 4:* |
|---|---|
| An updated baseline study, against which the impact of the project can be measured. | ⇒ *A highly satisfactory outcome has been achieved with the completion of an updated baseline study in 2012 (and ongoing update every year) on which to measure the impact of the Project. This baseline study was used to project the baseline growth of EE appliances without the Project.* |
| Energy efficiency aspects increasingly included into the curricula of relevant educational institutions. | ⇒ *A highly satisfactory outcome was achieved in the inclusion of energy efficiency aspects into the curricula of five universities that were provided grants to augment awareness of EE appliances (see Box 1 for more details).* |
| Further elaboration of the possible financial support mechanisms to accelerate the market shift towards more energy efficient appliances, including, as applicable, carbon financing. | ⇒ *A highly satisfactory outcome was achieved in the determination that financial support mechanisms were not necessary to accelerate market transformation towards more EE appliances. While a more detailed study on possible financial support mechanisms was completed, the PSC determined from market monitoring data that the adoption of EE appliances had already accelerated through the project's awareness raising activities.* |
| Final project report consolidating the results and lesson learnt from the implementation of the different project components and recommendations for the required next steps. | ⇒ *A satisfactory outcome will be achieved with the completion of the final report and final project workshop to be held in late December 2015.* |
| Project mid-term and final evaluations and other required reviews. | ⇒ *A highly satisfactory outcome has been achieved with the completion of the midterm evaluation in June 2012, only 18 months into a 48 month project.* |
| | ⇒ *A satisfactory outcome has been achieved on institutionalization of the market transformation support provided by this project. The Project has generated market survey information along with annual data on energy consumption and GHG emissions for various appliance categories. These data are useful to MoENR in the reporting of the national GHG emissions. As such, these data are to be included in the DGRE-supported "Energy Efficiency (EnVer) Portal" to be established under UNDP/GEF Improving Energy Efficiency in Industry (IEEI) Project. These arrangements for data transfer to the EnVer portal are to be finalized in December 2015.* |

*Rating:* *relevance:* *6*
*effectiveness:* *5*
*efficiency:* *5*
*overall rating:* *5.3*

Activities related to achieving this outcome are expected to be completed in late December with the final project workshop. During this workshop, a final Project report and the main recommendations of this final evaluation will be presented. The finalization of the arrangements to transfer market monitoring data to the EnVer portal will also be finalized.

**Box 1: Small Grants Programme – An MTEEA Success Story**

With the identification of surplus project funds in late 2013, the PMU received approval from the PSC to initiate a small grants programme to educational institutes to leverage Project activities on raising awareness of the use of EE appliances in Turkey. The primary contribution of the work undertaken through this program was to augment the sustainability of MTEEA Project results through the upgrading of their existing curricula to include EE appliances. Through the involvement of 5 selected educational institutes, unique approaches to raising awareness amongst their faculties as well as the general public was undertaken. The knowledge products from these grant programs undertaken by 5 universities in Turkey are an excellent example of the multiplier effect of such programs that has had an impact of mainstreaming energy efficient issues of household appliances into Turkish society. The following is a brief outline of the grant projects undertaken by the 5 universities during 2014:

**"Ankara Household Electrical Appliances Energy Efficiency Technologies Research Centre" by Ankara University:**
Grant funds were used to complete the construction of the physical infrastructure for and EE Research Centre for household appliances. The University has also developed working relationships with Arçelik for the setup of the Research Centre and has 4 elective courses to increase awareness about environment and energy policies with an enrolment of 50 students. The university has plans to develop its research center into a testing lab for dry appliances for large companies and SMEs.

**"Climate Change and Household Appliances" by Boğaziçi University:**
In addition to the development of online course material and multimedia applications and elective courses on EE appliances, this University developed a mobile phone application for end-users to quickly calculate energy savings of various household appliances (http://www.enerjiveiklim.org). This University has also aired bi-weekly radio programs on Açık Radyo on climate change and EE topics.

**"Raising Awareness and Transformation of EE Television Technologies in Turkey (EVTV)" by Özyeğin University:**
Grant funds were used to upgrade their LEDoid mobile energy demonstration centre to raise awareness of EVTVs. This University also started a university course on EVTVs that was enhanced by the organization of an international EVTV summer short course with internationally known visiting speakers.

**"Raising Awareness in EE of Household Appliances and Climate Change" by Kadir Has University:**
Grant funds were used to conduct household interviews to understand how to get people to read energy labels, and targeting three cities for pilot awareness raising activities. The knowledge products from this grant included a computer game to raise awareness of EE for children (http://www.enerjifarkindaligi.org) and the delivery of an elective course entitled "Gender, Women's Studies and Climate Change". The success of the computer game in raising awareness of climate change issues to a younger generation has been profiled to a number of countries in Asia.

**"Energy efficiency and increasing the efficiency of electrical household devices and sustainability" by Istanbul Aydın University:**
Grant funds were utilized to set up lab test equipment laboratories for air-conditioning and ventilation systems. In addition, preparations were made for the curriculum on measurements an analysis of electrical household appliances, and the delivery of a course on "EE in dwellings and measures reducing electrical energy consumption in dwellings", and that targets women and housewives.

### 3.3.6 Overall Evaluation of Project

*The overall rating of the Project is highly satisfactory (HS)*. This is based on the following outcomes:

- The Project design of April 2010 (based on information from 2008 and 2009) was well integrated to include a full complement of activities that were necessary to transform the appliance market towards energy efficient equipment;
- The impact of the Project to affect institutional changes within MoSIT to set up a Department of Market Surveillance of EE Products, and to dedicate full-time staff towards the transposing of EU regulations into Turkish legislation;
- The impacts of awareness raising efforts of the Project that can be linked to the increased sales of EE products;
- The positive impacts of the successful implementation of a proactive market surveillance program with improved equipment testing facilities in Turkey. This includes trends increasing compliance of EE products to mandatory eco-design and energy labelling requirements, increasing participation of manufacturers in the voluntary testing of new appliances entering the market, and the elimination of "free riders" or appliances that circumvent eco-design and energy labelling requirements;
- the generation of market monitoring data that tracks the sale of EE appliances, energy consumption and GHG emissions. While this market monitoring data is useful in reports on national GHG emissions, there are still room for improvements in the quality of GHG emissions reported from the use of energy intensive appliances in Turkey. Details of these improvements are provided in the recommendations of this report**.**

Overall project ratings are provided on Table 6.

### 3.3.7 Country Ownership and Drivenness

Government ownership of the MTEEA Project has been very strong. In particular, the implementing entity, DGRE, provided strong leadership on the Project during PSC meetings. In addition, MoSIT used the project as a springboard towards being a more effective government agency in affecting the market transformation of appliances towards energy efficiency.

### 3.3.8 Sustainability of Project Outcomes

In assessing Project sustainability, we asked "how likely will the Project outcomes be sustained beyond Project termination?" Sustainability of these objectives was evaluated in the dimensions of financial resources, socio-political risks, institutional framework and governance, and environmental factors, using a simple ranking scheme:

- *4 = Likely (L):* negligible risks to sustainability;
- *3 = Moderately Likely (ML):* moderate risks to sustainability;
- *2 = Moderately Unlikely (MU):* significant risks to sustainability; and
- *1 = Unlikely (U):* severe risks to sustainability.
- *Overall rating is equivalent to the lowest sustainability ranking score of the 4 dimensions.*

**Table 6: Ratings for Each Project Outcome**[35]

| | Relevance | Effective-ness | Efficiency | Overall Rating |
|---|---|---|---|---|
| **Monitoring and Evaluation:** | | | | |
| M&E design at entry | - | - | - | 5 |
| M&E plan implementation | - | - | - | 6 |
| Overall quality of M&E | - | - | - | 6 |
| **UNDP and Executing Partner Performance:** | | | | |
| Quality of Implementation (UNDP) | - | - | - | 6 |
| Quality of Execution (MoENR) | - | - | - | 6 |
| Overall quality of implementation/ execution (DGRE/MoSIT) | - | - | - | 6 |
| Overall Results | 6 | 6 | 6 | 6 |
| **Outcomes:** | | | | |
| **Outcome 1**: Enhanced institutional capacities to develop and implement effective appliance EE policies | 6 | 6 | 6 | 6 |
| ***Outcome 2***: A structured enforcement and verification program with trained staff and other resources | 6 | 6 | 6 | 6 |
| ***Outcome 3*:** Raised awareness, strengthened capacity, and implementation of promotional activities that have enhanced EE appliance sales | 6 | 5 | 6 | 5.7 |
| ***Outcome 4*:** Project support institutionalized including M&E | 6 | 5 | 5 | 5.3 |
| ***Overall Rating:*** | 6 | 5.5 | 5.8 | 5.8 |

*The overall Project sustainability rating is likely (L).* This is primarily due to:

- Turkish legislation and eco-design and energy labelling requirements in place to guide both manufacturers and retailers on the energy performance standards of appliances that can be sold on the Turkish market;
- Market surveillance trends indicating increased compliance of appliances on the market to Turkish legislation and eco-design and energy labelling requirements;
- High public awareness of EE appliances and their life cycle costs;
- Curricula on EE appliances that is embedded in 5 prominent universities in Turkey; and
- Appliance manufacturers undertaking voluntary testing of new equipment prior to market entry.

Details of sustainability ratings for the MTEEA Project are provided on Table 7.

[35] 6 = HS or Highly Satisfactory: There were no shortcomings;
5 = S or Satisfactory: There were minor shortcomings,
4 = MS or Moderately Satisfactory: There were moderate shortcomings;
3 = MU or Moderately Unsatisfactory: There were significant shortcomings;
2 = U or Unsatisfactory: There were major shortcomings;
1 = HU or Highly Unsatisfactory.

**Table 7: Assessment of Sustainability of Outcomes**

| Actual Outcomes (as of November 2015) | Assessment of Sustainability | Dimensions of Sustainability |
|---|---|---|
| **Actual Outcome 1**: Government capacities have been enhanced to develop and implement effective policies on EE appliances | • *Financial Resources:* MoSIT now has financial support for full-time personnel to provide oversight for eco-design of EE products and market surveillance activities for EE products;<br>• *Socio-Political Risks:* No socio-political risks to the strengthened government capacities for developing and implementing policies on EE appliances;<br>• *Institutional Framework and Governance:* Governance of eco-designs for appliances and market surveillance activities has been strengthened, thereby ensuring that the newly developed policies on EE appliances will be implemented and enforced;<br>• *Environmental Factors:* There are no environmental factors that would hinder development and implementation of effective policies on EE appliances.<br>***Overall Rating*** | 4<br>4<br>4<br>4<br>**4** |
| **Actual Outcome 2**: A structured enforcement and verification program has been established with adequately trained staff and equipment testing facilities | • *Financial Resources:* MoSIT has financial support for the proactive market surveillance program (PMSP) in over 81 cities in Turkey;<br>• *Socio-Political Risks:* MoSIT promoted implementation of the PMSP as a means of creating fair market competition. This has facilitated the acceptance of the PMSP amongst competing manufacturers and retailers;<br>• *Institutional Framework and Governance:* MoSIT has more than 700 market surveillance officers and 81 cities as well as a newly formed division;<br>• *Environmental Factors:* There are no environmental factors that would hinder the implementation of the PMSP.<br>***Overall Rating*** | 4<br>4<br>4<br>4<br>**4** |
| **Actual Outcome 3**: EE awareness has been raised for end-users and the capacity of local manufacturers to develop and implement specific promotional activities to enhance EE appliance sales has been strengthened | • *Financial Resources:* The Government as well as the private sector have confirmed financing for the continuation of TV spots and other promotional activities for EE appliances;<br>• *Socio-Political Risks:* These risks are low as competing local manufacturers understand the government's commitment to energy efficiency and the creation of a level playing field for their EE products. As such, there is commitment from Arçelik as well as members of TURKBESD to provide support for the promotion of EE appliances;<br>• *Institutional Framework and Governance:* DGRE as well as MoSIT are committed to the promotion of EE appliances;<br>• *Environmental Factors:* There are no environmental factors that would hinder activities related to raising awareness of EE appliances and local manufacturers implementing specific promotional activities to enhance EE appliance sales.<br>***Overall Rating*** | 4<br>4<br>4<br>4<br>**4** |
| **Actual Outcome 4**: Market transformation support for | • *Financial Resources:* Government has fiscal resources to manage the market monitoring system. In addition, there are financial resources available from students to | 4 |

**Table 7: Assessment of Sustainability of Outcomes**

| Actual Outcomes (as of November 2015) | Assessment of Sustainability | Dimensions of Sustainability |
|---|---|---|
| EE appliances that has been provided by the Project has been institutionalized through monitoring, learning and adaptive feedback | enrol in the EE courses offered in the 5 universities of the Grant programme, thereby creating additional institutionalization of activities of the Project;<br>• *Socio-Political Risks:* no socio-political risks involved with the EE appliance courses offered at the universities;<br>• *Institutional Framework and Governance:* MoENR will use energy and GHG data from the market monitoring system for National Communications on GHG emissions;<br>• *Environmental Factors:* There are no environmental factors that would hinder the institutionalization of market transformation support for EE appliances that has been provided by the Project.<br>***Overall Rating*** | 4<br>4<br>4<br>**4** |
| | ***Overall Rating of Project Sustainability:*** | **4** |

### 3.3.9 Impacts

The Project has had a significant and positive impact:

- Project study tours and technical assistance to accelerate the transposition of EU regulations into Turkish legislation has had a positive impact on MoSIT. The improved comprehension of EU regulations has facilitated MoSIT to allocate dedicated personnel for this process for other equipment such as smaller appliances, motors, and updates to appliances currently covered under EU regulations;

- Project-supported study tours and training on market surveillance and equipment testing using best practices influenced senior MoSIT officers to restructure their market surveillance programs. This included a sectoral approach to appliances and enforcement programs based on eco-design and energy labelling requirements. The adoption of these restructured market surveillance programs has allowed MoSIT to collect credible information on the increased sales and energy consumption of white appliances. Moreover, MoSIT with its newly formed Division of Market Surveillance of EE Products now has the capacity and institutional infrastructure to collect this type of information for future and more energy efficient appliances as well as other appliances currently not covered under Turkish legislation;

- The Project activities to strengthen capacity of MoSIT to establish eco-design and energy labelling requirements and implement an effective and proactive market surveillance program has had the impact of increasing the confidence of the private sector manufacturers to produce EE products that meet these new standards. This has led to strong engagement of the private sector in participating on this Project. This has included their participation in raising awareness to the public on EE appliances, increased dialogue with the Government on the formulation of new energy efficient standards, and their in-kind contribution to university programs dedicated to energy efficiency in appliances;

- The Project's activities related to raising public awareness of energy efficiency of appliances and proactive market surveillance activities has had the impact of increasing public confidence in energy efficient appliances in Turkey that is reflected in the increased sales of EE appliances;

- The positive and successful outcomes of this Project have drawn notice to other projects, with strong support of the UNDP-GEF climate change mitigation Regional Technical Advisor. The achievements of this Project were shared with the UNDP-GEF Russia "Standards & Labelling to Promote Energy Efficiency" Project resulting in a cooperation agreement between the PMUs of the 2 projects. This included a study tour to the TSE testing facilities for a Russian delegation that included Rostest and Rosstandard, and an additional study tour in 2015 for Russian governmental authorities to share the enforcement experience of Turkish government in the field of appliance energy efficiency. The Turkish Project Manager now also acts as an international CTA to the Russian standards and labels project. In addition, the Project has received wide exposure at international conferences including the ECEEE Summer Study on Energy Efficiency 2013 and the International Conference on Domestic Appliances and Lighting (EEDAL) 2013.

# 4. CONCLUSIONS, RECOMMENDATIONS AND LESSONS

## 4.1 Conclusions

- The Project has provided the Government with the necessary focus to accelerate appliance market transformation in Turkey towards EU energy efficiency standards. This included the provision of technical assistance for transposing EU regulations into Turkish legislation, exposure to best practices and technical assistance to implement a market surveillance program, and awareness raising activities in collaboration with the private sector. Without the Project, the Government would have carried on with its business-as-usual activities and market transformation of appliances would have been implemented at a much slower rate due to capacity limitations of the Government;

- The Project has laid a solid foundation for EE appliance market transformation through:
  - Accelerating EU regulations into Turkish Energy Labeling and EcoDesign regulations. This provided all manufacturers in the Turkish market with minimum energy performance standards for a number of energy intensive white appliances. Moreover, MoSIT is now enabled in the future to more efficiently transpose EU regulations into Turkish legislation;
  - Enhancement of the knowledge of MoSIT field inspectors on EU Eco-Design and Energy Labeling Directives, and their increased confidence on implementing an effective proactive market surveillance program (PMSP) that is based on best international practices, and that effectively removes “free riders” or products that do not comply with Turkish eco-design and energy labelling requirements from the Turkish retail market;
  - Encouragement of the private sector to manufacture appliances to changing standards that is perceived by the private sector to be a more level playing field for the sale of their products;
  - TURKBESD reporting sales of EE appliances to a market monitoring database that provides credible reports on market trends for EE appliances as well as estimates of energy consumption and GHG emissions. In effect, this database provides the tools for measuring market transformation of EE appliances, and in future other EE equipment;

- To achieve this level of success and market transformation, the Project has successfully assisted government in bringing all relevant stakeholders including the private sector to a common platform that facilitated useful dialogue. This had the effect of improving the effectiveness and pace of market transformation for white appliances in Turkey;

- TURKBESD and other industry associations are only obliged under the “Regulation on Increasing Efficiency in use of Energy and Energy Resources” to report appliances sold by energy consumptive class to DGRE. As such, there is scope to have sales data broken down into product groups which have specific energy consumption information, thereby enhancing DGRE’s market monitoring database with more precise information:
  - The difficulty of implementing this recommendation is the reluctance of manufacturers in sharing specific sales information that is considered to be proprietary;

- Custody of the market monitoring database after the EOP has not yet been finalized. There have been discussions between MoSIT, DGRE and the PMU on transferring the market monitoring database to the Energy Efficiency Portal (EnVer) that is currently being hosted under DGRE and the UNDP-GEF project "Improving Energy Efficiency in Industry";
- No confirmed institutional linkage between DGRE and MoENR who are responsible for reporting GHG emissions to UNFCCC on behalf of the Government. If information on the market monitoring database is posted within the EnVer portal, the evaluators are not clear on the formalities to transmit reports from the EnVer portal to the MoENR for the purposes of national communications and reporting GHG emissions.

## 4.2 Recommendations

**To the Government of Turkey:**

***Recommendation 1: Improve quality of energy and GHG data received from industry associations and other sources:***

- The DGRE should oblige the manufacturers (either by regulation or communication on their website) to submit sales weighted average energy consumption data by energy classes. Notwithstanding the reluctance of manufacturers to release such information for proprietary reasons, the DGRE can conduct further discussions with the manufacturers on this issue. Specifically, DGRE should discuss the means to report weighted sales information for specific product groupings that have a smaller range of energy consumption class. This would be an improvement over the current sales data which only includes the sale of an energy consumption class (i.e. A+, A++, etc.) where there is an assumed average energy consumption over a wide range and sizes of appliances;
- One approach could be also to hire private market research companies to collect this data;
- MoENR who are responsible for reporting GHG emissions to UNFCCC should be consulted on issues related with quality assurance of GHG data reported to them.

***Recommendation 2: Continue public awareness raising activities to sustain efforts to change consumer behaviour:***

- Continued Government involvement in public awareness programmes is required especially considering the continual improvement of appliances in terms of energy efficiency, and the coverage of new appliances that will soon be covered under EU legislation for energy efficiency;
- Facilitate support for awareness raising programmes conducted by universities. This would include amongst other support, finding corporate partners who will provide these universities with support after the EOP. For example:
  - Boğaziçi University has developed a mobile phone application to provide consumers with energy efficiency information for a number of appliances. With the completion of the project, the University developers of the phone app will need support to continually update the app with new information;
  - Özyeğin University has developed a mobile energy demonstration centre, the LEDiod, which is moved to the various cities around Turkey to show how energy efficient products such as LED lights and televisions are made. After the EOP, the

developers of the LEDoid will need support for the continual upkeep, product updating, and transport of the LEDoid to various communities around Turkey;

- Support networking events for these universities and other key stakeholders such as appliance manufacturers, consumer protection agencies, ESCOs and relevant government agencies that will foster symbiotic relationships towards promoting energy efficiency in appliances and other consumer goods in Turkey

***Recommendation 3: Support appliance re-cycling program so that it expands to all alliance manufacturers.*** Even though it is mandatory under the Turkish regulation that was transposed from the EU WEEE Directive for manufacturers to recycle old appliances, enforcement needs to be improved to ensure that there is a linkage between the purchase of a new appliance and the proper disposal of an old plants. This will provide assurances to MoENR that there are no leakages in the reporting of GHG emissions from new appliance sales (i.e. no reuse of old appliances or the improper disposal of old appliances such as refrigerators that would lead to more GHG emissions). The evaluator to this point has identified Arçelik is the only private sector manufacturer that is properly disposing of old refrigerators. Reporting and supporting of an appliance recycling program for other manufacturers in Turkey would be beneficial and important to the market transformation efforts undertaken by this Project.

***Recommendation 4: Assess the feasibility of testing of used appliances by TSE for energy performance.*** While the testing of new appliances has been strengthened through this Project, it is a well-known fact that there is a deterioration in appliance energy performance over time. The government should be interested in knowing what the deterioration of energy performance of appliances would be over time. PMSP activities would benefit from the testing of used white appliances to better understand their deterioration rates in energy performance. The undertaking of "*accelerated life cycle testing*" for the purposes of failure behaviour of appliances throughout their life cycle, however, is known to be very costly. MoSIT as well as TSE should continually inform itself on the benefit cost analysis of accelerated life cycle testing, with the purposes of making this investment in the future.

## 4.3 Lessons Learned

With the completion of a successful appliance market transformation project, there are many lessons to be learned from his design and implementation:

- *Project design of a market transformation project needs to be integrated with all elements required for such a transformation*. From the perspective of MoSIT personnel, there were previous projects that attempted market transformation of appliances in Turkey. The reason these projects did not lead to desirable outcomes was due to the fact that these projects did not have a full complement of activities to facilitate market transformation. One example of previous projects included assistance on market surveillance activities without upgrading the testing facilities. A second example included a Project with testing facilities but without capacity building for market surveillance activities. The MTEEA Project design included market surveillance and equipment testing activities in the same project, both activities of which are complementary to each other. The Government has expressed its appreciation for the integrated design of this project and its timeliness that accelerated

the development of market surveillance, equipment testing and market transformation of the white appliances market;

- *The design phase of a market transformation project needs to include the careful analysis of all relevant stakeholders.* For some of the GEF industrial energy efficiency projects, responsibilities generally get divided between the agency responsible for energy issues and another responsible for industrial production. In recent times, the efficiency of industrial production has increasingly included energy issues which historically has not been the domain of ministries responsible for the industrial sector. As such, there are a number of GEF energy efficiency projects in the industrial sector globally where inter-ministerial cooperation is an important aspect. In the case of the MTEEA Project, the implementing entity of the project was DGRE with the implementing partner being MoSIT, the agency responsible for supporting industrial production in Turkey. In particular, the implementing entity DGRE had few if any legal instruments and jurisdiction on appliance energy efficiency, with MoSIT being directly responsible for enforcement of eco-design and energy labeling regulations. Other key stakeholders included TURKBESD and a manufacturer, Arçelik. This institutional arrangement forced the PMU to implement most of the Project activities indirectly with MoSIT. At the commencement of the project, there were some difficulties experienced by the PMU in the management of the Project activities due to different comprehension of the issues and Project expectations by each agency, and the different working styles of each of these agencies. Furthermore, there were difficulties working with the private sector including with TURKBESD and Arçelik that led to some difficulties in designing the public awareness raising activities (i.e. the use of logos, discrimination of commercial activities from public interests, etc.). Although the PMU successfully managed these difficulties by expending considerable efforts to reach consensus between these relevant stakeholders and implement Project activities with no or little delays, careful stakeholder analysis to identify the appropriate implementing entity and implementing partners is of utmost importance to reduce project risks of inefficient implementation. This would include the identification of an implementing entity who are directly responsible for enforcement of applicable legislation that would effectively correlate to the interests of the private sector;

- *The key activity to a market transformation project is to bring all stakeholders to the same table in the spirit of understanding the agendas of other stakeholders, and to provide a forum for creating an environment of common interests and compromise.* At the commencement of the Project, a number of consultation meetings were organized with stakeholders, all of whom had no history of cooperation and conflicting interests with other stakeholders. For example, Government's concern was to ensure compliance of marketplace through the application of sanctions and fiscal penalties, whereas the approach of TSE was their reluctance in getting support from manufacturers and equipment suppliers to serve as an authority to assess conformity of their products. Manufacturers and equipment suppliers had concerns on the capabilities of TSE for proper and robust testing of their products. With this environments that encompasses differing agendas, the Project was able to bring these disparate stakeholders onto a common platform that ensures: (i) fair competition on the market which is for the benefit of all manufacturers/suppliers because the products will be actually tested and market surveillance activities would no longer be limited to checking existence of an energy label; (ii) the design of the training programme four testing staff would be supported by manufacturers and equipment suppliers to strengthen TSE's ability to correctly test their products and boost

confidence for the market players; (iii) that TSE would have more sophisticated testing facilities to better serve MoSIT in market surveillance activities as their exclusive testing authority (as opposed to the previous status of TSE who found themselves out of this process without future business opportunities in both national and international conformity assessment markets); and (iv) much better control over the marketplace for MoSIT with improved knowledge of their field inspectors that would improve their implementation of market surveillance activities complete with product testing.

The discussion of these issues provided a concrete perception change in all stakeholders to the extent that they fully supported the testing laboratory investment and training programme for equipment testing personnel. As a result, Turkey experienced a complete transformation towards the increased availability of quality EE appliances supported by an effective and proactive market surveillance program complete with product testing which for the benefit of the consumers, appliance manufacturer and equipment suppliers, the Government, and conformity assessment agencies.

- *Implementing a small-scale grant programme has excellent potential to achieve a multiplier effect and enhance the sustainability of project results.* One of the original targets of the MTEEA Project was to have "energy efficiency aspects increasingly included into the curricula of relevant educational institutions" (Output 4.2). In the original Project Document, one of the targets of the EE Appliances Project is "Output 4.2 Energy efficiency aspects increasingly included into the curricula of relevant educational institutions". Without any strategies to meet this target, the PMU held discussions with UNDP and DGRE to implement a mini-grant programme for the universities which was subsequently approved by the Project Steering Committee (PSC). The screening criteria for the selection of these five universities included the compulsory embedding of EE appliances into the curricula and to address and implement different aspects of Appliance Energy Efficiency that would include socioeconomic, engineering, public awareness raising and gender considerations. The design of the Grant Programme enabled the MTEEA Project to multiply the effects of the Project results through dissemination of EE appliance messages of the Project to the new generations via compulsory and elective courses. In addition, several universities enhanced their EE appliance curricula with research laboratories and their awareness raising initiatives which had received support from Arçelik. The small scale grant programme represents delivery of an enhanced output that has proven to be more successful and achieved in a shorter period than originally contemplated. The implementation of the small-scale grant programme can be viewed as a successful example of leveraging GEF funds to enhance outcomes and objectives;

- *The importance of early delivery of concrete outputs on a project increases the commitment of all relevant stakeholders on a project.* On the early phases of the MTEEA Project, the timely completion of the inception phase within seven months delivered concrete outputs such as the definition of project teams, completion of TUR's and procurement notices and contracting of outsourced assistance. This rapid delivery of concrete outputs allow the PMU to implement the study tours as well as accelerate the transposition of EU eco-design and energy labelling regulations. This accelerated delivery of outputs facilitated the commitment of TSE towards investment in upgraded testing equipment. In addition, Arçelik covered all costs related to the public awareness raising campaign which led to surplus funds being available for the

small-scale grant programme and the Project being able to extend its scope to cover EE in small domestic appliances and development of a scheme to monitor the household energy consumption from domestic appliances. This has had the impact of increasing the commitment and dedication of other project partners as well as TSE;

- *The competence and diligence of the project management personnel is critical in the implementation of project activities.* The experience of PMU personnel was most appropriate in the implementation of the MTEEA Project. This included an excellent technical background of PMU personnel as well as experience in working with MoSIT which allowed the PMU personnel to identify the critical needs of all project partners and relevant stakeholders. This has directly led to guiding project activities in a manner leading to effective and efficient implementation of all project activities. Where appropriate, the PMU was also able to identify appropriate international inputs and study tours that could be used to influence MoSIT and other Project stakeholders in changing their approaches to market transformation towards EE appliances. In addition, the MTEEA PMU was able to identify the need for acceleration of transposition of EU eco-design and energy labeling regulations, add an additional training component on the training of MoSIT on the management of a market surveillance programme, add training of market inspectors for MoSIT, and implement consumer surveys with gendered disaggregated information and a small-scale grant programme to enhance public awareness raising outcomes of the Project.

- *Adaptive management of GEF projects can be improved through detailed preparation of one-year work plans.* The MTEEA Project PMU prepared one-year work plans which facilitated adaptation to the progress from the previous year, and adaptively manage the activities of the following year to the needs of the stakeholders. By preparing detailed one-year work plans in close consultation with the PSC and RTA, the PMU was able to be flexible in terms of its implementation of the Project. This approach to work planning allowed the PMU to add project activities not originally contemplated in the original Project document such as the Grant Programme, management training for a market surveillance program, addressing EE in small domestic appliances, and the monitoring of household energy consumption from domestic appliances;

- *Since market transformation usually takes more than 4 years, future GEF projects should be designed with a duration of 5 to 6 years.* The MTEEA Project was designed as a 4-year project but was successfully implemented as a 5-year project. If the original Project design have been designed for 5 or 6 years, the 2 extensions of the MTEEA Project would not have been necessary. Moreover, the MTEEA Project expended around 7 to 8 months to staff the PMU (while other similar GEF projects sometimes take more than 1 to 1.5 years to recruit a PMU team). A more efficient process for recruiting PMU staff should be considered at the startup of all GEF projects. This should include the screening and shortlisting of PMU staff candidates prior to the commencement of a GEF project.

# APPENDIX A – MISSION TERMS OF REFERENCE FOR PROJECT FINAL EVALUATION

INDIVIDUAL CONSULTANT PROCUREMENT NOTICE

| | |
|---|---|
| **Reference:** | PIMS 4014/TMEEA |
| **Country:** | Turkey |
| **Description of the Assignment:** | International Consultant for Terminal Evaluation of UNDP GEF Market Transformation of Energy Efficient Appliances in Turkey |
| **Project:** | PIMS 4014: Market Transformation of Energy Efficient Appliances in Turkey (EE Appliances) (PIMS 4014) |
| **Period of Assignment/Services:** | 25 working days over the period from 1 September 2015 – 31 December 2015 |
| **Duty Station:** | Home based (with 1 mission of 7 working days to Turkey) and 18 home-based days |

*Proposal should be submitted by email to ic.proposal@undp.org.tr no later than **10 July 2015**, COB.*
*Any request for clarification must be sent in writing, or by standard electronic communication to the address or e-mail indicated above. UNDP will respond in writing or by standard electronic mail and will send written copies of the response, including an explanation of the query without identifying the source of inquiry, to all consultants.*

## 1. BACKGROUND

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Market Transformation of Energy efficient Appliances in Turkey (EE Appliances)* (PIMS 4014).

For further details, please see Annex I (Terms of Reference).

## 2. SCOPE OF WORK, RESPONSIBILITIES AND DESCRIPTION OF THE PROPOSED ANALYTICAL WORK

For further details, please see Annex I (Terms of Reference).

## 3. REQUIREMENTS FOR EXPERIENCE AND QUALIFICATIONS

Please see Annex I (Terms of Reference).

## 4. DOCUMENTS TO BE INCLUDED WHEN SUBMITTING THE PROPOSALS

Interested individual consultants must submit the following documents/information to demonstrate their qualifications:

- Financial Proposal (please see section 5, below and Annex II)
- Personal CV, including past experience in similar projects and at least 2 references

**5. FINANCIAL PROPOSAL**

The interested individual consultants must submit their financial proposals by following the guidance and the standard template provided in Annex II. Any deviation from the standard text may lead to disqualification.

**6. EVALUATION**

The evaluation will be based on cumulative analysis (i.e. technical qualifications and price proposal). The weight of the technical criteria is 70%; the weight of the financial proposal is 30%. Candidates that obtain a minimum of 70 pts out of a maximum 100 pts will be considered for the financial evaluation. Candidates that do not meet the minimum requirements will be disqualified.

| Criteria | Maximum Points | Weight | Weighted Score |
|---|---|---|---|
| Technical | 100 | 70% | 70 |
| General Qualifications | 20 | 14% | 14 |
| General Professional Experience | 30 | 21% | 21 |
| Specific Professional Experience | 50 | 35% | 35 |
| Financial | 100 | 30% | 30 |

**7. ANNEXES**

The following annexes are an integral part of this procurement notice. In case of any conflict between the provisions of the Annex III and the procurement notice and/or Annex I and/or Annex II, the provisions of Annex III are applicable.

- Annex I: Terms of Reference
- Annex II: Price Proposal Guideline and Template
- Annex III: General Conditions of Contract for Individual Consultants

## ANNEX I – TERMS OF REFERENCES

### 1. INTRODUCTION

In accordance with UNDP and GEF M&E policies and procedures, all full and medium-sized UNDP support GEF financed projects are required to undergo a terminal evaluation upon completion of implementation. These terms of reference (TOR) sets out the expectations for a Terminal Evaluation (TE) of the *Market Transformation of Energy efficient Appliances in Turkey (EE Appliances)* (PIMS 4014). The essentials of the project to be evaluated are as follows:

**Project Summary Table**

| Project Title: | **Market Transformation of Energy Efficient Appliances in Turkey (EE Appliances)** | | | |
|---|---|---|---|---|
| GEF Project ID: | **4014** | | *at endorsement (US$)* | *at completion (US$)* |
| UNDP Project ID: | **00071137** | GEF financing: | **2,710,000** | **2,710,000** |
| Country: | **Turkey** | IA/EA own: | **20,000** | **20,000** |
| Region: | **RBEC** | Government: | **2,926,600** | **2,926,600** |
| Focal Area: | **CCM** | Other: | | |
| FA Objectives, (OP/SP): | **CC-SP1** | Total co-financing: | **2,946,600** | **2,946,600** |
| Executing Agency: | **DG for Renewable Energy under the Ministry of Energy and Natural Resources** | Total Project Cost: | **5,656,600** | **5,656,600** |
| Other Partners involved: | **Ministry of Science, Industry and Technology; Turkish White Goods Manufacturers' Association; Arçelik A.Ş.** | ProDoc Signature (date project began): | | **March 2010** |
| | | (Operational) Closing Date: | Proposed: **December 2015** | Actual: **December 2015** |

### 2. OBJECTIVE AND SCOPE

The objective of the project is to reduce the household electricity consumption and the associated greenhouse gas emissions of Turkey by accelerating the market transformation of less energy consuming building appliances.

This will be facilitated by a) strengthening the local institutional capacity to develop, adopt and implement effective appliance EE policies; b) developing and implementing a structured compliance checking and enforcement program for appliance energy performance labels and standards; c) increasing consumer and the supply chain awareness and capacity to purchase / deliver energy efficient appliances in the Turkish market; and d) analysing and reporting the results of the project for further learning, adaptive management and, as applicable, replication in other countries.

Working together with its partners, the project has been 'implemented to achieve the following four outcomes:

**Outcome 1:** Enhanced institutional capacities in Turkey to develop and implement effective appliance EE policies;

**Outcome 2:** A structured enforcement and verification program with adequately trained staff and other resources;

**Outcome 3:** Raised awareness of the end-users and the supply chain and strengthened capacity of the local manufacturers to develop and implement specific promotional activities to enhance the sale of energy efficient appliances;

**Outcome 4:** Institutionalization of the support provided by the project, including monitoring, learning, adaptive feedback and evaluation.

The TE will be conducted according to the guidance, rules and procedures established by UNDP and GEF as reflected in the UNDP Evaluation Guidance for GEF Financed Projects.
The objectives of the evaluation are to assess the achievement of project results, and to draw lessons that can both improve the sustainability of benefits from this project, and aid in the overall enhancement of UNDP programming.

## 3. EVALUATION APPROACH AND METHOD

An overall approach and method[36] for conducting project terminal evaluations of UNDP supported GEF financed projects has developed over time. The evaluator is expected to frame the evaluation effort using the criteria of **relevance, effectiveness, efficiency, sustainability, and impact,** as defined and explained in the UNDP Guidance for Conducting Terminal Evaluations of UNDP-supported, GEF-financed Projects. A set of questions covering each of these criteria have been drafted and are included with this TOR (*Annex C*) The evaluator is expected to amend, complete and submit this matrix as part of an evaluation inception report, and shall include it as an annex to the final report.
The evaluation must provide evidence-based information that is credible, reliable and useful. The evaluator is expected to follow a participatory and consultative approach ensuring close engagement with government counterparts, in particular the GEF operational focal point, UNDP Country Office, project team, UNDP GEF Technical Adviser based in the region and key stakeholders. The evaluator is required to conduct one field mission to Ankara and Istanbul for a minimum of 7 full working days (not including travel days) to meet as many as possible of the project partners and stakeholders. Interviews will be held with the following organizations and individuals at a minimum:

- Ministry of Energy and Natural Resources, DG for Renewable Energy (Executing Agency),
- Ministry of Science, Industry and Technology (MoSIT) – General Directorate of Industry and General Directorate of Safety and Inspection of Industrial Products Turkish White Goods Manufacturers' Association (TURKBESD),
- Arçelik A.Ş.
- UNDP Turkey Country Office
- UNDP Project Manager and Project Team
- Project Managers of other UNDP GEF EE projects in Turkey,
- UNDP Istanbul Regional Centre – Regional Technical Advisor on Climate Change
- Turkish Standards Institute (TSE),
- Turkish Accreditation Agency (TURKAK)
- Universities (Ankara University, Bogazici University, Istanbul Aydin University, Kadir Has University, Ozyegin University)
- Ministry of Development

[36] For additional information on methods, see the Handbook on Planning, Monitoring and Evaluating for Development Results, Chapter 7, pg. 163

- Ministry of Finance
- Ministry of Forestry and Water Affairs (GEF OFP)Selected manufacturers of EE appliances in Turkey

In the event that a second 1-2 day mission to Ankara is required at the end of the assignment to present the final findings and report, the additional cost of this mission will be covered by the UNDP CO in case it is required.

The evaluator will review all relevant sources of information, such as the project document, project reports – including Annual APR/PIR, project budget revisions, midterm review, progress reports, GEF focal area tracking tools, project files, national strategic and legal documents, and final lessons learned study and any other materials that the evaluator considers useful for this evidence-based assessment. A list of documents that the project team will provide to the evaluator for review is included in Annex B of this Terms of Reference.

## 4. EVALUATION CRITERIA & RATINGS

An assessment of project performance will be carried out, based against expectations set out in the Project Logical Framework/Results Framework (see Annex A), which provides performance and impact indicators for project implementation along with their corresponding means of verification. The evaluation will at a minimum cover the criteria of: **relevance, effectiveness, efficiency, sustainability and impact.** Ratings must be provided on the following performance criteria. The completed table must be included in the evaluation executive summary. The obligatory rating scales are included in Annex D.

| **Evaluation Ratings:** | | | |
|---|---|---|---|
| **1. Monitoring and Evaluation** | ***rating*** | **2. IA& EA Execution** | ***rating*** |
| M&E design at entry | | Quality of UNDP Implementation | |
| M&E Plan Implementation | | Quality of Execution - Executing Agency | |
| Overall quality of M&E | | Overall quality of Implementation / Execution | |
| **3. Assessment of Outcomes** | **rating** | **4. Sustainability** | **rating** |
| Relevance | | Financial resources: | |
| Effectiveness | | Socio-political: | |
| Efficiency | | Institutional framework and governance: | |
| Overall Project Outcome Rating | | Environmental : | |
| | | Overall likelihood of sustainability: | |

## 5. PROJECT FINANCE / COFINANCE

The Evaluation will assess the key financial aspects of the project, including the extent of co-financing planned and realized. Project cost and funding data will be required, including annual expenditures. Variances between planned and actual expenditures will need to be assessed and explained. Results from recent financial audits, as available, should be taken into consideration. The evaluator(s) will receive assistance from the Country Office (CO) and Project Team to obtain financial data in order to complete the co-financing table below, which will be included in the terminal evaluation report.

| Co-financing (type/source) | UNDP own financing (mill. US$) | | Government (mill. US$) | | Partner Agency (mill. US$) | | Total (mill. US$) | |
|---|---|---|---|---|---|---|---|---|
| | Planned | Actual | Planned | Actual | Planned | Actual | Planned | Actual |
| Grants | | | | | | | | |
| Loans/Concessions | | | | | | | | |
| • In-kind support | | | | | | | | |
| • Other | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Totals | | | | | | | | |

## 6. MAINSTREAMING

UNDP supported GEF financed projects are key components in UNDP country programming, as well as regional and global programmes. The evaluation will assess the extent to which the project was successfully mainstreamed with other UNDP priorities, including poverty alleviation, improved governance, the prevention and recovery from natural disasters, and gender.

## 7. IMPACT

The evaluators will assess the extent to which the project is achieving impacts or progressing towards the achievement of impacts. Key findings that should be brought out in the evaluations include whether the project has demonstrated: a) verifiable improvements in ecological status as measured through the achievement of significant greenhouse gas emission reductions, b) verifiable reductions in stress on ecological systems, and/or c) demonstrated progress towards these impact achievements.[37]

## 8. CONCLUSIONS, RECOMMENDATIONS & LESSONS

The evaluation report must include a chapter providing a set of **conclusions**, **recommendations** and **lessons**.

## 9. IMPLEMENTATION ARRANGEMENTS

The principal responsibility for managing this evaluation resides with the UNDP CO in Turkey with the advice and support of the UNDP Istanbul Regional Centre. The UNDP CO will contract the evaluators and ensure the timely provision of per diems and travel arrangements within the country for the evaluation team. The Project Team will be responsible for liaising with the Evaluators team to set up stakeholder interviews, arrange field visits, coordinate with the Government etc.

## 10. EVALUATION TIMEFRAME

The total duration of the evaluation will be 25 working days (of which a minimum of 7 working days will take place in Turkey) according to the following plan:

| Activity | Timing | Estimated Completion Date |
|---|---|---|
| **Preparation** | 3 days | *September 2015* |
| **Evaluation Mission** | 7 days | *September-October 2015* |
| **Draft Evaluation Report** | 13 days | *November 2015* |
| **Final Report** | 2 days | *December 2015* |

[37] A useful tool for gauging progress to impact is the Review of Outcomes to Impacts (ROtI) method developed by the GEF Evaluation Office: ROTI Handbook 2009

## 11. EVALUATION DELIVERABLES

The evaluation team is expected to deliver the following:

| Deliverable | Content | Timing | Responsibilities |
|---|---|---|---|
| **Inception Report** | Evaluator provides clarifications on timing and method | No later than 2 weeks before the evaluation mission. | Evaluator submits to UNDP CO |
| **Mission to Turkey** | Travel to Turkey for meetings with all project stakeholders | September-October 2015 | UNDP CO to arrange travel and accommodation for the Evaluator |
| **Presentation** | Initial Findings | End of evaluation mission | To project management, UNDP CO |
| **Draft Final Report** | Full report, (per annexed template) with annexes | Within 2 weeks of the evaluation mission | Sent to CO, reviewed by RTA, PCU, GEF OFPs |
| **Final Report*** | Revised report | Within 1 week of receiving UNDP comments on draft | Sent to CO for uploading to UNDP ERC. |

*When submitting the final evaluation report, the evaluator is required also to provide an 'audit trail', detailing how all received comments have (and have not) been addressed in the final evaluation report.

## 12. PLACE OF WORK

Place of work for the assignment is home-based with various travels in Turkey depending on the project needs and the duties and responsibilities of the consultant. It is estimated that one mission of up to seven working days will be needed to Ankara and/or Istanbul. The seven working days in Ankara and/or Istanbul do not include travel days which should be outside of the 7 FULL working days to be spent in Ankara and/or Istanbul. The timing and duration of all missions are subject to the pre-approval of UNDP.

The travel and accommodation costs of all missions will be borne by UNDP. The costs of these missions may either be;

- Arranged and covered by UNDP CO from the respective project budget without making any reimbursements to the consultant or
- Reimbursed to the consultant upon the submission of the receipts/invoices of the expenses by the consultant and approval of the UNDP. The reimbursement of each cost item is subject to the following constraints/conditions provided in below table;
- covered by the combination of both options

## 13. QUALIFICATIONS AND SKILLS

The evaluator shall have prior experience in evaluating similar projects either for UNDP or for other international organizations. Experience with GEF financed projects is an advantage but is not a requirement. The International Evaluator will be responsible for finalizing the report following comments from UNDP and other stakeholders. The International Evaluator selected should not have participated in the project preparation and/or implementation of the project and should not have conflict of interest with project related activities.
The evaluator must present the following qualifications:

- At least a first degree in science or engineering with minimum six years of relevant energy related M&E professional experience or related field
- Demonstrated technical knowledge in energy efficiency, in particular of household appliances and experience working on technical assistance projects related to energy efficiency

- Previous experience in evaluating technical assistance projects for international organizations, including GEF projects
- Demonstrated ability to assess complex situations, succinctly distils critical issues, and draw forward-looking conclusions and recommendations;
- Excellent in human relations, coordination, planning and team work.
- Have exemplary written and oral communication skills in English, be fully IT literate
- Previous experience with results-based monitoring and evaluation methodologies;
- Proven track record of application of results-based approaches to evaluation of projects focusing on energy efficiency;
- Knowledge of and recent experience in applying UNDP and GEF M&E policies and procedures is an asset.
- Fluent in English both written and spoken.

## 14. EVALUATOR ETHICS

The International Evaluation Consultant will be held to the highest ethical standards and are required to sign a Code of Conduct (Annex E) upon acceptance of the assignment. UNDP evaluations are conducted in accordance with the principles outlined in the UNEG 'Ethical Guidelines for Evaluations'.

# APPENDIX B – MISSION ITINERARY (FOR NOVEMBER 2015)

| # | Activity | Stakeholder involved | Place |
|---|---|---|---|
| ***November 1, 2015** (Sunday)* | | | |
| | Arrival of Mr Roland Wong to Istanbul | | |
| ***November 2, 2015** (Monday)* | | | |
| 1 | Meeting with Ms. Öykü Korkmaz, Secretary General of TURKBESD | TURKBESD | Istanbul |
| 2 | Meeting with Prof. Dr. Osman Z. Zaim, Dean, Department of Economics, Faculty of Economics, Administrative and Social Sciences | Kadir Has University | Istanbul |
| ***November 3, 2015** (Tuesday)* | | | |
| 3 | Meeting with Assoc. Prof. Dr. Zafer Utlu, Head of Social Sciences Institute, Istanbul Aydin University | Istanbul Aydin University | Istanbul |
| 4 | Meeting with Prof. Levent Kurnaz of Bogazici University | Bogazici University | Istanbul |
| 5 | Meeting with Mr. Fatih Özkadı, Director of Sustainability and Corporate Affairs, and Ms. Yasemin Bascavusolglu, Senior Specialist of Communications and PR Corporate Communications | Arçelik | Istanbul |
| ***November 4, 2015** (Wednesday)* | | | |
| 6 | Meeting with Dr. Mehmet Arık, Associate Professor, School of Engineering, Özyeğin University | Özyeğin University | Istanbul |
| 7 | Meeting with Mr. Ramazan Gümüştaş, Mr. Omer Sonmez and Mr. Güvenir Kaan Esen at the Gebze campus of TSI combine with visits to the testing laboratory facilities for wet appliances and air conditioners | Turkish Standards Institute | Istanbul |
| ***November 5, 2015** (Thursday)* | | | |
| 8 | Meeting with Mr. John O'Brien, Regional Technical Advisor, Climate Change Mitigation, Europe and CIS Region, UNDP-GEF | UNDP-GEF | Istanbul |
| 9 | Travel to Ankara | | |
| ***November 6, 2015** (Friday)* | | | |
| 10 | Meeting with Mr. Necmettin Tokur and Ms. Birce Albayrak, PMU | UNDP Turkey | Ankara |

| # | Activity | Stakeholder involved | Place |
|---|---|---|---|
| 11 | Meeting with Ms. Yasemin Demircioglu, Ms. Dilsad Bayram and Mr. Emrullah Emen of MoSIT | DG for Industry & DG for Safety and Inspection of Industrial Products | Ankara |
| 12 | Meeting with Mr. Erdal Çalıkoğlu, Project Director, DGRE | DGRE | Ankara |
| ***November 7-8, 2015** (Saturday-Sunday)* | | | |
| | Preparation of evaluation report | | Ankara |
| ***November 9, 2015** (Monday)* | | | |
| 13 | Meeting with Ms. Fatma Güngör, GEF OFP | Ministry of Forestry and Water Affairs | Ankara |
| 14 | Meeting with Prof. Dr. Prof. Gokhan Ilk, Head of Electrical and Electronics Engineering Department, and Dr. Feza Sencer Cortoglu, EU Research Center Specialist, Ankara University | Ankara University | Ankara |
| ***November 10, 2015** (Tuesday)* | | | |
| 15 | Meeting with Mr. Serdinç Yılmaz, Head of Department, Ms. Seda Sözak Cebeci, Transport, Energy and Logistics Department of MoD | Ministry of Development | Ankara |
| 16 | Meeting with Mr. Atila Uras, Assistant Resident Representative, and Ms. Pelin Rodoplu, Portfolio Manager, UNDP Turkey | UNDP Turkey | Ankara |
| ***November 13, 2015** (Friday)* | | | |
| 17 | Debirefing meeting with DGRE and UNDP Turkey on the results of the Terminal Evaluation | DGRE and UNDP Turkey | Ankara |
| ***November 17, 2015** (Tuesday)* | | | |
| | Departure of Mr. Roland Wong from Ankara | | |

Total number of meetings conducted: 17

# APPENDIX C – LIST OF PERSONS INTERVIEWED

This is a listing of persons contacted in Istanbul and Ankara (unless otherwise noted) during the Final Evaluation Period only. The Evaluator regrets any omissions to this list.

1. Mr. John O'Brien, Regional Technical Advisor, Europe and CIS regions, UNDP-GEF, Istanbul, Turkey;
2. Mr. Atila Uras, Assistant Resident Representative, UNDP Turkey;
3. Ms. Pelin Rodoplu, Portfolio Manager, UNDP Turkey;
4. Mr. Necmettin Tokur, MTEEA Project Manager, PMU;
5. Ms. Birce Albayrak, MTEEA Project Associate, PMU;
6. Mr. Erdal Çalıkoğlu, Project Director, DGRE;
7. Ms. Yasemin Demircioglu, DG for Safety and Inspection of Industrial Products, MoSIT;
8. Ms. Dilsad Bayram, DG for Safety and Inspection of Industrial Products, MoSIT;
9. Mr. Emrullah Emen, DG for Industry, MoSIT;
10. Mr. Serdinç Yılmaz, Head of Department, Transport, Energy and Logistics Department, Ministry of Development;
11. Ms. Seda Sözak Cebeci, Expert, Transport, Energy and Logistics Department, Ministry of Development
12. Ms. Fatma Güngör, GEF OFP, Ministry of Forestry and Water Affairs;
13. Mr. Ramazan Gümüştaş, Turkish Standards Institute;
14. Mr. Omer Sonmez, Turkish Standards Institute;
15. Mr. Güvenir Kaan Esen, Turkish Standards Institute;
16. Ms. Öykü Korkmaz, Secretary General, TURKBESD;
17. Mr. Fatih Özkadı, Director of Sustainability and Corporate Affairs, Arçelik;
18. Ms. Yasemin Bascavusolglu, Senior Specialist of Communications and PR Corporate Communications, Arçelik;
19. Prof. Dr. Osman Z. Zaim, Dean, Department of Economics, Faculty of Economics, Administrative and Social Sciences, Kadir Has University;
20. Assoc. Prof. Dr. Zafer Utlu, Head of Social Sciences Institute, Istanbul Aydin University;

21. Prof. Levent Kurnaz, Bogazici University;
22. Dr. Mehmet Arık, Associate Professor, School of Engineering, Özyeğin University;
23. Prof. Dr. Prof. Gokhan Ilk, Head of Electrical and Electronics Engineering Department, Ankara University;
24. Dr. Feza Sencer Cortoglu, EU Research Center Specialist, Ankara University.

# APPENDIX D – LIST OF DOCUMENTS REVIEWED

1. UNDP Project Document for the “Market Transformation of Energy Efficient Appliances” dated November 2009;

2. EEA Inception Report, dated December 2010;

3. EEA PSC Executive Summary Minutes from 2012, 2013 and 2014;

4. MTEEA PIRs from 2011 to 2014;

5. MTEEA Midterm Evaluation, dated August 2012;

6. MTEEA report on Implementation of Energy Efficient Appliance Policies, Deliverables 2 and 3, dated February 2012 and November 2012 respectively;

7. MTEEA Implementation plan, Deliverable 5, dated April 2012;

8. MTEEA report on “Development of Financial Support Mechanisms for Market Transformation of EE Appliances, Stakeholder Consultation Report”, dated October 2013;

9. MTEEA report on “Development of Financial Support Mechanisms for Market Transformation of EE Appliances, Overview Report of Financial Support Mechanisms in the EU”, dated October 2013;

10. MTEEA report on “Development of Financial Support Mechanisms for Market Transformation of EE Appliances, Financial Support Mechanism Options”, dated December 2013;

11. MTEEA CDRs from 2010 to 2014;

12. MTEEA SL Market Monitoring Calculation Sheet, September 2015;

13. MTEEA AWPs from 2012 to 2015;

14. MTEEA report on “Domestic Energy Consumption Monitoring Schemes in the EU/International, dated April 2015;

15. MTEEA report on “Proposed Domestic Appliance Energy Consumption Monitoring Scheme for Turkey”, dated April 2015;

16. MTEEA report on “Analysis of the Different Monitoring Equipment Available and Technical Specifications”, dated April 2015;

17. MTEEA report on “Contents of the Workshop for Further Domestic Appliance Training on Energy Labelling, Eco-Design and Market Surveillance, dated April 2015.

# APPENDIX E – COMPLETED TRACKING TOOL

## GEF Climate Change Mitigation Tracking Tool

Please complete the cells with white background colour only.

| Is this APR/PIR the FIRST APR/PIR or the mid-term APR/PIR or the FINAL APR/PIR? | First APR/PIR |
|---|---|

**Special Notes: reporting on lifetime emissions avoided**

Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totaled over the respective lifetime of the investments.

Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.

Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.

Please refer to the Manual for Calculating GHG Benefits of GEF Projects.

Manual for Energy Efficiency and Renewable Energy Projects

Manual for Transportation Projects

For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use

| General Data | Target at CEO endorsement/result at mid-pointterm/result at project closing |
|---|---|
| Project Title | Market Transformation of Energy Eficienct Appliances in Turkey |
| GEF ID | 3565 |
| Agency Project ID | 4014 |
| Country | Turkey |
| Region | Europe & CIS |
| GEF Agency | UNDP |
| Date of Council/CEO Approval | 30-Dec-09 |
| GEF Grant (US$) | 2,710,000 |
| Date of submission of the tracking tool | N/A |
| | |
| Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC? | Yes |
| Is the project linked to carbon finance? | No |
| Cofinancing expected (US$) | 2,946,000 |

| **Objective 2: Energy Efficiency**<br><br>**Please specify if the project targets any of the following areas** | |
|---|---|
| Lighting | |
| Appliances (white goods) | Yes |
| Equipment | |
| Cook stoves | |
| Existing building | |
| New building | |
| Industrial processes | |
| Synergy with phase-out of ozone depleting substances | |
| Other (please specify) | |
| | |
| Policy and regulatory framework | 4: policy/regulation/strategy adopted but not enforced |
| Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds) | 1: no facility in place |
| Capacity building | 1: no capacity built |
| | |
| Lifetime energy saved | 0 |
| Lifetime direct GHG emissions avoided (Tonnes of CO2) | 0 |
| Lifetime direct post-project GHG emissions avoided (Tonnes of CO2) | 0 |
| Lifetime indirect GHG emissions avoided (bottom-up) (Tonnes of CO2) | 0 |
| Lifetime indirect GHG emissions avoided (top-down) (Tonnes of CO2) | 2,752,697 |

# APPENDIX F – PROJECT PLANNING MATRIX (PPM) (FROM JANUARY 2011)

(with **red font** indicating changes from the ProDoc PPM)

| **Project Strategy** | **Indicator** | Baseline | Target | **Sources of verification** | **Risks and Assumptions** |
|---|---|---|---|---|---|
| **Objective of the project:** Reduction of household electricity consumption and related greenhouse gas emissions of Turkey by accelerating and ensuring the market transformation towards more energy efficient appliances. | The estimated stock and annual sale of different energy classes of the appliances selected for monitoring | Depending on the product category, an estimated 17% reduction or 89% increase of the average UEC by 2013 compared to the 2007 level | Depending on the product category, 2-28% reduction of the average UEC by 2013 compared to the estimated baseline development | The market monitoring system and reports produced in the frame of the project | Adequate data will be available from the market |
| | Household electricity consumption trend | Continuing increase of the total electricity consumption of the targeted appliances | Stabilizing or reducing the total electricity consumption of the targeted appliances | Calculations on the basis of the available market data and assumed baseline development | See above |
| | Amount of reduced $CO_2$ emissions compared to the projected baseline | Zero | Estimated min. 1.7 Mtons of incremental reduction of $CO_2$ (with a causality factor of 60%) by the appliances sold during the project | Official energy statistics | See above |
| **Outcome 1:** Enhanced institutional capacities in Turkey to develop and implement effective appliance EE policies. | The content and status of new policies and programs supporting their implementation | Insufficient implementation of policies and programs to support enhancement of appliance energy efficiency | New legal and regulatory provisions and supporting compliance checking, enforcement and outreach programs adopted that reflect international “best practices” | Official publications and project’s midterm and final evaluations | Continuing commitment of the key public authorities and government entities to develop and implement effective appliance S&L policies. |
| **Output 1.1** Enhanced capacity of public authorities to implement and monitor | The status and type of capacity building provided | Insufficient awareness and supporting studies to assess the applicability and required | Trained staff and supporting studies to assess the applicability and required implementation support of new regulations and policies, and to | Project progress report | Willingness of the targeted public authorities to benefit from the |

| Project Strategy | Indicator | Baseline | Target | Sources of verification | Risks and Assumptions |
|---|---|---|---|---|---|
| the impact of the adopted S&L related laws and regulations, and assess the impact, applicability and required implementation support of possible new regulations and policies. | | implementation support of new regulations and policies, and monitor and assess the impact of the existing ones | monitor and assess the impact of the existing ones.<br>Specific sub-targets include, among others:<br>- Workshop: Gathering Supply Side and Demand Side<br>- an assessment report combining a GHG emission reduction and cost benefit analysis;<br>- review of the existing EE appliance program;<br>- review of the new regulations proposed under the EU Ecodesign Directive and acceleration of their transposition in Turkey, including new S&L requirements for TV sets not subject to any S&L schemes yet in Turkey;<br>- finalized training curricula and modules/ materials;<br>- delivered training on adopted policies (At least 5 trainings for 20 participants per training);<br>- delivered training on eco-design (at least 5 trainings for 20 participants per training);<br>- participation in international and national workshops, meetings and study tours (at least 10 technical persons per year). | | training and the supporting studies. |
| **Output 1.2** A structured market monitoring system | Availability of required data | No accurate market information available for public use. | Regularly updated data on annual sale of different appliances per energy classes available for public use (with finalized market | Project progress reports | Concluded agreements with the manufacturers and the retail chain to |

| Project Strategy | Indicator | Baseline | Target | Sources of verification | Risks and Assumptions |
|---|---|---|---|---|---|
| | | | monitoring methodology and established system with Association of Manufacturers) | | submit the required data |
| **Output 1.3** Agreements with the private sector on the implementation of voluntary agreements and/or specific promotional campaigns and incentives schemes, for instance, for the accelerated replacement of old inefficient appliances. | Status of complementary promotional measures | No specific promotional campaigns or incentive schemes to accelerate the phase out of old or otherwise inefficient appliances. | At least 2 consultation workshops and concluded agreements for specific promotional campaigns and/or incentive schemes for at least two appliances. | Project progress reports | Willingness of the key stakeholders to support the proposed measures, incl. the availability of adequate financial resources. |
| **Outcome 2:** A structured enforcement and verification program with adequately trained staff and other resources | The rate of compliance checked by random samples taken from the market and random visits to the retail stores | An inadequate verification and enforcement scheme in place to ensure compliance. | Over 90% compliance of the random product samples and visits to the retail stores. | Specific market surveillance reports | Continued commitment of the key public authorities to implement such program. |
| **Output 2.1** A finalized proposal for consolidating the compliance checking and enforcement scheme for products and retailers including testing of products under energy labeling regulations | Status of the proposal | A need to consolidate the compliance checking and enforcement program to include energy efficiency aspects | Finalized proposal for consolidating compliance checking and enforcement scheme both for products and the retailers including energy efficiency aspects (addressing also the required legal amendments to effectively follow-up non-compliance) | Project progress report | See above |
| **Output 2.2** Agreed and upgraded | Status of the agreement | Agreed procedures and organizational | Agreed and upgraded procedures and organizational | Project progress | See above |

| Project Strategy | Indicator | Baseline | Target | Sources of verification | Risks and Assumptions |
|---|---|---|---|---|---|
| procedures and organizational arrangements for testing of products regarding energy efficiency performance | | procedures at the national level do not sufficiently cover energy efficiency aspects. | arrangements for testing of products regarding energy efficiency performance | report | |
| **Output 2.3** Testing the agreed compliance checking and enforcement schemes for all targeted (6) appliances in selected locations. | Status of the pilot project | The agreed programs, procedures and organizational arrangements not tested before their adoption | The agreed programs, procedures and organizational arrangements tested for all targeted (6) appliances before their broader adoption | Project progress report and a separate evaluation report of the pilot(s) | See above |
| **Output 2.4** Trained staff of both the selected testing laboratories and MoIT's branch offices to implement the compliance checking program. | The amount and type of training provided | The regular in-service training run by MoIT and TSE does not sufficiently focus on energy efficiency aspects. | Specific training courses and/or on-the-job training delivered as per the annual work plans, including training the state inspectors on compliance (estimated 10 trainings for 20 participants per training event) and training on testing of products (estimated 2 trainings for 30 participants per training event). | Project progress reports | Willingness of the targeted stakeholders to benefit from the training. |
| **Outcome 3:** Raised awareness of the end-users and the supply chain and strengthened capacity of the local manufacturers to develop and implement specific promotional activities to enhance the sale of energy efficient appliances. | The priority of different criteria used by the targeted clients in their purchasing decisions | Less emphasis among the consumers and sales personnel on energy efficiency aspects and life cycle costs when purchasing and marketing new appliances. | Beside the initial purchasing price, energy efficiency and life-cycle costs have become a key criteria for purchasing decisions. | Consumer surveys | Pay-back of the higher EE appliances attractive enough for the consumers or supported by other product characteristics such as higher overall quality, more attractive design etc. |

| Project Strategy | Indicator | Baseline | Target | Sources of verification | Risks and Assumptions |
|---|---|---|---|---|---|
| **Output 3.1** Completed surveys to assess the level of awareness and key "drivers" of the consumers for the purchase of different products in prior and after the campaign | Status of surveys | Insufficient information on the level of awareness and preferences of the consumers in their purchasing decisions (as it relates to EE aspects) for effectively designing and monitoring the impact of the marketing campaigns | Completed consumer surveys with at least 1500 questionnaires per survey. | Project progress reports | |
| **Output 3.2** Joint marketing campaigns with the manufacturers and retail chain (with related material for advertising and in-store use) highlighting the energy efficiency aspects and the life-cycle costs approach. | Delivery and availability of the marketing material | Insufficient focus and material on energy efficiency aspects in marketing | Delivery of joint marketing campaigns with the manufacturers and retail chain highlighting the EE aspects and the life-cycle costs approach, including, as applicable, booklets, billboards, newspaper advertisements, TV spots, flyers, internet etc. | Project progress reports | Continuing interest of the manufacturers and retail chain to co-operate with and cost-share such marketing campaigns |
| **Output 3.3** A web site to support consumer's choice with test results and other product information, pricing, easy to use calculation tools etc. with an emphasis on energy efficiency | Impact of the content of the website in consumers purchasing decisions | No website with regularly updated content on product information and its comparison available | Over 20% of the interviewed consumers in stores considering the purchase of a new appliance are aware of and have found the content of the website useful. | Project progress reports<br>In-store surveys | Interest of the manufacturers and retail chain to co-operate in the development and assessment of the impact of the website. |
| **Output 3.4** Trained sales staff in the retail chain (complemented, as applicable, by specific incentives such as premiums for the sales personnel for the | Emphasis on EE aspects in the marketing strategy of the retail chain.<br>As applicable, disbursement rate of the incentives for the sales personnel to | Relatively low emphasis on energy efficiency aspects in the marketing strategy of the retail chain. | Energy efficiency and life-cycle cost reduction aspects highlighted in the marketing strategy of the retail chain | Review of the in-store marketing material<br>Test visits in the retail stores | Interest of the managers and sales staff of the retail chain to benefit from the training. |

| Project Strategy | Indicator | Baseline | Target | Sources of verification | Risks and Assumptions |
|---|---|---|---|---|---|
| sale of EE products) to market the products on the basis of their energy performance and related life-cycle costs beside other characteristics. | market EE products. | | | | |
| **Output 3.5** Specific promotional campaigns to expedite phase-out of old inefficient appliances, including, as applicable, specific financial incentives and/or utility (DSM) driven delivery and financing models. | Status and the delivery rate of the campaigns | No specific promotional campaigns to expedite phase-out of old inefficient appliances | Reaching at least 50% of the stated target of the campaigns, as measured by the delivery rate of the promotional measure used. | Monitoring reports and final evaluation of the impact of the campaigns initiated. | Interest of the Gov't, manufacturers and retail chain to co-operate in the development, organization and financing of the campaign. |
| **5. <u>Outcome 4:</u>** Institutionalization of the support provided by the project, including monitoring, learning, adaptive feedback and evaluation. | The status of recommendations contributing to institutional sustainability.<br><br>The level of information available for adaptive management and for measuring the impact of the project. | Insufficient institutional mechanisms in place to ensure sustainability of project results.<br><br>Insufficient information for adaptive management and for measuring the impact of the project. | Project recommendations to ensure institutional sustainability adopted and implemented.<br><br>Adequate information available for adaptive management and measuring the impact. | Project final evaluation<br><br>Annual project reports | Successful completion of the prior project activities |
| **Output 4.1** An updated baseline study, against which the impact of the project can be measured. | Status of the report. | Insufficient or outdated baseline information. | An updated baseline study finalized. | Project reports | Adequate data will be available from the market |
| **Output 4.2** Energy efficiency aspects increasingly included | The level of inclusion of appliance energy efficiency aspects into the curricula of | Appliance energy efficiency aspects insufficiently covered by | Appliance energy efficiency aspects increasingly included into the curricula of the relevant educational | Project reports and final evaluation | Interest of the identified educational |

| Project Strategy | Indicator | Baseline | Target | Sources of verification | Risks and Assumptions |
|---|---|---|---|---|---|
| into the curricula of relevant educational institutions. | relevant educational institutions. | the current curricula | institutions, with a specific course on appliance energy efficiency in at least one university.<br><br>Research studies related to the topic of the project started and completed in Turkish universities | | institutions to co-operate with the project. |
| **Output 4.3** Further elaboration of the possible financial support mechanisms to accelerate the market shift towards more energy efficient appliances, including, as applicable, carbon financing | The type of financing available for covering the incremental investment costs of energy efficient appliances | No particular financing mechanisms available to reduce the eventual incremental investment cost barrier in purchasing energy efficient appliances. | Identified or established financial support mechanisms continue to promote the purchase of energy efficient appliances at and after the end of the project.<br><br>Organized stakeholder meetings to discuss the possible financial instruments and mechanisms (at least 5 meetings with banks and other financial institutions). | Final evaluation | Interest of the identified key stakeholders on financing to co-operate and invest in the promotion of energy efficient appliances. |
| **Output 4.4** Final project report consolidating the results and lesson learnt from the implementation of the different project components and recommendations for the required next steps. | Status of the final report | No consolidation of the results and lessons learnt. | Final project report consolidating the results and lesson learnt from the implementation of the project. | Project progress reports and final evaluation | Ongoing monitoring and recording of the impact of the project and barriers faced. |
| **Output 4.5** Project mid-term and final evaluations and other required reviews. | Status of the mid-term and final evaluation | Inadequate information for adaptive management. | Finalized mid-term and final evaluations | Project progress reports | Adequate monitoring, reporting and filing of the key documents during implementation to facilitate external reviews and evaluations. |

# APPENDIX G– EVALUATION CONSULTANT AGREEMENT FORM

**Evaluators:**

1. Must present information that is complete and fair in its assessment of strengths and weaknesses so that decisions or actions taken are well founded.
2. Must disclose the full set of evaluation findings along with information on their limitations and have this accessible to all affected by the evaluation with expressed legal rights to receive results.
3. Should protect the anonymity and confidentiality of individual informants. They should provide maximum notice, minimize demands on time, and respect people's right not to engage. Evaluators must respect people's right to provide information in confidence, and must ensure that sensitive information cannot be traced to its source. Evaluators are not expected to evaluate individuals, and must balance an evaluation of management functions with this general principle.
4. Sometimes uncover evidence of wrongdoing while conducting evaluations. Such cases must be reported discreetly to the appropriate investigative body. Evaluators should consult with other relevant oversight entities when there is any doubt about if and how issues should be reported.
5. Should be sensitive to beliefs, manners and customs and act with integrity and honesty in their relations with all stakeholders. In line with the UN Universal Declaration of Human Rights, evaluators must be sensitive to and address issues of discrimination and gender equality. They should avoid offending the dignity and self-respect of those persons with whom they come in contact in the course of the evaluation. Knowing that evaluation might negatively affect the interests of some stakeholders, evaluators should conduct the evaluation and communicate its purpose and results in a way that clearly respects the stakeholders' dignity and self-worth.
6. Are responsible for their performance and their product(s). They are responsible for the clear, accurate and fair written and/or oral presentation of study imitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

**Evaluation Consultant Agreement Form**[38]

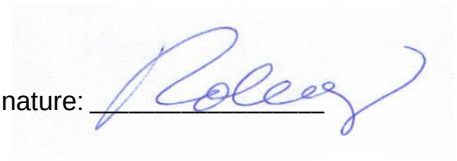
**Agreement to abide by the Code of Conduct for Evaluation in the UN System**

**Name of Consultant:** Roland Wong

**Name of Consultancy Organization** (where relevant)**:** _____

**I confirm that I have received and understood and will abide by the United Nations Code of Conduct for Evaluation.**

Signed at *Surrey, BC , Canada* on *December 28, 2015*

Signature: 

[38] www.unevaluation.org/unegcodeofconduct