Mid-term Evaluation

of the UNDP-GEF project

Promoting Energy Efficiency in Buildings in Turkey (EE Buildings)

PIMS 3646

Mid-Term Evaluation Report

prepared by International MTE Consultant
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May 2013

Evaluation Team

This Mid-term Evaluation of the UNDP-GEF project Building the Local Capacity for Promoting Energy Efficiency in Public Buildings (EE Project 2942; PIMS 3646) was carried out between 04 February, 2013 and 15 March, 2013.
The evaluation has been conducted for the Turkish office of the United Nations Development Programme by the international consultant, Mr. Andreas Karner (andreas.karner@conplusultra.com).

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Acronyms and Abbreviations

APR	Annual Project Report
AWP	Annual Work Plan
BEP	Building Energy Performance
CEO	GEF Chief Executive Officer
CIS	Commonwealth of Independent States
CO	UNDP Country Office
CO_2eq	Carbon Dioxide equivalent
EBRD	European Bank for Reconstruction and Development
ECU	Executing Unit
EE	Energy Efficiency
EECB	Energy Efficiency Coordinating Board
ESCOs	Energy Services Companies
EU	European Union
GDP	Gross Domestic Product
GDRE	General Directorate for Renewable Energy
GEF	Global Environment Facility
GHG	Greenhouse Gas
HVAC	Heating, Ventilation and Air Conditioning
IBDA	Integrated Building Design Approach
IMSAD	Association of Turkish Building Material Producers
IR	Inception Report
kW	Kilowatt
kWh	Kilowatt Hour
M&E	Monitoring and Evaluation
m^2	Square Metre
MoENR	Ministry of Energy and Natural Resources
MoEU	Ministry of Environment and Urbanization
MoNE	Ministry of National Education
NGO	Non-Governmental Organization
OECD	Organization for Economic Cooperation and Development
PDF	Project Development Facility
PIR	Project Implementation Review
PMU	Project Management Unit
PSC	Project Steering Committee
QPR	Quarterly Progress Report
RE	Renewable Energy
tCO_2e	Tonnes of Carbon Dioxide Equivalent
toe	Tonnes of Oil Equivalent
TOKI	Housing Development Administration
TSE	Turkish Standards Institute
UNDP	United Nations Development Programme

Executive summary

Project Summary

Table 1: Project Summary Information

Project Title:	**Promoting Energy Efficiency in Buildings in Turkey**			
GEF Agency Project ID:	PIMS: 3646	Project Financing	*at endorsement (Million US$)*	*at time of Mid-Term Review (Million US$)*
UNDP Project ID:	74059	GEF financing:	2.620	0.635
Country:	Turkey	IA/EA own:	0.060	0.032
Region:	RBEC	Government (cash):	7.600	0.503
Focal Area:	Climate Change			
FA Objectives, (OP/SP):		Government (in-kind)	7.300	6.705
Executing Agency:	GD of Renewable Energy	Total Project Cost:	17.580	7.875
Other Partners involved:	MoEU, MoNE	ProDoc Signature (date project began):		July 2010
		Actual Date of starting date (inception workshops): July 2011		
		Planned closing date: May 2015 Proposed closing date: May 2016		

Project Objectives

The objective of the **UNDP/GEF Project: Promoting Energy Efficiency in Buildings in Turkey** (hereafter referred to as *"the Project"* or *"EE Buildings Project"*) is to reduce energy consumption and associated GHG emissions in buildings in Turkey by raising building energy performance standards, improving enforcement of building codes, enhancing building energy management and introducing the use of an "integrated building design approach" (IBDA). This will be achieved by: introducing the use of an integrated building design approach via three demonstration buildings and ongoing training as well as providing stronger regulations, implementers and institutions. Since there is little knowledge and awareness of IBDA in Turkey, and examples of viable energy efficiency in buildings are limited, one of the focus areas for this project is generating an IBDA that is relevant and adapted to the Turkish situation and climate, and which is illustrated through provision of the three demonstration buildings.

There are four main outcomes to be achieved by the Project:

- **Outcome 1**: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers.
- **Outcome 2**: Cost-effective energy efficiency solutions showcased through integrated building design approach (IBDA) application in two (originally as stated in ProDoc) demonstration buildings.

- **Outcome 3:** New tools developed and introduced to facilitate compliance with higher energy efficiency standards and the application of an integrated building design approach in buildings.
- **Outcome 4**: Building energy consumption, energy savings and other results of the project monitored, evaluated and reported.

Context and purpose of the Evaluation

This Mid-Term Evaluation (MTE) is being conducted at the request of UNDP in Turkey; it is a key element of the standard project monitoring and evaluation procedure.

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives:

- to monitor and evaluate results and impacts;
- to provide a basis for decision making on necessary amendments and improvements;
- to promote accountability for resource use; and
- to document, provide feedback on, and disseminate lessons learned.

Specifically, the MTE is to assess and review

- the overall **project concept and design** in terms of appropriateness of objectives, planned outputs, activities and inputs compared to other cost-effective alternatives,
- the **implementation** of the Project in terms of quality and timeliness of inputs and efficiency and effectiveness of activities carried out as well as overall management and stakeholder involvement
- the **project outputs, outcomes and impact** and how the objectives of the Project contribute to the realisation.

Summary of achieved outputs to date

The following results can be attributed to the project so far:

- the dynamic development of the energy efficiency legislative framework received additional drive from the project, which provided specific assessments and baseline studies that compare the nascent Turkish building energy efficiency framework with international best-practice, necessary upgrades of the national building inspection system and further requirements to adhere to much stronger EE regulations and standards (e.g. developing minimum energy performance standards is urgently required) and enforcement;
- the initial project baseline scenario, developed for the Project Document to provide a quantitative assessment of the building stock and its energy consumption characteristics, underwent a revision to capture the significant changes in both the EE legislative framework and the economic context between the time of ProDoc preparation and project implementation. This revised baseline study (2012) provides the only known major assessment of potential energy efficiency scenarios for the Turkish building sector. It has been approved by all major governmental institutions and is therefore an important background document.
- Best practice from international (mainly European) legislation and approaches have been developed to provide valuable input for further developing the EE framework in Turkey, mainly with the support and experience of national and international experts.
- Awareness of governmental stakeholders in implementing integrated building design approaches is continuously growing within the ongoing design phase of the

demonstration projects. The concept is still in an early implementation stage; however, there is very strong commitment of ministerial decision-makers and technical staff to ensure that the demonstration projects will be implemented successfully and that the IBDA approach will provide sustainable improvement to the manner in which building design is implemented in Turkey nowadays.
- Three, instead of the two initially envisaged, demonstration buildings will be constructed with the support of this Project: #1 & #2: MoNE - Renewable Energy VET School & Atelier Building; a nearby dormitory & sports hall will be additionally financed by MoNE; # 3:Office of the Land Cadaster Department,). The total enclosed area of the demonstration buildings will be approx.18,000 m².

Further details are provided in Section 2.1.2, Project Results.

Evaluation Results

Table 2 provides an evaluation of the current outcomes of each Project output. Each output was evaluated (as far as possible at the MTE stage) against individual criteria of:

- **Relevance** - The extent to which the aid activity is suited to the priorities and policies of the target group, recipient donor, and national development priorities.
- **Efficiency** - Efficiency measures the outputs - qualitative and quantitative - in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results.
- **Effectiveness** - extent to which an aid activity attains its objectives.
- **Results/Impacts –** The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.
- **Sustainability** - the extent to which the benefits of an activity are likely to continue after donor funding has been withdrawn.

Achievements of project objectives have been rated in terms of the criteria above at a six-level scale as follows:

- Highly satisfactory (HS) - the project has no shortcomings
- Satisfactory (S) - minor shortcomings
- Moderately satisfactory (MS) - moderate shortcomings
- Moderately unsatisfactory (MU) - significant shortcomings
- Unsatisfactory (U) - major shortcomings
- Highly unsatisfactory (HU) - severe shortcomings.

The overall rating of the Project is Moderately Satisfactory (MS)*, based mainly on:*

- ***Relevance***: the topic of EE in buildings is definitely relevant for the Turkish government and so is the design of the project. The project reflects the needs of Turkey to improve energy efficiency legislation and the inadequate level of compliance with current legislation and poor enforcement. The project will also showcase good examples of new integrated building design approaches, combined with building the capacity of governmental staff, building inspectors, energy managers (public/private buildings) and of architects, engineers and ESCOs. The project is, nevertheless, facing a low level of enforcement of laws and regulations which seems to persist even now.

- ***Efficiency:*** Due to the slow start of the Project in 2010 and the difficulties in getting the Project Management Unit operational in 2011, project implementation is delayed by roughly one year. Project Management is performing very well but is tending to be distracted by administrative tasks while being requested to coordinate work between the different project partners (e.g. YEGM and MoEU). On the other hand, the decision-making capacity of responsible staff of the participating ministries is rather low and creating additional time delays. Speeding up the decision-making process will be the key to successful implementation within the given time-frame.
- ***Effectiveness***: apart from activities (outcomes) that have not yet started or have not delivered any major results (outcomes 3 and 4), the achieved outputs have attained their objectives to a satisfactory level. Progress has been made on strengthening public institutions and governmental decision-makers on improving the enforcement of BEP regulations and providing capacity building activities; trainings for energy managers in buildings and public administration staff are partly ongoing, and so is the design of the demonstration projects. Nevertheless, the project design neither provides specific dissemination or awareness raising activities (apart from a project website) and nor does it have a clear communications strategy.

Table 2: Overall Evaluation of Project

Outcome	Relevance	Efficiency	Effective-ness	Overall
1. Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers	HS	MS	MS	MS
2. Cost-effective energy efficiency solutions showcased through "Integrated Building Design Approach (IBDA)" application in two demonstration buildings	HS	S	S	S
3. New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building design approach in buildings	HS	Unable to rate	Unable to rate	Unable to rate
4. Building energy consumption, energy savings and other results of the project monitored, evaluated and reported	HS	Unable to rate	Unable to rate	Unable to rate
Overall Rating	**HS**	**MS**	**MS**	**MS**

Table 3: Summary Rating of the Project Implementation

Project Formulation	**Rating**
Project Relevance	Highly Satisfactory
Implementation Approach	Satisfactory
Logical Framework	Moderately Unsatisfactory
Country ownership/drivenness	Moderately Satisfactory
Project Implementation	**Rating**
Stakeholder Participation	Moderately Satisfactory
Management, Monitoring & Evaluation	Satisfactory
Financial Management	Satisfactory
Adaptive Management	Satisfactory
Project Results (to date)	**Rating**
Project Objective	Not relevant at MTE
Outcome 1	Satisfactory
Outcome 2	Satisfactory
Outcome 3	Not relevant at MTE
Outcome 4	Not relevant at MTE
Project Impact	Satisfactory
Sustainability	Moderately Likely
Impact on GHG emission reduction (to date)	Moderately Likely

The financial mobilisation in terms of GEF grant disbursement and co-financing provided by project partners is summarised below. Based on the assessment and data provided for the MTE, the project is currently meeting its financial mobilization targets satisfactorily.

Source	Amount 2010		Amount 2011		Amount 2012		Amount 2013		Amount 2014/2015		Total		
	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual	plan	actual	in %
GEF	347,995	39,891	814,150	284,505	629,650	295,863	488,270	14,802	339,935	0	2,620,000	635,061	24%
UNDP	16,500	0	13,000	16,500	12,000	13,000	9,500	3,000	9,000	0	60,000	32,500	54%
YEGM	1,102,427	0	2,579,177	93,000	1,994,693	114,240	1,546,810	25,560	1,076,893	0	8,300,000	232,800	3%
MoEU	398,468	0	932,233	39,840	720,973	1,629,840	559,088	35,160	389,239	0	3,000,000	1,704,840	57%
MoNE	478,161	0	1,118,679	31,200	865,168	5,208,840	670,905	29,760	467,086	0	3,600,000	5,269,800	146%
TOTAL	**2,343,551**	**39,891**	**5,457,239**	**465,045**	**4,222,484**	**7,261,783**	**3,274,573**	**108,282**	**2,282,153**	**0**	**17,580,000**	**7,875,001**	**45%**

Summary of Recommendations

Recommendation 1: The legislative framework has been improving, but focus is needed to strengthen capacities of EE professionals and inspectors in enforcement

- There is a lack of know-how and experience in dealing with energy efficiency aspects in the design and approval of buildings in the country. Training of inspectors, government staff and business professionals is required to improve technical skills and to integrate IBDA and EE technology use in design, design approval and construction of new and (as far as possible) rehabilitated buildings. Further capacity building activities are to be implemented between now and the finalization of the project to provide a sound basis for EE enforcement in the building design, approval and implementation phases.
- Quality assurance of building inspections at new constructions still remains a target to be achieved within the remaining project period; additionally, it is proposed that the

inspections system be extended to also encompass the refurbishment of existing buildings, since there is a huge energy saving potential to be expected from building rehabilitation.

Recommendation 2: Quality of statistical data about the building sector in general and energy use in buildings needs improvement

- Quality of existing data about the building sector and specific energy consumption are weak and partly outdated (e.g. the last building census was performed in 2000). Capacities at the main institutions hosting different set of data need to be enhanced, and furthermore a strategy on how to integrate data and information sources needs to be developed and implemented (e.g. through strengthening capacities at TurkStat).
- An improvement of the co-ordination between institutions carrying out energy- and building-related projections and statistical assessments is definitely needed. The project is expected to support this process by providing basic assessments and studies (e.g. such as indicators and benchmarks on energy efficiency in the building sector available or survey of potential building refurbishments conducted) upon which relevant institutions could build for developing a country building statistics and information base for building energy consumption in Turkey.

Recommendation 3: Initial project structure to be revised and streamlined (output focus)

- Some of the targets given under the initial Project Results Framework (ProDoc) are out of date, have become irrelevant in the meantime, or are suggested to be left out due to limited resources (e.g. output 3.3 – market reports). A revision of the logframe is to be considered and approved by the project SC as a result of MTE findings.
- This should help the project stakeholders to clearly understand outstanding outputs and targets to be achieved within the second period of project implementation, and thus generate a stronger commitment to project results and impacts from key project partners.

Key activities to be maintained in the work programme for the remaining project period:

  - Conduct training and capacity building activities for inspectors, energy managers & professionals, IBDA principles to be internalized in the Turkish market (outcome 1 & 2)
  - Tools to be provided to facilitate compliance with higher EE standards (outcome 3)
  - Market readiness to be improved (e.g. through creating financial models). The project has foreseen some activities on reviewing available financing mechanisms currently available in Turkey and showcasing an Energy Performance Contracting scheme as an appropriate finance mechanism. The project is also planning to develop a software tool for economic assessments of renewable energy (RE) use in new buildings. Once accomplished, this tool will support the use of financial resources for implementation of RE technologies by providing feasibility studies.
  - Explore initiating key awareness-raising measures on energy efficiency in buildings (3 demonstration projects are not expected to be sufficient), in order to up-scale initiatives begun within the project and mainstream EE in buildings in Turkey.

Recommendation 4: Project implementation needs to become more effective by improving stakeholder commitment and networking partnerships.

- The National Project Executing Agency (YEGM) needs to become more committed to achieving overall project results and creating an effective framework for energy efficiency in buildings. It should also encourage rather than impede other project partners in taking responsibility for project outputs.
- The role of the MoEU (Department of Energy Efficiency), which has a prominent role in implementation of activities under Outcome 1, Outcome 2 and Outcome 3, shall be strengthened. It is recommended to involve MoEU as a second Project Execution Agency as soon as possible to increase their accountability to the Project.
- It is furthermore highly recommended to install a "Project Management Committee" (PMC) in addition to the PSC that will ensure regular decision-making and co-ordination between technical staff at stakeholder level to speed up implementation of activities.
- This *PMC* shall involve the Heads of Departments (together with the Project Coordinator) of major governmental stakeholders to ensure decision-making ability.
- Partnerships with other civil society groups and professional business organizations such as TOBB, TÜSİAD, İMSAD, ÇEDBİK, TTMD and other relevant professional chambers and associations should be sought to identify synergies and create further outreach of the project.

Recommendation 5: The project terminal date needs to be extended to allow sufficient time to achieve project objectives.

- A maximum 12 months extension (to May 2016) may be considered by the project stakeholders, in order to be able to catch up with recent delays.
- Although the risk of finalization of demonstrations buildings' implementation is moderately low, it needs extra time to undertake necessary monitoring and evaluation of the results. Development of a monitoring report and the verification of the performance of the demonstration projects in a systematic manner could realistically start in early 2015 up to the proposed terminal date of May 2016.
- Nevertheless, the slow pace of selection of required key experts needs to be accelerated.

Recommendation 6: Findings of all 3 on-going UNDP/GEF EE Projects (Buildings, Industry and Appliances projects) in Turkey shall be effectively disseminated.

- Better use of synergies to promote the EE topic within the targeted sectors in Turkey is recommended, since this could provide significant value-added and thus create higher impact and visibility in the long term.
- A public outreach strategy and implementation framework for dissemination and awareness-raising activities specifically for the EE Buildings Project is required, which is to be developed under a longer-term government initiative. The project is currently developing a project website and has planned another new web platform development for providing the new Turkish BEP-TR software and database to be integrated (bep.gov.tr); nevertheless, focused activities should be already achieved by the project, such as promotion of project results and material by public media (TV, radio) in addition to internet appearances, publications (e.g. availability of project reports, short leaflets or brochures on EE in buildings).
- Additionally, there are tools and dissemination materials produced across different GEF projects within the region and outside (e.g. with EU, World Bank and donor support). For example, there are currently similar projects on "Improving Energy

Performance on Buildings" on-going in several countries of Eastern Europe & Central Asia (and other regions), some of them having a similar work programmes and implementation structures. Access to materials developed (e.g. dissemination, training materials) in other projects could be supported internally through UNDP's Country Office and experts' network

Summary of Lessons Learned

The following lessons learned can be drawn from the Project so far:

- The GEF Project has provided value-added to the dynamic development of the energy efficiency framework in Turkey by improving the quality of the political and administrative decision-making process (e.g. IBDA, MEPS, EU Energy Service Directive and EE Directive).
- Best practice from international (mainly European) approaches are a valuable input for developing the EE framework in Turkey, especially with support and experience of national and international experts provided.
- Since 2000, new buildings in Turkey are required to comply with thermal building standards similar to the EU countries. The Turkish Building Performance Regulation (BEP) that adopts the provisions of the EU Energy Performance in Buildings Directive (EPBD) was issued by MoPWS on December 5, 2008 and revised substantially in April 2010. The BEP provides the legal basis for increasing the energy efficiency of new buildings as it establishes energy efficiency requirements and sets limits of the energy consumption of buildings. However, the Building Energy Performance regulation and corresponding implementation and enforcement in Turkey are still in their infancy in Turkey. The project needs realignment based on developments that took place within the last 3-5 years to remedy this situation. Training and capacity building at essentially all professional levels and improvement of enforcement are the key. The project will further provide enhancement of the regulations through policy analysis reports, development of a new bep.gov.tr website supporting implementation of BEP regulation, and new BEP-TR software.
- The different components of the project are slowly starting to come together. A holistic result is expected to be achieved in the coming years. However, buildings are complex structures that need integrative approaches and thus need to be looked at from different disciplinary perspectives in the context of building design and construction. The project has made initial steps to promote the new integrated building design approach, but it needs further capacity development in order to make Turkish market actors more aware of IBDA principles and the benefits to be expected for new buildings when properly applied.
- Careful approaches are required when tendering for services not readily available at a particular location. This may involve assessing expert capabilities and eventually assembling an expert roster. Otherwise, there is risk of critical delays in the overall delivery schedule of the project.
- Regular stakeholder meetings and ongoing communication between the project coordinator and stakeholders is the key for effective project management and implementation. The remaining project period needs to improve the commitment and communication between major stakeholders: all actors need to commit themselves to an effective decision-making process (e.g. delegated powers):
    - Hold regular Steering Committee Meetings (e.g. every 6 months)
    - Add Project Management Committee Meetings (weekly, bi-weekly)

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1 Introduction

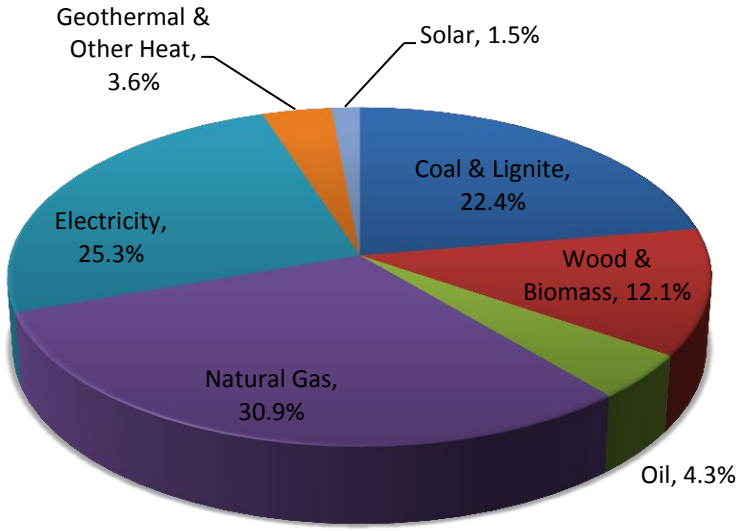
1.1 Background

The total population of Turkey increased from 56.5 million in 1990 to 75.6 million by the end of 2012. Along with the increase of the population, Turkey's urbanization rate increased from 52.9% in 1990 to 77.3% by the end of 2012.

Turkey faces considerable demand for energy. Between 1990 and 2011, primary energy consumption more than doubled. Turkey's primary energy consumption in 2011 was 114.8 Mtoe, compared with 52.6 Mtoe levels in 1990. Before the 2008-09 economic crisis, the MoENR estimated that primary energy needs would grow to 126 Mtoe in 2010 and to 222 Mtoe in 2020 (76% growth). Recent studies[1&2] estimate that the primary energy demand will increase at an average 3.5% annually for the next decade. So, unless energy growth is brought to better levels of efficiency in both the supply and the demand sides, Turkey may face an energy deficit by 2020. To ensure an energy-efficient growth trend, careful planning and integration of effective demand-side management alternatives are necessary in the medium-and long-term.

Stimulated by the income rise in Turkish households and offices and rapid urbanization, Turkey's annual electricity demand has tripled since 1990, reaching 229 TWh in 2011. Electricity use in the residential and commercial sector accounts for 25% of final energy consumption. Nevertheless, the largest share of the building sector's energy consumption (75% of the total energy mix) belongs to heating and hot water needs, which are met through natural gas, coal, wood and oil (see Figure 1).

Figure 1: Breakdown of Final Energy Consumption in Building Sector, 2011, MoENR



In terms of final energy consumption, the building sector represents the second-largest energy consumer, accounting for 34.5% of the total final energy consumption in 2011 (equal

[1] ABB (2011): Trends in Global Energy Efficiency – Country Report Turkey
[2] 2012 Energy Report, Turkish National Committee of the World Energy Council

to 29.9 million toe), which leads to considerable emissions of CO_2 associated with combustion of fossil fuels: according to the 2010 GHG National Inventory data, the building sector's emissions (calculated according to energy consumption) totaled 38 million tonnes CO_2 or 34% of the total national energy-related CO_2 emissions (112 million tonnes). Therefore the building sector presents significant opportunities for cost-effective energy and CO_2 savings, estimated at some 35-45%[3] of the current levels. These calculated savings can also be derived from the fact that Turkey's new buildings constructed in accordance with the Standard of Thermal Insulation Requirements for Buildings, TS 825 (see section 2.1.1 on legal framework for details) and related implementing regulations, require at least 50% more energy for heating than their EU counterparts. Therefore, there is a strong need to adjust Turkey's building code and building energy efficiency standards – as it is foreseen by the Turkish Government to adhere to the requirements of the European Directive and standards.

1.2 Rationale for Project

Although Turkey has gone a long way in creating a regulatory environment in favour of investments in EE buildings, there are still a number of critical barriers existing and influencing further development of the market.

Therefore, GEF support was requested in order to remove the main barriers and stimulate a take-off of the market for EE buildings. The project was envisioned as a viable "first step" towards improved energy efficiency in new and existing buildings by revising, enhancing and improving the enforcement of building energy performance standards. In some respects, the project builds upon the currently on-going "Urban Transformation Programme", which became effective in 2004 (after the 1999 severe earthquake in Turkey) and which put a focus on improving and regenerating municipal and urban structures, mainly in regard to enforcement of building codes and standards to ensure that building structures comply with up-to-date technical standards (e.g. earthquake safety) and design requirements. This programme offers great opportunities to also include improved building energy performance standards (BEPS) in the preparation of urban reformation and transformation strategies.

The EE Building project foresees the introduction of an integrated building design approach (IBDA)[4] and implementation of three demonstration buildings that will provide demonstrations of improved BEP in action and will aid in changing the way architects and engineers design buildings. With specific tools being developed for decision-makers and practitioners, the building sector will thus transition towards an increased compliance rate with the higher energy efficiency standards.

The project seeks to address the following main barriers to the promotion of energy efficient buildings:

- Insufficient scope and/or "ambition" of the current EE regulations

[3] Based on estimations by MoENR
[4] An **integrated building design approach (IBDA)**, as promoted by this project, is a process of design that integrates climatic conditions, the capture and the conservation of the free solar and internal gains, the efficient and comprehensive reduction of all heat losses through walls and ventilation, the accurate control of all external energy introduced for providing thermal comfort, light, and hot water, and – last but not least – user awareness of new behaviours regarding energy use and good operations and maintenance practices. The ultimate goal of applying IBDA is to achieve high performance and multiple benefits at a lower cost than the total for all the components combined if these were considered separately.

- Inadequate level of compliance with the current regulations
- Low awareness of cost-effective opportunities for improving energy performance in buildings, and incorporation of an Integrated Building Design Approach (IBDA)
- Lack of replicable investment models for energy efficient buildings
- Overall weak energy management in buildings

1.3 Project Objectives and Expected Results

The objective of the **UNDP/GEF Project: Promoting Energy Efficiency in Buildings in Turkey** (hereafter referred to as *"the project"* or *"EE Buildings Project"*) is to reduce energy consumption and associated GHG emissions in buildings in Turkey by raising building energy performance standards, improving enforcement of building codes, enhancing building energy management, and introducing the use of an integrated building design approach via three demonstration buildings. Since there is little knowledge of IBDA in Turkey and awareness of viable energy efficiency demonstrations in buildings is limited, one of the focus areas for this project is to generate an IBDA that is relevant and adapted to the Turkish situation and its four climatic zones.

There are four main outcomes to be achieved by the Project:

- **Outcome 1**: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers.
- **Outcome 2**: Cost-effective energy efficiency solutions showcased through integrated building design approach (IBDA) application in two (originally as stated in ProDoc) demo buildings,
- **Outcome 3:** New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building design approach in buildings,
- **Outcome 4**: Building energy consumption, energy savings, and other results of the project monitored, evaluated and reported.

1.4 Mid-Term Evaluation

1.4.1 Purpose of Evaluation

This Mid-Term Evaluation (MTE) is being conducted at the request of the UNDP Country Office in Turkey; it is a key element of standard project monitoring and evaluation procedure. Mr Andreas Karner, an energy consultant from Austria, has been contracted to carry out the Evaluation. He was supported by the UNDP CO and Project Management Unit and assisted by the Monitoring and Evaluation Administrator at UNDP's Environment and Sustainable Development Department, Mr Koray Abaci.

The MTE is to assess and review

- the overall **project concept and design** in terms of appropriateness of objectives, planned outputs, activities and inputs compared to other cost-effective alternatives,
- the **implementation** of the Project in terms of quality and timeliness of inputs and efficiency and effectiveness of activities carried out as well as overall management and stakeholder involvement

- the **project outputs, outcomes and impact** and how the objectives of the Project contribute to the realisation.

1.4.2 Key issues addressed

This MTE follows the general rules for program evaluation, especially the **GEF Evaluation Criteria** as follows:

- **Relevance** - The extent to which the aid activity is suited to the priorities and policies of the target group, recipient donor, and national development priorities.
- **Efficiency** - Efficiency measures the outputs -- qualitative and quantitative -- in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results.
- **Effectiveness** - extent to which an aid activity attains its objectives.
- **Impacts** – The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.
- **Sustainability** - the extent to which the benefits of an activity are likely to continue after donor funding has been withdrawn.

1.4.3 Evaluation Methodology

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF generally has four objectives:

- to monitor and evaluate results and impacts;
- to provide a basis for decision making on necessary amendments and improvements;
- to promote accountability for resource use; and
- to document, provide feedback on, and disseminate lessons learned.

The methodology used for the project mid-term evaluation is based on the **UNDP/GEF Monitoring & Evaluation Policies** and includes the following key elements:

I. Project documents review prior to the evaluation mission
II. Evaluation mission and on-site visit conducted in February 2013, interviews with project management, UNDP CO, project partners and stakeholders, as well as with independent experts. Discussion with project management on key issues to be addressed and implemented till the end of the project, and presentation of the preliminary findings and recommendations to Project Stakeholders and UNDP CO.
III. Drafting the evaluation report and ad-hoc clarification of collected information/collection of additional information
IV. Circulation of the draft evaluation report for comments
V. Finalization of the report and incorporation of comments

Achievements of project objectives have been rated in terms of the criteria above at a six level scale as follows:

- Highly satisfactory (HS) - the project has no shortcomings
- Satisfactory (S) - minor shortcomings
- Moderately satisfactory (MS) - moderate shortcomings

- Moderately unsatisfactory (MU) - significant shortcomings
- Unsatisfactory (U) - major shortcomings
- Highly unsatisfactory (HU) - severe shortcomings.

1.4.4 Project Implementation Arrangements

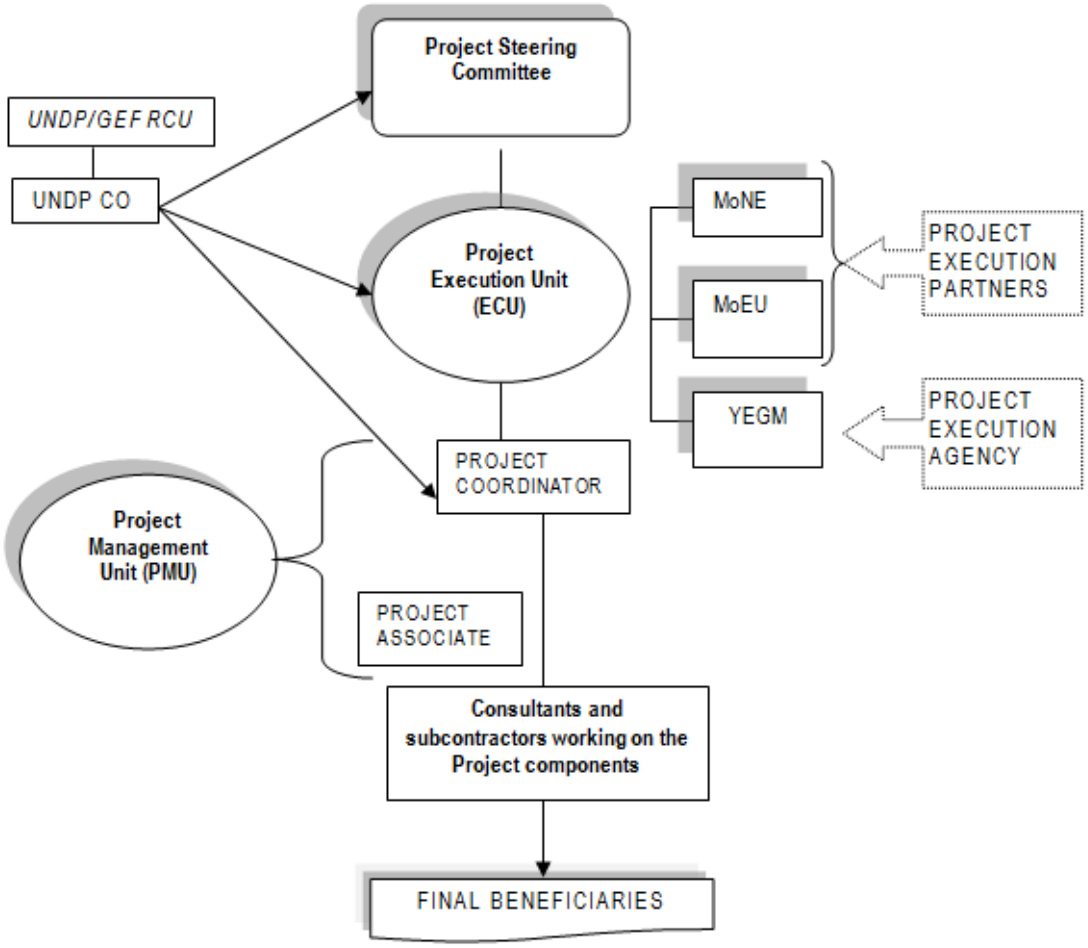
The project period began in June 2010 and has an expected closing date of May 2015. The Executing Agency for the project is the General Directorate for Renewable Energy (YEGM) at the Ministry of Energy, under the leadership of the National Project Director, Mr Erdal Calikoglu (Deputy Director General). UNDP is the GEF Implementing Agency.

The project started to become operational as of March 7, 2011, and established the field office at YEGM on April 20, 2011 by hiring a Project Coordinator, Mr Tolga Yakar, and a Project Associate, Ms Naz Ozguc.

As a result of an Inception Workshop which was held in July 2011, the work plan envisioned in the approved Project Document was “distilled” in order to better reflect the changes in the legislative environment that have occurred in the meantime and that may impact the expected outputs of the project.

The project organigram below shows the anticipated project management structure. However, the Project Execution Unit (ECU) was never implemented due to opposition of the Executing Agency (in this regard refer also to recommendation no. 4 in chapter 3.2).

Figure 2: Project Management Organigram



2 Key Findings of the Mid-Term Evaluation

2.1 Project Progress and Achievements to Date

2.1.1 Project Outputs

The EE Buildings Project has been ongoing since summer 2011. It is one of three currently ongoing UNDP/GEF supported projects focusing on energy efficiency improvements in Turkey: (i) EE Buildings, (ii) EE Appliances and (iii) EE in Industry.

The EE Buildings Project is one of the principal activities in the country to provide the long-term basis for improving energy efficiency standards in Turkey's building sector by looking into further improvements of the legislative and policy framework and promoting the integrated building design approach (IBDA) through showcasing several demonstration projects.

The initial project design was prepared in 2008. By then, Turkey has recognized the need to pay closer attention to the benefits of energy efficiency for securing energy supplies to a rapidly growing economy and easing the burden of energy costs on the economy. A number of relevant laws were put in place between 2007 and 2010, as shown in Table 4 below.

However, since the GEF project was finally approved in 2010 and kicked-off in 2011, several of the envisaged targeted activities, especially under *outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers*, have in the meantime been implemented – or at least partly, since some of the results have still to be achieved. Thus, one focus of the project is directed towards improving the quality of existing legislation to keep it up to date with international best-practice.

Table 4: Legislation on Energy Efficiency in Buildings in Turkey

Title of the Legislation and Initiation Date	Regulates or Covers	Last Revision Date	Type of support to be provided by the project
National Insulation Standard (TS825) (June 2000)	Insulation standards for buildings	TS825 was last revised in 2008 with minor changes.	No activity through project
Energy Efficiency Law 5627 (May 2007)	Authorization of ESCOs, Chambers & Universities, Energy Management, Public Buildings, etc.		Activities will support the EESP, which is the main implementation tool of EE Law
Energy Efficiency Strategy Paper (EESP) (February 2012)	Overall national strategy framework to achieve a 20% decrease of energy intensity consumed per GDP unit by 2023	No revision since enactment	The implementation of building sector related sections of EESP to be supported through numerous activities
Building Energy Performance Regulation (BEP) (December 2008)	Energy performance of buildings, calculation, RE, HVAC systems, certification/ authorization	April 2010	Enhancement of the regulation through several policy analysis reports; development of a new bep.gov.tr website supporting implementation of BEP regulation and BEP-TR software; IBDA integration into regulation; delivery of trainings, etc.
Dividing Heat Expenditures in Buildings Regulation (April 2008)	States the rules for individual heat meters application for the buildings		Development of an online module under bep.gov.tr website supporting the implementation of the regulation

Title of the Legislation and Initiation Date	Regulates or Covers	Last Revision Date	Type of support to be provided by the project
Energy Efficiency Regulation (October 2008)	ESCOs, Chambers, Universities, Energy Managers, Training, Public, EE in Buildings, etc.		Revision/update of training materials for building energy managers/auditors and delivery of trainings
Regulation on Heat Insulation in Buildings	Thermal performance on Heat Insulation in Buildings	Superseded by BEP, December 2009	No activity through project
Building Inspection Law (June 2001)	Inspection rules and governance of new construction in earthquake and heat insulation	January 2011	Preparation of analysis/policy reports; Enhancement of regulations; Development of checklists and delivery of trainings

As a result of the mentioned time lag in the project preparation, there was a need for an updated GHG baseline assessment for the project provided in the 2010 GEF-endorsed Project Document. It became necessary to update the baseline since some of the figures initially used were either outdated or did not properly reflect reality and thus needed revision.

This updated baseline was finally prepared and approved by the stakeholders at the end of 2012 and now allows for more accurate calculations of the project impact, based on a recent survey conducted by a nominated national expert regarding level of construction of buildings and projections for future energy consumption of new buildings. The preparation of this updated baseline proved to be worthwhile since it provided more accurate figures regarding the building stock in Turkey in general, and calculations of the energy consumption (and thus GHG emissions) of residential and non-residential buildings specifically.

Aside from the very dynamic legislative implementation process that took place over the last 5-7 years, progress with energy efficiency actions was hampered by the governmental elections in 2011 that led to the reorganisation of several ministries and changes of key governmental personnel. The most recent change came just before the June 2011 elections when the MoPWS was included in the expansion of a new Ministry called the Ministry of Environment, Forestry and Public Works.

As a result, project outputs scheduled for completion have not been fully delivered as planned so far, partly due to implementation delays and the low stakeholder ownership levels of the principal governmental institutions involved at the beginning of the project.

Initial results have been achieved with regard to the ***improvement of the existing legislative framework on building energy efficiency and building inspections***. At the beginning, the project undertook several surveys and conducted reports on current background developments with regard to promoting energy efficiency in buildings in Turkey (2011). A report on “Assessment of Energy Efficiency Actions and Measures for Energy Efficiency in the Buildings Sector” and on “Comparison of Buildings Energy Performance Regulation and EU Energy Performance of Buildings Directive” has been prepared to understand if and which legislative gaps exist in Turkey compared with EU legislation.

Three experts have been contracted in order to provide capacity building of Turkish building inspectorates with regard to implementation of energy efficiency regulations. Their main activities were to highlight international experiences with regard to building inspection, compare them with existing legislation in Turkey and recommend additional legal and institutional improvements. Very recently (2012) a checklist for building inspections considering energy efficiency aspects has been prepared; its contents will also partly complement a booklet with specific recommendations that is currently being developed.

All materials developed by the project will be made available on the project website, subject to pending formal approval by the project partners.

A second aspect of the project was the ***selection and design of demonstration projects that use integrated building design approaches and construction principles***. This process is ongoing and implementation will essentially continue until project termination. The initial selection of demonstration buildings took place, provided by the Ministry of National Education (MoNE) and as well as by the Ministry of Public Works and Settlement (MoPWS). MoPWS was, however, subsequently restructured and reorganized in 2011 and later

exchanged with the Ministry of Environment and Urbanization (General Directorate of Land Registry and Cadastre) to become a project partner.

The number of demonstration buildings has finally increased from 2 to 3 (#1 & #2: MoNE - Renewable Energy VET School & Atelier Building; a nearby dormitory & sports hall will be additionally financed by MoNE; # 3:Office Building for GD of Land and Cadastre,) and the total enclosed area of the demonstration buildings has more than doubled to approx.18,000 m².

The technical design of the office building for GD of Land and Cadastre has been finalized. The preliminary designs for school and atelier workshop buildings for Ministry of National Education have been finalized. The final designs are expected at the end of June 2013. . As part of the capacity building programme for architects and engineers with regard to IBDA, a study tour was organized in November 2012 to the UK and Germany (15 participants from the Project Partner Institutions) and a report on "IBDA international experiences and suggestions for Turkey" was presented at a 1-day workshop.

With regard to outcome 3 – ***development of new tools to facilitate compliance with higher EE standards in buildings*** – no major achievements have been reported so far apart from the preparation and publication of a project information brochure. Other activities have either recently commenced or are partly ongoing (e.g. English translation of the project website).

Project activities that have not yet commenced need partial revision or reformulation of their scope, or are partly dependent on the completion of earlier activities. These include mainly:

- Upgrading of building EE standards and legislation, especially
    - Calculation methods under the Building Energy Performance (BEP) Regulation to be improved (output 1.1)
    - Minimum Energy Performance Standards (MEPS) for new buildings to be developed (output 1.2)
    - Building Inspection Regulation to be revised to include EE aspects (output 1.3)
- Capacity building and training design and implementation activities on improved building inspections (for building inspectorates) and IBDA principles in design and building engineering (for architects, engineers) – related to output 1.3 and 2.2
- Development of training materials and delivery of trainings to energy managers in public and private buildings (output 3.1 and 3.2)
- Development of a framework information system on building energy efficiency (including pilot database) – output 3.1
- Monitoring, Inspection and Verification (MIV) methodology and tools for Energy Performance Certification System (EPC) developed (output 3.1)
- And all outputs related to outcome 4: building energy consumption, energy savings, and project reporting and monitoring & evaluation.

However, all of these planned (or partly ongoing) activities need to be reconsidered in terms of available resources and the likelihood of timely implementation as well.

Actual project outputs and achievements are summarized and compared with the initial Project log-frame in Table 5.

2.1.2 Project Results

The project was delayed in the initiation phase due to problems in setting up the necessary office facilities, organising the Project Management team within the executing agency (YEGM) and the ministerial reorganisation including exchange of administrative staff following the elections in 2011.

This initial setback of one year in kicking off the project phase (Inception Workshop) resulted in an initially low involvement of governmental stakeholders. The low level of ownership was to a certain extent caused by – at that time – recently appointed new staff in the ministries and the missing drive and direction in reaching first results. Partly it was the result of the fact that selection of required key experts was slow and had repeatedly to be postponed. It can be also attributed to the fact that certain progress with regard to improving the national energy efficiency legislation had been already made in the years before the GEF project and the given project results framework was unfortunately too vague in the description of outputs and targets to be achieved.

Nevertheless, the project management has done a well job and has been able to gradually improve the engagement of project partners and stakeholders by ensuring their focus on delivery of results.

Thus, the following results can be attributed to the project so far:

- the dynamic development of the energy efficiency legislative framework received additional drive from the project, which provided specific assessments and baseline studies that compare the nascent Turkish building energy efficiency framework with international best-practice, necessary upgrades of the national building inspection system and further requirements to adhere to much stronger EE regulations and standards (e.g. developing minimum energy performance standards is urgently required) and enforcement;
- the initial project baseline scenario, developed for the Project Document to provide a quantitative assessment of the building stock and its energy consumption characteristics, underwent a revision to capture the significant changes in both the EE legislative framework and the economic context between the time of ProDoc preparation and project implementation. This revised baseline study (2012) provides the only known major assessment of potential energy efficiency scenarios for the Turkish building sector. It has been approved by all major governmental institutions and therefore represents an important background document.
- Best practice from international (mainly European) legislation and approaches have been developed to provide valuable input for further developing the EE framework in Turkey, mainly with the support and experience of national and international experts.
- Awareness of governmental stakeholders in implementing integrated building design approaches is continuously growing within the ongoing design phase of the demonstration projects. The concept is still in an early implementation stage; however, there is very strong commitment of ministerial decision-makers and technical staff to ensure that the demonstration projects will be implemented successfully and that the IBDA approach will provide sustainable improvement to the manner in which building design is implemented in Turkey.

The following table summarises the actual outputs achieved by the Project and rates them according to the following scale:

- Full achievement of targets (green cells)
- Partial achievement of targets or full achievement expected by the end of the project (yellow cells)
- Non or poor achievement of targets (red cells)

Table 5: Rating of Project Outputs and Results

Project Strategy	Indicator	Target	Achievement of targets as of April 2013	Rating
Objective of the Project: To reduce energy consumption and associated GHG emissions in buildings in Turkey by raising building energy performance standards, improving enforcement of building codes, enhancing building energy management and introducing the use of an integrated building design approach	Average thermal energy consumption in new buildings compared to baseline	66 kWh/m²/year for buildings built with IBDA	The target was initially based on a very rough estimation of specific heat consumption of buildings. However, this target does not specify or reflect consumption of different types of buildings and is therefore under reconsideration	To be achieved by the end of the Project
	Cumulative CO_2 emission reductions from new buildings to be built during project lifetime against the baseline	2 million tCO_2	Baseline study was updated and so was the GHG emission calculation. So far, no direct GHG emission reduction effects can be attributed to the project, since implementation of demonstration projects is ongoing.	To be achieved by the end of the Project
Outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers	The content and status of new policies, programs, and implementers supporting implementation of EE and RE in buildings	New legal and regulatory provisions, strengthened institutions, and better supporting compliance checking, enforcement and outreach programs adopted for enhanced EE in buildings	Progress has been made on strengthening public institutions and governmental decision-makers; outreach programmes are partly adopted but yet not implemented	Partially met
Output 1.1 Institutional mechanism for regular revision of building energy performance, including EE program and roadmap	Clearly defined roles, responsibilities, actions and targets for regular revision of building codes	Two working groups (EE WG and Finance WG) formed; EE program and roadmap designed that provide key institutions and EECB clear roles, responsibilities, and common metrics to monitor EE improvements in buildings	Working group formulation is not a real target. The formation of two working groups has been reported by the National Project Director as not relevant/necessary.	Non achievement so far but expected by end of project
Output 1.2 Two existing building	Approval of revised codes	Relevant codes and regulations	The upgrade of relevant codes and	Partially met

Project Strategy	Indicator	Target	Achievement of targets as of April 2013	Rating
energy performance codes and other relevant norms and standards revised and implemented	defining minimum energy performance standards (MEPS)	upgraded, methodology for MEPS for new buildings defined	regulations is a continuously ongoing process. Background report prepared: study on comparison of EPBD and BEP regulation (incl. assessment of measures and actions) to improve building EE has been prepared. It contributes to the improvement of BEP regulation which is ongoing. MEPS have not been defined yet but relevant activities are to start in 2013. As soon as the contracting procedure of experts is finished, activities are planned to start in 2013 and finish by mid-2014.	
Output 1.3 Enhanced capacity for compliance with the new regulations, including energy performance certificate scheme	Ability of architects and engineers to comply with more energy efficient codes by integrating better designs in buildings Content, acceptance, and status of the Certification Systems	Submitted designs meet and exceed the requirements of more efficient codes by the end of the project At least 50% of key stakeholders have information about the energy performance certificate scheme	The specified targets are not very specific. However, capacity building activities are partly ongoing, since YEGM is providing trainings for energy managers in buildings and public administration staff.	Partially met
Output 1.4 Financial mechanisms (including incentives and support for the building sector) developed	Increasing numbers of funding agencies, banks, and ODA donors seek to support EE buildings in Turkey	At least one innovative finance mechanism developed for each key target group: architects & engineers, building owners, ESCOs, and building inspectors	The specified targets are again very unspecific and also not clear to project stakeholders. However, the Project foresees the development of an Energy Performance Contracting scheme and a software tool for economic assessments of renewable energy use in buildings that should further	Non achievement so far but expected by end of project

Project Strategy	Indicator	Target	Achievement of targets as of April 2013	Rating
			enhance the provision of RE support mechanisms for buildings.	
Outcome 2: Cost-effective energy efficiency solutions showcased through integrated building design approach application in two demo buildings	Implementation of demo constructions with IBDA resulting in significant energy improvements	Two IBDA demo constructions of 7,500 m² commissioned and using at least 40% less energy than in BAU	Demonstration projects are ongoing. Total area of buildings commissioned will be around 16,000 m² (late 2014/15), which is more than double the initial target, and is expected to consume 60% less energy than BAU.	Partially met
Output 2.1 IBDA developed for Turkish climatic conditions, including implementation strategy and action plan;	Adoption of IBDA for new constructions in different sectors	IBDA mandated for use in all new public buildings as of 2013	Adoption of mandatory IBDA is defined in ProDoc, but is not achieved yet. It is also not realistic that it will be achieved by 2013 - rather, 2015.	To be achieved by the end of the Project
Output 2.2 IBDA promoted to building sector professionals and key stakeholders	Content, acceptance, and status of the training	100% of architectural and engineering students are taught IBDA, 50% of architects and engineers report high level of confidence, awareness and use of IBDA	IBDA promotion is in its early stages. Targets are far from being achieved. Targets and indicators are poorly formulated and probably not achievable (only partly).	Poor formulation of target to be achieved
Output 2.3 Two demonstration buildings commissioned, showcasing IBDA and compliance with new energy codes	Energy performance of IBDA-enhanced demo buildings at least 50% better than country average of 110 kWh/m²/y	Two demonstration buildings built to use no more than 66 kWh/m²/y in energy for heating	Demo projects are in application design stage. However, there are no accurate figures available yet on the thermal quality to be achieved.	To be achieved by the end of the Project
Outcome 3: New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building	Required data, verification processes, and website utilization and relevance to key stakeholders	Over 50% of trained key stakeholders use new tools, websites, and IBDA	The development of tools, mainly a new calculation tool for measuring energy performance, are not in place yet and thus target not yet achieved.	To be achieved by the end of the Project

Project Strategy	Indicator	Target	Achievement of targets as of April 2013	Rating
design approach in buildings				
Output 3.1 New calculation tools that architects, engineers, and constructors may use for compliance with the laws	Availability of required data and agreement on the verification process	Over 50% of trained key stakeholders use the calculation tools, including modeling software	Activities have not started yet.	To be achieved by the end of the Project
Output 3.2 Standardized procedures for data collection, measurements, and collation of building energy performance designed and trained;	Availability of required data and agreement on the verification process	Over 50% of trained key stakeholders use the verification procedures	Apart from ongoing formulation of ToR for required experts, the activities have not started yet.	To be achieved by the end of the Project
Output 3.3 Facility for online support services for key stakeholders and evaluation of cost-effectiveness and financial viability of the technologies in the Turkish market	Impact of the content of the website on key stakeholders Availability of market report on EE equipment	Over 50% of key stakeholders find the websites useful and actively upload information relevant to EE buildings as well as take advantage of online training ,market analyses report cover all material which has more than 20 % market share	Activities have not started yet.	To be achieved by the end of the Project
Outcome 4: Building energy consumption, energy savings, and other results of the project monitored, evaluated, & reported	The status of recommendations contributing to institutional sustainability	Project recommendations to ensure institutional sustainability adopted	Apart from output 4.2, the relevant activities have not started yet.	To be achieved by the end of the Project

Project Strategy	Indicator	Target	Achievement of targets as of April 2013	Rating
Output 4.1 Methodology for monitoring and measuring project savings from IBDA, the demonstration buildings, and improved implementation of the regulations devised and implemented	Acceptance and reliability of the methodology for monitoring and measuring the impacts	An accepted and agreed methodology that is useful to key stakeholders for the assessments and monitoring	The set of activities are related to successful implementation of IBDA within demonstration activities and IBDA being made compulsory in new building construction. This has not been achieved so far but should be enabled through a monitoring framework to be developed in the remaining project period.	To be achieved by the end of the Project
Output 4.2 Evaluation of project results and knowledge sharing	Status of the mid-term and final report	Final project report consolidating the results and lesson learned from the implementation of the project	Continuous monitoring of project achievements is ongoing, MTE is ongoing.	Partially met

Achievement of GHG emission reductions

The project objective is to reduce energy consumption and associated GHG emissions in the Turkish building sector. The Project Document provides the key assumptions used for the calculation of the project direct and indirect CO_2 emission reductions; they are summarised below:

- *Direct Emission Reductions*: the project investment in two demonstration buildings (a school including workshop area and a public office building) during the project's implementation phase will result in direct greenhouse gas emission reductions. As a result of these activities during the project implementation period of four years, direct greenhouse gas emission reductions totalling 1,076 tonnes of CO_{2eq} will be achieved over 20 years of useful lifetime of the buildings. The project does not foresee any activities that would result in direct post-project greenhouse gas emissions.
- *Indirect Emissions Reductions*: Using the GEF bottom-up (BU) methodology, indirect emission reductions attributable to the project are estimated at 2 million tonnes of CO_{2eq} over 20 years of useful lifetime of the buildings. This figure assumes a replication factor of 2,000 (i.e. 2,000 new schools and other public buildings built using integrated building design approach) over 10 post-project years of GEF influence (2016-2025). Using the GEF top-down (TD) methodology, indirect emission reductions from new building constructions over the GEF influence period (2016-2025) attributable to the project have been estimated at 69 million tonnes of CO_{2eq} calculated over 20 years of useful lifetime of the buildings. The GEF causality factor of 4 (80%, GEF contribution is dominant, but some of this reduction can be attributed to the baseline) has been used, since some degree of improvements in energy efficiency in buildings has already been taken into account when constructing the dynamic baseline for Turkish building stock and business-as-usual policy developments (e.g. 10% improvement in code requirements by 2013, etc.). The difference between BU and TD estimates can be attributed to the fact that the BU approach considers only immediate replication of the project-supported investments, which are new non-residential buildings whereas the TD approach looks at total potential for energy savings in the entire Turkish building stock.

The actual level of implementation of project activities has been taken into consideration to estimate the impact on GHG emission reduction benefits compared with the benefits provided by the updated baseline study. However, this updated baseline is still not approved by the Project Partners because they are still debating amongst themselves the appropriate specific energy demand figure (kWh/m².a) to be taken into consideration as baseline consumption.

The targets of each outcome and their assumed impacts on CO_2 emission reductions are summarised in the table below.

Table 6: Achievement of GHG avoidance through the Project

Outcome	Initial project targets (based on revised baseline study)		Actual project achievements	
	Monitoring criteria	**GHG emission reduction - ($ktCO_2$)**	**Monitoring criteria**	**GHG emission reduction - ($ktCO_2$)**
Outcome 1: Building code improvement and enforcement	• By 2012: Building codes improved, average energy demand in new construction reduced from 110 to 66 kWh/m².a implemented. Code compliance increases to 10% full compliance, 40% minor non-compliance, 50% major non-compliance • By 2019: Code compliance levels improved to 70% full compliance, 25% minor non-compliance; 5% major non-compliance	60,821	• Year of implementation of new codes/legislation is a key criterion influencing compliance achievement and thus GHG emission reductions • Study on comparison of EPBD and BEP regulation to improve building EE has been prepared. It contributes to the improvement of BEP regulation which is ongoing, however not achieved yet. • MEPS have not been defined yet • No major compliance achieved compared with baseline	0
Outcome 2: Adoption of IBDA	• Specific energy demand in new construction reduced by 40% from 200 to 120 kWh/m².a (residential) and from 321 to 193 kWh/m².a (non-residential) • Penetration rate rising from 1% (2012) to 10% (2021) in residential and from 1% to 30% in	2,885	• Design of a demonstration project office building (non-residential) will actually have a specific energy demand of 53.6 kWh/m².a, which is 83% better than the actual average standard • It is expected that the penetration rate will be delayed by at least 1-2 years compared with baseline (due to delay of	0, since demo project is still in development (final design approval)

Outcome	Initial project targets (based on revised baseline study)		Actual project achievements	
	Monitoring criteria	**GHG emission reduction - ($ktCO_2$)**	**Monitoring criteria**	**GHG emission reduction - ($ktCO_2$)**
	non-residential sector		demo project implementation and following increase of penetration rate on the building market); however, also energy demand of buildings constructed in line with IBDA will be factually lower	
Outcome 3: Energy Management	• Reduced energy demand in non-residential buildings – between -10% (until 2012) and -20% (from 2014 onwards)	43	• Revision needed for outcome 3, since a much larger target group is addressed through RET-Tool, website-related modules/tools, revised training materials and support on MIV of building energy performance issues. • Initially only 43$ktCO_2$ from improved Energy Management in around 5,000 buildings assumed but this might increase.	N/A
Outcome 4: Monitoring	• No energy and GHG impact	0	• N/A	N/A
	TOTAL	**63,749**		**N/A**

According to calculations provided with the baseline study update and with respect to the selected demonstration buildings, total project direct emission reductions have been estimated to be around 12,239 tCO_{2eq}. In order to reach the 2m tCO_{2eq} emission reduction target, the construction of 164 buildings following the IBDA approach will be adequate. This is still achievable provided that the IBDA for new public buildings is adopted by the Government of Turkey. Based on the project achievements to date, it is not possible to indicate GHG emission already avoided since the demonstration projects are still in the design stage.

The following criteria are regarded to be the key for measuring the GHG benefits as a result of project activities:

- Improving the energy demand of buildings in new construction (and rehabilitations) based on minimum energy performance standards that are being implemented and enforced during building inspection. Monitoring of implemented demonstration projects will provide real case data.
- Level of compliance with new codes and regulations (as part of enforcement as well) and its improvement over the years.
- Year of implementation of new codes, regulations and IBDA in buildings, since this influences the annual penetration rate and, in the worst case, delays the achievement of GHG emission reductions.

Although the activities are to a large extent not finished and real impacts can hardly be measured, it is moderately likely that the project will achieve the target.

It is, though, highly recommended that these criteria will be considered for GHG monitoring for the remaining duration of the project and should thus be integrated into the overall monitoring activities under outcome 4.

2.2 Project Design and Relevance

2.2.1 Project Design

The first project idea was raised back in 2005 when Turkey had drafted an Energy Strategy (2004) and was starting to develop building energy performance regulations. Within two years (2007-2009), the Project Identification Form and Project Document had been prepared, approved and signed (by 2010).

The structure of the project was initially designed to support the institutional capacity to conduct regular reviews and revisions of building energy performance standards and regulations and improve the enforcement level of building inspectorates, as well as to enhance the legislative and institutional framework by showcasing IBDA approaches in demonstration buildings started in and introduced to the Turkish market.

All of these activities were initially considered within the project design in order to support the country in reducing its energy consumption and associated GHG emissions in the building sector. From this perspective, the design of activities and targeted outputs was very relevant from the beginning and still is in principle. However, since the legal framework has continuously developed compared with the situation when the main project components were designed back in 2008 and 2009, the activities within outcome 1 have to be considered in light of the developments that have taken place in the last years:

- When the project documents were prepared, the BEP regulation did not consider cooling energy calculations - only heating. Therefore, one of the suggestions in the ProDoc was to add the calculations for cooling. The cooling section of the BEP has been added but still needs some upgrading, also to comply with European standards and legislation in this regard.
- Also during the project preparation, the BEP and the TS 825 (National Insulation Standard) were separate elements, with the TS 825 being a standard for ensuring proper insulation and thermal properties for a building. When the BEP regulation was put into force, it referred to the TS 825 standard for heat insulation matters. Since TS 825 and the BEP regulation together form the basis for heat insulation, enhancement of TS 825 is no longer an element that may be considered as separate from the BEP enhancement. The BEP regulation was updated in 2010.
- The Building Inspection Law governs new constructions with regard to earthquake-safety and heat insulation requirements. The last update was in 2011. The project provides support through the preparation of analysis/policy reports, recommendations for the enhancement of the regulation, and will provide checklists for building inspectors and deliver trainings to them.
- An Energy Efficiency Strategy Paper (EESP) was issued in February 2012, outlining a national strategy framework to achieve a 20% decrease of energy intensity consumed per GDP unit by 2023. The project will support the implementation of building sector-related sections of EESP through a range of support activities.
- In an international context, with the adoption of the recast EPBD in 2010 (Directive 2010/31/EU), EU Member States face tough new challenges. Foremost among them, moving towards new and retrofitted nearly-zero energy buildings by 2020 (2018 in the case of public buildings), and the application of a cost-optimal methodology for setting minimum requirements for both the envelope and the technical systems is the key priority. Since Turkey is committed to adoption of EU legislation, this Directive is also to be considered for adaptation to Turkish conditions.

2.2.2 Project Relevance

Energy consumption per capita in Turkey was around 1.548 toe in 2011, i.e. slightly below the world average (1.8 toe/capita). Total consumption has been steadily increasing by around 3.4%/year, on average, since 2001. Although the economic crisis caused a slowdown in consumption in 2008 and 2009 (-1.3% in 2008, -6.3% in 2009), as the economy has recovered

from the crisis so final energy consumption increased by 3.5% in 2010 and 4.2% in 2011. The household, service and agriculture sectors represented around 34.5 % of the country's final energy consumption in 2011 and thus provide a large potential for energy savings.

The **relevance** of the project is to be considered very high based on the enormous importance of EE for the Turkish government in view of the current economic effects that excessive consumption of resources and energy are having. The import of primary energy resources has almost tripled between 1990 and 2011, and amounted in 2011 to 54 billion USD. (This figure further increased to 60 billion USD in 2012). The project provides opportunities to receive support in learning from experiences and best practices from other countries with similar developments and, especially, benefit from international experts' support in improving the legislative framework, the capacity and know-how of practitioners (architects, engineers, designers, project developers) with regard to energy efficiency buildings and the IBDA concept, as well as approaches to increase the enforcement level of building inspectors and government authorities.

Since 2007, Turkey has had an Energy Efficiency Law and, since 2012, an Energy Efficiency Strategy Paper. The secondary legislation for EE Law has been prepared and came into force in 2008/2009. The strategy has been greatly revised in line with the EE Law of 2012. However, still a number of critical barriers remain impeding the further development of the market, such as:

- Insufficient scope and/or "ambition" of the current EE regulations
- Inadequate level of compliance (enforcement) with the current regulations
- Low awareness of cost-effective opportunities for improving energy performance in buildings, including through IBDA
- Lack of replicable investment models in energy efficient buildings
- Overall weak energy management practices in private and public buildings

The Project is addressing these barriers and supporting their removal, thereby stimulating the market for EE buildings in the country.

Table 7: Barriers and their removal strategy

Identified barriers	Proposed project interventions
1. Insufficient scope and/or "ambition" of the current EE regulations	Outputs 1.1, 3.1, 3.2, 3.3
2. Inadequate level of compliance with the current regulations	Outputs 1.3, 2.3, 3.1, 3.2
3. Low awareness of cost-effective opportunities for improving energy performance in buildings, including through IBDA	Outputs 1.3, 2.1-2.3, 3.1, 4.1
4. Lack of replicable investment models in energy efficient buildings	Outputs 1.4, 2.3
5. Weak energy management	Outputs 1.3, 3.1-3.3

The focus of the project is thus very appropriate to the actual situation in Turkey, although it is just the first step in improving energy efficiency. The project contributes to national development priorities and plans in accordance with the Energy Efficiency Law of Turkey (5627/2007).

Project relevance is rated Highly Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
HS					

2.2.3 Implementation Approach

The project implementation approach contributes to the improvement of the energy efficiency regulatory field through its support to the development of corresponding technical regulations and suggested legal/regulatory changes.

Its overall strategy and scope, i.e. promotion of building energy efficiency via legal and regulatory improvements, institutional and technical capacity development, and on-the-ground demonstration projects, remain highly relevant and offer high potential to bring about desired market transformation impact in the Turkish building sector.

The Project Document initially emphasized a focus on two important aspects in its implementation:

- Improved energy efficiency in new and existing buildings through stronger legislation, institutions and implementers
- Integrated Building Design and development of minimum energy performance based building codes.

Improving the energy efficiency legislation is a continuous process and the Turkish government is committed and has set the stage for implementing primary and secondary legislation based on the country's National Energy Efficiency Law and Strategy. Significant progress can be shown on the legislative and institutional side prior to project commencement; however, the value-added achieved by the Project has been the additional support and expertise required in improving the quality of BEP legislation (e.g. calculation methods), adding the required Minimum Energy Performance Standards for new buildings (see also paragraph below) and improving the National Building Inspection System by integrating energy efficiency aspects.

Under the Building Energy Performance (BEP) regulation, Energy Performance Certificates are being issued for new and existing buildings. However, there is no mechanism yet established to monitor, inspect and verify the validity of these certificates over time. This issue has been

identified as a critical point to improve the compliance with the BEP regulation. Therefore, a specific project activity shall address this issue.

Apart from the focus on new buildings, the existing building stock and possibilities for rehabilitation according to EE standards shall be taken further into account. The project formulation is much less demanding in this regard (although Outcome 1 does consider "improved EE in new and *existing* buildings…") and does not provide clear targets for the project stakeholders in achieving substantive results for the existing building stock.

Experiences from other countries, and especially the European Union, show that there is significant need to work out the required institutional setting and strategies/programmes that delineate measures to rehabilitate and upgrade the existing building stock, since such rehabilitation provides huge potential for saving energy and thus GHG emission reductions over the long-term – much more than the increment of new buildings.

Both *Integrated Building Design* and *energy performance-based building codes* are relatively new concepts that have been introduced in countries which already had good practice with implementing energy efficiency in buildings.

The difference between "traditional" prescriptive energy efficiency building codes and new energy performance building codes should be clearly understood, and between improving energy efficiency of buildings and Integrated Building Design.

An energy performance-based building code needs to meet the requirement of total specific energy used for space heating (including hot water demand) and cooling in kWh/m^2 of different building types, but basically provides flexibility for building architects and engineers on how such requirements will be met (e.g. size/shape of windows, compactness of building, orientation, etc.).This flexibility provides the opportunity to reach the mandatory energy efficiency standard in a less costly way, but it does require certain levels of know-how and experience in energy efficiency, i.e. well trained experts that are able to apply the concepts in reality. In terms of market outreach, the training shall focus on those sectors with the highest replication potential, i.e. residential and service buildings.

Similarly, Integrated Building Design does not imply merely the implementation of sufficiently thick wall insulation or efficient windows, but to incorporate into building design other factors as well (building compactness, indoor room zoning, building orientation, passive solar gains and solar shading, level of comfort of users, construction materials used, etc.) in order to reach the required energy performance in a cost-effective way with limited or affordable incremental costs.

This project represents an important step towards promoting energy efficiency in buildings in Turkey. It is actually the only project in Turkey where multilateral and government entities are collaborating on energy efficient buildings. It is also the first project in Turkey to promote an "Integrated Building Design Approach" for new buildings as an energy efficiency measure. This

strengthens the rationale for the project design, its implementation approach and its potential impacts.

Summarising the implementation approach of the EE Buildings Project, it is rated Satisfactory but with room for improvement in aiming to achieve better results. The project implementation must focus in the time remaining on a clear commitment to implement Minimum Energy Performance Standards for new buildings, enhance the enforcement of the BEP regulations by creating capacitated building inspectorates and creating far more out-reach in promoting and training key experts in the Integrated Building Design Approach. Additionally, the focus on existing buildings and their rehabilitation opportunities (and regulation/standards required) shall be further considered. Consequently, the project results framework (logframe) needs to be revised to reflect clear targets and indicators used for measuring the achievement of revised targets.

The implementation approach of the Project is rated Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
	S				

2.2.4 Logical Framework

The GEF Project Results Framework (log-frame) is a key basis for planning of detailed activities under the implementation framework that was defined in the Project Document. It is also used for reporting to GEF in the middle of the calendar year (end of GEF fiscal year) in a combined Annual Project Review (APR) and Project Implementation Report (PIR), together with the UNDP format for internal project management and reporting done on a quarterly and annual basis (Project Progress Reports).

The log-frame in principle serves to monitor and evaluate overall project achievements – based on defined targets and indicators to measure these targets. However, the log-frame for the EE Buildings Project is not suited for daily/operational project management control, since it is poorly written and does not provide clear targets, or the targets do not correspond to actual needs to be covered by the project.

For example:

Outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers
Indicator 4: Clearly defined roles, responsibilities, actions and targets for regular revision of building codes

Target 4: Two working groups (EE WG and Finance WG) formed; EE programme and roadmap designed that provide key institutions and EECB clear roles, responsibilities and common metrics to monitor EE improvement in buildings

Comment: Target 4 specifies the creation of 2 working groups and an "EE programme and roadmap" to be designed to assign "clear roles, responsibilities and common metrics to monitor EE improvement in buildings". It is not clear at all what the reasoning is behind installing a working group, the institutions to be involved or the expected outputs. Tellingly, the National Project Director has not approved these working groups, so they have not materialized in practice.It is, furthermore, not specified what the "EE Programme and Roadmap" are about and what the logic is behind having them at this stage of the project (e.g. how to do a building EE programme without minimum energy performance standards defined, how does such a programme relate to actual programmes and strategies, what specific targets are to be considered, etc.). Target 4 has been proposed to be revised to include the following targeted activities to be implemented: (a) Reference building approach under the Building Energy Performance (BEP) Regulation analysed and reported, (b) Minimum Energy Performance Standards (MEPS) for new buildings developed and proposed, (c) Building Inspection Regulation analysed and proposed to include EE aspects, and (d) Building Energy Performance (BEP) Regulation analysed and compared to other relevant international codes (e.g. EU EPB Directive, etc.) and revisions proposed.

Outcome 2: Cost-effective energy efficiency solutions showcased through integrated building design approach application in two demo buildings
Indicator 10: Content, acceptance and status of the training
Target 10: 100% of architectural and engineering students are taught IBDA, 50% of architects and engineers report high level of confidence, awareness and use of IBDA
The output is to promote IBDA to building sector professionals and key stakeholders. This IBDA concept is being developed and promoted through the project, so it is in its very stages of development. Aside from the unrealistic nature of the targets (100% of architects and engineers to be taught on IBDA), the target "50% of architects and engineers report high level of confidence" is poor and not measurable at all. Furthermore, the target does not specify the time by which the target shall be achieved (project termination, project mid-term, any other date). The proposal from a mid-term evaluation perspective is to reformulate to: "IBDA incorporated into architectural and engineering university curricula and trainings for architects and engineers professionals delivered".

Aside from the examples mentioned above, further unspecific or unrealistic targets have been provided in the initial log-frame. In order to provide the PMU with a more realistic and – from today's point of view – output-specific and more relevant logical framework, the MTE is recommending to revise/amend the existing log-frame so that the project management will have a useful M&E tool at hand for the remaining project period. A proposal for an updated log-frame is found in Annex 5.

As a result of the above said, the logical framework of the Project is therefore rated as Moderately Unsatisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
			MU		

2.2.5 Country ownership/drivenness

The project has been initiated jointly by UNDP and the Government of Turkey and reflects the need of Turkey to improve energy efficiency legislation and enforcement, due to the continuous increase of the country's population and resulting increase of energy demand.

The Project Document has been prepared by international experts who consulted extensively with local stakeholders.

The project is implemented by local experts and key national stakeholders. International project consultants are contracted to provide advice and experience in best international practice, together with local experts who provide sector experience and are mostly involved in reviewing current legislation, technical capacity, and adaptation of new policies and procedures to local market conditions.

The project receives support from the Ministry of Natural Resources and Energy (YEGM) as the key national institution in energy efficiency legislation and Executing Agency, as well as from ministries and other public institutions.

Nevertheless, the project is faced with daily decision-making problems and essentially no practical support for implementation. The National Project Executing Agency (YEGM) needs to become more committed to achieving overall project results and creating an effective framework for energy efficiency in buildings. It should also encourage, rather than impede, other project partners in taking responsibility for project outputs. Furthermore, it is proposed that the MoEU shall as soon as possiblebe involved as a second executing agency to increase the decision-making capacity of the project and its focus on achieving results under outcome 1.

Country ownership/drivenness is rated Moderately Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
		MS			

2.3 Project Implementation Arrangements

2.3.1 Stakeholder Participation, Linkages to Project and Other Interventions in Sector

Stakeholder involvement has not been particularly strong from the beginning of the project, although the overall commitment to realising the project has been provided by the government stakeholders.

Several reasons can be highlighted in this regard:

- Slow project start due to setting up of the project team and implementation arrangements delayed overall project performance
- Generally, slow decision-making process at the National Executing Agency (YEGM), especially at the beginning of the project
- Changes in the ministerial structure as a result of the 2011 elections. Ministries were partly restructured and newly staffed. At the operational level of the project, TOKI, the National Housing Development Administration, has stepped out as a co-financier and executing partner and was replaced by MoNE.
- Certain decisions, from selection of external experts to provision of land for implementation of demonstration projects, have been prolonged or postponed, which can be partly attributed to slow decision-making processes.

However, the level of ownership and participation have improved over recent months. The principal stakeholders (YEGM, MoEU and MoNE) are aware of the need and have been acknowledging that the implementation of project activities needs to gain more speed and thus decisions to support project progress must be taken without further delays.

There is no strong interaction with other UNDP-GEF EE projects (industry and appliances projects) and other projects/activities in in the sector. There were some attempts to establish linkages but they have not not materialized so far.

- A planned partnership with the Turkish Green Building Council (ÇEDBİK) for the preparation of an integrated building design approach guidebook did not take place due to lack of timing/priorities at ÇEDBİK.
- The first phase of EBRD's Turkey Sustainable Energy Financing Facility (TurSEFF) has concluded in the meantime – cooperation regarding financing of building EE measures has not been developed so far, but could be a useful value-added for the EE Buildings Project in the next phase.
- The planned co-operation with UNECE (United Nations Economic Commission for Europe) on a joint training activity could not take place since the UNECE training materials were judged to be inadequate by YEGM. Currently, negotiations are ongoing between YEGM and UNECE about improving the materials and organizing the training event in Turkey before summer 2013.
- The project was working to form a partnership with a prominent business organization, the Turkish Industry and Business Association (TÜSİAD). The partnership was planned to be initiated in 2012, but did not materialize. TÜSİAD

contacted YEGM through an official correspondence to become a partner on the project and jointly implement several project activities. During one of the PSC meetings, the difference between project partners and project stakeholders was discussed. The result of the discussions on this issue was to allow no additional members on board as project partners in order not to further complicate the decision making process within the Project. It was also agreed that a workshop platform could be organized in order to invite willing institutions to contribute to project activities, but such a workshop was never held and the issue was left unresolved. After that, the discussions with TÜSİAD were interrupted and the official correspondence halted.

- In the remaining project period, the Turkish Building Material Producers Association (IMSAD) will be approached to review financial models/mechanisms to promote EE/RE in buildings and to promote sustainable construction materials/equipment/technologies.

The stakeholder participation of the Project is therefore rated Moderately Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
		MS			

2.3.2 Project Management, Monitoring & Evaluation

The Project Management arrangements are as follows:

- The Project Implementation Agency is UNDP.
- The General Directorate for Renewable Energy (YEGM) at the Ministry of Natural Resources and Energy is appointed to serve as Executing Agency.
- A Project Management Unit (PMU) established by UNDP is responsible for daily management and actual implementation and monitoring of the project. The office of the Project Coordinator is located at YEGM which ensures continuous communication with the Executing Agency. Nevertheless, other project participants are regularly visited (on a weekly basis) to maintain contact and project partners steadily involved in the implementation of activities that are within their responsibility.
- The Executing Agency, YEGM, has appointed the National Project Director, who has executive responsibility for project implementation.
- The overall responsibility for the project is situated in the Project Board (Steering Committee), where ministries and governmental agencies are represented.
- The Project Implementation Unit is supported by the UNDP Turkey Country Office.
- The project is implemented by the ministries MoENR, MoEU and MoNE and experts who are supported by international consultants.

International Consultants include:

- International EE reporting and tendering expert (providing terms of references for other experts requested, preparation of background and inception reports, assessments of measures and EE actions in building sector, comparison of BEP and EPBD) – *Mrs Lisa Surprenant.*
- International architect and building EE enforcement expert (international experiences with building inspections, analysis and recommendations on existing legislations and improvements, preparation of checklist and booklet on implementing EE performance in buildings, design and implement trainings for building inspectors) – *Mr Adil Lari.*
- International joint venture to deliver designs for the demonstration buildings (headed by *Ekodenge*, in co-operation with *atelier ten* and *Willen Associates*).

Considering the slow start of the EE Buildings project in 2010/2011 and the political changes due to elections, the PMU's management of the Project has been good, demonstrating careful use of resources and maintaining a high level of communication and co-ordination between project partners and stakeholders.

The Project has also demonstrated thorough monitoring and evaluation of project activities and results. A regular reporting system (quarterly and annually) – including financial monitoring – has been introduced by a nominated Monitoring & Evaluation Administrator who is supervised by a Financial Administrator, both UNDP staff. The Project Coordinator considers regular monitoring and evaluation of activities as highly important. Nevertheless, the monitoring of GHG emission reductions needs to be improved, since there are no provisions yet made to assess the benefits achieved from project implementation.

Additional technical staff seems appropriate to support the Project Coordinator in implementation activities. An additional expert could also become involved in GHG monitoring activities.

Management arrangements are rated Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
	S				

2.3.3 Project Budget and Cost Effectiveness

Table 8 provides an overview of the budgeted expenditures of the GEF project of USD 2.62 million. As of February 14, 2013, USD 635,061, or about 24% of the GEF-funded project budget, has been expended. Thus, more than USD 1.98 million remain in the project budget for technical assistance, implementation of demonstration projects and other activities for the project, including USD 114,000 of unallocated funds (less than 5%).

The largest funding contribution for construction and reconstruction of both demonstration projects is expected to start in autumn 2013; both projects are scheduled to be finished by late 2014 or by the beginning of 2015. Thus, the project expects major expenditures for co-financing of these re/construction works during the years 2014-2015.

The actual spending in % terms for each of the four outcomes is more or less in the same range (20% - 25%), apart from Project Management, which has utilised funds principally corresponding to the project time that has passed by (approximately. 54%). Budget shifts occurred only in outcome 1 and outcome 3 in favour of outcome 2 and 4. Additional co-financing is provided for the demonstration buildings, since the size of the projects has significantly increased relative to ProDoc expectations (more than double the number of m² to be constructed compared with the initial plan).

The spending of the budget is, however, 'under proportioned' (i.e. % project expenditure lags behind % project duration) based on the period of implementation, as also are the results of the project delivered so far. The initially planned amount of co-financing for pilot projects seems likely to increase, which provides the project with sufficient funds to be allocated over the remaining project period for all remaining activities.

The PMU still needs to plan on how to use the unallocated funds for scaling-up efforts for energy efficient buildings.

Confirmed project co-financing to date amounts to an estimated USD 7.24 million (by April 2013), with details from project partners provided in Table 9. This table includes government contributions for the land that has been provided for the demonstration projects. Up to now, the achieved co-financing contribution is around 48% of the initially committed value, a significantly higher rate than the actual grant expenditures, which is Satisfactory.

Financial management is rated Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
	S				

Table 8: Project Budget and Expenditures (in USD)

GEF Outcome/Atlas Activity	Budget approved	Disbursement (actual)						Revised budget (planned)			Remaining unallocated
	from ProDoc (USD)	2010	2011	2012	2013 as of Feb 14	Budget spent (USD)	% of budget spent	Remaining for 2013	Planned 2014/15	Total (USD)	Total (USD)
Outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers	**867,000**	6,585	82,466	19,209	0	**108,260**	**20%**	159,230	282,950	**550,440**	**316,560**
Outcome 2: Cost-effective energy efficiency solutions showcased through "Integrated Building Design Approach (IBDA)" application in two demo buildings	**772,450**	2,000	88,828	146,905	5,207	**242,941**	**23%**	301,693	503,756	**1,048,390**	**-275,940**
Outcome 3: New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building design approach in buildings	**536,600**	3,369	33,730	29,298	4,427	**70,825**	**21%**	228,054	45,900	**344,779**	**191,821**
Outcome 4:Building energy consumption, energy savings, and other results of the project monitored, evaluated and reported	**181,950**	139	31,060	41,481	1,023	**73,702**	**24%**	30,477	198,867	**303,047**	**-121,097**
Project Management Unit	**262,000**	27,798	48,420	58,969	4,145	**139,332**	**54%**	59,454	60,290	**259,076**	**2,924**
TOTAL	**2,620,000**	**39,891**	**284,505**	**295,863**	**14,802**	**635,061**	**25%**	**778,909**	**1,091,763**	**2,505,732**	**114,268**

Table 9: Project Co-financing leveraged until 2013 (in USD)

	2011	2012	2013 (1st q.)	2014	2015	2016	TOTAL
YEGM	93,000	114,240	25,560				**232,800**
MoEU	39,840	1,629,840	35,160				**1,704,840**
MoNE	31,200	5,208,840	29,760				**5,269,800**
UNDP	16,500	13,000	3,000				**32,500**
TOTAL	**180,540**	**6,965,920**	**93,480**	-	-	-	**7,239,940**

2.3.4 Identification and management of risks (Adaptive Management)

Project monitoring and evaluation by the PMU has generally been strong. The PMU, however, should make improvements regarding the identification and management of project risks, especially in terms of resources mobilization, timely implementation, project financing and achievement of GHG emission reductions.

Although influenced partly by the project stakeholders and partly by external factors, the project delay caused at the beginning was ameliorated by adaptive management implemented to catch up in achieving results. In general, the project has delivered a number of key results, especially in regard to project outcomes 1 and 2, whereas outcomes 3 and 4 need more effective management and acceleration of the decision-making process in the remaining project period. Still, there remains a medium risk that further delays in implementation may occur if project partners will again slow down their decision-making capacity. Effective project management by the PMU, the installation of a "Project Management Committee", and the proposed involvement of MoEU as a second Project Execution Agency are adaptive measures to minimise this risk.

Within the Project Document, two risks are identified with a "medium" probability of occurrence:

- *Building codes may not be enforced effectively*: this risk may only materialize if further improvements of BEP legislation (calculation methods improved, MEPS implemented) are not implemented and inspection structures (mainly building inspectorates, building energy consultants) remain resilient to enforce already-existing laws.
- *International economic crisis may lead to an overall slowdown of construction activity and therefore impact GHG emission reduction estimates*: this risk can be downgraded to "low", since slowdown of construction seems unrealistic in Turkey's current economic circumstances. This risk could be also minimized by providing a focus on rehabilitation of existing building stock – this would also boost the potential for GHG emission reductions.

Other risks that have been rated "low" in the ProDoc can be currently assessed as follows:

- *Enabling policy framework for the secondary regulations and calculations are not implemented at the desired speed*: implementation speed is indeed an issue; however, overall commitments provided by the government and the involvement of the principal stakeholders in the project have served to mitigate the risk, which is still perceived as low.
- *Integrated building design approach does not get sufficient uptake due to lack of understanding or replication*: capacity building activities provided are the key to replicating IBDA to decision-makers, architects and engineers. However, the market actors have to understand and become acquainted with the concepts, which will take time and will require sufficient access to experienced (well-trained) experts. The risk can still be regarded as low.

Adaptive management is rated Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
	S				

2.4 Evaluation of the Project

Table 10 provides an evaluation of the current outcomes of each Project output. Each output was evaluated (as far as possible at the MTE stage) against individual criteria of:

- **Relevance** - The extent to which the aid activity is suited to the priorities and policies of the target group, recipient donor, and national development priorities.
- **Efficiency** - Efficiency measures the outputs - qualitative and quantitative - in relation to the inputs. It is an economic term which signifies that the aid uses the least costly resources possible in order to achieve the desired results.
- **Effectiveness** - extent to which an aid activity attains its objectives.
- **Results/Impacts –** The positive and negative changes produced by a development intervention, directly or indirectly, intended or unintended. This involves the main impacts and effects resulting from the activity on the local social, economic, environmental and other development indicators.
- **Sustainability** - the extent to which the benefits of an activity are likely to continue after donor funding has been withdrawn.

Achievements of project objectives have been rated in terms of the criteria above at a six level scale as follows:

- Highly satisfactory (HS) - the project has no shortcomings
- Satisfactory (S) - minor shortcomings
- Moderately satisfactory (MS) - moderate shortcomings
- Moderately unsatisfactory (MU) - significant shortcomings
- Unsatisfactory (U) - major shortcomings
- Highly unsatisfactory (HU) - severe shortcomings.

The overall rating of the Project is Moderately Satisfactory (MS)*, based mainly on:*

- ***Relevance*****:** the topic of EE in buildings is definitely relevant for the Turkish government and so is the design of the project. The project reflects the needs of Turkey to improve energy efficiency legislation and the inadequate level of compliance with current legislation and poor enforcement. The project will also show-case good examples of new integrated building design approaches, combined with building the capacity of governmental staff, building inspectors, energy managers (public/private buildings), architects, engineers and ESCOs. The project is, nonetheless, facing a low level of enforcement of laws and regulations which seems to persist even now. There are two main reasons:
    a. The relevant “Building Inspection” legislation provides the legal basis for enforcement but does not require detailed energy efficiency considerations to be made during the design and construction of the buildings. The only requirement is the issuance of an energy passport for buildings, which is covered by the “Building Energy Performance” Regulation. Therefore, since new buildings are not yet thoroughly checked from an energy performance perspective, the project is targeted at introducing an *energy efficiency checklist* to be used for new building designs and constructions.

b. There is a significant lack of capacity of architects, designers and project implementers in regard to applying energy efficiency aspects in design and construction. The project is providing support to improve these circumstances by introducing a *guidebook* on how to use the *energy efficiency checklist* for new buildings.

- ***Efficiency:*** Due to the slow start of the project in 2010 and the difficulties in getting the Project Management Unit operational in 2011, project implementation is delayed by roughly one year, as are several of the anticipated activities which are, as a result, still ongoing or have not even started and have thus delivered marginal results to date. Project Management is performing well but is tending to be distracted by administrative tasks while being requested to coordinate work between the different project partners (e.g. YEGM and MoEU). On the other hand, the decision-making capacity of responsible staff of the participating ministries is rather low and creating additional time delays. Accelerating the decision-making process will be key to successful project implementation within the given time-frame.
- ***Effectiveness***: aside from activities (outcomes) that have not yet started or have not yet delivered any major results (outcomes 3 and 4), the achieved outputs have attained their objectives to a satisfactory level. Progress has been made on strengthening public institutions and governmental decision-makers on improving the enforcement of BEP regulations and providing capacity building activities; trainings for energy managers in buildings and public administration staff are partly ongoing, and so is the design of the demonstration projects. Nevertheless, the project design neither provides specific dissemination or awareness- raising activities (aside from a project website) and nor does it have a clear communications strategy.

Table 10: Overall Evaluation of Project

Outcome	Relevance	Efficiency	Effective-ness	Overall
1. Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers	HS	MS	MS	MS
2. Cost-effective energy efficiency solutions showcased through "Integrated Building Design Approach (IBDA)" application in two demo buildings	HS	S	S	S
3. New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building design approach in buildings	HS	Unable to rate	Unable to rate	Unable to rate
4. Building energy consumption, energy savings, and other results of the project monitored, evaluated and reported	HS	Unable to rate	Unable to rate	Unable to rate
Overall Rating	**HS**	**MS**	**MS**	**MS**

2.5 Project Impact

As of the MTE, the project offers good prospects of improving energy efficiency, especially of newly-designed buildings in the public sector. For a few years now, Turkey has had primary and secondary energy efficiency legislation in place, offering a solid and sustainable basis for improving the building sector over the next years (and probably decades).

However, there is still potential for further improvement of project impacts:

- Since the Building Energy Performance regulation is in place and is becoming the principal driver for developing more efficient buildings, the next development step should be aimed at implementing Minimum Energy Performance Standards for new buildings, enhancing the enforcement of the BEP regulations by creating capacitated building inspectorates, and creating far more out-reach in promoting and training key experts in the Integrated Building Design Approach.
- Additionally, there should be an express focus on improving energy efficiency of existing buildings by looking into the vast rehabilitation opportunities that are available.
- Building inspectors and energy consultants should become motivators on the ground – supporting building owners in disseminating good practice and urge them realising reasonable energy efficiency measures in their new (or rehabilitated) buildings.

Pilot projects being designed and constructed will provide visible impact in bringing the new IBD approach to the Turkish construction market. At this point in time, though, the results have yet to be seen before being able to judge the quality of IBD principles being implemented. The same is true for the other outcomes in terms of tools development (outcome 3) and monitoring & evaluation (outcome 4). Their results have to be seen at the end of the project to rate the overall project performance and impact.

Project impact is rated Satisfactory.

Highly Satisfactory	Satisfactory	Moderately Satisfactory	Moderately Unsatisfactory	Unsatisfactory	Highly Unsatisfactory
	S				

2.6 Sustainability

The project has been designed to deliver sustainable impacts since the energy efficiency legislation is to be further improved in regard to Building Energy Performance regulations and minimum energy performance standards, and capacity of enforcement and integrating building design principles is to be enhanced.

The improved framework conditions being continuously developed is leading the Turkish building market into a transformation process that has factually already started and will continue to unfold over the next years, since:

- EE is a high government priority.
- Involved government stakeholders are enthusiastic about the demonstration projects being developed – this will ensure good governance if successfully implemented.
- The Turkish Urban Transformation Project will have a long-term impact in improving the quality of construction (partly through better enforcement of laws and standards) by focusing on safety issues (e.g. against earthquakes); however, EE will become an ever-more important aspect of refurbishment and new construction of buildings. To realize the urban transformation process, legal and administrative instruments, financial opportunities, staff and institution capacities will be needed.
- New technologies (renewables, energy efficiency) are already introduced but need more time to achieve proper experience and reliability (quality of building materials and equipment).

Looking at the specific dimensions where the project is to create sustainability:

- In the case of Outcome 1 – enforcement of improved building energy performance standards, EE building certification, training of building inspectors – the situation is slightly different, because keeping the system in place and fully operational will require a certain level of financing on an annual operational basis. The financial risk is thus rated slightly higher, between negligible and moderate. Other risks remain low, and the sustainability of Outcome 1 is rated *Moderately Likely*.

- Implementation of project deliverables in component 2 will require mainly upfront costs (for demonstration buildings) and support to strengthen local capacity, but limited support and/or financing in a long-term. Financial and socio-political risks are low and thus sustainability is likely, whereas the institutional and governance risks are to be rated slightly higher, also between negligible and moderate, since promoting IBDA in the professional sector (architects and engineers, university curricula, training programmes, dissemination) will require strong commitments of involved institutions and decision-makers. However, as legislation will be further upgraded, so the institutional setting and professionals are expected to adhere to these conditions without major constraints. Sustainability of outcome 2 is therefore rated *Likely*.
- Outcomes 3 and 4 have not achieved any major output so far; however, they are expected to require limited support and/or financing in the long-term. Financial, socio-political, institutional and environmental risks to sustainability of these project outcomes are thus rated as minimal. From the perspective of public outreach and dissemination, the Project planned to publish major results and outputs via its project website. However, the website is still under development (despite the fact that the project is halfway through) and the project has thus lacked a major dissemination channel. The website is regarded an important post-project dissemination tool and therefore requires resolving as soon as possible. The sustainability of Outcomes 3 and 4 is expected to be *Moderately Likely*.

Rating scale includes: Likely (L): no or negligible risks, Moderately Likely (ML): moderate risks, Moderately Unlikely (MU): significant risks, and Unlikely (U): severe risks.

Project sustainability is rated Moderately Likely.

Likely	Moderately Likely	Moderately Unlikely	Unlikely
	ML		

3 Conclusions and Recommendations

3.1 Conclusions

The EE Buildings Project has been operational for about 20 months (out of a planned 60 months), with about 25% of its GEF budget expended. While there appears to be broad acceptance of most of the proposed activities and interventions of the project, project progress to date can be characterized as follows:

- Project delays have been the result of weak co-ordination of the National Executing Agency in setting up necessary project management structures, while political changes have resulted in a broad restructuring process of a number of the ministries involved.
- As a direct result of the organisational changes at the governmental level, some project partners have been replaced: instead of MoPWS, the MoEU has stepped in and instead

of TOKI, the MoNE has become executing partner. Replacement of partners also delayed the selection process and provision of land for the building demonstration projects.

- Although the project has experienced setbacks from the beginning, the relevance of the EE topic is high for the Turkish government and project stakeholders are principally committed to proceed with the activities they committed themselves to. Stronger co-ordination between decision-makers (e.g. General Directorates, Head of Departments) is required in the second period to demand the necessary decisions to be made in progressing on the work programme.
- The project is, overall, professionally managed and administered, and has delivered some substantial results to date:
    - **Existing legislative framework on building energy efficiency and building inspection has been improved:**
        - Project Background Report has been prepared.
        - Report on "Assessment of Energy Efficiency Actions and Measures for Energy Efficiency in the Buildings Sector" has been prepared.
        - Report on "Comparison of “Buildings Energy Performance” regulation and EU “Energy Performance of Buildings” Directive has been prepared.
        - Experts to work on "strengthening of the capacity of inspectorates relating to energy efficiency regulations and implementations" have been contracted.
        - Report on "National and international experiences and existing legislation in Turkey regarding building inspection" has been prepared.
        - Checklist for energy efficiency during building inspection has been prepared and submitted to MoEU, and a related booklet is almost ready.
    - **Basic building energy consumption data for Turkey collected**
        - A Baseline Study Update has been provided and approved by stakeholders as a basis for future monitoring of EE improvements.
        - Now included are a survey of constructed buildings and projections for energy consumption of new buildings after 2010.
        - “Comparative Analysis of Analytical Models for Energy Consumption in the Buildings Sector Report” (update of baseline) has been prepared.
    - **Demonstration buildings to use IBDA design and construction principles are on the way**
        - Tender for demonstration building design works has been prepared with external support. Application design for one project (office building for GD of Land and Cadastre) has been finalised by May 2013; for the second project (school and atelier workshop), the final design is expected as of end-June 2013.
        - The number of demonstration buildings has increased from 2 to 3 (#1 & #2: MoNE - Renewable Energy VET School & Atelier Building; a nearby dormitory & sports hall will be additionally financed by MoNE; # 3:Office of Land Cadastre Department,) and the total enclosed area of the demonstration buildings has more than doubled to approx.18,000 m².
        - Timing streamlined to assure tendering start in summer 2013.

        - Study tour during design stage organised to UK and Germany in November 2012.
        - Report on "IBDA, international experiences and suggestions for Turkey" has been prepared, including a 1-day workshop.
    - **Development of new tools to facilitate compliance with higher EE standards commenced**
        - Project brochure has been prepared and published.
        - Experts for website development have been contracted, development is ongoing.
        - Development of a new *bep.gov.tr* website, including support modules such as online discussion forum, central heating cost sharing module, etc.
        - Selection of experts for development of training materials for energy managers in buildings ongoing.
- The ability of the project to create long-term impact has been partly achieved so far. Most activities are ongoing and so their results and achievements need to be viewed in a longer-term perspective.
- As for the planned remaining activities, they need to be reconsidered in terms of available resources and the likelihood of timely implementation.
- The completion date of the project needs to be revised since there is a chance that the intended project outcomes will not be fully achieved with the remaining resources by the current May 2015 terminal date. Furthermore, the project needs to review and revise its end-of-project targets depending on how the project utilizes its remaining resources.

3.2 Recommendations

Recommendation 1: The legislative framework has been improving, but focus is needed to strengthen the capacities of EE professionals and inspectors in enforcement

- Training of inspectors, government staff and business professionals is the key to integrating IBDA and EE technology use in design, design approval and construction of new and (as far as possible) rehabilitated buildings. Further capacity building activities are to be implemented until the finalization of the project to provide a sound basis for EE enforcement in the building design, approval and implementation phases.
- Quality assurance of building inspections at new constructions still remains a target to be achieved within the remaining project period; additionally, it is proposed that the inspections system be extended to also encompass the refurbishment of existing buildings, since there is a huge energy saving potential to be expected from building rehabilitation. Under output 1.2, during the MTE an amendment of the Project Results Framework has been suggested, which is to develop a feasibility study to identify potential energy performance improvements through building refurbishments in Turkey.

Recommendation 2: Quality of statistical data about the building sector in general, and energy use in buildings in particular, needs improvement

- The quality of existing data about the buildings sector and specific energy consumption are weak and partly outdated (e.g. the last building census was carried out in 2000). Capacities at the principal institutions hosting different set of data need to be enhanced, and furthermore a strategy on how to integrate data and information sources needs to be developed and implemented (e.g. through strengthening capacities at TurkStat).
- Improvement of the coordination between institutions carrying out energy and building related projections and statistical assessments is definitely needed. The project is expected to support this process by providing basic assessments and studies (such as indicators and benchmarks on energy efficiency in the buildings sector or by conducting a survey of potential building refurbishments) upon which relevant institutions could build for developing a country building statistics and information base for building energy consumption in Turkey.

Recommendation 3: Initial project structure to be revised and streamlined (output focus)

- Some of the targets given under the initial Project Results Framework (ProDoc) are out of date, have become irrelevant in the meantime, or are suggested to be left out due to limited resources (e.g. output 3.3 – market reports). A revision of the log-frame is to be considered and approved by the project SC as a result of MTE findings.
- This should help the project stakeholders to clearly understand outstanding outputs and targets to be achieved within the second period of project implementation, and thus stronger commitment to project results and impacts of key project partners.

Key activities to be maintained in the work programme for the remaining project period:

  - Conduct training and capacity building activities for inspectors, energy managers and professionals; IBDA principles to be internalized in the Turkish market (outcome 1 & 2).
  - Tools to be provided to facilitate compliance with higher EE standards (outcome 3).
  - Market readiness to be improved (e.g. through creating financial models). The project has foreseen some activities on reviewing available financing mechanisms currently available in Turkey and showcasing an Energy Performance Contracting scheme as an appropriate finance mechanism. The project is also planning to develop a software tool for economic assessments of renewable energy (RE) use in new buildings. Once accomplished, this tool will support the use of financial resources for implementation of RE technologies by providing feasibility studies.
  - Explore initiating key awareness-raising measures on energy efficiency in buildings (3 demo projects are not expected to be sufficient), in order to up-scale initiatives begun within the project and mainstream EE in buildings in Turkey.

Recommendation 4: Project implementation needs to become more effective by improving stakeholder commitment and networking partnerships

- The National Project Executing Agency (YEGM) needs to become more committed to achieving overall project results and creating an effective framework for energy efficiency in buildings. It should also encourage, rather than impede, other project partners in taking responsibility for project outputs.
- The role of the MoEU (Department of Energy Efficiency), which has a prominent role in implementation of activities under Outcome 1, Outcome 2 and Outcome 3, should be strengthened. It is recommended to involve MoEU as a second Project Execution Agency as soon as possible to increase its accountability to the Project.
- It is furthermore highly recommended to install a "Project Management Committee" in addition to the PSC: this will ensure regular decision-making and coordination between technical staff at stakeholder level to accelerate implementation of activities.
- This *PMC* shall involve the Heads of Departments (together with the Project Coordinator) of major governmental stakeholders to ensure decision-making ability.
- Partnerships with other civil society groups and professional business organizations such as TOBB, TÜSİAD, İMSAD, ÇEDBİK, TTMD and other relevant professional chambers and associations should be sought to identify synergies and create further outreach of the project.

Recommendation 5: The project terminal date needs to be extended to allow sufficient time to achieve its objectives

- A maximum 12 month extension (to May 2016) may be considered by the project stakeholders, in order to be able to catch up with recent delays.
- Although the risk of finalization of demonstration buildings implementation is moderately low, the project needs extra time to undertake necessary monitoring and evaluation of the results. Development of a monitoring report and verification of the performance of the demonstration projects in a systematic manner could realistically start in early 2015 up to the proposed terminal date of May 2016.
- Nevertheless, the slow pace of selection of required key experts needs to be accelerated.

Recommendation 6: Findings of all 3 on-going UNDP/GEF EE Projects (Buildings, Industry, and Appliances projects) in Turkey shall be effectively disseminated

- A better use of synergies to promote the EE topic within the targeted sectors in Turkey is recommended, since this could provide significant value-added and thus create higher impact and visibility in the long term.
- A public outreach strategy and implementation framework for dissemination and awareness-raising activities specifically for the EE Buildings Project is required, which is to be developed under a longer-term government initiative. The project is currently developing a project website and has planned another new web platform for providing the new Turkish BEP-TR software and database to be integrated (bep.gov.tr); nevertheless, focused activities should be already achieved by the Project, such as promotion of project results and materials by public media (TV, radio) in addition to internet

appearances, publications (e.g. availability of project reports, short leaflets or brochures on EE in buildings).

- Additionally, there are tools and dissemination materials produced across different GEF projects within the region and outside (e.g. with EU, World Bank and donor support). For example, there are currently similar projects on “Improving Energy Performance of Buildings” on-going in several countries of Eastern Europe & Central Asia (and other regions), some of them having a similar work programme and implementation structure. Access to materials developed (e.g. dissemination, training materials) in other projects could be supported internally through UNDP’s Country Office and experts’ network.

3.3 Lessons Learned

The following lessons learned can be drawn from the Project so far:

- The GEF Project has provided value-added to the dynamic development of the energy efficiency framework in Turkey by improving the quality of the political and administrative decision-making process (e.g. IBDA, MEPS, EU Energy Service Directive and EE Directive).
- Best practice from international (mainly European) approaches are a valuable input for developing the EE framework in Turkey, especially with support and experience of national and international experts provided.
- Since 2000, new buildings in Turkey are required to comply with thermal building standards similar to the EU countries. The Turkish Building Performance Regulation (BEP) that adopts the provisions of the EU Energy Performance in Buildings Directive (EPBD) was issued by MoPWS on December 5, 2008 and revised substantially in April 2010. The BEP provides the legal basis for increasing the energy efficiency of new buildings as it establishes energy efficiency requirements and sets limits of the energy consumption of buildings. However, the Building Energy Performance regulation and corresponding implementation and enforcement in Turkey are still in their infancy in Turkey. The project needs realignment based on developments that took place within the last 3-5 years to remedy this situation. Training and capacity building at essentially all professional levels and improvement of enforcement are the key. The project will further provide enhancement of the regulations through policy analysis reports, development of a new bep.gov.tr website supporting implementation of BEP regulation, and new BEP-TR software.
- The different components of the project are slowly starting to come together. A holistic result is expected to be achieved in the coming years. However, buildings are complex structures that need integrative approaches and thus need to be looked at from different disciplinary perspectives, within building design and construction. The Project has made initial steps to promote the new integrated building design approach, but it needs further capacity development in order to make Turkish market actors more aware of IBDA principles and their benefits to be expected for new buildings when properly applied.
- Careful approaches are required when tendering for services not readily available at a particular location. This may involve assessing expert capabilities and eventually

assembling an expert roster. Otherwise, there is risk of critical delays in the overall delivery schedule of the project.

- Regular stakeholder meetings and ongoing communication between the project coordinator and stakeholders is the key for effective project management and implementation. The remaining project period needs to improve the commitment and communication between major stakeholders: all actors need to commit themselves to an effective decision-making process (e.g. delegated powers):
    - Hold regular Steering Committee Meetings (e.g. every 6 months)
    - Add Project Management Committee Meetings (weekly, bi-weekly)

Annex 1: Mission Terms of Reference

TERMS OF REFERENCE

FOR

MID-TERM EVALUATION OF THE UNDP/GEF Project: PIMS 3646: Promoting Energy Efficiency in Buildings

Contents

TERMS OF REFERENCE

FOR

MID-TERM EVALUATION OF THE UNDP/GEF Project: PIMS 3646: Promoting Energy Efficiency in Buildings

Project Title:	Promoting Energy Efficiency in Buildings in Turkey (EE Buildings)
Vacancy Type:	One (1) External Vacancies
Location:	Turkey (Ankara)
Category:	Environment and Sustainable Development (ESD)
Type of contract:	IC (Individual Contract)
Reporting Language:	English
Starting Date:	04 February 2013
Expected duration of Assignment: Duration of Contract:	25 man/days throughout the contract validity (non-consecutive) 04 February 2013 ± 15 March 2013
Reference Code:	MTE/EEB/01

1. INTRODUCTION

1.1 Project Summary Table

Project Title:	Promoting Energy Efficiency in Buildings in Turkey			
GEF Project ID:	PIMS: 3646		***at endorsement (Million US$)***	***at completion (Million US$)***
UNDP Project ID:	74059	GEF financing:	2.620	
Country:	Turkey	IA/EA own:	60	
Region:	RBEC	Government:	7.600	
Focal Area:	Climate Change	Other:	NA	
FA Objectives, (OP/SP):		Total co-financing:	7.300	
Executing Agency:	General Directorate of Renewable Energy	Total Project Cost:	17.580	
Other Partners involved:	MoEU, MoNE	ProDoc Signature (date project began):		July 2010
		(Operational) Closing Date:	Proposed: 30 July 2010	Actual: May 2015

1.2 Standard UNDP/GEF M&E requirements

This Mid Term Evaluation (MTE) is initiated by the UNDP Turkey as the Implementation Agency for this project and it aims to provide managers (at the Project Implementation Unit, UNDP Turkey Country Office and UNDP-GEF levels) with strategy and policy options for more effectively and efficiently achieving the project's expected results and for replicating the results. It also provides the basis for learning and accountability for managers and stakeholders.

The Monitoring and Evaluation (M&E) policy at the project level in UNDP/GEF has four objectives:

- to monitor and evaluate results and impacts;
- to provide a basis for decision making on necessary amendments and improvements;
- to promote accountability for resource use; and
- to document, provide feedback on, and disseminate lessons learned.

A mix of tools is used to ensure effective project M&E. These might be applied continuously throughout the lifetime of the project – e.g. periodic monitoring of indicators -, or as specific time-bound exercises such as mid-term reviews, audit reports and independent evaluations.

In accordance with UNDP/GEF M&E policies and procedures, all projects with long implementation periods are strongly encouraged to conduct mid-term evaluations. In addition to providing an independent in-depth review of implementation progress, this type of evaluation is responsive to GEF Council decisions on transparency and better access of information during implementation.

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

1.3 Project Context

Background Information:

Turkey's primary energy consumption of approximately 106 million toe ranks Turkey among the 25 most energy-consuming countries in the world. Although Turkey has the lowest per capita energy consumption in OECD countries, the country has great potential for rapid growth rate in energy consumption due to ongoing population and economic growth. Turkey's annual electricity demand has tripled since 1990, reaching 198 TWh by 2008. Turkey's building sector represents the second-largest energy consumer, accounting for 36% of the total final energy consumption which has led to considerable emissions of CO_2 associated with the combustion of fossil fuels. Without a change to the "business-as-usual" scenario, the estimates are that the building sector's energy consumption will grow to 47.5 million toe by 2020, with concomitant increases in CO_2 emissions expected to double. Therefore, the building sector presents significant opportunities for cost-effective energy and CO_2 savings, estimated to be 30-50% of the current levels. Even though Turkey has gone a long way to create a regulatory environment favorable for investments in energy efficient buildings, there are still a number of critical barriers hampering further development of the market. To overcome some of the barriers to energy efficient (EE) in buildings, three demonstration buildings will be completed, along

with other interventions.

Overall Project Objective:

The objective of the project is to reduce energy consumption and associated GHG emissions in public buildings in Turkey by raising building energy performance standards, improving enforcement of building codes, enhancing building energy management and introducing the use of an integrated building design approach. This will be achieved by; introducing the use of an integrated building design approach via three demonstration buildings and ongoing training in "integrated building design approach"[5] (IBDA) as well as provide stronger regulations, implementers, and institutions. Since there is little knowledge of IBDA in Turkey and awareness of viable energy efficiency demonstrations in buildings are limited, this project will focus on generating an IBDA that is relevant and adapted to the Turkish situation and climate zones that is illustrated through provision of the three demonstration buildings.

Working together with its partners, the project will achieve the following four outcomes to remove the barriers and make progress towards the long-term solutions:

- Outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers,
- Outcome 2: Cost-effective energy efficiency solutions showcased through integrated building design approach (IBDA) application in three demo buildings,
- Outcome 3: New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building design approach in buildings,
- Outcome 4: Building energy consumption, energy savings, and other results of the project monitored, evaluated and reported.

Project concept and design

Mid Term Evaluation Expert (MTE Expert) will assess the project concept and design. MTE Expert should review the problem addressed by the project and the project strategy, encompassing an assessment of the appropriateness of the objectives, planned outputs, activities and inputs as compared to cost-effective alternatives. The executing modality and managerial arrangements should also be judged. The MTE Expert will revise and re-assess the relevance of indicators and targets, review the work plan, planned duration and budget of the project.

Implementation

The MTE Expert will assess the implementation of the project in terms of quality and timeliness of inputs and efficiency and effectiveness of activities carried out. Also, the effectiveness of management as well as the quality and timeliness of monitoring and backstopping by all parties to the project should be evaluated. In particular the MTE is to assess the 3 UUH** MIQIH' Hnt *QYP use of adaptive management in project implementation.

[5] An integrated building design approach (IBDA), as promoted by this project, is a process of design that integrates climatic conditions, the capture and the conservation of the free solar and internal gains, the efficient and comprehensive reduction of all heat losses through walls and ventilation, the accurate control of all external energy introduced for providing thermal comfort, light, and hot water, and — last but not least — user awareness of new behaviors regarding energy use and good operations and maintenance practices

Project outputs, outcomes and impact
The MTE Expert will assess the outputs, outcomes and impact achieved by the project as well as the likely sustainability of project results. MTE should encompass an assessment of the achievement of the immediate objectives and the contribution to attaining the overall objective of the project. The MTE Expert should also assess the extent to which the implementation of the project has been inclusive of relevant stakeholders and to which it has been able to create collaboration between different partners. The ET will also examine if the project has had significant unexpected effects, whether of beneficial or detrimental character.

2. DETAILED SCOPE OF WORK

The MTE Expert will look at the following aspects:

2.1 Project Concept

2.1.1 *Project relevance and strategy* The extent to which the project is suited to local and national development priorities and organizational policies, including changes over time as well as the extent the activities contribute towards attainment of global environmental benefits:

a. How and why project outcomes and strategies contribute to the achievement of the expected results.
b. Examine their relevance and whether they provide the most effective way towards results.
c. Do the outcomes developed during the inception phase still represent the best project strategy for achieving the project objectives (in light of updated underlying factors)? Consider alternatives.
d. Were the relevant country representatives, from government and civil society, involved in the project preparation?
e. Does the recipient government maintain its financial commitment to the project?

2.1.2 Preparation and readiness

a. Are the project's objectives and components clear, practicable and feasible within its timeframe? 11
b. Were the capacities of executing institution and counterparts properly considered when the project was designed?
c. Were lessons from other relevant projects properly incorporated in the project design?
d. Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project approval?
e. Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place at project entry?

2.1.3 Stakeholder participation during project preparation

a. Did the project involve the relevant stakeholders through information-sharing, consultation and by seeking their participation in the project's design? 11

2.1.4 Underlying Factors/Assumptions

a. Assess the underlying factors beyond the project's immediate control that influence outcomes and results. Consider the appropriateness and effectiveness of the project's management strategies for these factors.
b. Re-test the assumptions made by the project management and identify new assumptions that should be made

c. Assess the effect of any incorrect assumptions made by the project

2.1.5 Project organization/Management arrangements

a. Were the project roles properly assigned during the project design?
b. Are the project roles in line with UNDP and GEF progamme guides?
c. Can the management arrangement model suggested by the project be considered as an optimum model? If no, please come up with suggestions and recommendations

2.1.6 Project budget and duration

a. Assess if the project budget and duration were planned in a cost-effective way?

2.1.7 Design of Project Monitoring and Evaluation system

a. Examine whether or not the project has a sound M&E plan to monitor results and track progress towards achieving project objectives.
b. Examine whether or not the M&E plan includes a baseline (including data, methodology, etc.), SMART indicators and data analysis systems, and evaluation studies at specific times to assess results and adequate funding for M&E activities.
c. Examine whether or not the time frame for various M&E activities and standards for outputs are specified.

2.1.8 Sustainability and replication strategy

a. Assess if project sustainability and replicability strategy was developed during the project design? And assess its relevance

2.1.9 Gender perspective:

a. Extent to which the project accounts for gender differences when developing project interventions.
b. How gender considerations are mainstreamed into project interventions?

2.2 Project Implementation

2.2.1 Project's Adaptive Management

a. Monitoring Systems

- Assess the monitoring tools currently being used:
  - Do they provide the necessary information?
  - Do they involve key partners?
  - Are they efficient?
  - Are additional tools required?
- Reconstruct baseline data if necessary[6]. Reconstruction should follow participatory processes and could be achieved in conjunction with a learning exercise
- Ensure the monitoring system, including performance indicators, at least meets GEF minimum

[6] See p.67 of UNDP's "Handbook on Monitoring and Evaluation for Results", available at

requirements[7]. Apply SMART indicators as necessary.

- Apply the GEF Tracking Tool and provide a description of comparison with initial application of the tool.
- Assess whether or not M&E system facilitates timely tracking of progress towards project's objectives by collecting information on chosen indicators continually; annual project reports are complete, accurate and with well justified ratings; the information provided by the M&E system is used to improve project performance and to adapt to changing needs.

b. Risk Management

- Validate whether the risks identified in the project document and PIRs are the most important and whether the risk ratings applied are appropriate. If not, explain why.
- Describe any additional risks identified and suggest risk ratings and possible risk management strategies to be adopted
- Assess the project's risk identification and management systems:
  - Is the UNDP-GEF Risk Management System appropriately applied?
  - How can the UNDP-GEF Risk Management System be used to strengthen the project management?

c. Work Planning

- Assess the use of the logical framework as a management tool during implementation and any changes made to it
  - Ensure the logical framework meets UNDP/GEF requirements in terms of format and content
  - What impact did the retro-fitting of impact indicators, if such have on project management
- Assess the use of routinely updated work plans;
- Assess the use of electronic information technologies to support implementation, participation and monitoring, as well as other project activities;
- Is work planning processes result-based[8]? If not, suggest ways to re-orientate work planning;

d. Financial management

- Consider the financial management of the project, with specific reference to the cost-effectiveness of interventions. (Cost-effectiveness: the extent to which results have been delivered with the least costly resources possible. Also called cost-effectiveness or efficacy). Any irregularities must be noted.
- Is there due diligence in the management of funds and financial audits?
- Did promised co-financing materialize? (Please fill the form on co-financing attached table 1).

e. Reporting

- Assess how adaptive management changes have been reported by the project management;
- Assess how lessons derived from the adaptive management process have been documented, shared with key partners and internalized by partners.

f. Delays

- Assess if there were delays in project implementation, then what were the reasons?
- Did the delay affect the achievement of project's outcomes and/or sustainability, and if it did affect

[7] See section 3.2 of the GEF's "Monitoring and Evaluation Policy", available at http://207.190.239.143/uploadedFiles/Policies_and_Guidelines-me_policy-english(1).pdf

[8] RBM Support documents are available at http://www.undp.org/eo/methodologies.htm

outcomes and sustainability then in what ways and through what causal linkages?

2.2.2 Contribution of Implementing and Executing Agencies

- Assess the role of UNDP and General Directorate for Renewable Energy (GDRE) against the requirements set out in the UNDP Handbook on Monitoring and Evaluating for Results. Consider:
  - Field visits
  - Participation in Steering Committees
  - Project reviews, PIR preparation and follow-up
  - GEF guidance
  - Skill mix
  - Operational support
- Assess the contribution to the project from UNDP and GDRE in terms of "soft" assistance (i.e. policy advice & dialogue, advocacy, and coordination) and suggest measures to strengthen UNDP's and GDRE's soft assistance to the project management.

2.2.3 Stakeholder Participation, Partnership Strategy

a. Assess whether or not local stakeholders participate in project management and decision-making. Include an analysis of the strengths and weaknesses of the approach adopted by the project and suggestions for improvement if necessary;
b. Consider the dissemination of project information to partners and stakeholders and if necessary suggest more appropriate mechanisms;
c. Identify opportunities for stronger partnerships;

2.2.4 Implementation of replication approach;

a. Sustainability: extent to which the benefits of the project will continue, within or outside the project scope, after it has come to an end. The evaluators may look at factors such as establishment of sustainable financial mechanisms, mainstreaming project objectives into the broader development policies and sectoral plans and economies or community production;

2.3 Project Results (Outputs, Outcomes and Impact)

2.3.1 Progress towards achievement of intended outcomes/measurement of change: Progress towards results should be based on a comparison of indicators before and after (so far) the project intervention, e.g. by comparing current conditions for development of Protected Areas management effectiveness, financial sustainability and capacity to the baseline ones;

3. EVALUATION METHODOLOGY

The project progress and achievements will be tested against following GEF evaluation criteria:

- Relevance – the extent to which the activity is suited to local and national development priorities and organizational policies, including changes over time.
- Effectiveness – the extent to which an objective has been achieved or how likely it is to be achieved.

- Efficiency – the extent to which results have been delivered with the least costly resources possible.
- Results/impacts – the positive and negative, and foreseen and unforeseen, changes to and effects produced by a development intervention. In GEF terms, results include direct project outputs, short- to medium term outcomes, and longer-term impact including global environmental benefits, replication effects and other, local effects.
- Sustainability – the likely ability of an intervention to continue to deliver benefits for an extended period of time after completion. Projects need to be environmentally as well as financially and socially sustainable.

The Project will be rated against individual criterion of ***relevance, effectiveness, efficiency and impact/results based*** on the following scale:

- Highly Satisfactory (HS): The project has no shortcomings in the achievement of its objectives.
- Satisfactory (S): The project has minor shortcomings in the achievement of its objectives.
- Moderately Satisfactory (MS): The project has moderate shortcomings in the achievement of its objectives.
- Moderately Unsatisfactory (MU): The project has significant shortcomings in the achievement of its objectives.
- Unsatisfactory (U) The project has major shortcomings in the achievement of its objectives.
- Highly Unsatisfactory (HU): The project has severe shortcomings in the achievement of its objectives.

As for ***sustainability criteria*** the evaluator should at the minimum evaluate the "likelihood of sustainability of outcomes at project termination, and provide a rating for this.

The following four dimensions or aspects of sustainability should be addressed:

Financial resources:

a. Are there any financial risks that may jeopardize sustenance of project outcomes?
b. What is the likelihood of financial and economic resources not being available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)?

Socio-political:

a. Are there any social or political risks that may jeopardize sustainability of project outcomes?
b. What is the risk that the level of stakeholder ownership (including ownership by governments and other key stakeholders) will be insufficient to allow for the project outcomes/benefits to be sustained?
c. Do the various key stakeholders see that it is in their interest that the project benefits continue to flow?
d. Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?

Institutional framework and governance:

a. Do the legal frameworks, policies and governance structures and processes pose risks that may jeopardize sustenance of project benefits?
b. While assessing this parameter, also consider if the required systems for accountability and transparency, and the required technical know-how are in place.

Environmental:

a. Are there any environmental risks that may jeopardize sustenance of project outcomes? The evaluation should assess whether certain activities will pose a threat to the sustainability of the project outcomes.

For example, construction of dam in a protected area could inundate a sizable area and thereby neutralizing the biodiversity related gains made by the project.

On each of the dimensions of sustainability of the project outcomes will be rated as follows:

- Likely (L): There are no or negligible risks that affect this dimension of sustainability.
- Moderately Likely (ML): There are moderate risks that affect this dimension of sustainability.
- Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability
- Unlikely (U): There are severe risks that affect this dimension of sustainability.

All the risk dimensions of sustainability are critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an 'Unlikely' rating in either of the dimensions then its overall rating cannot be higher than 'Unlikely'.

The evaluator(s) should develop detailed methodology and work plan for MTE during the preparatory phase of the MTE. The MTE tools and techniques may include, but not limited to:

- Desk review;
- Interviews with Project Management Unit and key stakeholders, including UNDP Country Office in Turkey, General Directorate for Renewable Energy (GDRE) of the Ministry of Energy and Natural Resources, Ministry of Environment and Urbanization (MoEU), Ministry of National Education (MoNE) and any other stakeholders as deemed necessary (Annex 3: Tentative List of Meetings).
- Questionnaires.
- Participatory techniques and other approaches for gathering and analysis of data.

An indicative outline of the Mid-term Evaluation Report is presented below.

4. INDICATIVE OUTLINE OF THE MID-TERM EVALUATION REPORT

Title and opening page

- Provide the following information:
- Name of the UNDP/GEF project
- UNDP and GEF project ID#s.
- Evaluation time frame and date of evaluation report
- Region and countries included in the project
- GEF Operational Program/Strategic Program
- Executing Agency and project partners
- Evaluation team members
- Acknowledgements

Executive Summary

- 2 -3 pages that:
- Briefly describe the project evaluated
- Explain the purpose and objectives of the evaluation, including the audience
- Describes key aspects of the evaluation approach and methods
- Summarizes principle conclusions, recommendations and lessons

Acronyms and Abbreviations

(See: UNDP Editorial Manual[9])

Introduction

- Purpose of the evaluation
- Briefly explain why the terminal evaluation was conducted (the purpose), why the project is being evaluated at this point in time, why the evaluation addressed the questions it did, and the primary intended audience.
- Key issues addressed
- Providing an overview of the evaluation questions raised.
- Methodology of the evaluation
- Clear explanation of the evaluation's scope, primary objectives and main questions. The Evaluation ToR may also elaborate additional objectives that are specific to the project focal area and national circumstances, and which may address the project's integration with other UNDP strategic interventions in the project area
- Stakeholders' engagement in the evaluation, including how the level of stakeholder involvement contributes to the credibility of the evaluation findings, conclusions and recommendations.
- Structure of the evaluation
- Acquaint the reader with the structure and contents of the report and how the information contained in the report will meet the purposes of the evaluation and satisfy the information needs of the report's intended users

Evaluation Team

- Briefly describing the composition of the evaluation team, background and skills and the appropriateness of the technical skill mix, gender balance and geographical representation.

Ethics

[9] UNDP Style Manual, Office of Communications, Partnerships Bureau, updated November 2008

- The evaluators should note the steps taken to protect the rights and confidentiality of persons interviewed (see UNEG 'Ethical Guidelines for Evaluators' for more information)[10]. Attached to this report should be a signed 'Code of Conduct' form from each of the evaluators.

Project Description and development context

- Project start and duration
- Problems that the project seeks to address
- Immediate and development objectives of the project
- Main stakeholders

Findings

- (In addition to a descriptive assessment, all criteria marked with (*) should be rated[11])

Project Formulation

- Analysis of LFA (Project logic /strategy; Indicators)
- Assumptions and Risks
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- Stakeholder participation
- Replication approach
- UNDP comparative advantage
- Linkages between project and other interventions within the sector, including management arrangements

Project Implementation

- The logical framework used during implementation as a management and M&E tool
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- Feedback from M&E activities used for adaptive management

Financial Planning
Monitoring and evaluation: design and implementation (*)
UNDP and Executing Agency execution (*) coordination, and operational issues

Project Results

- Overall results (attainment of objectives) (*)
- Relevance, Effectiveness, & Efficiency (*)
- Country ownership
- Mainstreaming
- Sustainability (*)
- Catalytic Role & Impact
- Conclusions, recommendations & lessons
- Corrective actions for the design, implementation, monitoring and evaluation of the project
- Actions to follow up or reinforce initial benefits from the project
- Proposals for future directions underlining main objectives
- Best and worst practices in addressing issues relating to relevance, performance and success

[10] UNEG, 'Ethical Guidelines for Evaluation', June 2008
[11] Using a six-point rating scale: 6:Highly Satisfactory, 5: Satisfactory, 4: Marginally Satisfactory, 3: Marginally Unsatisfactory, 2: Unsatisfactory and 1: Highly Unsatisfactory, see section 3.5, page 37 for ratings explanations

- Annexs.
- TOR
- Itinerar* List of persons interviewed
- Summary of field visits
- List of documents reviewed
- Questionnaire used and summary of results
- Evaluation Consultant Agreement Form

The length of the MTE Report shall not exceed 30 pages in total (not including annexes).

5. TIME FRAME OF WORK

The duration of the assignment will be 40 days upon signature of the Contract.

The work will be undertaken during a period of 25 man/day throughout the time-frame below;

Contract Start Date: 04 February 2013
Contract Completion Date: 15 March 2013

6. DUTIES AND RESPONSIBILITIES OF EVALUATION EXPERT

The mid-term evaluation will be carried out by MTE Expert. He/She will receive the support of UNDP Country Office and Project Management Unit, and will be assisted by a translator/interpreter (when needed). It is expected that the evaluation expert will work closely with the Monitoring and Evaluation Administrator hired within the UNDP Environment and Sustainable Development Programme.

Mid Term Evaluation Expert
The international consultant will be responsible to deliver the expected output of the mission

Duties and Responsibilities:

- Desk review of documents, development of draft methodology, detailed work plan and MTE outline;
- Debriefing with UNDP and GDRE, agreement on the methodology, scope and outline of the MTE report ;
- Interviews with PMU, UNDP Turkey, GDRE and project partners;
- Debriefing UNDP and project partners and will provide an *aide memoire*;
- Development and submission of the first MTE report draft. The draft will be shared with the key project stakeholders for review and comment;
- Finalization and submission of the final MTE report through incorporating suggestions received on the draft report ;
- Supervision of the work of the national expert (during entire evaluation period).

Monitoring and Evaluation Administrator will;

- Provide support in collection of background materials
- Participation in debriefings with UNDP CO and GDRE representatives; Organize the mission program together with the Project Management Unit, arrange and facilitate meetings with key

stakeholders;

- Assistance to the MTE Expert in conducting interviews with relevant stakeholders;
- Participation in debriefing with UNDP and project partners;
- Necessary support will be provided to MTE Expert in circulation of the draft MTE report among the key project stakeholders for review and commenting.

7. DELIVERABLES AND REPORTING

The products expected from the evaluation are as follows:

- Inception Report with detailed methodology, work plan and outline;
- Aide memoire following to the finalization of the country visit;
- Mid-term evaluation report with findings;
  - o Lessons learned and recommendations for improvement, including recommendations for the revision of project strategy, approach, outputs and activities, if necessary;
  - o Recommendations for a strategy for future replication of the project approach for other types of the biodiversity projects, for other countries in the region;
  - o Description of best practices, and an "action list" in a certain area of particular importance for the project.

The core product of the Mid-Term Evaluation will be the Mid-Term Evaluation Report given in section 4 supplemented by Co-financing given in Annex 4 and Rate Tables given in Annex 5.

MTE Expert will be responsible to submit the following deliverables.

Estimated Date	Estimated Number of Professional Days to be invested*	Milestone/Deliverables
08 February 2013	5	**Inception Report**: Desk review, development of methodology, updating time table, drafting mission programme. Incorporating comments received from UNDP Country Office (if necessary).
15 February 2013	5	In-country field visits, interviews, Preliminary missionfindings briefing(s), debriefings with project partners andproviding aidememoire. Delivering a presentation on **aide memoire** (finding(s) and recommendation(s)) toProject Partners.
01 March 2013	10	Submission of **Draft MTE** report
08 March 2013		Delivery of the comments of the relevant stake holders regarding the Draft MTE Report from UNDP CO.
15 March 2013	5	Submission of the **Final MTE Report** in line with the comments received
Total Number of days	25	

* The number of day may change among different activities and deliverables but the total days to be invested cannot exceed 20 days for the content of this TOR. UNDP has the right to request from the Consultant additional number of days to be invested for additional activities, based on the needs of the project.

The final version of the evaluation report should be submitted in electronic format (MS Word) to UNDP Country Office in Turkey no later than **March 15, 2012**.

Reporting Line

The international consultant will work under the coordination of PIMS 3646: Promoting Energy Efficiency in Buildings in Turkey Project Coordinator and be responsible to UNDP Environment and Sustainable Development (ESD) Programme Manager for completion of the tasks and duties assigned in Section 7. The deliverables shall be submitted to the UNDP Environment and Sustainable Development (ESD) Programme Manager for final approval. All of the deliverables are subject to approval from UNDP ESD Programme Manager in order to realize the payments to the consultant. He/she will work in close collaboration with GDRE, and other project partners.

Reporting Language

The reporting language should be in English.

Title Rights

The title rights, copyrights and all other rights whatsoever nature in any material produced under the provisions of this TORs will be vested exclusively in UNDP.

8. PLACE OF WORK

The place of work is both home-based and Ankara. The MTE Expert is required to be in Ankara for the interviews with the project stakeholders within the time frame given in the below table.

Assignment-related travel and accommodation costs (outside home base) of the below given mission shall be **borne by MTE Expert**.

Objective of the Mission	in Ankara (estimated dates)	Duration
Interview panels with project partners and stakeholders (please refer to Annex 3)	Between 10 and 16 February 2013	7 days (including 2 days for travel)

The number of missions and their travel periods are subject to change and can be mutually rearranged based on the circumstances and the needs.

9. TERMS AND PAYMENT

The international consultant will be paid in USD.

If the selected consultant will be Turkish with international experience s/he will be paid in TL (UN monthly exchange rate will be used as official conversion rate from USD to TL).

- ***Contracting Authority***

Contracting Authority for this ToR is UNDP, and the contract amount will be provided through UNDP-GEF IDUH*[DP3H*[*PIMS 3646: Promoting Energy Efficiency in Buildings in Turkey'[3UUH***[

- ***Contracting Modality***

IC-Individual Contract of UNDP.

- ***Payment schedule***

The MTE Expert shall be paid upon submission and approval of UNDP for the deliverables specified in below table, following successful completion of the tasks listed throughout this ToR (specified in Section 7) and assigned by UNDP.
The payments for each deliverable will be based on the number of days to be invested for the respective deliverable. The payments shall be effected only if the deliverables required in this ToR are submitted to UNDP within the time frames stipulated in the ToR and they are approved by UNDP. Without submission and approval of the deliverables, the consultant shall not receive any payment even if he/she invests time for this assignment.

The amount paid to international and local consultant shall be gross and inclusive of all associated costs such as social security, pension and income tax etc.

Name of the Report	Expected Date of Payments	Estimated Number of days to be invested
Inception Report	08 February 2013	5
Submission of the Aide Memoire	15 February2013	5
Final MTE Report	15 March 2013	15
Total Number of Days		25

Tax obligation

The subscriber is solely responsible for all taxation or other assessments on any income derived from UNDP. UNDP will not make any withholding from payments for the purposes of income tax. UNDP is exempt from any liabilities regarding taxation and will not reimburse any such taxation to the subscriber.

10. SERVICES AND FACILITIES PROVIDED BY UNDP/DGRE

The principal responsibility for managing this evaluation lies with UNDP Country Office in Turkey. It will be responsible for liaising with the project team to set up the stakeholder interviews, arrange the field visits, coordinate with the GDRE.

These Terms of Reference follow the UNDP-GEF policies and procedures, and together with the final agenda

will be agreed upon by the UNDP-GEF Regional Coordinating Unit, UNDP Country Office in Turkey and GDRE. These three parties will receive a draft of the final evaluation report and provide comments on it prior to its completion.

If requested, the MTE Expert will be provided with an office space located in Ankara and project site with an access to the Internet and a local telephone line.

In preparation for the evaluation mission, the project coordinator, with assistance of UNDP CO, will arrange completion of the Management Effectiveness Tracking Tool (METT). Results of METT should be used by an international project evaluation consultant, who will provide his/her comments and track the progress in management effectiveness of project sites. Upon incorporation of the evaluation will be finalized and the results should be attached as a mandatory Annex to the MTE evaluation report.

11. QUALIFICATIONS AND SKILLS

Required Qualifications and Competencies for International MTE Expert:

	Minimum Requirements	Assets
General Qualifications	• Master`s degree in Energy, Environmental Economics, Architecture • Fluent in English both written and spoken • Computer literacy.	• Higher degree in related fields is an asset.
Professional Experience and Qualifications	• 5 years of working experience in providing management or consultancy services to energy efficiency projects.	• Knowledge and proven experience of European regulations and/or international practices on • EPBD and other related legislation, o Energy efficient architecture design, o Building energy certificates or building • certificates such as LEED, BREEAM, • DGNB, etc. • Energy efficiency in buildings, • Energy management in buildings, • and other related fields.
Specific Experience and Qualifications	• Experience in monitoring and evaluating energy efficiency projects for UN or other international development agencies (at least in one project).	• Sound knowledge in results-based management (especially results-oriented monitoring and evaluation). • Knowledge of GEF M&E guidelines and procedures.

Competencies:

- Ability to critically analyze issues, find root-causes and suggest optimum solutions;
- Ability to interact with a wide range of partners: government officials, development agencies and etc.;
- Excellent team working and management skills;
- Excellent analytical and report writing skills
- Excellent time management skills;

Notes:

- Internships (paid/unpaid) are not considered professional experience.
- Obligatory military service is not considered professional experience.
- Professional experience gained in an international setting is considered international experience.
- Experience gained prior to completion of undergraduate studies is not considered professional experience.
- Documents that demonstrate participation to project cycle management are not considered an internationally recognized project management certificate.

12. EVALUATION OF APPLICANTS

The candidates have been identified from the [3] Europe and the Commonwealth of Independent States Vetted Experts Roster for GEF Climate Change Mitigation through the qualifications and skills stated in Section 11 of this ToR. The availability for the assignment and the price proposal form of the shortlisted candidates will be requested. The consultant will be selected in accordance with the least cost selection method.

ANNEXES

Annex 1: GEF Terminology and Project Review Criteria
Annex 2: List of Documents to be Reviewed by the Evaluators
Annex 3: Tentative List of Meetings to be Held
Annex 4: Co-financing Tables
Annex 5: Project Ratings
Annex 6: Evaluator Code of Conduct

ANNEX 1. GEF TERMINOLOGY AND PROJECT REVIEW CRITERIA

Implementation Approach includes an analysis of the project's logical framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management.

Some elements of an effective implementation approach may include:

- The logical framework used during implementation as a management and M&E tool
- Effective partnerships arrangements established for implementation of the project with relevant stakeholders involved in the country/region
- Lessons from other relevant projects (e.g., same focal area) incorporated into project implementation
- Feedback from M&E activities used for adaptive management.

Country Ownership/Driveness is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements where applicable. Project Concept has its origin within the national sectoral and development plans

Some elements of effective country ownership/driveness may include:

- Project Concept has its origin within the national sectoral and development plans
- Outcomes (or potential outcomes) from the project have been incorporated into the national sectoral and development plans
- Relevant country representatives (e.g., governmental official, civil society, etc.) are actively involved in project identification, planning and/or implementation
- The recipient government has maintained financial commitment to the project
- The government has approved policies and/or modified regulatory frameworks in line with the project's objectives

For projects whose main focus and actors are in the private-sector rather than public-sector (e.g., IFC projects), elements of effective country ownership/driveness that demonstrate the interest and commitment of the local private sector to the project may include:

- The number of companies that participated in the project by: receiving technical assistance, applying for financing, attending dissemination events, adopting environmental standards promoted by the project, etc.
- Amount contributed by participating companies to achieve the environmental benefits promoted by the project, including: equity invested, guarantees provided, co-funding of project activities, in-kind contributions, etc.
- Project's collaboration with industry associations

Stakeholder Participation/Public Involvement consists of three related and often overlapping processes: information dissemination, consultation, and "stakeholder" participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF-financed project. The term also applies to those potentially adversely affected by a project.

Examples of effective public involvement include:

<u>Information dissemination</u>

- Implementation of appropriate outreach/public awareness campaigns

<u>Consultation and stakeholder participation</u>

- Consulting and making use of the skills, experiences and knowledge of NGOs, community and local groups, the private and public sectors, and academic institutions in the design, implementation, and evaluation of project activities

Stakeholder participation

- Project institutional networks well placed within the overall national or community organizational structures, for example, by building on the local decision making structures, incorporating local knowledge, and devolving project management responsibilities to the local organizations or communities as the project approaches closure
- Building partnerships among different project stakeholders
- Fulfillment of commitments to local stakeholders and stakeholders considered to be adequately involved.

Sustainability measures the extent to which benefits continue, within or outside the project domain, from a particular project or program after GEF assistance/external assistance has come to an end. Relevant factors to improve the sustainability of project outcomes include:

- Development and implementation of a sustainability strategy.
- Establishment of the financial and economic instruments and mechanisms to ensure the ongoing flow of benefits once the GEF assistance ends (from the public and private sectors, income generating activities, and market transformations to promote the project's objectives).
- Development of suitable organizational arrangements by public and/or private sector.
- Development of policy and regulatory frameworks that further the project objectives.
- Incorporation of environmental and ecological factors affecting future flow of benefits.
- Development of appropriate institutional capacity (systems, structures, staff, expertise, etc.) .
- Identification and involvement of champions (i.e. individuals in government and civil society who can promote sustainability of project outcomes).
- Achieving social sustainability, for example, by mainstreaming project activities into the economy or community production activities.
- Achieving stakeholder's consensus regarding courses of action on project activities.

Replication approach, in the context of GEF projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Examples of replication approaches include:

- Knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc).
- Expansion of demonstration projects.
- Capacity building and training of individuals, and institutions to expand the project's achievements in the country or other regions.
- Use of project-trained individuals, institutions or companies to replicate the project's outcomes in other regions.

Financial Planning includes actual project cost by activity, financial management (including disbursement issues), and co-financing. If a financial audit has been conducted the major findings should be presented in the TE.

Effective financial plans include:

- Identification of potential sources of co-financing as well as leveraged and associated financing8.
- Strong financial controls, including reporting, and planning that allow the project management to make informed decisions regarding the budget at any time, allows for a proper and timely flow of funds, and for the payment of satisfactory project deliverables
- Due diligence due diligence in the management of funds and financial audits.

Co-financing includes: grants, loans/concessional (compared to market rate), credits, equity investments, in-kind support, other contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries. Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6.

Leveraged resources are additional resourcesbeyond those committed to the project itself at the time of approvalthat are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Cost-effectiveness assesses the achievement of the environmental and developmental objectives as well as the project's outputs in relation to the inputs, costs, and implementing time. It also examines the project's compliance with the application of the incremental cost concept. Cost-effective factors include:

- Compliance with the incremental cost criteria (e.g. GEF funds are used to finance a component of a project that would not have taken place without GEF funding.) and securing co-funding and associated funding.
- The project completed the planned activities and met or exceeded the expected outcomes in terms of achievement of Global Environmental and Development Objectives according to schedule, and as cost-effective as initially planned.
- The project used either a benchmark approach or a comparison approach (did not exceed the costs levels of similar projects in similar contexts)

Monitoring & Evaluation. Monitoring is the periodic oversight of a process, or the implementation of an activity, which seeks to establish the extent to which inputs, work schedules, other required actions and outputs are proceeding according to plan, so that timely action can be taken to correct the deficiencies detected. Evaluation is a process by which program inputs, activities and results are analyzed and judged explicitly against benchmarks or baseline conditions using performance indicators. This will allow project managers and planners to make decisions based on the evidence of information on the project implementation stage, performance indicators, level of funding still available, etc, building on the project's logical framework.

Monitoring and Evaluation includes activities to measure the project's achievements such as identification of performance indicators, measurement procedures, and determination of baseline conditions. Projects are required to implement plans for monitoring and evaluation with adequate funding and appropriate staff and include activities such as description of data sources and methods for data collection, collection of baseline data, and stakeholder participation. Given the long-term nature of many GEF projects, projects are also encouraged to include long-term monitoring plans that are sustainable after project completion.

8 Please refer to Council documents on co-financing for definitions, such as GEF/C.20/6. The following page presents a table to be used for reporting co-financing

ANNEX 2: LIST OF DOCUMENTS TO BE REVIEWED

- Project document and its annexes;
- Project CEO Approval Document;
- Inception Report;
- 2011 and 2012 Annual/ work plans endorsed by Steering Committee;
- Project financial work plans and expenditure reports;
- Annual/Quarter operational and progress reports;
- 2012 UNDP/GEF Project Implementation Reviews (PIR);
- Minutes of Steering Committee Meetings;
- Project consultant reports;
- METT scores for project sites;
- Financial Sustainability Scorecard (if available);
- Capacity Assessment Scorecard (if available);
- GEF Monitoring and Evaluation Policies;
- UNDP Handbook on planning, monitoring and evaluating for development results;
- Other upon request.

ANNEX 3: TENTATIVE LIST OF MEETINGS TO BE HELD

Location	**Meetings**
UNDP Turkey CO	UNDP ESD Programme Manager, Deputy Residence Representative
General Directorate of Renewable Energy (DGRE), (Ankara)	Deputy General Director (EE Buildings Project Director) and key staff
UNDP - Global Environment Facility	Regional Technical Advisor (TeleConference)
Ministry of Environment and Urbanization (MoEU) (Ankara)	Head of Departments and key staff
Ministry of National Education (MoNE)	Head of Departments and key staff
Housing Development Administration of Turkey (TOKI)	Head of Departments and key staff
GEF Operational Focal Point	Head of Departments and key staff

ANNEX 4 - CO-FINANCING

Source	Cash	In-kind	Total
GDRE	7,600,000	700,000	8,300,000
MoEU	-	3,000,000	3,000,000
MoNE	-	3,600,000	3,600,000
UNDP	60,000		60,000
GEF	2,620,000		2,620,000
Total	**10,280,000**	**7,300,000**	**17,580,000**

ANNEX 5: PROJECT RATINGS

PROJECT COMPONENT OR OBJECTIVE	RATING SCALE						RATING
	HU	U	MU	MS	S	HS	
PROJECT FORMULATION							
Conceptualization/Design							
Stakeholder participation							
PROJECT IMPLEMENTATION							
Implementation Approach							
The use of the logical framework							
Adaptive management							
Use/establishment of information technologies							
Operational relationships between the institutions involved							
Technical capacities							
Monitoring and evaluation							
Stakeholder participation							
Production and dissemination of information							
Local resource users and NGOs participation							
Establishment of partnerships							
Involvement and support of governmental institutions							
PROJECT RESULTS							
Attainment of Outcomes/ Achievement of objectives							
Achievement of objective							
Outcome 1							
Outcome 2							
2 XWL*Ek* *							
OVERALL PROJECT ACHIEVEMENT & IMPACT							

ANNEX 6: EVALUATION CONSULTANT CODE OF CONDUCT 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 limitations, findings and recommendations.
7. Should reflect sound accounting procedures and be prudent in using the resources of the evaluation.

Evaluation Consultant Agreement Form[9]

Agreement to abide by the Code of Conduct for Evaluation in the UN System
Name of Consultant: __ ____
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 (place)on
Signature:_____

[9] www.unevaluation.org/unegcodeofconduct

Annex 2: Mission itinerary

PIMS 3646: Promoting Energy Efficiency in Buildings in Turkey (EE-Buildings)				
EE Buildings Project MTE Meetings Schedule 18 - 23 February 2013				
18 February 2013 Monday	**19 February 2013 Tuesday**	**20 February 2013 Wednesday**	**21 February 2013 Thursday**	**22 February 2013 Friday**
09:00 - 10:00 UNDP Project Meeting (UN House) Participants; Katalin Zaim (Prog.Man.) Tolga Yakar (Project Coord.) Naz Özgüç (Project Assoc.) M.Koray Abacı (M&E Admin.)	09:30 - 11:00 MoEU 1 (General Directorate of Profesional Services) Participants: Murat Bayram Esra Tombak Mine Yeşilata Atakan Yiğit		10:00 - 11:00 INDIVIDUAL CONSULTANTS Nazmi Şahin Ahmet Yakut UN House	YEGM (optional 2nd Round Meeting)
10:30 - 12:00 YEGM YEGM Premises Erdal Çalıkoğlu Yenal Ceylan Süheda Gümüşderelioğlu Interpreter		12:00 - 12:30 UNDP Deputy Resident Representative Matilda Dimovska UN House	11:30 - 12:30 INDIVIDUAL CONSULTANT Süleyman Bulut UN House	

14:00 - 15:00 EKODENGE Partcipants: Mert Ayaroğlu Emre Yöntem UN House	14:00 - 15:30 MoEU 3 (General General Directorate of Construction) Participants: Şükran Yüksekdağ	14:30 - 15:30 MoEU 2 (General Directorate of Construction) Participants: Murat Akınbingöl Ayşegül Öngel	14:30 - 16:00 MoNE 1 Participants: Tunay Alkan Gülderen Erken Saniye Kölemenoğlu Fatih Hazan	Delivering a presentation on **aide memoire (YEGM Premises all project partners)**
RTA Robert Kelly (skype) UN House	16:00 - 17:00 MOEU 4 (General Directorate of Land Registry and Cadastrate) Partcipants: Arzu Bayrak			

Annex 3: List of Persons interviewed and Documents Reviewed

Date	Institute	Name & Surname	Title
18/02/13	UNDP CO	Katalin Zaim	Programme Manager
		Tolga Yakar	Project Coordinator
		Naz Özgüç	Project Associate
18/02/13	Ministry of Natural Resources and Energy DG Renewable Energy	Erdal Çalıkoğlu	Deputy General Director
		Süheda Gümüşderelioğlu	Senior Engineer
18/02/13	EKODENGE Company	Mert Ayaroğlu	Architect
18/02/13	UNDP – RBEC – GEF	Robert Kelly	Regional Technical Advisor
19/02/13	Ministry of Environment and Urbanization General Directorate of Professional Services	Murat Bayram	Head of Department
		Esra Tombak	Head of Branch
		Atakan Yiğit	Head of Branch
		Mine Yeşilata	Head of Branch
19/02/13	Ministry of Environment and Urbanization General Directorate of Land Registry and Cadastrate	Burak Keser	Deputy General Director
		Arzu Bayrak	Architect
20/02/13	UNDP CO	Matilda Dimovska	UNDP Deputy Res. Representative
20/02/13	Ministry of Environment and Urbanization General Directorate of Construction	Ayşegül Öngel	Head of Branch
20/02/13	Ministry of Environment and Urbanization General Directorate of Construction	Ahmet Bektaş	Head of Department (Project Department)
		Zeynep Ekin	Deputy Branch Manager
		Şükran Yüksedağ	Architect
		Gamze Narin	Landscape Architect
		Asiye Özbek	Architect
		Evren Tekinsoy	Mechanical Engineer
		Cemal Cem Yetişen	Mechanical Engineer
		Müşerref Avcı	Civil Engineer
		Yaşar Kelekci	Electrical Engineer
		Sabiha Dilek Turan	Geotechnical Engineer
21/02/13	Consultant	Nazmi Şahin	Civil Engineer
		Ahmet Yakut	Civil Engineer
21/02/13	Consultant	Süleyman Bulut	EE Expert
21/02/13	Ministry of National Education General Directorate of Vocational and Technical Education	Ömer Açıkgöz	General Director
		Tunay Alkan	Head of Group
		Fatih Hazan	Expert Teacher
		Nurettin Bulut	Mechanical Engineer
		Gülderen Erken	Architect
		Ertuğrul Berk	Expert Teacher
		Mehmet Kuloğlu	Electro Mechanic

			Engineer
		Murat Özaydın	Electrical Engineer
		Tarık Alaykut	Electrical Engineer
22/02/13	Ministry of Natural Resources and Energy DG Renewable Energy (Technical)	Korkmaz Gül	Mechanical Engineer
		H.Can Topcan	Mechanical Engineer
		Ahmet Demirtaş	Mechanical Engineer
		Yüksel Çayırlı	Civil Engineer
		Zehra Ertan	Ele.Elo.Engineer
22/02/13	Ministry of Foreign Affairs DG of Energy, Water, Environment Affairs	M.Hakan Cengiz	Branch Manager

Annex 4: Project Results Framework (original from ProDoc)

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Objective of the Project: To reduce energy consumption and associated GHG emissions in buildings in Turkey by raising building energy performance standards, improving enforcement of building codes, enhancing building energy management and introducing the use of an integrated building design approach	Average thermal energy consumption in new buildings compared to baseline	110 kWh/m²/year	66 kWh/m²/year for buildings built with IBDA	National energy statistics and project GHG monitoring system	Costs of EE and RE technology and materials do not increase Dynamics of construction of new buildings remain within the forecast range
	Cumulative CO_2 emission reductions from new buildings to be built during project lifetime against the baseline	0 tCO_2	2 million tCO_2		
Outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers	The content and status of new policies, programs, and implementers supporting implementation of EE and RE in buildings	Legislation, institutions, and implementers to support enhancement of building energy efficiency needs to be strengthened	New legal and regulatory provisions, strengthened institutions, and better supporting compliance checking, enforcement and outreach programs adopted for enhanced EE in new buildings	Official publications and project's Mid-Term and Final evaluations	Continuing commitment of the key public authorities and government entities to develop and implement effective EE buildings policies and practices Adequate data will be available from the market
Output 1.1 Institutional mechanism for regular revision of building energy performance, including EE program and roadmap	Clearly defined roles, responsibilities, actions and targets for regular revision of building codes	Mechanism and approaches for building code revision need streamlining	Two working groups (EE WG and Finance WG) formed; EE program and roadmap designed that provide key institutions and EECB clear roles,	EE Program for New Buildings with Roadmap and Recommendations for EECB Database for use by	Working group studies and activities welcomed by relevant institutions, other stakeholders and EECB EE program suggested or

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
			responsibilities, and common metrics to monitor EE improvements in buildings	YEGM and MoEU Project reports	new buildings is actionable and acceptable to key relevant agencies Acceptance and cooperation on the part of the various government agencies to use a universal database
Output 1.2 Two existing building energy performance codes and other relevant norms and standards revised and implemented	Approval of revised codes defining minimum energy performance standards (MEPS)	Building codes and relevant norms are not established	Relevant codes and regulations upgraded, methodology for MEPS for new buildings defined	New codes, MEPS, as reported by MoEU	Acceptance and cooperation on the part of the various government agencies to amend and/or add information to secondary regulations
Output 1.3 Enhanced capacity for compliance with the new regulations, including energy performance certificate scheme	Ability of architects and engineers to comply with more energy efficient codes by integrating better designs in buildings Content, acceptance, and status of the Certification Systems	Current designs do not emphasize energy efficiency and are above international standards for energy consumption No energy performance certificate scheme introduced	Submitted designs meet and exceed the requirements of more efficient codes by the end of the project At least 50% of key stakeholders have information about the energy performance certificate scheme	Review of prototype efficient designs. Survey of first-time acceptance rate for and statistics on building commissioning Monitoring reports and final evaluation of the impact of the certification scheme initiated.	Willingness of the targeted public authorities, academics, and implementers to benefit from the training and the supporting studies Interest of the private sector stakeholders to cooperate in the development, organization and dissemination of the labeling scheme for buildings
Output 1.4 Financial mechanisms (including incentives and support for the building sector) developed	Increasing numbers of funding agencies, banks, and ODA donors seek to support EE buildings in Turkey	No market growth of EE buildings due to reality and perception of cost-to-benefits inequity	At least one innovative finance mechanism developed for each key target group: architects & engineers, building owners, ESCOs, and	Anecdotal information received through surveys of banks, lenders, and funders	Key funding institutions and/or government of Turkey agree on financing mechanisms

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
			building inspectors		
Outcome 2: Cost-effective energy efficiency solutions showcased through integrated building design approach application in two demo buildings	Implementation of demo constructions with IBDA resulting in significant energy improvements	Limited market growth of buildings built with IBDA	Two IBDA demo constructions of 7,500 m2 commissioned and using at least 40% less energy than in BAU	Issued Building BEP Identity Certificates for new buildings Calculations on the basis of the available market data and assumed baseline development Official energy statistics	Continuing commitment of the key public authorities and government entities to develop and implement effective EE buildings policies and practices
Output 2.1 IBDA developed for Turkish climatic conditions, including implementation strategy and action plan;	Adoption of IBDA for new constructions in different sectors	Limited application of IBDA	IBDA mandated for use in all new public buildings as of 2013	Strategy and implementation plan for IBDA endorsed by stakeholders Decision of the government on use of IBDA in public buildings	Willingness of the government to accept the implementation strategy
Output 2.2 IBDA promoted to building sector professionals and key stakeholders	Content, acceptance, and status of the training	Limited knowledge or use of IBDA	100% of architectural and engineering students are taught IBDA, 50% of architects and engineers report high level of confidence, awareness and use of IBDA	Surveys of construction documentation Guide on IBDA for architects and engineers	Interest of the universities to cooperate in the development, organization and dissemination of IBDA and EE principles

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Output 2.3 Two demonstration buildings commissioned, showcasing IBDA and compliance with new energy codes	Energy performance of IBDA-enhanced demo buildings at least 50% better than country average of 110 kWh/m2/y	New buildings (whose heat requirement is an average 110 kWh/m2) are not built with IBDA enhanced with EE and RE	Two demonstration buildings built to use no more than 66 kWh/m2/y in energy for heating	Demo buildings' planning and construction documentation Project reports, records of energy audits	Demonstration buildings are built as designed
Outcome 3: New tools developed and introduced to facilitate compliance with higher energy efficiency standards and application of integrated building design approach in buildings	Required data, verification processes, and website utilization and relevance to key stakeholders	Tools and calculation methodologies are insufficient, no collation of relevant baseline data is possible	Over 50% of trained key stakeholders use new tools, websites, and IBDA	Project progress reports	Continuing commitment of the key public authorities and government entities to disseminate and provide training in use of new tools for EE and IBDA in buildings
Output 3.1 New calculation tools that architects, engineers, and constructors may use for compliance with the laws	Availability of required data and agreement on the verification process	Accurate calculation tools for key stakeholders needs to be strengthened	Over 50% of trained key stakeholders use the calculation tools, including modeling software	Project progress reports Two new calculation tools	Reporting of existing building energy performance is consistent and well-understood by key stakeholders
Output 3.2 Standardized procedures for data collection, measurements, and collation of building energy performance designed and trained;	Availability of required data and agreement on the verification process	Standardized processes for key stakeholders needs to be strengthened	Over 50% of trained key stakeholders use the verification procedures	Written Verification Procedure, sample test reports	Reporting of existing building energy performance is consistent and well-understood by key stakeholders

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Output 3.3 Facility for online support services for key stakeholders and evaluation of cost-effectiveness and financial viability of the technologies in the Turkish market	Impact of the content of the website on key stakeholders Availability of market report on EE equipment	No website relevant to IBDA with regularly updated content on EE information and experiences available and market analyses	Over 50% of key stakeholders find the websites useful and actively upload information relevant to EE buildings as well as take advantage of online training ,market analyses report cover all material which has more than 20 % market share	Project progress reports Enhanced YEGM and MoEU Web sites Online information and training modules accessed Market report	Interest of the key stakeholders, and ministries to cooperate in the development and assessment of the impact of the websites, cooperation of market actors
Outcome 4: Building energy consumption, energy savings, and other results of the project monitored, evaluated, and reported	The status of recommendations contributing to institutional sustainability	Insufficient institutional mechanisms in place to ensure sustainability of project results	Project recommendations to ensure institutional sustainability adopted	Project final evaluation Annual project reports GHG assessment reports	Successful completion of the prior project activities Adequate data will be available from the stakeholders and the market
Output 4.1 Methodology for monitoring and measuring project savings from IBDA, the demonstration buildings, and improved implementation of the regulations devised and implemented	Acceptance and reliability of the methodology for monitoring and measuring the impacts	No baseline information on the market, energy, GHG or financial impacts of EE, BEP compliance, or IBDA	An accepted and agreed methodology that is useful to key stakeholders for the assessments and monitoring	Monitoring Methodology and Plan Reports of Control Group of buildings for assessing the impacts of technological interventions Project progress reports	Ongoing monitoring and recording of the impact of the project and barriers faced
Output 4.2 Evaluation of project results and knowledge sharing	Status of the mid-term and final report	No consolidation of the results and lessons learned	Final project report consolidating the results and lesson learned 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

Annex 5: Project Results Framework (with proposed amendments)

Project Goal: Contribute to reduction of GHG emissions in Turkey through improving energy efficiency in buildings

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Objective of the Project: To reduce energy consumption and associated GHG emissions in buildings in Turkey by raising building energy performance standards, improving enforcement of building codes, enhancing building energy management and introducing the use of an integrated building design approach	Average thermal energy consumption in new buildings compared to baseline	110 kWh/m²/year	66 kWh/m²/year for buildings built with IBDA	National energy statistics and project GHG monitoring system	Costs of EE and RE technology and materials do not increase Dynamics of construction of new buildings remain within the forecast range
	Cumulative CO_2 emission reductions from new buildings to be built during project lifetime (2010-2015) against the baseline	0 tCO_2	2 million tCO_2		
Outcome 1: Improved energy efficiency in new and existing buildings through stronger regulations, institutions and implementers	The content and status of new policies, programs, and implementers supporting implementation of EE and RE in buildings	Legislation, institutions, and implementers to support enhancement of building energy efficiency needs to be strengthened	New legal and regulatory provisions, strengthened institutions, and better supporting compliance checking, enforcement and outreach programs adopted for enhanced EE in	Official publications and project's Mid-Term and Final evaluations	Continuing commitment of the key public authorities and government entities to develop and implement effective EE buildings policies and

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
			buildings		practices Adequate data will be available from the market
Output 1.1 Existing legislative framework on building energy efficiency and building inspection improved	Clearly defined roles, responsibilities, Analyses and recommendations reports Content, acceptance, and status of the Certification Systems	No MEPS exist Building inspection regulation covers only heat insulation Existing Building Energy Performance regulation is not in line with international best practices	Reference building approach under the Building Energy Performance (BEP) Regulation analysed and reported Minimum Energy Performance Standards (MEPS) for new buildings developed and proposed Building Inspection Regulation analysed and proposed to include EE aspects Building Energy Performance (BEP) Regulation analysed and compared to other	Updated legislation and regulation documents referencing to new standards and framework system for building inspection Project reports	Studies and activities welcomed by relevant institutions, other stakeholders and EECB

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
			relevant international codes (e.g. EU EPB Directive, etc.) and revisions proposed		
Output 1.2 Framework for an Information System on Building Energy Consumption developed	The availability and the reliability of the required data No. of buildings for sample to be improved Energy savings and GHG emission reduction potentials identified	Existing databases under relevant public authorities are not comprehensive with respect to building data and energy consumption data No single database covers all the required indicators for evaluation of building energy performance There is no similar feasibility study which relies upon factual data and identified the real energy saving data	Feasibility study on potentials for sample buildings refurbishment to improve energy performance developed Methodology, indicators and benchmarks for framework developed Pilot database for sample buildings developed	Monitoring reports and continuous evaluation of the impact of the information system Relevant public authorities internalize and integrate the proposed framework approach Benchmarks on building energy efficiency available through database and from other countries/programmes	Acceptance and cooperation on the part of the various government agencies to use a universal database Willingness of the targeted public authorities, and implementers to benefit from the training and the supporting studies Interest of the private sector stakeholders to cooperate in the development, organization and dissemination of the labeling scheme for buildings Reliable and

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
					adequate amount of data collected
Output 1.3 Supporting the implementation of EE Strategy for the building sector	Analyses and Recommendations Report Action plan and implementation support programme	Existing EE Strategy does not have any action plan and/or implementation programme	Action plan and implementation support programme for improvement of EE strategy for buildings sector developed	Project Progress Report Submission of plans and programmes to the relevant public bodies	Acceptance and cooperation on the part of the various government agencies to develop implementation plan for the EE Strategy for buildings sector
Output 1.4 Capacity of building inspectorates in regard to energy efficiency regulations and enforcement strengthened	Analyses and Recommendations Report Guide booklet available and disseminated Number of trainers trained	Existing legislation do only consider heat insulation issues regarding energy performance of new private buildings	Building inspection regulation and relevant energy efficiency codes analyzed and reported Recommendations proposed including energy efficiency checklists for new private buildings Guide booklet for building inspectors	Project Reports including trainings reports. Issued certificates	Acceptance and cooperation on the part of the Ministry of Environment and Urbanization to integrate energy efficiency aspects to building inspection system. Willingness of the targeted public authorities and inspectorates to

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
			prepared and disseminated Trainings delivered to trainers of building inspectors		benefit from the training and the supporting studies
Outcome 2: Cost-effective energy efficiency solutions showcased and promoted through integrated building design approach	Implementation of demo constructions with IBDA resulting in significant energy improvements	Limited market growth of buildings built with IBDA	Three IBDA demo constructions of approx. 18,000 m² commissioned and using at least 45% less heat demand than required by actual legislation	Issued Building Energy Performance Certificates for new buildings Calculations on the basis of the available market data and assumed baseline development Official energy stats	Continuing commitment of the key public authorities and government entities to develop and implement effective EE buildings policies and practices
Output 2.1 IBDA developed for Turkish climatic conditions and included in design of new public buildings	Adoption of IBDA for new constructions in different sectors	Limited application of IBDA	IBDA guidebook prepared IBDA implementation strategy and action plan developed IBDA proposed for use in all new public buildings as of 2015	Strategy and implementation plan for IBDA endorsed by stakeholders; Decision of the government on use of IBDA in public buildings	Willingness of the government to accept the implementation strategy

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Output 2.2 IBDA promoted to building sector professionals and key stakeholders	Universities adopting IBDA into curricula Number of architects and engineers trained according to IBDA principles to make use of available material (guidebook)	No comprehensive design approach like IBDA in existing curricula Limited knowledge or use of IBDA	IBDA incorporated into architectural and engineering university curricula Trainings for architects and engineers professionals (e.g. ministries, municipalities, chambers of architects/engineers, private firms) delivered	Incorporation of IBDA into curricula Guidebook on IBDA for architects and engineers Delivery of trainings	Interest of the universities to cooperate in the development, organization and dissemination of IBDA and EE principles
Output 2.3 Demonstration buildings implemented according to IBDA design and construction principles	Energy performance for heating of IBDA enhanced demo buildings Actual energy consumption of the demo buildings	New school/office buildings (whose heat requirement is an average of 120 kWh/m²) are not built with IBDA enhanced with EE and RE	Submitted designs meet and exceed the requirements of more efficient codes by the end of the project Three demonstration buildings built with a heat energy demand lower than 66 kWh/m²/y (45% better than what the relevant legislation TS825 requires (120 kWh/m²/y))	Demo buildings' planning and construction documentation Review of prototype efficient designs Project reports, Monitoring of energy consumption of the three demo buildings	Demonstration buildings are built as designed User behaviour does not cause a significant deviation from energy targets

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Outcome 3: New tools developed and introduced to facilitate compliance with higher energy efficiency standards	Monitoring and verification processes are in place and disseminated effectively among key stakeholders	No analysis tool for RE in new buildings or no monitoring system for building energy performance Training materials need significant upgrading	New tools being used for analysis and monitoring purposes of higher EE standards in buildings	Project progress reports	Continuing commitment of the key public authorities and government entities to disseminate and provide training in use of new tools for RE and EE in buildings
Output 3.1 "Monitoring, Inspection and Verification " methodology and tools for Building Energy Performance developed	Availability of required data for evaluation of building energy performance Compliance with BEP legislation to be continuously improved	No monitoring, inspection and verification system	Methodology and toolkit for MIV system developed and proposed	Project progress reports Written Verification Procedure, sample test reports	Monitoring, Inspection and Verification (MIV) methodology and tools for building energy performance is consistent and well-understood by key stakeholders
Output 3.2 Training materials on energy management and energy auditing for buildings developed and trainings delivered.	Training materials Number of trainees	Existing training materials for energy managers are outdated and need comprehensive revision	Existing training for energy managers materials updated Training materials for energy auditors developed Trainings delivered	Project progress reports Training reports	Continuing commitment of the key public authority to disseminate and deliver trainings for energy management and energy auditing in buildings

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Output 3.3.Financial mechanisms/tools to promote "Energy Efficiency and Renewable Energy" in buildings surveyed	Increasing numbers of funding agencies, banks, and ODA donors seek to support EE buildings in Turkey	No market growth of EE buildings due to reality and perception of cost-to-benefits inequity	Review on financing mechanisms available for EE Buildings in Turkey Appropriate finance mechanisms showcased (e.g. standardized Energy Performance Contracting schemes developed) Software tool for economic assessments of renewable energy use in new buildings developed	Anecdotal information received through surveys of banks, lenders, and funders	Key funding institutions and/or government of Turkey agree on financing mechanisms
Output 3.4 Building Energy Performance Software infrastructure improved	Development of new websites with support modules Number of visitors using new website	Poor bep.gov.tr website No software module for central heating cost sharing system No online discussion platform for Energy Performance Certificate users	New bep.gov.tr website developed Software module for central heating cost sharing system developed Online discussion platform for Energy Performance Certificate users developed	Project progress reports	

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
		No integration of bep.gov.tr website and BEP-TR software and database	bep.gov.tr – BEP-TR software and database integration created Users trained Project website developed		
Outcome 4: Building energy consumption, energy savings, and other results of the project monitored, evaluated, and reported	The status of recommendations contributing to institutional sustainability	Insufficient institutional mechanisms in place to ensure sustainability of project results	Project recommendations to ensure institutional sustainability adopted	Project final evaluation Annual project reports GHG assessment reports	Successful completion of the prior project activities Adequate data will be available from the stakeholders and the market
Output 4.1 Methodology for monitoring and measuring project savings due to revised regulations, IBDA implementation and promotion, and new tools developed	Acceptance and reliability of the methodology for monitoring and measuring the impacts	No baseline information on the market, energy, GHG or financial impacts of EE, BEP compliance, or IBDA	An accepted and agreed methodology that is useful to key stakeholders for the assessments and monitoring	Monitoring Methodology and Plan Reports of Control Group of buildings for assessing the impacts of technological interventions Project progress reports	Ongoing monitoring and recording of the impact of the project and barriers faced
Output 4.2	Mid-term and final	No consolidation of	Final project report	Project progress	Ongoing monitoring

Project Strategy	Indicator	Baseline	Target	Sources of Verification	Important Assumptions
Energy savings and GHG emission reductions achieved through the project calculated and shared	evaluation reports provided with quantified and qualified results and impacts	the results and lessons learned	consolidating the results and lesson learned from the implementation of the project	reports and final evaluation	and recording of the impact of the project and barriers faced