Royaume du Maroc

MID-TERM EVALUATION REPORT ON THE UNDP/GEF PROJECT

ENERGY EFFICIENCY CODES IN RESIDENTIAL BUILDINGS AND ENERGY EFFICIENCY IMPROVEMENT IN COMMERCIAL AND HOSPITAL BUILDINGS IN MOROCCO

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This report was prepared for UNDP Morocco by:

- **Mr N'Guessan M'Gbra, International Consultant, Team Leader, and**
- **Mr Abdellatif Touzani, Local Consultant**

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EVALUATION TEAM

This mid-term evaluation was performed by the team of Mr N'Guessan M'Gbra, International Consultant and Mr Abdellatif Touzani, Local Consultant.

International Consultant

Mr N'Guessan M'Gbra

Contact details: Mr M'Gbra NGUESSAN
International Consultant
Vice-President, Africa, Econoler
Tel.: (+1) 418 692-2592, ext. 301
Fax: (+1) 418 692-4899
Email 1: nguessan@econoler.com
Email 2: nguessan@sympatico.ca

National Consultant

Mr Abdellatif Touzani

Lecturer at the École Mohammedia d'Ingénieurs, Rabat
GSM: (212) 6 61 48 83 48
Email 1: atouzanikia@gmail.com
Email 2: atouzani@emi.ac.ma

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The authors would like to offer their thanks in particular to the General Directorate of the National Centre for Renewable Energy and Energy Efficiency (ADEREE), the ADEREE project team, the UNDP Morocco office, key national partners and development partners (EU, ADEME, GIZ), as well as all other interviewed parties, who provided all requested information and valuable inputs for the project evaluation during the evaluation mission. The cooperation with the project team, all project partners and UNDP Morocco was effective, and the evaluators received all information requested.

EXECUTIVE SUMMARY

- **Description of project evaluated**

1. The "Energy Efficiency Codes in Residential Buildings and Energy Efficiency Improvement in Commercial and Hospital Buildings in Morocco" (CEEB) project was launched by the government to respond to rapid growth in energy demand in the building sector.
2. The global objective of the project is to reduce greenhouse gas emissions from the consumption of fossil fuel energy by managing the demand for energy in the building sector—a sector which accounts for more than 25 percent of the country's energy consumption. The specific objective of the project is to promote energy efficiency (EE) in Morocco through: i) an energy efficiency building code, ii) development of technical standards for equipment, iii) reinforcement of private and public sector capabilities to incorporate energy efficiency measures in building construction and renovation projects.
3. The CEEB project in Morocco was designed to ultimately produce 5 outcomes:
    - Outcome 1: Setting up an EE Building Code Unit at the national level and reinforcing compliance at the municipal level
    - Outcome 2: Sizing the EE potential in new construction through outreach, demonstration and knowledge-sharing activities
    - Outcome 3: Drafting and implementing an EE Building Code
    - Outcome 4: Developing and disseminating standards and guidelines for professionals
    - Outcome 5: Engaging public and private sector investment in EE for buildings

- **Goals and objectives of the evaluation**

4. The terms of reference of the mid-term evaluation grant consultants the task of evaluating progress made by the UNDP-GEF project in accordance with the objectives defined in the project document, of identifying the main lessons learned in the implementation of the project and to propose actions to improve the project, in particular with respect to the sustainability of results obtained.
5. The mid-term evaluation was initiated by the UNDP Morocco in March-May 2013, in accordance with the monitoring and evaluation (M&E) policy for projects funded by the Global Environment Facility (GEF). Its objectives include determining progress made by the project since its implementation, and making any necessary adjustments.
6. The UNDP Country Office (CO) decided that the mid-term evaluation would go beyond the standard project monitoring evaluation procedure and analyse the consequences linked to the project delay experienced in 2011 and changes in the energy efficiency context in Morocco since the project was formulated in 2006. It will provide a basis for UNDP to reposition and recalibrate its strategies for the next stages of the project.

- **Main aspects and methodology of the evaluation**

7. The overall approach adopted by the team of experts was based on the systematic evaluation of all the CEEB project's components, by virtue of a detailed examination of deliverables linked to the activities actually implemented within each component.
8. The result of the preliminary analysis of project outputs were corroborated by the information obtained during interviews with project stakeholders, in particular with the UNDP Country Office, ADEREE (the national implementation agency), government institutions, public agencies in housing, health and tourism sectors, and professionals in the fields of energy, construction and tourism, as well as development partners, design offices and consultants involved in the project.

- **Main conclusions, recommendations and lessons learned**

1. Conclusions

9. The overall assessment of the project is summarized in the table below (the reasons are detailed later in the report):

Overall Rating	
1. Relevance	Relevant (R)
2. Effectiveness	Satisfactory (S)
3. Efficiency	Satisfactory (S)
4. Management	Satisfactory (S)
5. Sustainability	Moderately Likely (ML)
6. Impact	Not evaluated (not relevant at this stage)

10. **Project relevance**: The project is perfectly in line with the Government of Morocco's political vision to reinforce energy independence, given that the Kingdom of Morocco imports more than 95 percent of its energy. The project also corresponds to international concerns and trends with respect to climate change and the reduction in greenhouse gas emissions in the most energy-intensive sectors—particularly in construction. The relevance of the project is also derived from the quality of the concept and from its design. The project's global and specific objectives are pertinent in that they correspond with the EE policy adopted by Morocco over the past decade. They include clearly defined objectives with measurable indicators leading to acceptable results and can almost be implemented within the allocated time, given a few modifications to the timeline and to the logical framework of the project. The project corresponds to Morocco's sustainable development policy, as well as with UNDP and Moroccan thematic priorities outlined in the 2007-11 and 2012-16 UNDAF documents. Financial means allocated to the project or mobilised during the project are sufficient, and the strong will of ADEREE and other stakeholders to appropriate the project constitutes a positive aspect. The project formulation is rated **relevant**.

11. **Effectiveness**: Effectiveness with respect to the completion of project components is rated **satisfactory (S)**. This evaluation is based on the attainment of certain key project outcomes, in particular the establishment of an energy efficiency code unit within ADEREE, the development of a draft EE code by the project team under the supervision of ADEREE, and, aided by the contribution of private and public contributions, the completion of successful demonstration projects. The project did, however, suffer a significant slowdown in 2012 as a result of the interruption of the project team's contracts at the end of 2011 and of financial commitments that were not immediately forthcoming at the beginning of the project. The project team's contracts to allow better integration of the project's code unit within ADEREE were not renewed at the end of 2011. The new team was forced to wait for some time in early 2012 in order to get up to speed with the project. It was then able to accelerate the implementation of project activities during the second half of 2012. A new coordination unit was put in place in February 2013 and has been working with ADEREE, but logistical and human resources constraints prevent it from completing the project according to the prescribed schedule.

12. **Efficiency**: The CEEB project is designed to respond to a significant challenge facing the Moroccan economy—managing the growing demand for electricity in the housing sector and the need to bolster the country's energy efficiency. A total budget of USD 18.734 million, including a USD 3 million grant by the GEF, was allocated towards developing human capacity, the creation of an EE building code, the implementation of pilot projects intended to reduce energy consumption and towards the mobilisation of public and private actors. EE pilot projects are already being inspired by the project tools, and compulsory energy regulations will be an

efficient means of reducing greenhouse gas emissions (GHG). If reductions in GHG emissions are achieved at the end of the project, the resulting unit cost of direct emissions will be USD 4.75/ tCO_2 for the project as a whole, as compared to USD 0.86/ tCO_2 for GEF financing. Indeed, several public actors such as Al Omrane as well as private actors (including ACCOR Group) have already begun to implement EE measures in their buildings even before the adoption of EE code. Evaluation of the efficiency of the project is rated **satisfactory (S)**.

13. **Management**: Overall assessment of the quality of the project management is rated **"satisfactory" (S)**. The rating is the result of an assessment of the various management components made during the field mission and of the information made available to the project evaluation team. The project implementation got off to a good start between 2009 and 2011. The executing agency's focus on results is rated highly satisfactory. The change in personnel in 2012, resulting from the disbanding of the project team and the resumption of activities by ADEREE personnel, caused a slowdown in the project's rhythm and results. Management by the executing agency of the risks that surfaced during the project life is rated as moderately satisfactory. Project coordination is rated moderately satisfactory; mobilization of parallel funding and of certain key project partners is highly satisfactory; communication is satisfactory; financial management moderately satisfactory and project monitoring and evaluation moderately satisfactory. The project still contains some risks with respect to the definition of the collaboration framework between the coordination unit and the ADEREE.

14. **Sustainability**: The project's general focus is on bolstering the institutional, legal and regulatory framework for energy efficiency in construction and housing. Training of technical agents, communication with stakeholders, implementation of a communications strategy to report results and the extraordinary support of certain key players such as ADEREE, the Ministry of Housing and Urban Development and Al Omrane are key sustainability factors. This leads to increased interest in the use of the project's tools, on the part of public and private stakeholders, notably with respect to the construction of new cities, large-scale real-estate construction or upgrades in the tourism and healthcare sectors. Risks that threaten the sustainability of the results in the medium and long term are moderate; results obtained or to come from remaining activities will endure over time. The energy efficiency and renewable energy markets in Morocco are in full expansion and the CEEB project has, in part, contributed to that. The project's sustainability in the face of major risks is rated **moderately likely (ML)**.

15. **Impact**: At the time of the mid-term evaluation, the CEEB project is on the right track towards attaining its objective of reduced GHG emissions. However, failure to enact the Energy Efficiency Code and adopt the associated norms means that it is still too early to measure the anticipated impacts. Pilot projects are ongoing and it is anticipated that adoption during the second phase of the life of the project will allow for in-the-field surveys (Output 4.4) to measure the direct effects of the project in quantitative and qualitative terms, using appropriate measurement and verification tools. Assessment of the project impact is **not relevant** at this stage of the project.

2. Recommendations

16. At the end of the evaluation, the following recommendations are made for the attention of the executing agency and UNDP:

- **Project organization and management**

> Create a clear project team organizational chart for integration into ADEREE.
> Consolidate implementation of the project by attributing project-dedicated and competent human resources, as well as sufficient logistical means, to successfully accomplish the remaining activities before the project's 2014 end-date.
> Catalogue and archive documents resulting from the project.
> Establish a UNDP disengagement strategy for the end of the project.

- Extend the CEEB program until December 2014 to allow for broad dissemination of project outcomes.

- **Role of stakeholders and information dissemination**
- Further engage key stakeholders by involving them in planning and implementing activities that concern them.
- Pay utmost attention to strengthening the capacity of professionals.
- Increase involvement of local communities in the project and ensure training of urban agencies.
- Establish links with schools, universities and training centres, etc. to have them adhere to the project and to entrust them with part of the mandate to train the professionals involved.
- More clearly define the role of project instructors and potential project beneficiaries.
- Share information produced through the project website and other media.
- Begin a national campaign in favour of the integration of measures in the Code into professional practices and sector-based political actions.
- Create a "partner" and an "eco-citizen" (general public) gateway on the project website.
- Publish the building code best practice guides as soon as possible to prepare users.
- Educate investors on the energy and financial benefits of the EE measures achieved through the European Union (EU) demonstration projects.
- Provide information on financing options for EE investments (banks, Société d'Investissements Enérgétiques (SIE), ESCOs, international cooperation, etc.).

- **Sustainability of project results**
- Continue to carry out demonstration and investment projects in energy efficiency in buildings and ensure monitoring of energy consumption of a building having received EE investments and one that has not.
- Make the tools developed by the project available to potential users and train them adequately.
- Prepare information about the other programmes executed at the same time as the CEEB project (European Union, SIE, etc.) that deal with the same issue.

3. Lessons learned

17. Initial lessons from the Project can be divided into two – the strengths and weaknesses.

- **Strengths**

- The CEEB Project became a national programme considered as a "model initiative" with the required human and considerable financial resources mobilised in record time.
- The implementation of some components in conjunction with major public and private sector actors was a success. This includes the drafting of the building codes and related legislation, as well as the demonstration projects funded by the EU.

- The mobilisation of funds (GIZ, ADEME, EU) was a success.

- National mobilisation through the programme agreements between ADEREE and public and private partners was exemplary.

- **Weaknesses**

- Poor implementation of UNDP-GEF procedures, including monitoring and evaluation (M&E).
- Inadequate facilities for the National Coordinator (small office space, telephone, computer, vehicle).
- No organisational chart specifying the place of the project team within ADEREE.
- Lack of vision on UNDP exit from the project.
- Poor internal and external communication on the project.
- The website is under-utilised: content to be improved (no Arab language options, studies are not published, etc.).
- Poor synergy with existing programmes.

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ACRONYMS AND ABREVIATIONS

ADEME	Environment and Energy Management Agency
ADEREE	Renewable Energy and Energy Efficiency Development Agency
AFD	French Development Agency
AMISOLE	Moroccan Association for Solar and Wind Power Industries
APR	Annual Project Review
CDER	Renewable Energy Development Centre
CEEB	Energy Efficiency Code in Buildings
CNOA	National Association of Architects
EC	European Commission
EE	Energy Efficiency
ENA	National Architecture School
EU	European Union
FGEF	French Global Environment Facility
FMC	National Federation of Construction Material Industries
FNBTP	National Construction and Public Works Federation
FNPI	National Federation of Property Developers
GEF	Global Environment Facility
GIZ	German Cooperation Agency
IMLELS	Italian Ministry of Environment, Land and Sea
MAD	Moroccan Dirhams
MEM	Ministry of Energy, Mines, Water and Environment
ONE	National Office for Electricity and Drinking Water
PIR	Project Implementation Review
SC	Steering Committee
SDRT	Société De Développement et Résidences Touristiques (Tourist Property Development Co.)
SIE	Société d'Investissement Energétique
SGTM	Société Générale des Travaux du Maroc (Building & Construction Works Company)
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNDP CO	United Nations Development Programme Country Office
US$	United States Dollars
VAC/HVAC	Heating, Ventilation and Air Conditioning

1 INTRODUCTION

1.1 BACKGOUND

1. Energy needs, and particularly electricity, are rising rapidly in Morocco. Since 2002, consumption of primary energy has increased by about 6% annually and electric power consumption by about 7%. In 2011, almost 90% of primary energy comprised oil, gas and coal, 95.5% of which was sourced from imports. Energy bills amounted to MAD 90 billion (approximately US$11 billion) in 2011, weighing down the country's trade balance. Meanwhile Morocco has high renewable energy (RE) potential with which to meet its energy needs without contributing to global warming.

2. Morocco has undertaken to significantly increase RE use in order to achieve 10-12% of primary energy and 42% installed electric power capacity (around 27% electricity consumption) by 2020. The Solar Power Plan and Wind Power Programme, launched in 2010, provide for the construction of five solar power plants with total installed capacity of 2,000 MW and 2,000 MW of wind farms. In terms of energy efficiency (EE), Morocco has put in place several action plans to manage consumption in different sectors with the aim of achieving savings of 12% in 2010 and 15% by 2030, rather than continue "business as usual".

3. According to World Bank data compiled by Sherbrooke University[i], net energy imports (as a % of commercial energy consumption) in Morocco reached an average of 87.4% in the 1971 - 2010 period and peaked (95.8%) in 2008. Government energy subsidies were estimated at almost US$1 billion in 2006, which represented 5.4% of the State's budget. This situation did not improve during the 2010s due to the growing annual demand for power.

4. It is estimated that 17% of electric power consumed comes from imports, mainly from Spain. Recourse to imports, used in the past to overcome power shortages, is today an economic choice as the cost of buying electric power is lower than local production costs. Electric power consumption continues to rise sharply due to industrial (high and medium voltage) and household (low voltage) demands which, according to the Office National de l'Electricité (ONE, Power utility), have increased at almost the same rate, respectively 9.8% and 10.7%.

5. During 2006 - 2008, at the time of the design of the project under evaluation, the Moroccan electricity system was experiencing grave difficulties due to the gap between demand and supply. This forced the authorities to set up, in 2008, a "national priority action plan" focused on measures to promote investment in new installations and encourage end-users to reduce electricity consumption.

6. With the launch of new nationwide projects to increase available housing, renovate public hospitals and start building new hotel complexes, it became urgent for the government to put in place a programme for the promotion of EE in buildings, a sector which represents 25% of national power consumption.

7. The national EE programme addresses two major problems. They are:

   - Non-incorporation of energy considerations in the design, construction, equipping and management of collective housing,
   - Significant increase in energy spending in response to user expectations of quality service and social comfort.

8. It is estimated that savings of 15% and more in energy consumption in the building sector can be achieved through the implementation of appropriate EE measures in existing buildings, measures which integrate building codes and minimum energy performance standards (MEPS). The project focuses on four sectors as

follows: the housing, healthcare, hotel and education sectors. There are ongoing programmes in each of these sectors and the introduction of an EE Code will have tremendous impact on these sectors.

1.2 OBJECTIVES

9. The UNDP office in Morocco requested a mid-term evaluation of the project, in line with the monitoring and evaluation (M&E) policy of projects funded by the Global Environment Facility (GEF). The major objectives of the evaluation are to:

   - Identify potential problems in the project design and implementation,
   - Review the results achieved by the project as well as progress in the attainment of objectives,
   - Provide a basis for decision making on the necessary changes and improvements to be made,
   - Assess the use of funds made available to the State agency responsible for project implementation,
   - Identify and document the lessons learned, including lessons that could improve the design and implementation of other projects in the future,
   - Make recommendations on specific activities to improve the project in order to ensure sustainability of the results achieved.

10. The UNDP Country Office (CO) decided that the mid-term evaluation would, beyond the regular project evaluation requirement, serve to analyse the implications of the delay in the project experienced in early 2012 and the developments in EE in Morocco from the original idea in 2006 to carry out the project. This will provide a basis for the UNDP CO to reposition and refocus its strategies for the remainder of the project.

1.3 KEY ISSUES ADDRESSED

11. The evaluation objectives were reflected in the evaluation questions prepared in line with the criteria used to evaluate UNDP/GEF projects, namely (i) relevance, (ii) effectiveness, (iii) efficiency, (iv) outcomes, and (v) sustainability. It is important to note here that the impact of the CEEB project is still difficult to evaluate given that the Code and its normative provisions have not yet been adopted. Ten (10) fundamental issues were considered, which are :

   i. Programme formulation: consistency and relevance of process. Does the Project Document (ProDoc) clearly describe the programme – objectives, expected outcomes, activities and implementation framework? / To what extent is the project suited to the national development and energy and climate priorities of Morocco?
   ii. Programme implementation approach and use of M&E tools: how was the project implemented (institutional arrangements)? / Does the project coordination team use project planning and monitoring & evaluation tools?
   iii. Actual implementation of activities envisaged in relation to the work plan: what is the implementation level of project activities?
   iv. Appraisal of the project's effectiveness: have project objectives been achieved or are they likely to be achieved given the concrete achievements recorded? / Have the programme "expected results" and "tangible achievements" led to the "outcomes"?
   v. Partner mobilisation and stakeholder involvement in project implementation: are project stakeholders involved in actual project implementation? / Were project partners and expected additional resources successfully mobilised? / How were partners involved in the implementation of programme activities?
   vi. Programme financial planning: was the financial planning satisfactory?
   vii. Programme efficiency (efficient financial management): what is the programme's cost/benefit ratio?

viii. Validity and ownership of the exit strategy: do stakeholders demonstrate ownership of the process? / Is there a strategy for the institutional grounding of the project?

ix. Sustainability and replicability of programme results: what is the capacity of the project to continue to offer benefits over a sustained period after its completion?

x. Expected outcomes at the end of the programme: will the envisaged changes be made in light of the results obtained?

1.4 METHODOLOGY

12. The mid-term evaluation of the EE Code in Buildings Project in Morocco took place from March to May 2013. The methodology used for the evaluation was divided into three steps, in conformity with the proposal contained in the terms of reference. First, the documentation produced by the project was collected and analysed, followed by a trip to Morocco to meet and interview key stakeholders and visits to the main project work sites, and finally, detailed evaluation of the project in line with UNDP accepted criteria.

13. The first stage of the evaluation was the collection and analysis of all documentation produced by the project. This was carried out prior to the field trip with the aim of placing the project in its development context by analysing its design, to highlight the consistency of its objectives in relation to the priorities of Morocco and the GEF, particularly in the area promoting energy efficiency and the fight against climate change. The documentation used in this first stage is listed in Annex 4.

14. The second stage of the evaluation involved a field trip to Morocco for a series of interviews with the various institutional actors (ministries, ADEREE), technical and financial partners (GIZ, ADEME, French FEM, etc.), the private sector and building sector professionals. This took place from 12 to 20 April 2013. Given the limited time allowed for the exercise, meetings with project actors involved mainly the key stakeholders - that is, all the institutions that have had a significant role in the development of the project.

15. However, certain actors whose roles were considered important in project implementation and who were not noticeably present during the implementation stage were given special attention. This was in order to understand the reasons for their absence in the project implementation process/set-up. The list of persons met during the field trip is presented in Annex 3. The approach used for the third stage of the evaluation by the team of experts was based on the systematic analysis of all components of the CEEB project through in-depth analysis of the deliverables for the activities actually implemented under each component.

16. The outcome of the preliminary analysis of the project's achievements was supported by the information obtained from the interviews with project stakeholders, particularly the UNDP CO, ADEREE (the executing agency), government institutions and public agencies in the housing, healthcare and tourism sectors, professionals in energy, construction and tourism, development partners, as well as technical firms and consultants involved in the project.

17. For the evaluation, the following rating scale was used:

Effectiveness, Efficiency, Monitoring & Evaluation, Outcome	Sustainability	Relevance
> 6. **Highly satisfactory (HS):** there is no risk to the achievement of project objectives	> **4. Likely (L)**: negligible risks to project sustainability	> **2. Relevant (R)**
> 5. **Satisfactory (S):** only minor risks are identified	> **3. Moderately likely (ML)**: the risks are deemed moderate	> **1. Not relevant (NR)**
> 4. **Moderately satisfactory (MS):** moderate risks are identified	> **2. Moderately Unlikely (MU)**: there are substantial risks to project sustainability	**Impact**

> 3. **Moderately unsatisfactory (MU)**: there are substantial risks to the project	> **1. Unlikely (U)** : there are severe risks to project sustainability	> **3. High (H)**
> 2. **Unsatisfactory (U):** there are major risks to the project		> **2. Low (M)**
> 1. **Highly unsatisfactory (HU) :** there are fundamental risks to the achievement of project objectives		> **1. Negligible (N)**

18. A final evaluation report was submitted in French and subsequently translated into English.

19. The diagram below presents a graphic overview of the evaluation, showing the complete structure of the evaluation and how the different parts are linked.

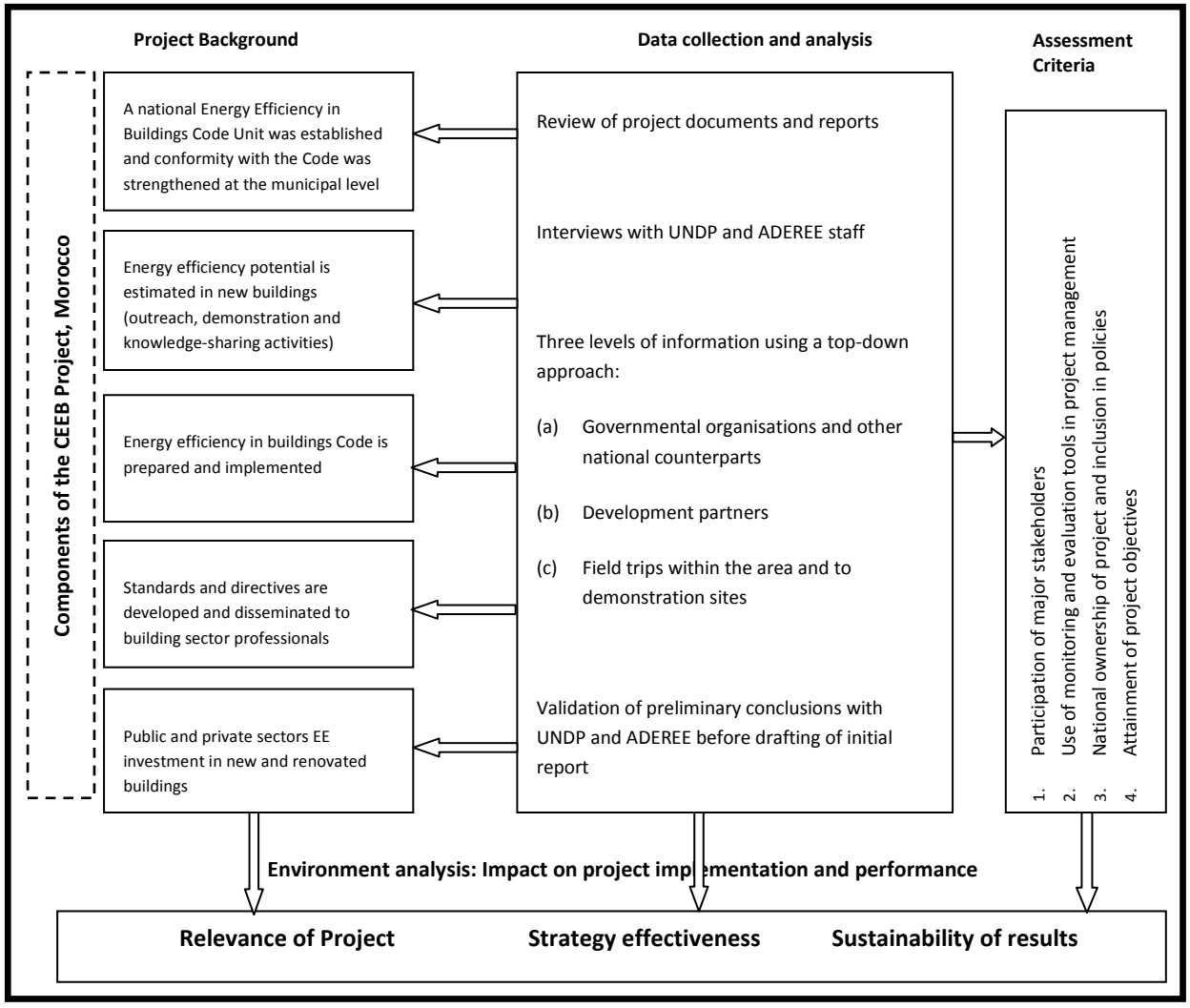

Figure 1: Schematic Framework of Evaluation

1.5 STRUCTURE OF THE EVALUATION

21. In line with GEF methodology for mid-term evaluations and the terms of reference, the evaluation process was designed in such a way as to focus on the implementation of the activities stated in the ProDoc and the strategic results framework. The evaluation report is structured to meet GEF requirements and is in line with the directives contained in the terms of reference.

22. The report is divided into four main sections which are followed by annexes. The sections are:

- Introduction
- Project description
- Main observations
- Conclusions, recommendations and lessons learned

1.6 EVALUATION TEAM

23. The mid-term evaluation was carried out by a team comprising Mr N'Guessan M'Gbra, International Consultant and Mr. Abdellatif Touzani, National Consultant.

24. International Consultant: Mr. N'Guessan M'Gbra

Vice President Africa, Econoler
160 rue Saint-Paul, Québec (Qc)
G1K 3W1 Canada
Tel: (+1) 418 692-2592, poste 301
Fax: (+1) 418 692-4899
Email 1 : nguessan@econoler.com
Email 2: nguessan@sympatico.ca

25. National Consultant: Mr Abdellatif Touzani

Lecturer at the Mohammedia Engineering School, Rabat
GSM: (212) 6 61 48 83 48
Email 1: atouzanikia@gmail.com
Email 2: atouzani@emi.ac.ma

2 THE PROJECT AND ITS DEVELOPMENT CONTEXT (5 PAGES)

2.1 PROJECT START AND DURATION

26. The funding agreement was signed on 26 June 2009 between the Ministry of Energy, Mines, Water and Environment of Morocco and the UNDP CO, thus marking the official start of the project.

27. The main events which marked the start of project activities from July 2009 to December 2010 can be summarised as follows:

- Recruitment of an international expert to provide support in setting up the Building Energy Regulatory Unit, October 2009
- Programme workshop on strategic planning with project partners, 24 February 2010
- Inception workshop for national programme on EE in buildings, 16 March 2010
- Support for the new urban development plan: (i) signing of the Environmental Impact Agreement for the new town of Lakhyayta with Al Omrane and the Housing Ministry on 9 July 2010, (ii) signing of the MoU for the conduct of the Environmental Impact Assessment on 8 July 2010
- Setting up of the EE in Buildings Code Unit and drafting of the organisational plan with the international expert, August 2010
- Implementation of the supervision plan for the EE Code in Buildings (training on 28 and 29 September 2010).
- Preparation of climate zoning map through the superimposition of two maps (summer/winter) while taking into account the simulation results and the relief, September 2010,
- Preparation of technical specifications for thermal regulations and results of the economic and financial analysis of EE measures for the residential and tertiary sectors (Health, Tourism, Education and Housing), September 2010
- Characterisation studies for the heating, air conditioning, lighting, construction materials markets and building type, October 2010,
- Press briefing for CEEB project presentation and discussions as part of the diagnostic phase of the communication strategy, 20 October 2010
- Finalisation of the communication strategy – December 2010,
- Launch of the Web portal – end of December 2010 (www.ceeb.ma)
- Preparation of a training plan with ADEME and InWent to provide capacity building on EE in buildings for architects, technical consultants, technical managers and prescribers - December 2010.
- Consultation meetings on the technical aspects for the regulations with:
    - Ministry of Tourism, 4 November 2010.
    - Ministry of Education, 2 and 8 November 2010.
    - Meknes Tafilelt region, 22 and 23 November 2010.
    - Souss Massa Draa region, 24 and 25 November 2010.
    - Rabat region, 17 December 2010.

28. The EE Code in Buildings Project in Morocco was designed to be implemented over a four year period to end in June 2013, in conformity with the ProDoc. It is clear that this deadline cannot be met and the Steering Committee, the decision- and policy-making body of the Project, recommended an 18-month extension to enable the Project meet all its objectives. This recommendation was accepted by the Principal Technical Advisor, UNDP-GEF, and the new project completion is set for 31 December 2014.

29. The mid-term evaluation which occurred from April to May 2013 was initially scheduled for June 2012. However, the entire project team was changed in January 2012, resulting in a delay in the launching of this activity.

2.2 PROBLEMS THAT THE PROJECT SEEKS TO ADDRESS

30. Contrary to some countries in the Maghreb, such as Tunisia and Egypt, energy management was never considered as a priority by the Moroccan Government before 2006 (date of the project preparation phase). Energy imports continued to rise steadily for decades, as shown in the graph below, without any adequate measures being taken.

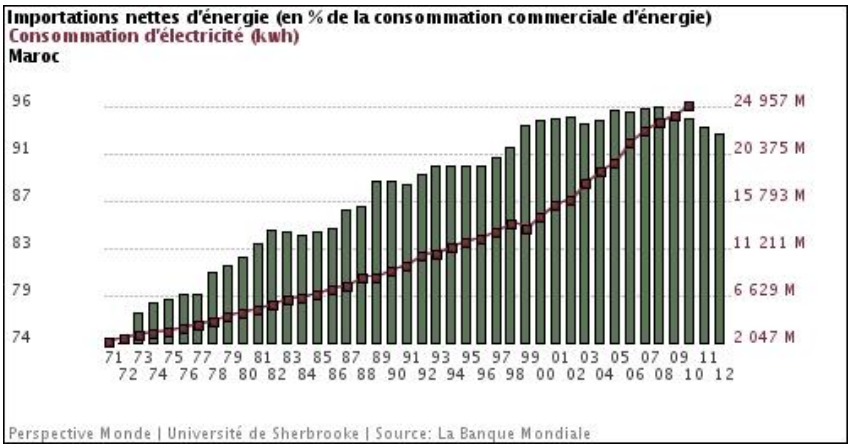

Figure 1: Changes in net energy imports in Morocco, 1971 - 2012

31. At the time the project was being developed (2006-2008), the price of oil in the international market and the exceptionally high demand exerted considerable pressure on the State budget, such that the Government decided to adopt measures to reduce energy dependency on external sources. One of the measures considered in the national priority action plan was the promotion of energy management in the building sector. This translated into the development of a national EE policy and an adequate legal and institutional framework to enhance EE, particularly in homes, hospitals and hotels.

32. The EE Code in Buildings Project in Morocco therefore addresses the three-fold problem of: (i) the country's energy dependency and the burden of the high prices of fossil fuels, (ii) non-incorporation of energy considerations in the design, building, furnishing and management of buildings, (iii) significant increases in energy spending in response to the expectations of quality service and social comfort of users.

33. The project addresses these problems through the development of an EE Code applicable in all new buildings and those being renovated; promotion of political dialogue between government bodies, industries and public and private developers; drafting of a set of EE standards for new buildings; promotion of the acceptance of these standards by industries, developers and owners of new buildings; incentives for professionals to design and build in line with the new EE Code; pilot investments for the upgrading of existing buildings; training for professionals on principles for ensuring compliance with the new EE building code; and, finally, deployment of an adequate system to monitor the project outcomes.

34. The removal of the aforementioned barriers by the introduction of an EE Code in Buildings will lead to reduced energy demand in the building sector, resulting in greenhouse gas (GHG) emission reductions in Morocco.

2.3 IMMEDIATE AND DEVELOPMENT OBJECTIVES OF THE PROJECT

35. The ultimate goal of the project is to reduce greenhouse gases linked to fossil fuel consumption by managing the demand for energy in homes, hospitals and hotels in Morocco. The reduction of direct total emissions is estimated at 6.8 million tonnes of carbon dioxide (tCO_2) using the methods described in the GEF GHG Calculation Manual for projects.

36. The project objective is to enhance EE in buildings in Morocco through: i) adoption of an EE buildings code, ii) elaboration of technical standards for the building envelope design and fittings, and iii) capacity building for the public and private sectors on the integration of EE measures in construction and renovation projects.

37. The project also seeks to enhance the incorporation of energy considerations in buildings into key sectors of national development policy (housing, health, hotels, education) with the immediate goal of:

    - Optimising energy consumption in target sectors through the implementation of thermal regulations designed for Morocco,
    - Improving service quality and the comfort of users in the target sectors,
    - Strengthening and ensuring sustainability of the institutional and regulatory framework of the sector for EE and RE in buildings,
    - Creating new professions and new markets for EE products: insulation materials industry, double glazing, high-performance energy appliances, energy efficient bulbs, etc.

38. The main expected project result is defined as follows: "integration of energy considerations in key areas of policy development in Morocco: health, hospitality, education and national habitat". This medium- and long-term outcome is directly linked to the strategic priorities contained in two UNDAF Morocco documents. In the UNDAF 2007-11, the expected outcome is as follows: "the organisational conditions are reinforced for the protection and development of the natural and cultural heritage in service of human development". The expected result in UNDAF 2012-16 is directly linked with the CEEB project and is stated thus: "capacity for the development and coordination of mitigating strategies and programmes and adaptation to climate change and management of natural and technological risks is developed and strengthened."

2.4 MAJOR PROJECT STAKEHOLDERS

39. There are three categories of major project stakeholders.

40. *Institutional partners:* these are Ministries which are closely associated with the implementation of the project and will receive the project results and perform roles related to supervision of networks and information sharing. They are also involved in co-financing the project. They are:

    - Ministry of Energy, Mines, Water and Environment,
    - Ministry of Housing and Urban Affairs,
    - Ministry of Health,
    - Ministry of Economy and Finance,
    - Ministry of Tourism and Crafts,
    - Ministry of Education,
    - Ministry of the Interior and Local Communities,
    - Ministry of Public Works and Transport.

41. *The implementing partners* are:

- The state agency for renewable energy development and energy efficiency (ADEREE) – formerly CDER – is the national executing institution for the project. It is host to the project team, recruits and manages technical assistance and consultations, selects and signs contracts, purchases and maintains equipment, disseminates findings and is responsible for the successful implementation of the project,
- National Association of Architects, which enhances its technical skills in the design, construction and renovation of buildings,
- Property developers (Al Omrane, CDG, etc.) who will benefit from the implementation of the EE Code to reduce costs in running residential buildings.

42. *Project technical and financial partners are:*

- UNDP-GEF,
- European Commission (EC),
- GIZ (German cooperation agency), which provides technical support in project implementation,
- ADEME, which provides technical assistance in the implementation of the project,
- French Development Agency (AFD),
- The Andalusian Government (a regional government of Spain),
- Moroccan Energy Development Fund (FDE).

2.5 PROGRAMME RESULTS AND IMPACT

43. The project is designed around five major components. The expected results linked to these components are stated below:

- 1 : Setting up an EE Building Code Unit at the national level, and reinforcing compliance at the municipal level
  - EE Building Code Unit is set up and operating within ADEREE
  - The capacities of municipal code enforcement agencies strengthened
- 2 : Appraisal of the energy efficiency potential in new buildings (outreach, demonstration and knowledge sharing activities)
  - Mobilisation, outreach and training activities for stakeholders are carried out
  - Technical assistance is provided to some private operators to integrate EE designs in buildings
  - Demonstration projects are carried out
- 3 : Drafting and implementation of EE building code for residential buildings
  - EE code in residential buildings is designed and drafted
  - Enabling regulatory framework for the EE code in buildings is put in place
- 4 : Developing and disseminating EE standards and guidelines for professionals
  - EE standards (for the envelope, lighting, air conditioning and ventilation) are developed for buildings
  - Technical guides are drafted for professionals
  - Testing programme is implemented to assess the impact of proposed EE standards
  - Reporting, monitoring and evaluation activities are carried out in a timely manner
- 5 : Public and private sector EE investments
  - EE investments in the housing, health, hotel and education sectors

44. With the exception of the preparation phase, the total initial project budget amounted to US$18,733,910 and was distributed as follows:

- GEF: $3,000,000
- UNDP Morocco: $200,000

- Moroccan Government Ministries: $14,089,910
- ADEREE (formerly CDER): $250,000
- Italian Government: $1,200,000

45. The Project is expected to have the following impacts:

- Reduction in annual fuel consumption by 150,000 tonnes of oil equivalent (TOE) and related GHG emissions,
- Enhancement of the sustainability of the institutional and regulatory framework governing EE and RE in buildings,
- Promotion of the inclusion of energy considerations in the design, construction, furnishing and management of buildings (residential and commercial),
- Improve the service quality and comfort of users in the four (4) target sectors,
- Strengthen public-private partnerships,
- Identification and launching of pilot projects, with the possibility of extending the concept to other building sectors,
- Increased collaboration with countries in the region (such as Tunisia).

2.6 PROJECT ANALYSIS AND DEVELOPMENT CONTEXT

46. The project design correctly identified the country's needs and options and defined the project objective in relation to improved EE in buildings. By focusing primarily on the development and implementation of an EE Code in buildings adapted to the Moroccan context, capacity building through on-the-job training to give local professionals durable practical experience, investment for the integration of EE measures in major projects funded by the EC and local investors, and information dissemination to professional and political decision makers, the project approach appears to be a winning strategy with long-term benefits for the country.

47. This is a flagship project given that it is the first major large-scale initiative focused on improving EE in buildings in Morocco after the pilot USAID programme in the 1980s, which led to the energy audit of a number of industrial establishments.

48. Much more effort is needed to improve energy efficiency, including key policy reforms, increased energy prices to reflect the real costs - removing subsidies on some energy products, improving outdated and inefficient district heating systems, installation of heat level indicators in buildings, energy efficient renovation of existing buildings and much more. The project is focused only on the market segment of new and renovated buildings, which has a relatively small market share in relation to the existing housing stock. However, this represents the best strategy chosen that can be replicated successfully in the country in the future, even if necessary political and economic reforms in energy and district heating are not fully implemented.

49. Two results of the project, namely results 2 and 5 as specified by their targets, are very ambitious and will be very difficult to achieve without extra effort made to mobilise public sector investment in the construction sector, including from local authorities, ministries, construction professionals and private operators in the Moroccan hospitality industry.

3 MAIN FINDINGS

3.1 PROJECT FORMULATION

50. The idea of an EE in communal buildings project was introduced in 2004 by the Moroccan Government with the support of UNDP. The letter of the GEF Focal Point in Morocco dated 7 June 2004 clearly stated the development objective of the project: "*to help support the national energy policy in the area of universal access to energy, environmental protection and preservation and development of renewable energies*." The specific objective was to provide support for development programmes in the housing, tourism and health sectors while taking into account EE requirements.

51. During the preparatory assistance phase (2005 - 2006), several papers were prepared by a group of national and international consultants, under CDER supervision. The documents include EE market scoping studies, project concept, ProDoc, request for GEF CEO Endorsement, etc. The consultants' work was validated by the Steering Committee (SC), comprising representatives of the public and private sectors and UNDP.

52. The original ProDoc (accessible via the GEF web site: http://www.thegef.org/) comprises four components in addition to the "project management" component. They are:

    1) Setting up an EE Building Code Unit at the national level, and reinforcing compliance at the municipal level.
    2) Assessment of the EE potential in new buildings:
    3) Drafting and implementing an EE building code for residential buildings.
    4) EE Standards in Buildings

53. A fifth component was added to the project to promote investment in EE, particularly in social housing, public hospitals being renovated, hotels under construction or renovation and public schools.

54. The revised ProDoc and request for GEF CEO Endorsement were re-submitted on 9 December 2008 and again on 9 April 2009. Following GEF endorsement on 1 May 2009, the ProDoc was finally signed on 26 June 2009 for implementation.

3.1.1 PROJECT RELEVANCE

55. As previously indicated, Morocco is very heavily dependent on foreign supplies for its commercial energy needs. Commercial energy imports have increased over time to reach 95% in recent years according to data from the Ministry of Energy.

56. Energy demand for the economic and social development of the country has continued to grow and the building sector alone accounts for more than 25% of energy consumption in the country. At the global level, the price of fossil fuels (oil, gas, coal) has remained high, thus exerting pressure on the budget of Morocco.

57. A study of the most recent data on electricity consumption reveals that demand from the industrial and residential sectors has continued to grow since the idea of the project was introduced. In 2009, the International Energy Agency (http://www.iea.org/) estimated that around 51% of electricity consumption was from the residential sector (33%) and commercial buildings and public services (18%), where energy is used primarily for heating, air conditioning, lighting and the use of various appliances.

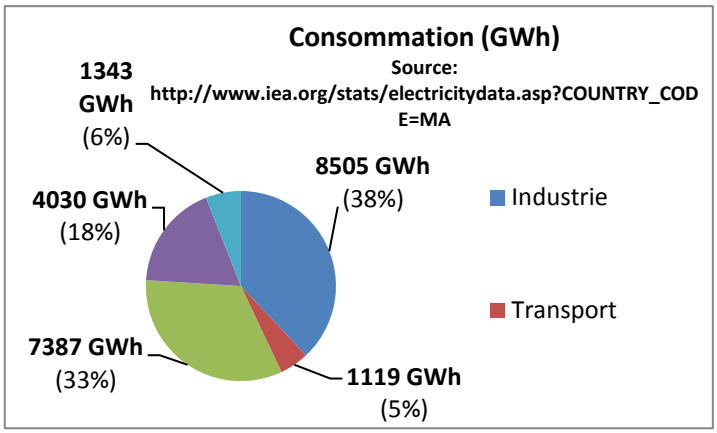

Figure 2: Morocco – Electricity consumption by activity sector – AIE, 2009

58. The Moroccan Government considers EE to be an effective tool in its development strategy to reduce energy dependency. Thus, it has set the goal of achieving energy savings of 15% by 2020 and 25% by 2030, which is completely realistic and in line with the results obtained with the pilot projects.

59. The incorporation of EE measures in buildings at the design, construction and use stages are part of the strategic options to be used in EE promotion by the Moroccan Government. The Energy Efficiency Code in Buildings Project (CEEB) is consistent with the development objectives of the Moroccan Government as stated in the "Energy 2030, what options for Morocco?" document. Moreover, EE is a contemporary topic. Investments from European Commission (EC) aid revealed that major property developers are interested in the project. The decision made at project formulation to emphasise capacity building for public and private institutions on energy efficiency for greater energy independence and to reduce GHG emissions is in line with the Moroccan development policy and the thematic priorities identified by the UNDAF and contained in the 2007-11 and 2012-16 documents, as stated in Section 2.3 above. In addition, the project concept also takes into account Morocco's international commitments, in particular achieving the Millennium Development Goals (MDGs) and the fight against global warming.

60. The CEEB project formulation is rated **relevant (R).**

3.1.2 IMPLEMENTATION

61. The EE in Buildings Code Project was designed first of all as a tool for strengthening the institutional, technical and organisational capacities in EE of public and private organisations working in energy, construction, tourism, healthcare and education in Morocco. The Moroccan Government designated CDER, a public agency under the auspices of the Energy Ministry (whose role has since been taken over by ADEREE), as the executing agency of the Project.

62. UNDP and CDER (now ADEREE), starting in July 2009, gradually set up a multidisciplinary team of four national experts (an electrical engineer, materials/energy engineer, HVAC engineer and energy architect) responsible for the implementation of the different components of the project previously mentioned. An administrative assistant, who was also responsible for project communication, provided support to the UREB (Energy Regulatory Unit for Buildings) Experts during the 2009-2010 period.

63. In order to effectively perform its role, UREB also received technical assistance from international experts, in line with a supervisory plan for its staff. The communication strategy for the project team was prepared by a communications firm, and validated by project partners at an SC meeting in December 2010. Up to December

2011, project implementation was independent and followed an integrated approach by complying with UNDP national implementation procedures.

64. From January 2012, ADEREE adopted a new structure and a new organisational chart, with EE in buildings becoming a stand-alone unit in order to ensure the sustainability of the CEEB Project results at ADEREE. The entire project team was changed and UREB activities were fully merged with ADEREE activities. ADEREE permanent staff took over project coordination and no distinction could be made in their commitment to the project and their other ADEREE duties. The abrupt stop in the activities of the project team and their replacement by ADEREE staff led to an initial slowdown in activities (especially in monitoring studies entrusted to consultants and training of trainers) but this was remedied by the end of 2012. While recognising the desire of ADEREE to take ownership of the project, to build capacity in the long term, this shift in the approach to implementation did not guarantee the efficiency and autonomy sought for GEF projects. This situation has been corrected since February 2013 through the recruitment of a National Coordinator and a call for applications for the recruitment of technical experts.

65. The implementation approach is rated **satisfactory (S)**.

3.1.3 LOGICAL FRAMEWORK

66. Annex A of the ProDoc contains the project logical framework (log-frame) as it is currently being implemented. The log-frame comprises the main indicators and targets of the project. At this point, mention should be made of the quality of indicators and targets. The majority of targets are specific, realistic, attainable and measurable over time and therefore measureable over the project duration. This makes it possible to assess project achievements in relation to the reference conditions at inception. The log-frame also includes well-defined assumptions and identified risks for each component / expected result. However, some targets are problematic and this is explained in the analysis below.

67. The proposed values of the four targets under the general objective of the project ("Improving EE in buildings in Morocco, especially in the residential sector, with the introduction of EE standards": reduction of CO2 emissions by 3.5 million tonnes; the Government will adopt energy efficiency in 75% of building projects; the Government will adopt the standard EE in 75% of public hospitals; and adoption of EE standards in 40 hotels), are very optimistic and difficult to evaluate without surveys. Moreover, the surveys of the architects and developers mentioned in the log-frame to measure the different parameters are not planned as part of official project activities. Similar activities carried out under Deliverable 4.3 (test programme implemented to assess the impacts of the proposed standards) cannot be used instead. It is necessary to schedule these activities during the remainder of the project lifetime.

68. Target 2 Deliverable 1.2 (implementing decrees mandating municipal agencies to implement the EE Code) is not time-bound, which may lead to delayed completion, thereby posing a major constraint on the achievement of reduced CO_2 emissions. The same observation applies to the Target 1 of Result 2 (EE potential in new buildings is appraised). Finally, regarding the project management, the proposed indicator is not specific, measurable, available, relevant or available in a timely manner (SMART) and Target 2 (project objectives are significantly achieved) does not allow for the progress to be measured in terms of results achieved.

69. It is necessary to review the log-frame in order to define some indicators specifically and adjust the targets to make them measurable and realistic in relation of the EE market conditions in Morocco.

70. The logical framework is rated **satisfactory (S)**.

3.1.4 PROJECT OWNERSHIP BY COUNTRY

71. The idea of the CEEB Project was introduced in 2004 by CDER with the support of UNDP Morocco. CDER and UNDP have gained unique experience in the formulation and implementation of projects aimed at mitigating the effects of climate change through several national initiatives, such as the solar water heater market development programme (PROMASOL) and the Energy and Environment House programme.

72. The choice of the subject was not accidental. During the preparatory assistance phase, Morocco reached an unprecedented level of energy dependence. Over 96% of the commercial energy consumed was imported, representing 14% of the country's imports. The hike in global oil prices exerted tremendous pressure on the country's budget and the government as a whole began to seriously consider EE as a solution to the country's energy crisis.

73. At the project conception phase, all public and private stakeholders in the country were consulted to ensure wide information dissemination on the project. A project Steering Committee (SC) was set up and met regularly to provide guidance on project formulation. It comprises representatives of key ministries (Finance, Energy, Health, Housing, Tourism, and Environment), government agencies (Moroccan industrial standards body), professional associations (National Association of Architects) and representatives of the electricity sector (State Electricity Company).

74. The project document was presented to the stakeholders and validated by members of the Steering Committee.

75. Project ownership by the country is rated **highly satisfactory (HS).**

3.1.5 STAKEHOLDER PARTICIPATION IN PROJECT DESIGN

76. During the project conception phase, consultations were held with a wide range of stakeholders, private and public organisations and donors, to disseminate information on the project and ensure their support. All in all, over forty public and private organisations were consulted, which include:

- Fifteen (15) public organisations (Ministries of Finance, Energy, Health, Tourism, etc.),
- Fifteen (15) professional associations,
- Two (2) professional schools,
- Fourteen (14) private operators,
- Three (3) electricity sector operators,
- Two (2) financial sector operators,
- Six (6) bilateral/multilateral agencies working in the country.

77. Stakeholder participation in the project design is rated **highly satisfactory (HS)**.

3.1.6 REPLICATION APPROACH

78. Due to the high level of stakeholder mobilisation, particularly among the key ministries, the results already obtained in the drafting of the EE Buildings Code (Passive Building Component: insulation, windows etc.), awareness creation for property developers involved in the project, as well as the success in obtaining EC funding of €10 million for demonstration projects, the CEEB project has created real enthusiasm among professionals and policy makers. The key actors have truly taken ownership of the project approach based on the combination of standardisation and the pilot projects.

79. Projects in new Moroccan towns, such as the Al Omrane social housing complex, represent tangible means for replication of the approach at the national and municipal levels.

80. The replication approach of the project is rated **highly satisfactory (HS).**

3.1.7 PROJECT EFFICIENCY

81. The efficiency criterion[1] seeks to assess to what extent the project results were achieved with the most competitive costs. The EE Code in Buildings Project was designed to reduce the energy demand in the building sector in Morocco, as well as the related GHG emissions. The reduction in direct emissions for the three target sectors (residential housing, health and hotel buildings) was estimated at 3.5 million tCO_2, representing energy savings of 4,753 GWh for the 15-year period corresponding to the duration for the proposed EE measures. Post-project reductions in direct emissions are put at 3.3 million tCO_2, representing a saving of 4,450 GWh for the same time-frame.

82. The total project budget excluding the preparatory assistance phase amounted to US$18,733,910, with GEF funding of US$3 million and expected co-financing of US$15,733,910 to be provided primarily by the Moroccan Government (US$14.334 million) and the Italian Government (US$1.2 million). Total expected funding actually mobilised came to US$16.635 million, including US$3.3 million from UNDP and GEF, €10 million from the European Union, €1.4 million from French GEF through the FASEP project, and €0.723 million for investment in the new town of Lakhyayta. If reductions in CO_2 emissions are actually achieved, this would lead to the avoided unit cost of direct emissions of US$4.75/$tCO_2$ for the entire project compared to US$0.86 US$/tCO_2 for GEF funding. These CO_2 emission mitigation costs are generally lower than the price per tonne of CO_2 in the residential sector, which fluctuates between US$10 and US$20/tCO_2 globally in the world at the time of the project design, using low-cost measures and the best practices known in the market. Although the CO_2 reduction forecasts are optimistic (the baseline is calculated assuming a high level of comfort: all the buildings are heated and cooled), the involvement of large property firms – such as Al Omrane (which is involved in over 80% of public housing projects in Morocco) – using the project results in ongoing mass housing developments is an indication that the recommended approach will be very cost-effective for Morocco.

83. Project efficiency is rated **satisfactory (S)**.

3.1.8 DESIGN OF PROJECT MONITORING AND EVALUATION

84. The ProDoc contains an M&E plan for the project. A detailed description of the M&E plan is available and is contained under Section G in the Request for GEF Funding. The M&E plan is well designed, with a proper budget that is consistent with UNDP-GEF procedures. It clearly sets out the periodic meetings which must be held as well as the different reports to be produced. Also contained is information on: (i) Project Inception Workshop and Project Inception Report, (ii) Annual Tri-partite Report, (iii) Annual Project Report, Project Implementation Review, (iv) Quarterly reports on the status of the project, (v) Periodic thematic reports, and (vi) Final Project Report.

85. Design of the project monitoring and evaluation plan is rated **satisfactory (S).**

[1] This UNDP evaluation criterion is also referred to as "cost effectiveness". Source: UNDP: Directives for the conduct of final evaluations of UNDP supported GEF projects. Evaluation Bureau Office, 2012.

3.2 PROJECT IMPLEMENTATION

3.2.1 PROJECT LINK WITH OTHER INTERVENTIONS IN THE SAME SECTOR

86. Since the launch of the CEEB Project in July 2009, several projects and initiatives have been initiated in the area of EE in residential buildings in Morocco. The following describes some of the interventions that should be mentioned in view of their synergy and leverage with the UNDP-GEF project.

87. *The 2009 Energy Efficiency Law*: One of the key actions taken by government to support the implementation of the UNDP-GEF project was the adoption of Law No 47-09 on EE, the main aim of which is to ensure better use of energy in all the areas of economic and social activities, considering the need to streamline and improve energy consumption in order to meet Morocco's growing energy requirements (http://www.mem.gov.ma/Documentation/).

88. The Law seeks to promote EE techniques in all sectoral development programmes, encourage industrial companies to rationalise their energy consumption, regularly conduct energy audits, support the development of specific EE codes for various sectors, promote the development of solar water heaters, and promote efficient lighting through the use of suitable equipment and compact fluorescent lamps.

89. *The EU-funded EE support project*: Under Component 5 of the CEEB Project, nine projects out of thirty-one proposals were selected after evaluation by a committee comprising ADEREE and the office of the European Commission in Morocco. These projects received funding up to €7.5 million to cover the incremental costs related to the integration of EE measures.

90. The projects, selected on the basis of the European directives, have been contracted since December 2011 to be implemented over a maximum period of 24 months. Category 1 covers the social housing sector with a 100% subsidy. Category 2 covers education, healthcare and housing other than social at 80% subsidy of incremental costs. Category 3 covers the hospitality industry, office buildings and shopping centres, which received a 50% subsidy.

91. *The project for the Promotion of Renewable Energy and Energy Efficiency (PEREN project)*: Since 2008, the PEREN project, undertaken by GIZ in partnership with ADEREE, has supported Morocco in the effort to promote EE and RE. Among the studies conducted by the PEREN project is the technical assistance for thermal regulation jointly developed with ADEREE, with support from consultants in EE in residential buildings (hired by GIZ), based on Morocco's climatic conditions.

92. PEREN is also involved in the organisation of a Euro-Moroccan university network for training and applied research in collaboration with the Ministry of Higher Education (MESFCRS), MEMEE, ADEREE, universities and engineering schools to promote exchange and scientific cooperation.

93. The project link with other interventions in the same sector is rated **highly satisfactory (HS)**.

3.2.2 MANAGEMENT SYSTEM

94. The CEEB Project is implemented in accordance with the national implementation modality, NEX/NIM, of UNDP Morocco through Component 6 as defined in the project logical framework. The executing agency selected by UNDP and the Government of Morocco was CDER, which was transformed in 2009 by Law N° 16-09 into the National Agency for the Development of Renewable Energy and Energy Efficiency (ADEREE). In this arrangement, agreed by the parties, the GEF grant is disbursed by the UNDP Country Office to ADEREE, which then ensures the implementation of the project. The implementing team working under the supervision of

CDER, now ADEREE, collaborated with all the project stakeholders, including the Ministries of Energy, Housing, Health, Tourism and Education.

95. Project implementation was undertaken by a project implementation team within CDER (now ADEREE). The team included a National Coordinator, electrical engineer, thermal/materials engineer, HVAC engineer, and a thermal architect. This team, initially known as the Building Energy Regulation Unit (UREB), was supported in its role by an administrative assistant also responsible for project communication.

96. ADEREE and the Steering Committee (SC) are responsible for the general project orientation and management. They are also in charge of human and financial resource mobilisation for the project. The Project Coordinator within ADEREE is responsible for the internal and external communication of the project. The coordination, organisation of the CEEB team and internal monitoring are the responsibility of the Project Coordinator and his team.

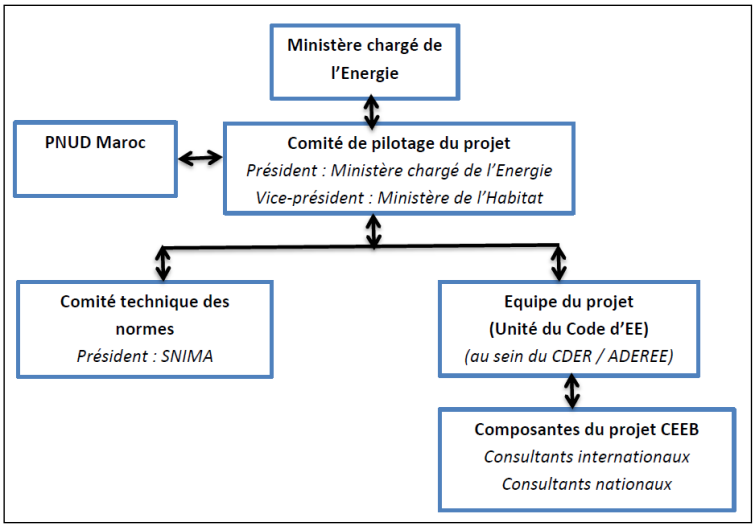

Figure 3: Project Management Chart

97. In 2012, the project implementing team was made up entirely of ADEREE permanent staff. The Director for the RE/EE division provided the executive management of the project. He was supported in the performance of his role by at least three engineers: the Head of EE Division, Head of Building Section and a Building Section engineer. A consultant was also in charge of the communication aspect.

98. Project implementation was supported by the services of international consultants (from Tunisia, Lebanon, France, Germany), and national consultants, as well as local consultancy firms and a communication agency.

99. The project management and implementation were undertaken during the 2009-2011 phase pursuant to the provisions of the ProDoc. However, from 2012, the project was entirely implemented by ADEREE staff, reflecting a shift motivated by the desire to reinforce country ownership in the implementation process by the Executing Agency, contrary to the initial plan. At the request of the UNDP CO (December 2012), ADEREE accepted continuation of the initial project implementation plan. A National Project Coordinator was appointed in February 2013 following a call for candidates. An engineer and a communication specialist are being recruited at the time of the evaluation to reinforce the project team. ADEREE will continue to support the team for the remainder of the project. The new CEEB project structure under the ADEREE organisational chart can be viewed in the March 2013 SC meeting report as shown below.

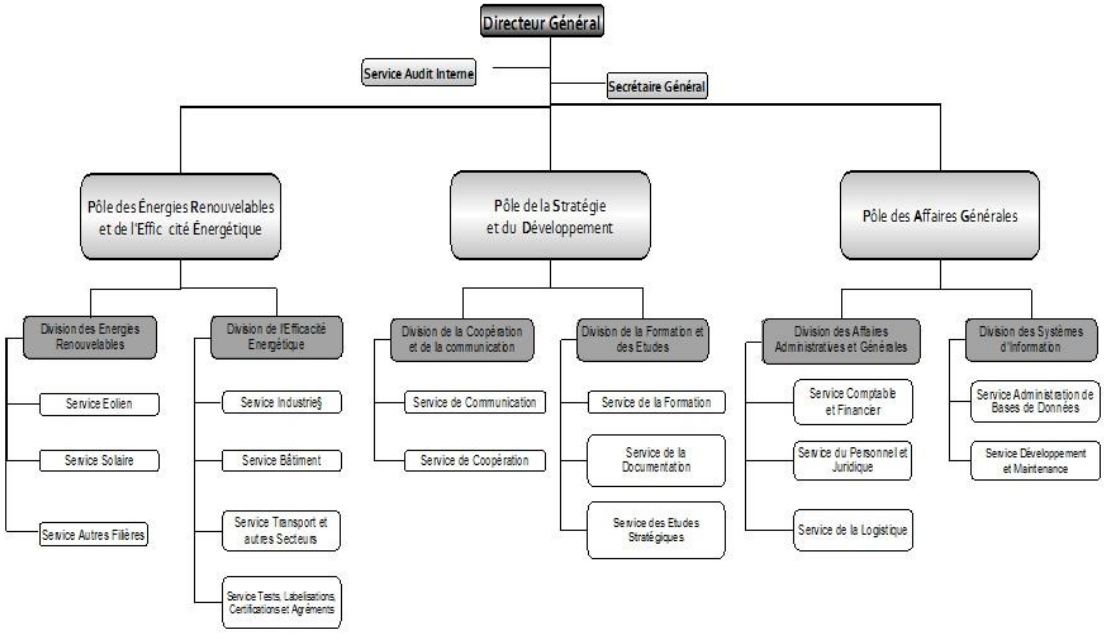

Figure 4: ADEREE Organisational Chart Integrating the New CEEB Project Structure

100. With the corrections made since the beginning of 2013, the project management and coordination plan is rated **satisfactory (S)**.

3.2.3 FINANCIAL MANAGEMENT

101. This financial management assessment aims at taking stock of the resources used since the beginning of the project and is not intended to replace an external financial audit. The financial management assessment is performed using Excel files from UNDP Morocco describing the annual budget implementation status of the project from July 2009 to December 2012.

102. During the 2009-2011 period, project financial implementation was performed by an Administrative and Finance Assistant working within the project implementation team. This staff member had experience acquired from other UNDP-GEF projects. Project financial management is well organised and efficient. Subsequently (2012-2013), the project budget was managed by ADEREE financial services.

103. Table 1 below describes the initial total budget of the project contained in the ProDoc for the four (4) years of the project implementation (July 2009 – June 2013).

Table 1: CEEB Morocco Budget in ProDoc

Year	2009 (US$)	2010 (US$)	2011 (US$)	2012 (US$)	Total (US$)	%
Component 1	299 000	345 000	341 000	290 000	1 275 000	6.8%
Component 2	377 500	717 500	717 500	187 500	2 000 000	10.7%
Component 3	70 000	165 000	150 000	25 000	410 000	2.2%
Component 4	510 000	525 000	354 000	121 000	1 510 000	8.1%
Component 5	687 250	4 089 160	4 181 250	4 181 250	13 138 910	70 %
Project management	100 000	100 000	100 000	100 000	400 000	2.2%
Total (US$)	**2 043 750**	**5 941 660**	**5 843 750**	**4 904 750**	**18 733 910**	**100%**

104. In Table 1, it is observed that the total budget as contained in the ProDoc is US$18,733,910, excluding the budget for the preparatory assistance phase. The initial budget is prepared on the basis of the contribution of the four financial partners - GEF, UNDP Morocco, the Moroccan Government and the Italian Government.

105. Table 2 describes the annual updated budgets following the validated annual work plans. This table helps to compare the planned budgets against those that were actually validated in the annual work plans. Funding for component 5, corresponding to investments in energy efficiency for the European Union-funded projects, is not captured in this table.

106. It is observed that the budgets per result were reviewed before approval of the annual work plans and they are much lower than those in the Project Document. This situation is largely due to weak private and public investments in component 5 of the project: public and private investments in EE in residential buildings.

Table 2: Budgets approved on the basis of the annual work plans (US$)

Year	2009	2010	2011	2012	2013
Component 1	136 000	135 000	220 000	96 000	186 000
Component 2	180 000	121 000	277 500	256 500	532 000
Component 3	0	30 000	75 000	70 000	56 000
Component 4	99 800	70 000	200 000	395 000	257 000
Component 5	0	130 000	120 000	0	0
Project management	34 000	147 500	117 500	50 000	37 000
Total (US$)	**449 800**	**633 500**	**1 010 000**	**867 500**	**1 068 000**

107. Table 3 below describes the annual expenditure by each project component as of the date of the mid-term evaluation (April 2013). The real expenditure is compared to the budgets for determining the financial implementation rate.

Table 3: Actual Annual expenditure in relation to the approved budgets

ACTIVITIES	Budget US$	Expenditure US$	Budget US$	Expenditure US$	Budget US$	Expenditure US$	Budget US$	Expenditure US$	Budget US$	Expenditure US$
	2009		2010 (revised budget)		2011		2012 (downward revision of budget)		2013	
Component 1	136 000	9 291	135 000	121 544	220 000	263 519	70 000	23 595	186 000	
Component 2	180 000	27 231	121 000	108 341	277 500	64 268	50 000	62 345	532 000	
Component 3	0	0	30 000	0	75 000	46 866	0	24 837	56 000	
Component 4	99 800	4 439	70 000	42 360	200 000	41 563	145 000	133 078	257 000	
Component 5	0	0	130 000	119 760	120 000	26	106 500	116 927	0	
Component 6	34 000	24 152	147 500	142 660	117 500	57 076	96 000	41 417	37 000	
Total	449 800	65 113	633 500	535 569	1 010 000	479 868	467 500	399 207	1 068 000	
Implementation rate (% of approved budget)	14.5%		84.5%		47.5%		85.4%			
Observations	The project depended on funding from other agencies (GIZ, ADEME)		Downward revision of budget		Non-extension of the mandate of the project team (Unit in charge of Building Codes within CDER)		Budget transfer (UNDP to ADEREE) was undertaken only in July 2012			

108. The project implementation rate for the July 2009 to December 2012 period is 50%. The year 2010 was particularly positive in terms of budget disbursements. The budget implementation rates for the following two years (2011 and 2012) are similar, despite the change in the management team of the CEEB project, if we consider initial budget. Otherwise, if we consider the lowered budget in 2012, the year 2012 saw a completion rate of 85.4%. As at the date of evaluation (April 2013), the commitments for 2013 had reached 15%; the recruitment of a new National Coordinator in February and technical experts (planned in June) suggests a financial implementation level closer to expectations (about 80%).

109. It should be noted that, in the project team, there is no administrative and finance assistant to keep the financial records and related documents. The financial accounts are managed directly by ADEREE. For such an important GEF project, it is necessary to recruit an administrative and finance assistant to manage the project accounts and support the team in making informed decisions through the provision of up-to-date information on the statements of accounts. However, one ADEREE staff member has been fully assigned to the CEEB Project as Administration and Finance Officer. It is important to note that, since January 2012, ADEREE has no budget to manage directly, and payments for the project are now made by the UNDP CO.

110. The project financial management is rated **moderately satisfactory (MS)**.

3.2.4 CO-FINANCING AND CONTRIBUTIONS IN KIND

111. GEF provides US$3 million to the project, representing 16% of the total budget. UNDP Morocco, the GEF implementing agency, finances the project management in the amount of US$200,000, representing 1% of the total budget. Initially, the Moroccan Government was the main project financier since it was supposed to contribute financial resources in kind and cash to the tune of US$14,333,910, representing 77% of the overall

budget. The Italian Government had agreed during the design phase of the project to provide co-finance of US$1,200,000, representing 6% of the total amount – but this co-financing was officially cancelled at the commencement of the project.

112. During project implementation, the Moroccan Government was able to mobilise co-financing of €10 million from the EU for the EE investment-related component 5. Actually, only €7.5 million has been disbursed by the EU to date according to the data collected during the field mission. This amount was allocated to demonstration projects made with 6 main national partners, including the state property developer Al Omrane.

113. The leadership shown by ADEREE and the project team has helped to mobilize several technical and financial partners, including the EU, the French Global Environment Facility (FGEF), ADEME (France) and GIZ (Germany), to co-finance the project for a total amount of €11.4 million, representing US$14.4 million, that is about five times the total amount of GEF financing.

114. Table 4 below describes the various sources of funding and the mobilized amounts.

Table 4: Sources and amount from partners for the funding of CEEB Morocco project

Co-financing (Type/source)	UNDP Funding (in M US$)		Government of Morocco (in M US$)		Partner Organisations (in M US$)		Total (in M US$)	
	Planned	Real	Planned	Real	Planned	Real	Planned	Real
Subsidies	0.200	0.300	5.084	0.924	1.200	14.911	6.484	16.135
Loans /grants								
Support in kind			9.250	0.500			9.250	0.500
Other								
Total	**0.200**	**0.300**	**14.334**	**1.424**	**1.200**	**14.911**	**15.734**	**16.635**

115. The EU co-financed nine (9) pilot demonstration projects (including five (5) projects in the residential and social sectors, two (2) public buildings and two (2) major resorts at Larache and Marrakech) integrating EE measures, for a total amount of €10 million. This amount was used to finance the incremental cost of EE measures under the technical supervision of ADEREE. The implementation of these pilot projects will help reduce CO_2 emission by 3,920 tCO_2/year in the building sector and this represents a factor for replication and sustainability of the project. During discussions with the evaluator, the EU expressed the wish that the demonstration projects will be multiplied.

116. FGEF co-financed the project with €1.4 million. The Agency for Environment and Energy Management (ADEME) acts as technical partner of the project financed by FGEF. It supports the establishment of the technical Unit for Building Codes, builds the management and financial capacity and skills of local experts, trains professionals and assists in the implementation of development project.

117. GIZ, formerly GTZ, collaborated with ADEREE before the inception of the CEEB project and co-financed the project as a technical partner. It provided assistance in the development of the technical specifications for an efficient thermal building envelope in 2010, and helped to finance a Rural Energy Efficiency School in Ifrane. In the future, it plans to organise study tours and exhibitions in Germany for the project stakeholders.

118. Co-financing as stated in the ProDoc did not occur as expected. About 10% of the co-financing has been actually mobilised for pilot investments (cf. table 4)**.** Consequently, the co-financing and in-kind contribution are rated **unsatisfactory (U).** However, the mobilisation of important leveraged funding by ADEREE for demonstration projects (cf. Result 2) was a complete success. The mobilisation of leveraged funding is rated **highly satisfactory (HS)**.

3.2.5 EXECUTING AGENCY AND QUALITY OF IMPLEMENTATION

119. ADEREE (formerly CDER) is the executing agency of the CEEB project. It took the lead in the preparation and launch of the project by successfully bringing together several ministries and professional organisations for a common objective: to introduce mandatory standards with a view to improving EE in the building sector at a time when the country was experiencing energy supply difficulties.

120. CDER is a public agency which, in the past, was considered the executing agency for many projects funded by Morocco's technical and financial partners. In broadening its role in 2009 to include energy efficiency, the Moroccan Government assigned the agency the responsibility for the development and implementation of its national EE programme, including drafting and implementation of an EE code for the building sector. As a financially autonomous public agency, CDER – now ADEREE – has considerable flexibility in implementing innovative public-private partnerships. The choice of CDER (ADEREE) as executing agency is considered appropriate.

121. At the start of the project, ADEREE promptly recruited, with UNDP support, a National Project Coordinator assisted by a five-member technical and administrative team. The project activities were efficiently managed by the team, as reflected by the work plans prepared and submitted to UNDP, which approved them, and the periodic activity reports prepared by the project team.

122. The executing agency's activities also focused on: strategic and policy advice, signing of partnership agreements with the Ministries of Housing, Health, Tourism and Education, providing support to the project team to develop the EE Code, development and implementation of demonstration projects with professional organisations and property developers, capacity building, sharing of experiences with France and Germany, advocacy and resource mobilisation from donors. Through its activities, CDER, and later ADEREE, laid the required emphasis on attaining the results. The focus on results is considered **highly satisfactory (HS)**.

123. The change in December 2011, when the project team was replaced by ADEREE permanent staff (period of disruption: 3 months), led to a slowdown in the project. The delays experienced in 2012, although partly remedied, affected the project results, particularly development of the EE Code (Equipment component) and standards, as well as the project M&E and the involvement of urban agencies which are essential partners in the implementation of the thermal energy regulations.

124. Furthermore, ADEREE's failure to open up to universities and engineering schools regarding training for effective implementation of the provisions of the Code by professional actors, had a negative impact on the project. Some risks to project implementation were identified in the ProDoc and some problems arose during the project's life cycle. The executing agency's **management of these risks** is rated **moderately satisfactory (MS)**.

125. Generally, the role of the executing agency in the implementation of the project is rated **satisfactory (S)**.

3.2.6 PROJECT MONITORING AND EVALUATION

126. Like all other GEF-funded projects, the CEEB Project in Morocco is required to comply with UNDP standard monitoring and evaluation procedures. Regular reports on planned activities and achievements are submitted to the Steering Committee and UNDP for approval. In that regard, the action plans, progress reports (quarterly and annual reports) as well as the annual activity reports are regularly prepared by the project team and submitted to the SC for approval. The activity reports for 2010, 2011 and 2012 are available. Reports of SC statutory meetings are also available. The Steering Committee, put in place at the start of the project, meets once a year to consider the progress of the project and to provide the required guidelines to ensure the

continuation of the project. It should also be noted that, for monitoring purposes, the CEEB project in subject to mid-term and annual reviews organised by the UNDP CO.

127. An audit and two independent evaluations are planned during the project cycle: one mid-term evaluation is to take place one and half years after project commencement (i.e. at the end of the second year of implementation), and one final evaluation three (3) months before the project termination. The mid-term review of the project started in April 2013, i.e. 34 months after the start of the project and 10 months after the initial date scheduled for this activity. The initial project team was replaced by ADEREE permanent staff in 2012 which, in turn, slowed down some activities, including the mid-term evaluation.

128. The Project Inception Workshop was held on 24-25 February 2010 in Rabat in line with the monitoring-evaluation plan. CDER (ADEREE) presented the Annual Reports for 2010, 2011 and 2012 and an update on the risks and challenges in the 2011 and 2012 reports. The Annual Project Review (APR) / Project Implementation Review (PIR) for 2010, 2011 and 2012 were prepared and submitted for approval.

129. The mid-term review scheduled to take place at the end of the second year of project implementation, that is June 2011, was finally conducted in April 2013, a few months before the initial end-date of the project (June 2013). The first Project Tripartite Meeting was held in March 2010 but was not convened in 2011 and 2012.

130. The project is supported by the UNDP Country Office in Morocco and by the UNDP-GEF Unit in Bratislava Regional Centre. UNDP provides annual reports (*Project Implementation Report (PIR) / Annual Project Review (APR))* on the technical evaluation and financial management in Excel format and, since 2013, online. The tabs in the spreadsheet contain data on annual expenditure and cumulative expenditure as well as the co-financing mobilised. However, it should be noted that the system does not provide budget lines by expected results or project activity, making it difficult to assess the efficiency of the financial management.

131. Implementation of the monitoring-evaluation plan as provided in the Project Document in line with UNDP-GEF procedures (cf. Output 4.4 of the project endorsement document, page 22, English version of 26 April 2009) is not completely satisfactory. The monitoring component of the project was carried out more effectively compared to the evaluation component, particularly regarding delay in commencement of the project mid-term evaluation. One of the consequences of this situation is that the executing agency took the unilateral decision not to renew the project team's contract at the end of 2011, thereby causing embarrassment to the UNDP CO.

132. The monitoring-evaluation of the project is rated **moderately satisfactory (MS)**.

3.2.7 PARTNERS PARTICIPATION IN PROJECT IMPLEMENTATION

133. There was high-level stakeholder mobilisation during the project design phase as well as during its implementation. The major national partners involved in the project implementation are:

- ADEREE (executing agency)
- Ministry of Energy
- Ministry of Housing
- Ministry of Health
- Ministry of Tourism
- Ministry of Education
- Ministry of the Interior
- National Association of Architects (CNOA)
- National Construction and Public Works Federation (FNBTP)
- National Federation of Construction Material Industries (FMC)

- Al OMRANE Group, Government Operator in the housing sector
- Moroccan Solar and Wind Energy Association (AMISOLE)
- National Federation of Property Developers (FNPI)
- Moroccan Engineers Association
- Universities and Professional Schools

134. The project Steering Committee (SC) meets once a year to validate the previous year's activity reports and most of the actors mentioned earlier are involved in the annual action plan. The SC is composed of representatives of the key ministries (Energy, Housing, Tourism, Environment, Education and Finance), governmental organisations (SNIMA), private sector business associations (CNOA, FNBTP, etc.) and representatives of the electricity sector (ONE: National Office of Electricity and Drinking Water).

135. The project team is supported by a network of national experts (consulting firms) recruited on the basis of tenders to carry out specified activities (sectoral studies) and contribute to delivering the project results. The CEEB project is networked with building professionals' associations in Morocco, such as the National Association of Architects (CNOA) and engineers' associations, as well as Moroccan universities and professional schools. Collaboration between the CEEB project, FNBTP and three universities led to the establishment of three university degrees (Professional Bachelors) in the area of EE in the building sector.

136. The project benefits from the support of the ADEREE communication unit. The four-member unit is in charge of internal and external communication. A professional website (www.ceeb.ma) was created on 25 December 2010 to ensure greater visibility of the project. A view of the website homepage is presented below.

Figure 5: Homepage of the CEEB Project Morocco website

137. Despite the fact that the website was created in 2010, it is still not known to all national actors and there is no Arabic language option – despite the fact that Arabic is the official language of Morocco.

138. Communication efforts made by the CEEB project led to its participation in many national workshops and exhibitions (Batimat, Bativert, Batinov, etc.).

139. Stakeholder participation in project implementation is rated **satisfactory (S)**.

3.2.8 IDENTIFICATION OF RISKS AND ADAPTATIVE MANAGEMENT

140. The CEEB project development objectives did not change during implementation. The project objective of establishing minimum energy performance standards (MEPS) by introducing an Energy Efficiency Code in the building sector in Morocco has been maintained.

141. This objective was further strengthened by changes that took place during implementation of the project. The changes include: development by the Ministry of Energy of an energy strategy in which energy efficiency is a priority, the development of an Urban Planning Code and an Environment Charter.

142. The CEEB Project identified three major risks in the ProDoc and recommended the required mitigation measures:

- Legal risk: delayed final adoption of the law on energy efficiency as well as the law transforming CDER into ADEREE;
- Institutional risk: emergence of institutional rivalries which may slow down cooperation between the ministries involved in the project;
- Technical risk: poor technical capacity of CDER staff and the private sector.

143. Concerning the first risk, the Government's political will of cutting its energy dependency and the advocacy of the Ministry of Energy led to a reduction of the legal risk.

144. Development of the mitigation strategy for the institutional risk was centred on putting in place an inter-ministerial "task force" called the National EE Commission, to institute ongoing political dialogue between, on the one hand, the Ministry of Energy and the Ministries concerned, and on the other hand, the stakeholders of the public sector and their private sector colleagues, with a view to putting in place a harmonious forum for the sector programmes promoting EE.

145. ADEREE (formerly CDER), the executing agency, increased the number of cooperation agreements with public and private organisations, particularly the real estate developers associations, with a view to implementing pilot projects and investment projects. The fear of rivalries failed to materialize due to the positive welcome accorded the project by all stakeholders concerned.

146. The deployment of several cooperation programmes between the agency and external partners such as ADEME and GIZ, to name a few, mitigated the risk relating to the poor technical capacity of ADEREE (formerly CDER). Training sessions and study trips were organised respectively in Morocco and abroad, particularly in Germany. Qualified staff has been recruited to work under the supervision of the Director of RE and the EE Centre of ADEREE. However, the risk relating to poor capacity of the municipal and professional agencies has yet to be addressed properly. No training has been provided thus far for these target groups.

147. The project's dependency on public and private investments which are outside the executing agency's control (Ministries of Housing, Health and Tourism, Real Estate Developers, etc.) for achieving the expected energy savings was too risky. The project team and the executing agency successfully developed a strategy for mobilisation of co-financing, particularly with the EU, which led to successful mitigation of this risk.

148. Identification of the risks to the project is rated **highly satisfactory (HS).**

149. Implementation of the adaptive management is rated **satisfactory (S).**

3.3 PROJECT RESULTS

3.3.1 ATTAINMENT OF PROJECT OBJECTIVES AND PROJECT RESULTS

150. This section presents a detailed evaluation of project achievements in terms of objectives and expected results as described in the Project log-frame in annex A of the GEF Funding Request.

151. General Project Objective: Improve energy efficiency in buildings in Morocco, particularly in the housing sector, through the introduction of EE codes and standards in buildings.

152. *Indicator 1: CO_2 emissions are reduced*

> *Target 1: Reduction in CO_2 emissions by 3.5 million tonnes as a direct impact of the project*

> *Achievement: 9 pilot projects financed with European Union funds and demonstration projects at some public and private organisations are underway.* The 9 projects are running with different degrees of progress: 2 projects are very advanced, 3 projects are in progress with manageable implementation delays, 2 projects have difficulties running (due to a mix of internal and external considerations), and 2 projects are experiencing delayed execution. For all projects, the energy efficiency measures implemented are as follow: • Roof insulation • Wall insulation • Joinery double glazed • Efficient systems for water distribution • Solar water heaters (residential and hotels) • Sun protection (of different types) For tertiary sector and hotels: • Air conditioning and efficient lighting. On the financial impact of the implementation of regulatory measures, there is a first estimation of incremental costs per housing recorded from two specific cases: housing of 70 m^2 in climate zone 2: 6,000 Dhs (2.4% of the housing price if the measures are applied to social housing 250,000 Dhs); and housing of 70 m^2 in climate zone 4: 10,000 Dhs (excluding solar water heaters) (4% of the housing price if the measures are applied to social housing 250,000 Dhs). Impact of solar water heaters (individual or collective solution): 10,000-12,000 Dhs per unit. Thus, the additional cost of implementing EE measures applied to new building programmes is at a socially acceptable level.

> *Evaluation:* Given the lack of technical reports from the executing agency, it was impossible to evaluate the direct impact of the implementation of EE codes in the pilot and demonstration projects carried out. On the energy-saving and CO_2 reduction impact: it is clear that the application of the thermal regulation will significantly improve the thermal comfort of buildings in cold and hot periods and, in parallel, substantially reduce the costs of heating and air conditioning. According to a first estimate by ADEREE, energy savings realized by the 9 projects will be around 5.6 million kWh/year, which is equivalent to a CO_2 reduction of approximately 3,920 tCO_2/year.

> The attainment of this very ambitious target through demonstration projects is about 30%. **Moderately satisfactory**

153. *Indicator 2: The number of construction projects in the housing sector which comply with EE codes in buildings is increased*

> *Target 2: Adoption by Government of the EE codes in 75% of its housing projects*

> *Achievement:* Signing of a partnership agreement on 21 April 2011, between the CEEB project and property developer Al Omrane Holding, for the development and implementation of an EE and environmental protection programme in construction projects and property development projects by Al Omrane (the principal Government housing project developer, which accounts for 80% of the public market) and its subsidiaries.

- *Evaluation:* Apart from the agreement between ADEREE and Al Omrane, it was impossible to document other agreements in which public sector developers committed to implement the EE Code before it becomes mandatory. Surveys should therefore be carried out to check the level of implementation of the Code in residential houses financed through public funds. As a result, the attainment of this target is rated **moderately unsatisfactory (MU)**.

154. *Indicator 3: Compliance with EE standards for public investments in building is required*

- *Target 3: 75% of public hospitals comply with EE standards in buildings*
- *Achievement:* from the activity reports compiled, it can be concluded that energy audits were carried out in the healthcare sector within the framework of the partnership between ADEREE and the Italian Ministry of the Environment (IMELS), for the setting up of the project on improving EE at the Ibn Rochd hospital in Casablanca. An audit of the Ibn Tofail hospital in Marrakech was also started in 2011.
- *Evaluation*: the termination of cooperation with Italy and the absence of any clear indication of other initiatives in the healthcare sector have led to the conclusion that investments for the implementation of the Code project in renovations within the healthcare sector are still low. It was not possible to obtain further information to support the fact that public hospitals comply with the Code. As a result, the attainment of this target is rated **moderately unsatisfactory (MU).**

155. *Indicator 4: Private developers adopt good EE practices*

- *Target 4: 40 hotels adopt EE standards in buildings*
- *Achievement:* Within the framework of the agreement signed in 2008 between the Ministry of Energy and the Ministry of Tourism, ten energy audits for hotels in 2012 were planned under the CEEB Project. One of the 2013 targets is a study of lighting systems in hotels. According to the SC 2013 report, this study was finalised in 2012 in line with the plan.
- *Evaluation:* Although all the deliverables relating to the study on lighting systems in hotels were received in 2012, it was impossible to document whether 40 hotels had adopted EE standards in buildings. In the absence of objectively verifiable information from the executing agency, this target is rated as **moderately unsatisfactory (MU).**
- *Generally, the attainment of targets linked to the general project objective was difficult to prove given the lack of monitoring reports from the CEEB project (Output 4.4) regarding achievements in the key sectors of housing, healthcare and tourism, which essentially present the potential for CO_2 emissions reduction through the implementation of EE codes. The attainment of the general target is rated* **moderately satisfactory (MS)**.

Result 1: Setting up an EE Building Code Unit at the national level, and reinforcing compliance at the municipal level.

156. *Indicator 5: the EE Building Code Unit is fully functional*

- *Target 5.1*: EE Building Code Unit is set up within CDER from the first year
- *Target 5.2*: *6 team members are recruited and trained by the end of year 2*
- *Achievement*: Recruitment of an international expert in December 2009 to provide support in the establishment of the Energy Regulations in Buildings Unit (UREB) within CDER. The skills required were defined and detailed job profiles prepared for each position in January 2010. Recruitment of a national coordinator in 2010 and four technical experts and UREB members, June 2010. Implementation of the supervision plan for UREB members at the UREB training which took place on 28 and 29 September 2010.

- *Evaluation*: As set out in the log-frame, the EE Code Unit was set up within a year. The UREB team was trained in the course of year 2. The attainment of these targets is rated **highly satisfactory (HS)**.

157. *Indicator 6: Urban agencies are trained in the implementation of EE codes in buildings*

- *Target 6*: At least 3 urban agencies enforce compliance with EE codes in buildings.
- *Achievement*: there were few awareness creation activities involving urban agencies during the EE Code drafting phase. There was thus no training for urban agencies on the EE Code implementation and the liabilities component. For 2013, a series of 8 workshops for urban and municipal agencies are envisaged in the action plan.
- *Evaluation*: the target was not attained. **Unsatisfactory (U).**

158. *Indicator 7: Implementing decrees on EE code implementation are in effect in local areas*

- *Target 7.1*: Three urban agencies are trained in the third year of the project
- *Target 7.2*: Implementing decrees are issued to enable urban agencies to enforce compliance with EE codes in buildings
- *Achievement*: The Implementing Decree and Construction Thermal Regulations in Morocco were finalised and forwarded by the Ministry of Energy for final validation of the Cabinet. However, since project inception, no local authority has been trained on EE codes in buildings implementation. The process of adopting EE codes by the government is not complete and the implementing decrees are not yet in force.
- *Evaluation*: The target was not attained. **Moderately unsatisfactory (MU).**

159. Project effectiveness for **Result 1** is rated **moderately satisfactory (MS)**

Result 2: **Energy efficiency potential in new construction is appraised: outreach, demonstration and knowledge sharing activities are carried out**

160. *Indicator 8:* Number of demonstration projects carried out

- *Target 8*: At least 10 demonstration projects are carried out
- *Achievement:* Studies to appraise the energy efficiency potential of buildings began in 2012 and are still ongoing (Study for the characterization of the Moroccan market of heating, ventilation and air conditioning; Status and characterization of building materials and thermal insulation of buildings; The situation, type and evolution of the building stock in the context of the implementation of the energy efficiency code). A call for demonstration projects was made from April to June 2011 with EU funding in order to select construction projects incorporating energy efficient measures. Nine (9) projects were selected: 5 projects in the social housing sectors of Casablanca, Larache, Marrakech and Meknes, two 2 projects at the headquarters (SGTM and Al Omrane), and two (2) large tourist complexes in Larache (SGTM) and Marrakech (SDRT). These demonstration projects are under development and have received EU funding.
- There are, in addition, the projects on integrating EE measures in new construction of the Ecole Pratique des Mines, Touissit, 2010 and the library at Lycée Descartes, Rabat, 2010. Signing of a partnership agreement on 21 April 2011 between the CEEB Project and Al Omrane for the preparation and implementation of an energy efficiency and environmental protection programme for the construction and development projects by Al Omrane and its subsidiaries. Finalisation in 2012 of the study of building types.
- *Evaluation:* The target of ten demonstration projects was largely achieved. **Satisfactory** (**S**).

161. *Indicator 9: Awareness creation and mobilisation plan*

- *Target 9.1:* Workshops are held on a half-yearly basis
- *Target 9.2:* One national EE event is held per year
- *Target 9.3:* A quarterly e-newsletter is published from year 1

- *Achievement:* a significant number of decision makers in the public and private sectors – estimated at about 1,000 – were mobilised and now understand EE concerns in the construction sector. Two information and consultation workshops with institutions and professionals in the sector (VAC, lighting and hot water) on the EE codes in buildings were held in 2012. Project communication activities included several awareness creation workshops to promote EE. Participation at 3 fairs on the theme of EE in buildings (Batimat, Bativert, Batinov) in 2011. Preparation of two brochures on EE in buildings in Morocco, 2012.
- *Evaluation*: some important targets were not attained, such as the mobilisation of key partners including local authorities, urban agencies and private housing developers. Knowledge gained from the project is yet to be processed and shared with all actors. The website, launched at the end of December 2010, is dormant. Given these observations, the communication strategy needs to be reviewed and enhanced. **Moderately satisfactory (MS).**

162. *Indicator 10: Number of professionals trained*

- *Target 10*: 4, 500 man/days of training for professionals
- *Achievement:* From the activity reports, it was noted that since project inception, 945 persons including 255 women (27%) have been trained. Training is yet to be carried out for persons in the local areas.
- *Evaluation*: It was difficult to assess the number of man/days of training carried out. However, the target is completely attainable in light of the training workshops planned in 2013. **Satisfactory (S)**.

163. *Indicator 11: Number of companies having received technical support for the development of energy efficient projects*

- *Target 11.1*: 27 energy audits carried out
- *Target 11.2*: Technical assistance for 9 EE projects
- *Achievement*: At the date of evaluation, 15 energy audits are underway in 3 institutional buildings (ADEREE Rabat; Ministry of Energy; ADEREE Marrakech). In 2010, the EE project at the Université AL AKHAYNE received technical assistance. Others include the EE project for the new construction at Ecole Pratique des Mines, Touissit and the library at Lycée Descartes, Rabat. In 2011, the Safaa and OFPTT projects received technical and monitoring assistance.
- *Evaluation*: the energy audits and technical assistance for the integration of EE measures in projects continue at a regular rate. The attainment of these two targets is rated **satisfactory**.

164. Project effectiveness for **Result 2** is rated **satisfactory (S).**

Result 3: An EE building Code for residential buildings is drafted and implemented

165. *Indicator 12:* Drafting and submission of the Code

- *Target 12.1:* the EE code in buildings is drafted and submitted to the Parliament in year 3
- *Target 12.2:* the implementing decrees are prepared and submitted in year 3
- *Achievement:* Project Strategic Planning Workshop with partners, 24 February 2010. Inception workshop for National Energy Efficiency in Buildings project, 16 March 2010. Preparation of the climate zoning map with two maps (summer/winter) superimposed, taking into account simulation outcomes and the relief,

September 2010. Preparation of technical specifications for thermal regulations and outcomes of the economic and financial analysis of EE measures in homes and services industries (housing, healthcare, tourism, education), September 2010. Workshop on preparation of the technical provisions on active systems to be included in the chapters on "Lighting, VAC and Hot Water" of the draft EE Code, 22 and 23 March 2012. Workshop on the technical provisions of active systems to be included in the chapters "Lighting, VAC and Hot Water" of the draft EE Code, 31 May 2012.

> *Evaluation:* the EE Code in buildings was prepared. The draft Code was drafted and submitted, and presented during four days of workshop to national partners. The activity was carried out with the collaboration of international partners. Regarding the establishment of an enabling regulatory framework for the EE Code in building, Law 47-09 on energy efficiency was adopted by the Moroccan Government. The liabilities component of the EE regulations is in the process of adoption by the Moroccan Government – two important signatories, the Ministries of Energy and Housing, have validated the document. The government has given legal notice of the Decree. The "active" component of the regulation, concerning home appliances and heating systems, ventilation and air conditioning (VAC), was finally adopted in June 2013. A new version of the EE Code (mandatory for all new buildings) is in the process of being signed by all ministers after some amendments. Attainment of this target is rated **satisfactory (S).**

166. Project effectiveness for **Result 3** is rated **satisfactory (S).**

Result 4: Standards and guidelines for professionals are developed and disseminated

167. *Indicator 13:* Energy efficiency standards are developed

> *Target 13:* a complete set of standards for the design of the envelope, lighting and HVAC is prepared in year 4

> *Achievement:* Conduct of characterisation studies on heating, air conditioning, lighting, construction materials and building types, October 2010.

> Consultation meetings on the technical basis of the regulations:
- Ministry of Tourism, 4 November 2010
- Ministry of Education, 2 and 8 November 2010,
- Meknes Tafilelt region, 22 and 23 November 2010,
- Souss Massa Draa region, 24 and 25 November 2010,
- Rabat region, 17 December 2010

> Day of national consultations on the technical details of the regulations, 12 April 2011. Workshop for the presentation of the results of the preparation of technical provisions for active systems in buildings to be included in the chapters on Lighting, VAC and Hot Water, Rabat, 22 October 2012. Training on the buildings simulation software, "DesignBuilder", 28 - 29 -30 November 2012. Initiation to the TRNSYS software training, 2012.

> Six guidebooks are in the process of being prepared.

> *Evaluation:* The "Passive building component" of the EE building Code has been finalised. The "equipment component" of the EE building Code being prepared was recently adopted in June 2013 but not enforced. The attainment of the target is rated **moderately satisfactory (MS).**

168. *Indicator 14:* Practical guides to energy efficiency are published

> *Target 14: A practical guide for each type of standard is drafted in the year 3*

> *Achievement:* Development of a training plan with ADEME and InWent to strengthen the capacities of architects, technical firms, technical managers and prescribers on EE in buildings, December 2010. Preparation of the six practical guides is underway.

> *Evaluation:* the attainment of this target is rated **moderately unsatisfactory (MU).**

169. *Indicator 15:* Measuring energy consumption to assess the impact of the proposed EE standards with a sample of buildings

> *Target 15*: all the standards are tested to determine the benefits of the energy savings in the field

> *Achievement:* Support for the development plans for urban areas*:*

- Signing of the Impact Assessment Agreement for the new town of Lakhyayta with Al Omrane and the Housing Ministry, 9 July 2010.
- Signing of the MoU for the Impact Assessment for Chrafate, 8 July 2010.
- Signing of the partnership agreement on 21 April 2011, between the CEEB Project and Al Omrane for the development and implementation of an energy efficiency and environmental protection programme for the construction and development projects by Al Omrane and its subsidiaries.

> *Evaluation:* assessment of energy consumption in pilot buildings is yet to commence although the three locations have been selected as follows: new ADEREE site, Rabat, Ministry of Energy building and ADEREE site, Marrakech. The attainment of the target is rated **moderately unsatisfactory (MU)**

170. Project effectiveness for **Result 4** is rated **moderately unsatisfactory (MU)**.

Result 5: Public and private sector investments in energy efficiency in buildings

171. *Indicator 16:* Value of investments in residential housing, hospitals and hotels

> *Target 16:* At least US$10 million is invested by public and private organisations in year 4 within the framework of the CEEB Project

> *Achievement:* The table below gives some idea of the activities financed by government institutions within the framework of the pilot investments under Result 5. Investment by public sector organisations involved in the project amounts to US$1.024 million.

- Installation of solar equipment at the Ibn Rochd Hospital for hot water production (ADEREE funding): US$301,205
- Financing of an energy impact study for the new town of Lakhyayta:

-	Housing Ministry	US$240,964
-	Al Omrane	US$240,964
-	ADEREE/UNDP	US$240,964

> *Evaluation:* The achievements of the project, in terms of additional public investment to improve or promote energy efficiency in buildings, have not materialized in line with expectations (outputs 5.1, 5.2, 5.4 and 5.5). The amount raised for investments represents only 10% of that envisaged in the project document (approximately USD 10.6 million) funding. The collaboration between ADEREE and institutional actors targeted by the project for investment-based requirements of the EE Code still suffers from the non-adoption and non-application of the thermal regulation developed by the project.

172. Project effectiveness for **Result 5** is presently rated **moderately unsatisfactory (MU).**

173. As indicated earlier, the project indicators and targets are not, in any case, clearly defined and measurable. Thus, assessment of the achievements was focused, as much as possible, on the analysis of factual data provided to the team. In this regard, the key project indicator is indicator 2, which aims to reduce direct emissions during the project life cycle by 3.5 million tonnes of CO_2. This goal is not measurable as it is based on in situ surveys and tests which had yet to be carried out by the time of the project mid-term evaluation.

174. In principle, the majority of targets linked to the expected project results were satisfactorily attained, although there were delays due to the changes at the end of 2011 regarding project coordination. These delays were not prejudicial to the project since, in 2012, the executing agency deployed the human and financial resources necessary for the project to continue. In 2013, the recruitment of a new full-time coordinator and 2 engineers led to a faster rate of implementation. In line with the 2013 Action Plan, the regulatory instruments will be finalised and training will start on the use of the tools developed by the project.

175. The evaluation of the different project components may be summarised as follows:

	Expected Result	Rating
1.	EE Building Code Unit is set up at the national level, and compliance reinforced at the municipal level.	• **Moderately satisfactory (MS)**
2.	Energy efficiency potential in new construction is appraised: outreach, demonstration and knowledge sharing activities are carried out	• **Satisfactory (S)**
3.	EE building code for residential buildings is drafted and implemented	• **Moderately satisfactory (MS)**
4.	Standards and guidelines for professionals are developed and disseminated	• **Moderately satisfactory (MS)**
5.	Public and private sector investments in buildings	• **Moderately unsatisfactory (MU)**

176. The results thus far produced are rated **relevant (R).**

177. The effectiveness of the results is deemed to be **satisfactory (S).**

178. The efficiency of the results is rated **satisfactory (S).**

3.3.2 SUSTAINABILITY

179. This section reviews the major risks that may affect continued project implementation and the lasting effect of project results. The ProDoc identifies three major groups of risks as follows: legislative risks, institutional risks and technical risks. Other risks relating to the country's socio-economic context, and those engendered by the financial constraints of a global environment characterised by the 2008-09 financial crisis, should be included with these major risks.

180. **Financial risks:** the financial risks that may undermine sustainability of the project results are low. Taking due consideration of Morocco's energy situation, characterised by growing demand and 97% dependency on external energy sources, energy efficiency has become the government's priority and one of the strategic areas in efforts aimed at resolving the country's energy challenge.

181. The Ministries associated with the CEEB project, namely Energy, Housing, Tourism, Health, and Higher Education, are strongly involved in implementation of CEEB activities and are undertaking efforts to make provision for EE investments in their respective budgets. Morocco's development partners and donors are becoming increasingly convinced of the relevance of the CEEB project and express their readiness to provide parallel financing for investments in pilot or demonstration projects. Some of the organisations or state structures that have acknowledged the significance of EE investments in Morocco include the European Union Delegation in Morocco, the Moroccan Energy Investments Company (SIE), Al Omrane Holding, Accord Group (energy upgrading programme for their hotels in Morocco), etc.

182. **The financial risks** that may affect sustainability of the project are rated **unlikely (U)**.

183. **Socio-economic risks**: Like all countries in the Maghreb, Morocco's socio-economic situation has been marked by the effects of the 2008-09 financial crisis as well as a reduction of public investment in the infrastructure sector. In the wake of the "Arab Spring" revolutions in the region, Morocco implemented political and social reforms. The very high and sustained energy prices in the world market, coupled with strong dependency of the Moroccan economy on fossil fuel imports, contributed to concerns about making energy efficiency in all sectors of economic activity one of the national priorities. All major stakeholders of the CEEB project are of the view that legislation promoting energy efficiency is in their best interest and are ready to participate in putting this in place. The collaboration among institutional sectors (energy, housing, tourism and health), with a view to attaining the project objectives, continues on a regular basis and grows through projects like the newly established towns where energy efficiency is highly required. The implementation of pilot public investments in hospitals and social housing projects provided the final beneficiaries of the project the opportunity to appreciate the significance of the project for their own activities. The private sector, particularly the tourism sector, is interested in investing in energy efficiency, as illustrated by various programmes underway to upgrade some hotels.

184. In summary, the stakeholders taking ownership of the benefits of the CEEB project can be divided into two categories. One category is made up of the institutional authorities, including the government and public bodies that have already taken ownership of the project. However, more efforts should be made in the areas of communication, awareness creation and training with regard to the second category, composed of the grassroots organisations in society such as project developers, local authorities and private developers. Without this additional effort directed to the CEEB project end-users, the project will not take permanent root in society. The stakeholders' awareness level is generally satisfactory but inadequate to support all the long-term CEEB project objectives.

185. **Socio-economic risks** are rated **moderately likely (ML).**

186. **Risks relating to institutional framework and governance**: since the project inception in 2009, there have been positive developments in the institutional framework for energy efficiency in Morocco. CDER was transformed into ADEREE to address issues relating to renewable energy as well as energy efficiency. The two components of the EE Code (passive building design and design of equipment) were finalised and adopted by the different Ministries (Ministry of Energy, Ministry of Housing, Ministry of Education, and Ministry of Health). However, they are not yet enforced to allow application.

187. Initially, compliance with the Code in new buildings and renovations will be on a voluntary basis. However, in subsequent years (not yet defined by the Government of Morocco), the Code will be reviewed and will become mandatory, hence the required involvement of urban agencies.

188. **Institutional framework and governance risks** for sustainability of the project are insignificant. Sustainability under this criterion is rated **likely (L).**

189. **Risks linked to the environment**: There is no environmental risk associated with CEEB project sustainability. Instead, the CEEB project is expected to improve the local and global environment through the reduction of greenhouse gas emissions in the housing sector in Morocco by 3.5 million tonnes of CO_2 over a period of 15 years when the Code will be enforced and becomes mandatory.

190. Sustainability of the project under this criterion is rated **likely (L).**

191. Overall, the CEEB project lays emphasis on strengthening the institutional, legal and legislative frameworks for the promotion of energy efficiency in the construction and housing sectors. Training of the technical actors, information for the stakeholders, implementation of a project communication strategy to disseminate results and, lastly, the champion roles that some actors such as ADEREE, the Ministry of Housing and Al Omrane are

expected to play, are major sustainability factors. This is reflected in the growing interest of the public and private actors in using the CEEB Project tools, particularly when developing new towns, social housing constructions or renovations in the tourism and healthcare sectors. The risks to the sustainability of the medium and long-term results are moderate and, therefore, the results achieved or expected from the pending activities will last over time. The energy efficiency and renewable energy market in Morocco is booming and the CEEB Project has partly contributed to that situation.

192. **Sustainability** of the project in relation to all the major risks is rated **moderately likely (ML).**

3.3.3 CATALYTIC ROLE OF THE PROJECT

193. Components 2 and 5 are two major components of the CEEB project, which mobilised significant co-financing and leveraged financing through community, demonstration, expertise sharing and investment activities. The European Union and the FGEF provided support for this component, for the implementation of the ongoing demonstration projects. During a field visit, the European Commission also indicated its readiness to continue investment in EE. Efforts are also being made by the Energy Investment Company (SIE) Morocco to promote the integration of EE and RE in the new town projects.

194. The impetus given by the CEEB project in the field is further illustrated by the diverse cooperation relations with France and Germany. It should also be noted that some key actors in the hotel sector have financed the upgrading of their facilities. An example is the Accord group in Morocco, which is presently undertaking large-scale EE investment in its hotels.

195. The CEEB project has thus had a positive impact on the energy efficiency market in a few years while enjoying an enabling background due to the strong political will of the Moroccan Government in the area of energy management, institutional transformation of CDER into ADEREE, various partnerships with national actors such as Al Omrane and with donors (GIZ, ADEME, EU).

196. The CEEB project is now considered a flagship project in Morocco and is expected to inspire other projects at both national and regional levels.

3.3.4 PROJECT IMPACT

197. At the time of the mid-term evaluation, the EE Code in Buildings Project was well on the way to achieving its objectives, which will ultimately lead to the desired impact.

198. The three desired impacts contained in the ProDoc are: reduction in CO_2 emissions, increasing number of construction projects incorporating EE standards, and increased use of EE standards by building professionals.

199. The demonstration projects set up and energy audits carried out (9 in the hotel sector) will facilitate the conduct of field surveys to ascertain the Project's initial impact.

200. Regarding raising public awareness about the project, there was significant impact in the mobilisation of property developers and sectoral ministries, which now intend to use the partial project results in their activities.

201. Achieving the CEEB project objectives will strengthen the legal and regulatory framework for energy efficiency in Morocco. Already, the government has enacted an energy efficiency law and the Building Code Unit at ADEREE is working on taking ownership of the entire process and sharing the information produced by the project with key actors in the housing, healthcare, education and tourism sectors for more widespread implementation of EE standards and guidelines by professionals. The Unit's activities will not end at project termination given the clear will of ADEREE to continue its work in view of its statutory importance.

202. Close collaboration is envisaged with property developers in the coming months in order to build the capacity of these agencies in the implementation of thermal regulations in new construction and renovation projects, and to train urban agencies to check compliance at the municipal level. The production and dissemination of information among professionals and participation in major national events through the deployment of a new communication strategy allowing for widespread dissemination of energy efficiency in buildings is desirable.

203. The three major risks identified in the ProDoc (Section F of the Request for GEF Endorsement), namely legislative risks, institutional risks and technical risks, were addressed willingly and effectively by the Moroccan Government through concrete measures taken in connection with the project, particularly the creation of ADEREE, the adoption of a law on energy efficiency, and the setting up of a permanent consultations framework among public sector actors involved in the implementation of the Code (housing, education, tourism and healthcare). The project results, particularly regarding the adoption of the Code, are encouraging. The ownership of the CEEB project tools by some key actors in the housing, tourism and healthcare sectors, (design methods for energy efficient homes and renovation of buildings to make them compliant with the requirements of the Code) as observed in the field, has led to the conclusion that the risks for the sustainability of the project are moderate.

4 CONCLUSIONS, LESSONS AND RECOMMENDATIONS

4.1 CONCLUSIONS AND RECOMMENDATIONS

4.1.1 CORRECTIVE ACTIONS REGARDING PROJECT DESIGN, DURATION, IMPLEMENTATION, MONITORING AND EVALUATION

204. At the national level, project partners are in a network and are largely involved in the preparation of the Code and related regulations within the framework of the Technical and Steering Committees, all being supported by training workshops. At the local level, however, there are no tangible activities bringing the local authorities and urban agencies together and this issue should be given greater attention for the remainder of the project. Joint planning with the key stakeholders, including the Ministry of Housing and Urban Affairs and the Ministry of the Interior, is recommended.

205. Considerable funding was also mobilised under the project from major technical and financial partners, including the European Union, GIZ, GFEF and ADEME. The network which operates at the national level requires sustained supervision, with sharing of information and good practices; while a network at the municipal level should also be created. The mobilisation of co-financing as envisaged in the ProDoc should continue in order to encourage the key stakeholders (from the public and private sectors) to implement the EE Code in Buildings in Morocco once it enters into force.

206. The involvement of key stakeholders (the Ministries of Housing and Interior, the Architects' Association, professional schools) in the project should be enhanced through their participation in the planning and implementation of the activities that concern them.

207. The project needs to clearly define the functions of the project team within the executing agency and the role of trainers and future beneficiaries of the Project.

208. Build bridges with schools, universities, training centres etc. to ensure they subscribe to the project and assign to them part of the mandate for training professionals.

209. Undertake a review of the logical framework to clarify some of the indicators and adjust the targets to make them measurable and realistic in relation to EE market conditions in Morocco.

210. Begin appraisal of project impact on the reduction of GHG emissions (environmental component) through monitoring of demonstration projects.

4.1.2 ACTIONS TO CONSOLIDATE PROJECT ACHIEVEMENTS

211. Provide sufficient means for the success of the remaining project tasks and responsibilities until completion in December 2014.

212. Enhance the involvement of local authorities in the project.

213. Provide information on other programmes running in parallel (European Union, SIE, etc.) with the CEEB project and which share the same theme.

214. Undertake demonstration projects on EE in buildings (comparing energy consumption levels between a building with energy efficient features and one without).

215. Provide potential users with simulation software and adequate training.

216. Extend the CEEB project until December 2014 for adequate dissemination of standards and directives to professionals.

217. Catalogue and archive documents emanating from the project.

218. Develop an exit strategy for UNDP at the project termination.

219. Transition from information production to information sharing via the website and other forms of media.

220. Creation of a “partners’ page” and “eco-citizen’s page” (general public) on the website

221. Publish the guides on good practices as quickly as possible to prepare users on the building codes.

222. Inform investors of the energy savings from the implementation of EE measures achieved in the context of the EU demonstration projects.

223. Provide information on the possibility of obtaining funding for EE investments (banks, SIE, ESCOs, international cooperation agencies, etc.).

4.1.3 SUGGESTIONS FOR ENHANCING MANAGEMENT OF POTENTIAL RISKS

224. Strengthen dialogue between ADEREE and UNDP Morocco.

225. Strengthen the project team, particularly in the areas of technical resources and the communication component.

226. Open up training through win-win partnerships with universities and professional schools to ensure timely achievement of the training activities planned for urban agencies and professionals.

4.2 LESSONS LEARNED

4.2.1 STRENGTHS

227. The CEEB project became a national programme considered as a “model initiative”, with the required human and considerable financial resources mobilised in record time.

228. The implementation of some components in conjunction with major public and private sector actors represents a success. This includes the drafting of the building codes and related legislation, as well as the demonstration projects funded by the EU.

229. The mobilisation of funds (GIZ, ADEME, EU) has been a success.

230. National mobilisation through the programme agreements between ADEREE and public and private partners was exemplary.

231. There is a process underway for building the capacity of first-class institutions. Information sharing and awareness seminars for actors were organised. There were, however, no tangible achievements from the training strategy for professionals in the field, particularly the urban agencies responsible for the enforcement of EE Codes in buildings.

232. Strong, positive relationships have been established with the key actors but there is a need to continue communication efforts and for innovation in order to consolidate the achievements in a difficult economic context.

233. There is initial progress in the setting up of the technical group responsible for drafting the standards (active code) but there remains considerable ground to be covered in order to achieve the objectives. The procedures

in force in Morocco require that, before becoming a National Standard, any "code" should be reviewed and approved by a Technical Group set up at the national level and comprising representatives of professional bodies as well as public agencies and ministries.

4.2.2 WEAKNESSES

234. The Communications Unit should increase its efforts and ADEREE should be opened up to professional schools for the implementation of its training plan aimed at disseminating the tools developed by the CEEB project.

235. Insufficient progress on the preparation of standards and directives (active code), thus preventing dissemination to professionals.

236. Poor implementation of the monitoring and evaluation plan, primarily as it concerns compliance with the statutory evaluation schedule of the project: the mid-term review was significantly delayed.

237. Inadequate facilities for the National Coordinator (small office space, telephone, computers).

238. Lack of vision on UNDP exit from the project.

239. Inadequate internal and external communication on the project.

240. The website is under-utilised: content to be improved (no Arab language options, studies are not published, etc.).

5 ANNEXES

Annex 1: Evaluation Terms of Reference

Annex 2: Methodology and proposed approach for the evaluation

Annex 3: List of persons interviewed

Annex 4: List of documents reviewed

Annex 5: Project Logical Framework Matrix

ANNEX 1: EVALUATION TERM OF REFERENCE

Durée globale d'exécution de la mission :

1 mois (à partir de Aout 2012).

Expertise et spécialités demandées

Pour la réalisation de cette évaluation, une équipe sera recrutée composée de deux experts dont un international qui est le chef de file de cette mission et le second est national :

1. Un expert international, chef d'équipe, spécialiste dans l'évaluation des projets pour une période de 20 jours.
2. Un expert national spécialiste en matière d'efficacité énergétique et en évaluation des projets pour une période de 20 jours.

L'équipe d'évaluateurs aura comme tâches spécifique :

- Travail en équipe en étroite concertation avec le PNUD, équipe de projet et autres parties prenantes;
- Examen et analyse des données et de la documentation disponible portant sur le programme et ses réalisations,
- Analyse et évaluation des activités entreprises initiées par le programme ;
- Réalisation d'enquêtes et d'entretiens avec les partenaires du programme;
- Evaluation de l'impact du programme en matière d'efficacité énergétique dans le bâtiment ;
- Animation de l'atelier de présentation et de restitution des résultats de la mission d'évaluation.

1. Profil de l'expert international

Qualifications requises:

- Diplôme universitaire supérieur (Doctorat, Ingénieur/Maitrise Scientifique) en relation avec les évaluations de projets, les sciences environnementales ou l'efficacité énergétique;
- Avoir 10 ans au moins d'expérience régionale ou internationale en matière d'évaluation des projets de développement/changement climatique dans le domaine de l'énergie et de l'environnement. Une expérience dans l'évaluation des projets FEM est hautement souhaitable ;
- Bonne connaissance de la gestion axée sur les résultats (en particulier le suivi et évaluation de projets de gestion axés sur les résultats);
- La compréhension des procédures d'évaluation axées sur les résultats du PNUD, et la politique de suivi et évaluation du FEM constitue un avantage;
- Disposer d'excellentes capacités d'analyse et de synthèse;
- Parfaite maîtrise de la langue française et anglaise.

Plus précisément, l'expert international (chef d'équipe) accomplira les tâches suivantes:

- Diriger et gérer la mission d'évaluation;
- Elaborer une méthodologie d'évaluation détaillée (y compris les méthodes de collecte de données et d'analyse);
- Décider de la division du travail au sein de l'équipe d'évaluation;
- Effectuer une analyse des résultats, des livrables et de la stratégie de partenariat (selon les objectifs de l'évaluation décrite ci-dessus);

- Effectuer une mission au Maroc d'au moins 7 jours et rencontrer les différentes parties prenantes dans le projet.
- Restituer les conclusions d'évaluation et les recommandations aux parties prenantes à la fin de la mission
- Rédiger et élaborer le rapport d'évaluation ;
- Finaliser le rapport d'évaluation.
- Traduction et validation du rapport final de l'évaluation à l'anglais.

2. Profil de l'expert national

Qualifications requises:

- Un diplôme universitaire supérieur (Doctorat, ingénieur et/ou Maitrise Scientifique) dans le domaine de l'environnement, efficacité énergétique ;
- Avoir 7 ans au moins d'expérience nationale dans le domaine de la mise en œuvre et suivi des projets en lien avec l'environnement et l'énergie,
- Maîtrise des procédures PNUD et FEM constitue un avantage ;
- Parfaite maîtrise de la langue Arabe, française et bonne pratique de l'anglais.
- Le consultant national procèdera à l'examen de toute la documentation du programme et fournira au consultant international une compilation de l'information avant la mission d'évaluation.

Plus précisément, l'expert national sera chargé d'effectuer, entre autres, les tâches suivantes:

- Examiner les documents ;
- Préparer une liste des résultats obtenus par le programme;
- Organiser le programme de la mission et fournir la traduction / interprétation si nécessaire;
- Participer à la conception de la méthodologie d'évaluation;
- Effectuer une analyse des résultats, et de la stratégie de partenariat (selon la portée de l'évaluation décrite ci-dessus);
- Rédiger les sections du rapport d'évaluation qui lui sont assignées;
- Appuyer le chef d'équipe dans la finalisation du rapport grâce à l'intégration des avis et recommandations reçues sur la version préliminaire du rapport.

Des propositions de deux experts indépendants sont acceptées. Ou, alternativement, des propositions seront acceptées à partir des cabinets de conseil/bureau d'études alignant une équipe répondant à l'expertise requise.

Fonctionnement de l'équipe d'évaluation et rôle du chef d'équipe

L'expert international est chargé de l'encadrement et la coordination de la mission d'évaluation ainsi que de la production du rapport d'évaluation selon une approche, une démarche et un plan convenus en commun accord avec le FEM, PNUD et la Direction nationale du projet.

L'expert national travaillera en étroite collaboration avec l'expert International, ainsi qu'avec le PNUD et la Coordonnatrice Nationale du Programme PCB. L'expert national appliquera la méthodologie et utilisera les outils du diagnostic convenus avec l'expert International, chef de la mission.

ANNEX 2: METHODOLOGY AND PROPOSED APPROACH FOR THE EVALUATION

i. 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

ii. 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

iii. Acronyms and Abbreviations

(See: UNDP Editorial Manual[2])

1. 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

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

representation.

- Ethics
    - 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).[3] Attached to this report should be a signed 'Code of Conduct' form from each of the evaluators.

2. 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

3. Findings

(In addition to a descriptive assessment, all criteria marked with (*) should be rated[4])

3.1 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
- Cost-effectiveness
- UNDP comparative advantage
- Linkages between project and other interventions within the sector, including management arrangements

3.2 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 (*)
    - Execution and implementation modalities
    - Management by the UNDP country office
    - Coordination and operational issues

3.3 Project Results

- Attainment of objectives (*)
- Country ownership
- Mainstreaming

[3] UNEG, 'Ethical Guidelines for Evaluation', June 2008. Available at: http://www.uneval.org/search/index.jsp?q=ethical+guidelines

[4] The ratings are: Highly Satisfactory, Satisfactory, Marginally Satisfactory, Unsatisfactory

- Sustainability (*)
- Catalytic Role
- Impact

4. 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

5. Annexes

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

ANNEX 3: LIST OF PERSONS INTERVIEWED

No	**Prénom**	**Nom**	**Institution**	**Fonction**	**Email**	**Téléphone**
1	Yassir	Benabdallaoui	PNUD Maroc	Chargé de programme	yassir.benabdallaoui@undp.o	212 (0) 5 37 63 30
2	Jihane	Roudias	PNUD Maroc	Analyst Suivi et Evaluation	jihane.roudias@undp.org	212 (0) 5 37 63 32
3	Gabriel	Dayre	PNUD Maroc	Spécialiste developpement programme	gabriel.dayre@undp.org	212 (0) 5 37 63 30
4	Ayshanie	Medagangoda-	PNUD Maroc	Representant Résident Adjointe	ayshanie.pnud.org.ma	212 (0) 5 37 63 30
5	Mohame	Ahachad	PNUD/ADERE	Coordonnateur National CEEB	ahachad_med@yahoo.fr	212 (0) 6 62 27 24
6	Abdelali	Dakkina	ADEREE	Directeur Pôle Stratégie et Dév.	a.dakkina@aderee.ma	212 (0) 6 61 83 39
7	Mohame	Berdai	ALSCEEN	Expert énergies propres et DD	mo.berdai@ctmail.com	212 (0) 6 61 30 55
8	Abdellati	Touzani	Université	Expert consultant PNUD	atouzanikia@gmail.com	212 (0) 6 61 48 83
9	Yvan	Gravel	Fraquemar	Directeur	yvan.gravel@fraquemar.ma	212 (0) 6 61 40 18
10	Samira	Lakhlifi	ADEREE	Ingénieur, Service Bâtiment	s.lakalifi@aderee.ma	
11	Radouan	Yessouf	ADEREE	Chef du Service Bâtiment	r.yessouf@aderee.ma	212 (0) 6 61 43 14
12	Zineb	Raji	ADEREE	Consultante en communication	raji.zineb@gmail.com	212 (0) 6 60 35 67
13	Ahmed	Bouzid	ADEREE	Chef de Division EE	p.ahmedbouzid@gmail.com	212 (0) 6 61 37 95
14	Mohame	Hajaji	ADEREE	Chef de Division Coop. / Comm	m.hajjaji@aderee.ma	212 (0) 6 61 86 59
15	Amal	El Mernissi	NORATECH	Directeur	a6elmernissi@gmail.com	
16	Mohame	El Haouari	ADEREE	Directeur pôle ER / EE.	elhaouarimd@gmail.com	212 (0) 6 61 84 25
17	Bernard	Cornut	ADEME	Conseiller résident du Jumelage	bernard.cornut@ademe.fr	212 (0) 5 37 68 88
18	Ahmed	Baroudi	SIE	Directeur Général	ahmed.baroudi@siem.ma	212 (0) 5 37 71 75

19	Dieter	UH	GIZ	Conseiller technique principal		
20	Lamia	Kadiri	Al Omrane	Architecte Developpement Durable	l.kadiri@alomrane.ma	212 (0) 5 37 56 92
21	Abdelatif	Ettayebi	Ministère du	Chef de la division de la réglementation et de la	atteyebi@tourisme.gov.ma	212 (0) 6 61 90 63
22	Ghizlane	Ajemma	Ministère du	Chargé dossier environnement	gajemma@tourisme.gov.ma	
23	Nawal	Bellile	Ministère du	Chargé environnement, DRDQ	nbellile@tourisme.gov.ma	
24	Saida	Gharbi	Ministère de	Chef du service de l'EE et des ER, direction	sgharbi@mhu.gov.ma	212 (0) 5 37 57 71
25	Rachida	Ait Chbani	Ministère de	Ingénieur EE		
26	Hassane	Belguenani	Union Européenne	Chargé de programmes énergie et	hassane.belguenani@eeas.eu	212 (0) 5 37 57 98
27	Maxime	La Tella	Union Européenne	Chargé de programmes eau et assainissement	maxime.la-	212 (0) 5 37 57 98
28	Aicha	Laabdaoui	Ministère de	Chef de service maitrise de l'énergie	a.laabdaoui@mem.gov.ma	212 (0) 5 37 68 87
29	Mostafa	Meftah	FNBTP	Directeur délegué	m.meftah@fnbtp.ma	212 (0) 5 22 20 02
30	Said	Bouanani	CETEMCO	Directeur Gnéral	cetemco@cetemco.ma	212 (0) 5 22 32 10
31	Mohame	Benyahia	Département de	Point focal FEM, Directeur du Partenariat, de la	benyahia@environnement.go	212 (0) 5 37 57 66
32	Azeddine	DAAIF	Département de	Chef du Service de la Coopération Multilatérale	daaif_azdine@yahoo.fr	212 (0) 6 72 28 07
33	Said	Mouline	ADEREE	Directeur général	dr@aderee.ma	
34	Ahmed	El Akhdar	Ministère de	Chef de Service Electricité, Ministère de	aelakhdar@interieur.gov.ma	212 (0) 5 37 21 53
35	Madiha	El IdrissiAkka	Ministère de	DRSC, Ministère de l'Intérieur	akelidrissi@interieur.gov.ma	212 (0) 6 67 69 38
36	Halima	Essoubaihi	ADEREE	Service économique, ADEREE	esshalima@hotmail.com	212 (0) 6 61 85 24

ANNEX 4: LIST OF DOCUMENTATS REVIEWED

Documentation du projet

- Document de projet du PNUD, PIMS 3230
- GEF Project Document, ID 2554
- Rapport d'activités 2010
- Rapport d'activités 2011
- Rapport d'activités 2012
- Etat d'avancement et plan d'action 2013, COPIL 2013
- Project budget balance 2010
- Project budget balance 2011
- Project budget balance 2012
- Project budget balance 2013
- 2010 Annual Project Report/ Project implementation Review (APR/PIR)
- 2011 et 2012 Annual Project Report/ Project implementation Review (APR/PIR)

Documentation générale

- UNDP-GEF-Terminal Evaluation Guide
- UNDP-GEF Evaluation guidance
- Mauritius Energy Efficiency in Buildings Mid-Term Evaluation
- Promoting Energy Efficiency in Public Buildings in Uzbekistan Mid-Term Evaluation
- Improving Energy Efficiency in Buildings in Kyrgyz Republic, Mid-Term Evaluation

ANNEX 5: PROJECT LOGICAL FRAMEWORK MATRIX

	Objectively Verifiable Indicators				
Goal	**To reduce Morocco's energy related CO2 emissions by introducing an EE Code and standards for buildings in the housing, health and hotel sectors**				
Strategy	**Indicators**	**Baseline**	**Target**	**Sources of Verification**	**Risk and Assumptions**
Project Objective: To improve the energy efficiency of buildings in Morocco, especially in the housing sector, through the introduction of an EE Building Code and standards	• Reduction in CO_2 emissions • Increased number of housing projects that EE standards • Govt. investment programs require minimum EE performance standards • Private operators adopt EE practices	• Very few buildings have incorporated EE design standards • Govt. programs in housing and health do not specify minimum EE performance standards • Professionals and developers do not understand basic EE principles	• CO2 emissions reduced by 3.5 million tons from direct impacts • Govt. has adopted EE Code in 75% of its housing projects • Govt. has introduced EE standards in 75% of public hospitals • 40 hotels have adopted EE standards	• Survey of architects, builders, and government agencies • Survey of municipal enforcement agencies	• Govt. adopts necessary regulatory framework • Govt. is willing to "lead by example" in adopting EE standards in its own programs • Strong support from professionals and operators for EE standards • Code non-compliance is a significant risk
Outcome 1: EE Building Code Unit set up at the national level, and compliance reinforced at the municipal level	• EE Bldg code Unit fully functional • Municipal agencies trained	No EE regulatory or institutional framework	• EE Building Code unit set up by Yr 1 • At least 3 municipal agencies enforcing EE Bldg Code	• Project files • Surveys of municipal code enforcement process	• Political support to establish legal, regulatory and institutional framework
Output 1.1: EE Building Code Unit set up and operating	EE Building Code Unit operational within CDER	Limited EE activities conducted by CDER	• EE Building Code Unit set up within CDER by Yr 1 • 6 staff members hired and trained by Yr 2	• Project files • CDER reports	CDER bylaws are amended without delay
Output 1.2: Institutional and operational capabilities of municipal code enforcement agencies strengthened	• Number of municipal agencies trained and able to enforce EE Bldg Code • Application decrees in place to empower municipal agencies	Municipal code enforcement agencies do not enforce any EE building standards	• Capacity building at least 3 municipal agencies by Yr3 • Application decrees mandating municipal agencies to enforce EE Bldg Code	• Project files • Official govt. Publications	Technical and managerial capability of municipal agencies

Outcome 2: Energy efficiency potential in new construction is sized: outreach, demonstration and knowledge sharing activities implemented	• Number of demonstration projects • Number of professionals trained	• Limited availability of EE technical information and training • 4,500 "man-days" of EE training provided to professionals	• At least 10 EE demonstration projects • 4,500 "man-days" of EE training provided to professionals	Demonstration project audit reports	Willingness and interest from substantial number of professionals, developers and operators in EE
Output 2.1: Mobilisation, outreach and training activities	• Mobilisation and outreach plan • Workshops and national EE events • EE housing certification program • Number of professionals receiving technical EE training	• Professionals with foreign degrees have typically received EE training, but basic information is lacking in Morocco despite the increased awareness tied to high oil prices.	• Workshops hosted on bi-annual basis • National EE event hosted annually • Quarterly electronic newsletter by Yr 1 • EE housing cert. program by Yr 2 • 4500 "man-days" of technical training	• Project files • Copies of publications • Invitations to events	• Mobilisation and outreach plan fails to mobilize critical mass of professionals • Professional trade associations slow to cooperate
Output 2.2: Project development services	Number of companies provided with technical assistance to develop EE projects	Private sector has limited access to independent technical expertise to develop EE projects	• 27 detailed EE audits • Technical support provided for 9 EE projects	• Audit reports • Project RFPs and assessment reports	Willingness of private operators/ developers to submit projects with good EE improvement potential
Output 2.3: Demonstration projects	Number of demonstration projects executed	There are very few examples of EE buildings in Morocco, especially in the housing sector	At least 10 demo projects executed by Yr 4	• Project proposals • Technical audit reports	Quality of demonstration projects
Outcome 3: EE Building Code is drafted and implemented	Drafting and submission of EE Bldg Code	No EE regulations currently exist in the housing/ construction sector	EE Bldg Code drafted and submitted to Parliament by Yr 3	Official govt. publications	Govt. and private sector willingness to incur additional cost of EE measures
Output 3.1: EE Building Code is designed and drafted	Drafting of EE Bldg Code	No EE regulations currently exist in the housing/ construction sector	EE Bldg Code drafted by Yr 3	Official govt. publications	EE Building Code responds to Moroccan economic, social and cultural specificities
Output 3.2: Enabling regulatory framework for EE Building Code is drafted	Application decrees necessary to make the EE Building Code mandatory	No regulatory framework exists to mandate EE Building Code	Application decrees drafted and submitted by Yr 3	Official govt. publications	Enabling EE law adopted by parliament

Outcome 4: EE standards and guidelines for professionals developed and disseminated	Drafting of EE building standards	Few EE standards and guidelines available in Morocco	Comprehensive set of standards developed by Yr 4	Publication of standards	Standards meet Moroccan economic, social and cultural specificities
Output 4.1: EE standards are developed for buildings	Standards for building design, building envelope and HVAC	No EE standards exist for housing or hospitals. International hotel operators have generally adopted the most common international EE standards.	Drafting of new standards for each category in Years 2-4 in response to requests from ministries, professionals, CDER and others	Publication of standards	• Professionals cooperate with SNIMA to develop standards • Data from testing program (see Output 3.5) confirms efficiency gains from standards
Output 4.2: Technical guides drafted for professionals	Publication of practical guides	Some professionals use existing French EE guidelines, but they are not well adapted to the Moroccan context.	Practical guides published for all 3 sets of standards by Yr 3	Publication of practical guides	Standards developed by Yr 2
Output 4.3: Testing program is implemented to evaluate the impact of proposed EE standards	Testing and measurement of energy consumption in sample buildings	Very limited data on the applicability of international EE standards given Morocco's climate and construction standards	All proposed standards are field tested to validate efficiency gains (testing can take place in foreign country if test results are universal).	Field testing and measurement reports	Availability of good testing sites in Morocco or good test data from foreign EE agencies
Output 4.4: Monitoring and Evaluation Activities	Timely reporting and monitoring of the project	None	• Project workshops held on timely basis • Timely submission of all M&E reports	Reports and workshop minutes from M&E team	
Outcome 5: EE investments realised by the public and private sectors	Value of EE investments	Limited EE investments currently taking place in housing and other sectors	At least US$10 million invested by public and private sector by Yr 4 as a result of EE Building Code initiative	• Government budget • Surveys of private operators	Willingness of public agencies to incorporate EE standards in their investment programs

Output 5.1: EE investments realised in housing sector	Value of EE in government's housing programme	No EE considerations exist in government's housing program	Incremental investment of US$6 million by Ministry of Housing by Yr 4 to incorporate basic EE standards in housing programme	• Government budget • Sample government contractual documents for housing project • Site visits	• Willingness of government to accept slightly higher housing construction prices in order to reduce energy consumption by households
Output 5.2: EE investments realised in housing sector	Value of EE investments in government's hospital renovation program	Minimal EE considerations exist in government's hospital sector	Incremental investment of US$2 million by Ministry of Health by Yr 4 to incorporate basic EE standards in hospitals	• Government budget • Sample government contractual documents for housing projects • Site visits	• Willingness of government to link EE standards with the overall objective of improving basic health services
Output 5.3: EE investments realised in hotel sector	Value of EE investments in new and existing hotel projects	Most hotels built by international chains have adopted some EE standards, but there are no general standards to ensure that all hotels follow the same guidelines.	• Incremental investment of US$2 million by private hotel operators by Yr 4 to incorporate basic EE standards in hospitals	• Interviews with hotel managers and contractors • Review of proposal documents under Output 4.2 • Site visits	• Identification of EE projects offering attractive rates of return on investment • Understanding and appreciation by hotel operators of the value of implementing EE measures
Output 5.4: EE investment realised in the higher education sector	Value of public EE investments in government's university building construction and renovation program	Minimal EE considerations exist in government's university building program	Incremental investment of US$2.6 million by Ministry of Education by Yr 4 to incorporate basic EE standards in university program	• Government budget • Sample government contractual documents for housing projects • Site visits	Willingness of government to accept slightly higher construction and renovation prices in order to reduce energy consumption by university building
<u>Outcome 6:</u> Project management	Overall project management and coordination	Government agencies have experience in managing donor projects, but they lack with EE projects	Timely submission of all project reports Project objectives substantially met	Surveys of key stakeholders and donors	
Output 6.1: Project management and implementation support	• Project objectives and deliverables • Alignment of sectoral policies with objectives of EE project	Minimal integration of EE issues in govt. building programs	Timely submission of all project reports Ministries of Housing, Health and Tourism have incorporated EE objectives in their annual building programs	• Surveys of key stakeholders and donors • Ministerial policy statements and annual programs	Willingness of key ministries to become lead adopters of EE standards

Notes

[i] Source: URL: http://perspective.usherbrooke.ca/bilan/tend/MAR/fr/EG.IMP.CONS.ZS.html viewed 18 June 2013