



**Terminal Evaluation of the UN Environment/GEF Project
“Market Transformation for Energy Efficient Lighting in
Morocco” and GEF ID 4139
(2011-2019)**



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Market Transformation for Energy Efficient Lighting in Morocco

GEF ID.: 4139

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The evaluation consultant hopes that the findings, conclusions and recommendations will contribute to the successful finalisation of the current project, formulation of a next phase and to the continuous improvement of similar projects in other countries and regions.

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ABOUT THE EVALUATION¹

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Brief Description: This report is a terminal evaluation of a UNEP-GEF project implemented between September 2011 and June 2019. The GEF-funded project “Market Transformation for Energy Efficient Lighting in Morocco” was designed to support Morocco in phasing out incandescent bulbs in the residential, municipal, institutional and tertiary sectors by: restricting the supply of less energy efficient lighting products through legislative initiatives; and promoting the demand for energy efficient lighting products at all levels..

Key words: Project Evaluation; Climate Change; TE; Terminal Evaluation; GEF; GEF Project, Morocco, Energy Efficiency, Lighting;

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List of Acronyms and Abbreviations

AC	Administration of Customs and Indirect Taxes
ADEREE	National Agency for the Development of Renewable Energies and Energy Efficiency
ADII	Administration of Customs and Indirect Taxes
AMEE	Moroccan Agency for Energy Efficiency
APR	Annual Progress Report
CDM	Clean Development Mechanism
CFLs	Compact Fluorescent Lamps
CO2	Carbon Dioxide
COFRAC	French Accreditation Committee
COPANT	Pan-American Standards Commission
DO	Direct Outcomes
DRSC	Department of Public and Private Electricity Utilities at the Ministry on Interior
DTIE	Division of Technology, Industry and Economics of UNEP
EA	Expected Accomplishment
EE	Efficient Energy
ELI	Efficient Lighting Initiative
EOU	Evaluation Office of UNEP
ESLs	Energy Saving Lamps
FINALEC	National Federation of Electricity, Electronics and Renewable Energies
GE	Green Economy
GEF	Global Environment Facility
GEF SEC	Global Environment Facility Secretariat
GHG	GreenHouse Gases
GIZ	German Corporation for International Cooperation (EN) - Gesellschaft für Internationale Zusammenarbeit (DE)
GoM	Government of Morocco
GTZ	German Agency for Technical Cooperation
GWh	Gigawatt-hour
IEC	International Electrotechnical Commission
IFC	International Finance Corporation
ILs	Incandescent Lamps
IMANOR	Moroccan Institute of Standardization
INARA	Program of the National Electricity Utility (ONE) for the dissemination of 15 million CFLs in 3 phases, each phase aims at distributing 5 millions CFLs. The 1st phase of INARA program has been done with the support of GoM. The Market transformation for Energy Efficiency lighting project will support the second and third phases of INARA Program.
INSTALLECs	Installation Electricians, authorized to execute INARA's program for CFL distribution and installation
IS	Intermediate States
KfW	Kreditanstalt für Wiederaufbau

KfW	German Development Bank
kteCO2	kilotonnes of carbon dioxide (equivalent)
kWh	Kilowatt hour
LED	Light Emitting Diode
LogFrame	Logical Framework
LPEE	Public Laboratory of Tests and Studies
MAD	Moroccan Dirham
MATNUHPV	Ministry of National Planning, Urbanism, Housing and City Policy
MCI	Ministry of Commerce and Industry
MEF	Ministry of Economy and Finance
MEFRA	Minister of Economy, Finance and Administration Reform
MEMSD	Ministry of Energy, Mines and Sustainable Development
MEMWE	Ministry of Energy, Mines, Water, and Environment
MEPS	Minimum Energy Performance Standards
MICIEN	Ministry of Industry, Investment, Trade and the Digital Economy
MO	Medium term Outcomes
MOs	Medium term Outcomes
MoU	Memorandum of Understanding
MTR	Mid Term Review
MTS	Medium-term Strategy
MVE	Monitoring Verification and Enforcement
NGO	Non-Governmental Organisation
NPD	National Project Director
ONEE	National Office for Electricity and Potable Water
OP	Output
PC	Project Coordinator
PDQ	Project Design Quality
PIF	Project Identification Form
PIR	Project Implementation Report
PLM	Philips Lighting Maghreb
PM	Project Manager
PMO	Project Management Office
PMU	Project Management Unit
PoW	Programme of Work
PPEUs	Public and Private Electricity Utilities
PRC	Project Review Committee
ProDoc	Project Document
PSC	Project Steering Committee
SC	Sustainable Consumption

SD	Sustainable Development
SDG	Sustainable Development Goals
SEforALL	Sustainable Energy for All
SME	Small and Medium-scale Enterprise
SNIMA	Moroccan Industrial Standardization Service
STA	Special Technical Adviser
TE	Technical Expert
ToC	Theory of Change
ToR	Terms of Reference
TWG	Technical Working Group
U4E	United for Efficiency
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USD	United States Dollar
WB	World Bank

Table 1: Project Identification Table

GEF Project ID:	4139	Umoja no.:	S1-32GFL-000251 / SB-000685.33
Implementing Agency:	Economy Division, Energy & Climate Branch, Climate Mitigation Unit	Executing Agency:	Economy Division, Energy & Climate Branch, Finance Unit
Relevant SDG(s) and indicator(s):	SDGs 1, 7, 13, 15		
Sub-programme:	Climate Change	Expected Accomplishment(s):	Subprogramme 1 Climate Change – Expected Accomplishment (b) Countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies
UNEP approval date:	04 April 2012	Programme of Work Output(s):	Programme of Work 2018-2019 – Subprogramme 1 Climate Change – Expected Accomplishment (b)
GEF approval date:	29 September 2011	Project type:	Medium-sized project
GEF Operational Programme #:	GEF IV	Focal Area(s):	Climate Change
		GEF Strategic Priority:	CC-SP-1: Building EE
Expected start date:	1 September 2011	Actual start date:	21 March 2012
Planned completion date:	31 August 2013	Actual operational completion date:	30 September 2019 (rev 4)
Planned project budget at approval:	US\$ 6,820,295	Actual total expenditures reported as of 30 June 2019:	US\$ 838,686.85
GEF grant allocation:	US\$ 889,091	GEF grant expenditures reported as of 30 June 2019:	\$ 861,183.73 as of 30 June 2020
Project Preparation Grant - GEF financing:	US\$ 20,000	Project Preparation Grant - co-financing:	N/A
Expected Medium-Size Project/Full-Size Project co-financing:	US\$ 5,931,204	Secured Medium-Size Project/Full-Size Project co-financing:	US\$ 13,240,000 as of 30 June 2019 US\$ 8,433,209(TOR)

GEF Project ID:	4139	Umoja no.:	S1-32GFL-000251 / SB-000685.33	
First disbursement:	10 April 2012	Planned date of financial closure:	N/A	
No. of formal project revisions:	4	Date of last approved project revision:	Rev 4: 30 September 2019 (+69 months)	
No. of Steering Committee meetings:	2	Date of last/next Steering Committee meeting:	Last: 23 Jan 2015	Next: N/A
Mid-term Review/ Evaluation (planned date):	Q3 2012	Mid-term Review/ Evaluation (actual date):	N/A	
Terminal Evaluation (planned date):	Q2 2013	Terminal Evaluation (actual date):	Jan 2020 - September 2020	
Coverage - Country(ies):	Morocco	Coverage - Region(s):	Africa	
Dates of previous project phases:	N/A	Status of future project phases:	Unknown	

Executive Summary

This evaluation

1. The Global Environment Facility (GEF) launched the Global Lighting Initiative in November 2007 to assist developing countries in phasing-out incandescent bulbs and accelerating market transformation of environmentally sustainable energy efficient lighting technologies, while reducing global greenhouse gas emission from the lighting sector, and the co-benefit of reducing mercury release. The GEF-funded project “Market Transformation for Energy Efficient Lighting in Morocco” (hereafter referred to as “Project”) was designed to support Morocco in phasing out incandescent bulbs in the residential, municipal, institutional and tertiary sectors by: restricting the supply of less energy efficient lighting products through legislative initiatives, and promoting the demand for energy efficient lighting products at all levels.

2. The project’s aim was to develop a strategy to phase-out incandescent bulbs, along with the introduction of Compact Fluorescent Lamps (CFLs), thereby reducing global greenhouse gas emission from the Moroccan lighting sector. This was envisaged along with the co-benefit of reducing mercury release, and emissions from fossil fuel-based energy which were (and continue to be) the main source of energy in the country. Low-energy light bulbs and other efficient lighting systems could have an important impact on global warming and significantly trim energy expenses for end users, if disseminated worldwide. In this context, the project was expected to draw strength from existing success stories of market transformations already achieved in some countries. Further, it aimed at reinforcement and market expansion in other countries as one of its broader impacts. Considering mercury content in CFLs, the Project included the component to find further feasible energy efficient alternatives to CFLs, in addition to addressing the concurrent need to find sustainable recycling and disposal mechanisms for CFL waste.

3. The objective of the Terminal Evaluation (TE) was to conduct a thorough Project analysis which requires a critical review of all documents, identifying gaps, and a complete understanding of its performance by interaction with the project team and related stakeholders. Quantitative and qualitative evaluation methods were used to determine project achievements against the expected outputs, outcomes and impacts. The change process was assessed using the Theory of Change (ToC) framework.

4. This evaluation was carried out during the global COVID-19 pandemic when adapted working operations were in place and both national and international travel were restricted. Measures were put in place to maintain the quality and credibility of this work and are described under Chapter 2 Evaluation Methods. The Evaluation Office of UNEP believes that the utility of a timely assessment of the project’s performance outweighs any limitations caused by an adapted approach.

Key findings

5. **Strategic relevance:** Highly Satisfactory. It was designed in accordance with UN Environment’s Medium-Term Strategy (MTS) (2010-2013) operational at the time of project conception, which consisted of six-cross cutting thematic priorities. As per the latest Medium Term Strategy 2018-2021, this alignment is maintained and specific outcomes are envisioned to lead to climate resilience, reduced vulnerability and abatement of CO2 emissions aligned to SDGs 1, 7, 13 and 15. The project was aimed at delivering on the above EAs through UNEP’s Programmes of Work (PoW). Alignment to UNEP/Donor Strategic Priorities was strong (GEF-7 and UNDAF). The Project was relevant to regional, sub-regional and national priorities and

included components of South-South Cooperation and the Bali Strategic Plan for Technology Support and Capacity-building. Complementary with INARA, the Program of the National Electricity Utility, National Office for Electricity and Potable Water (ONEE), was also well identified.

6. **Quality of Project Design:** Satisfactory. The overall rating indicates that the objectives of the project were well established with clear pathways for reaching those outcomes. The strategic relevance of the project was well aligned with UNEP's Medium-Term Strategy, Programmes of Work (PoW), several SDGs and other cooperation protocols. However, the entire potential of the GEF project framework was not used, fact visible in the inadequate representation by civil society and SMEs. The strengths and weaknesses of the project are detailed under the relevant section under 'Evaluation Findings'.

7. **Nature of External Content:** Moderately Favourable. Originally the project was planned for a two years period. As per the project document, there were no conflicts going on in Morocco and there was no likelihood of a situation of conflict predicted to arise at the time. As the project could be implemented across the whole country and was not dependent on a certain landscape or resources, there was almost no risk that the project would be affected by a natural disaster. Therefore, the likelihood of the project to be impacted by a government change during implementation was low. However this did affect the Project due to extensions, and accordingly it is important to involve civil society actors to ensure an ongoing advocacy for the topic in the longer run, even after the official end of the project.

8. **Effectiveness:** Satisfactory. The achievement of desired impact by the project was evaluated with the support of UNEP's guide to rate 'Likelihood of Impact'. This rating was used to measure project effectiveness by measuring the level of achievement of direct outcomes and intermediate states, through conditions which acted as drivers for the project and assumptions which were considered for developing the causal pathways. The overall rating for likelihood of impact of the Project was 'Likely' based on the Likelihood of Impact Assessment, as presented in Annex VII.

9. **Financial Management:** Moderately Satisfactory. The financial management of the project was evaluated primarily from the set of documents made available by the project team. The completeness of financial information was a challenge and not very satisfactory. Communication between the finance and project management staff was good, and that helped fill many gaps in understanding budget shifts, increase or decrease in component wise expenditures. The largest gap was due to absence of co-financing reports from both Ministry of Energy, Mines and Sustainable Development (MEMSD) and ONEE.

10. **Efficiency:** Highly Unsatisfactory. In accordance with the OECD/DAC definition of efficiency, the evaluation assesses the extent to which the project delivered optimum results and this evaluation was divided into an assessment of the cost-effectiveness and timeliness of project execution. Overall, it is assessed that the project efficiency was not good because of several deviations which occurred during the project and may have been overlooked in project design or during implementation. This is still not reflective of the quality of project design, since several assumptions which were due to hold true, were compromised and this caused project inefficiencies.

11. **Monitoring and Reporting:** Satisfactory. The project had a sound M&E plan to monitor results and track progress towards achieving project objectives. The stakeholder responsibilities were clearly defined with a time frame specified for various M&E activities. The original project logical framework was well designed on the basis of a market study which included several assumptions and associated drivers for the project outcomes to be achieved. In addition, specific SMART indicators were clearly defined for each of the project objectives. The extension of the project was recorded through the four work plan revisions which were made available. This was also in line with budget revisions submitted by GEF corresponding

to their allocation. Division of Technology, Industry and Economics of UNEP (UNEP-DTIE) signed co-finance reports (2013 to 2019) and signed expenditure statements and unliquidated obligations reports were available (2012 to 2019), as per UNEP budget lines. The monitoring reports revealed that not all impacted stakeholders were reachable during the project to discuss interim results. This could have been valuable while re-designing the adapted targets especially with respect to private players and civil society organizations' involvement.

12. **Sustainability:** Moderately Likely. Overall, a strong ownership was sustained for the project amongst national partners (despite internal shift of interests), but there is still scope for improvement and therefore policy changes were only partially met. The recommended funding avenues recommended by the project team would provide sustainable future pathways to ensuring the continuity of the project as one can see almost 100% overlap in strategic objectives, catering to nearly all funding requirements. The involvement of U4E experts, common to all these programs, further ensures common implementation strategies and technical coherence. The project outcomes are only moderately dependent on the government / sensitive to institutional frameworks. This was particularly in case of Components 1 and 2 which are more dependent on policy and regulatory integration of the findings. It is assessed that a robust mechanism is in place to support the institutionalisation of direct outcomes. In particular, institutional capacity development efforts are still only partially met and need to be transferred especially to other institutions directly impacted. Capacity of experts engaged in the project has enhanced particularly in the Moroccan context. This was evidenced by U4E consultants who made vital contributions to outputs. They are likely to stay engaged with next steps in the project through the EU funded SwitchMed II programme and U4E-AEC African Energy Efficiency Programme.

13. The consultant has recorded detailed findings as per the given criteria framework under the section 'Evaluation Findings'. These are also summarized in [Table 10](#).

Conclusions

14. The Terminal Evaluation (TE) of the UNEP /GEF project "Market Transformation for Energy Efficient Lighting in Morocco" revealed that the project had a very positive impact on affecting the drivers required for such a market transformation in Morocco's energy efficient lighting sector. The project set into motion important policy and regulatory instruments to pave the path for future initiatives in Morocco.

15. The Project achieved considerable progress in creating tangible outcomes which aided its four primary components: (a) Energy efficiency policy enhancement for promotion of CFLs was significantly achieved, but there were barriers to achieving quantified phasing-out targets for ILs; (b) Technology and standards/CFLs quality improvement was assured through preparation of MEPS recommendations and waste management practices recommendations for CFLs and LEDs; (c) Generation of demand for CFLs through applicable consumer financing was overachieved through fiscal incentives and ONEE's proactive distribution strategy,; and (d) Information, consumers education, and awareness raising was instrumental in achieving these outcomes (although capacity building for strengthening institutions had to be forgone due to participatory barriers).

16. The energy efficiency achieved as per GEF's terminal evaluation findings for the project was measured in terms of lifetime energy savings that amounted to 2,900,000 Million Joules of fuel saved. The lifetime direct GHG emissions avoided are 1,300,000 tonnes of CO2 equivalent, whereas the lifetime direct post-project GHG emission avoided are estimated as 5,200,000 tonnes of CO2 equivalent.

Lessons Learned

17. The following lessons learned through the Project are detailed in the evaluation assessment:

- **Lesson 1:** A project which places market transformation at the core of its objectives runs the risk of isolating the private sector if it fails to include the largest directly impacted group of stakeholders, such as technology providers, distributors, retail and wholesale operators, supply chain / logistics companies and trade unions. A non-inclusive effort is bound to negatively impact market dynamics and turn counterproductive by forcing businesses into the informal and unregulated market space.
- **Lesson 2:** Projects on market transformation of EE lighting require sound market knowledge, technical and policy backing, and also strong lobbying by cross-cutting sectoral representatives; failure to provide ample time and funding for transitioning technology could easily result in great losses due to inappropriate technologies and waning commitment by key stakeholders.
- **Lesson 3:** Cross-cutting sectoral projects which adopt a top-down approach (policy led initiatives) for achieving their impacts require a parallel communication strategy, strong lobbying base and more time for the project to create cohesion between the country's top government bodies (i.e., ministries and regulators). While focusing on only select public institutions can produce faster results, such outputs may be stalled from implementation in case of dependence on other stakeholders with possible conflicts of interest.
- **Lesson 4:** Environmental regulations are typically market disruptive since most of the value chain surrounding technologies are not including this cost in their offering. Projects especially for new technologies / appliances need the loop to be closed by translating outcomes of Environmental Impact Assessments to economic results, such as collection cost incentives (collectors and end-users), penalties for improper disposal, or promoting product prices inclusive of end-of-life management related expenses for the technology provider / distributor.
- **Lesson 5:** A project that produces tangible fiscal incentives can go a long way in generating private sector confidence, especially when there is an agenda to move towards a technology which is more efficient but can easily fall outside of the typical consumer's affordability range. The role of fiscal incentives from the government can play a vital role in closing the viability gap for businesses, and activate demand amongst the target consumers, therefore providing a realistic buffer for the market to mature and reach equilibrium.
- **Lesson 6:** Energy efficient lighting projects in developing markets are controversial owing to the contradiction between activating electricity demand for socio-economic development on one hand and the urgency to contain wasteful energy consumption by poor performing (but affordable) appliances on the other. Disaggregated consumer impact studies are necessary to identify priority consumer segments for leapfrogging to higher performing technologies/appliances, while ignoring this aspect can be counter-productive and further hinder alleviation of groups which are often structurally / socially disadvantaged.
- **Lesson 7:** Inclusion of women as end-users of energy efficient appliances, in economic activities connected to the value chain surrounding energy efficient lighting solutions could go a long way in creating technology acceptance and outreach to a generally inaccessible consumer base (women, young adults and children). A Gender Impact Assessment study would evaluate this need and help translate baseline results into measurable project indicators and activities.

Recommendations

18. The following recommendations for future pathways as a result of the Project are detailed in the evaluation assessment:

- **Recommendation 1:** Activate a larger stakeholder base including civil society, private companies across the lighting industry value chain, industry associations and consumer protection organizations for collecting feedback on the outputs of the MEPS framework, guidelines for collection, disposal and recycling of lighting products. This is a critical recommendation which should be led by Ministry of Industry, Investment, Trade and the Digital Economy (MICIEN) in collaboration with a CSO or MFI (such as JAÍDA microfinance fund). Using outcomes from the Project, the next action plan can be set into motion immediately, for achieving within a one-year period.
- **Recommendation 2:** Organise a gender audit of public institutions responsible for the mandate of energy efficient lighting in order to mainstream gender considerations at the design stage itself. This action would be applicable to MEMSD, ONEE, MICIEN and associations deemed fit for developing policy level interventions. It is also best initiated by the same institutions. A gender audit can be initiated with immediate effect depending on resource availability, since it is project independent and is decoupled from its outputs at the current stage. This action is an opportunity for improvement and a futuristic recommendation.
- **Recommendation 3:** Development of fiscal incentives for helping organisations along the energy efficient lighting supply chain (irrespective of technology, i.e., including CFLs, LEDs and lighting solutions using IoT) invest in end-of-life management practices. This is an important recommendation which will need to be led by the Department of Environment (at MEMSD) in cooperation with municipalities of the target areas and possibly microfinance institutions. With immediate effect, a pilot operation of recommended actions may be organized as soon as in the next 6 months. Following, the incorporation of learnings and improvements a full-scale dissemination of the regulations and enforcement could potentially be planned in phases over a two-year period.
- **Recommendation 4:** Energy efficient lighting solution for future projects and applicable standards for future interventions should be modified to become more technology agnostic, by focusing on performance standards generally applicable to all related appliances. This action directly impacts implementation of the MEPS and can simplify regulations for the technology providers, providing more predictability, clarity and flexibility for organic market transitions when new innovations / technologies emerge. This is an important recommendation and such an initiative could be led by IMANOR, in consultation with MEMSD and supported by Public Laboratory of Tests and Studies (LPEE). This action is an important recommendation and is suggested for implementing within the next 2 years.

1 Introduction

19. The GEF-funded project “Market Transformation for Energy Efficient Lighting in Morocco” was designed to support Morocco in phasing out incandescent bulbs in the residential, municipal, institutional and tertiary sectors by: restricting the supply of less energy efficient lighting products through legislative initiatives; and promoting the demand for energy efficient lighting products at all levels.

20. The Project falls under UNEP’s Subprogramme 1 Climate Change, whereby countries are expected to increasingly make the transition to low-emission economic development and enhance their adaptation and resilience to climate change. Under this sub-programme, the Project corresponds to Expected Accomplishment (EA) (b) wherein countries increasingly adopt and/or implement low greenhouse gas emission development strategies and invest in clean technologies. The project was expected to impact the following indicators under this EA, namely: Indicator (i) Increase in the number of countries supported by UNEP that make progress in adopting and/or implementing low greenhouse gas emission development plans, strategies and/or policies, and Indicator (ii) Increase in climate finance invested by countries or institutions for clean energy, energy efficiency and/or amount of decarbonized assets.

21. UNEP was the GEF executing agency responsible for project implementation. The project was budgeted at US\$ 6,820,295, including a 13% contribution by the GEF Trust Fund amounting to US\$ 889,091. The project was initially envisaged for a period of two years, to conclude by 2013. However, due to various reasons the project was extended and finally concluded in 2019 (explained under Chapter 5 ‘Evaluation Findings’). The Project was led in terms of implementation by Ministry of Energy, Mines, Water, and Environment (MEMWE). MEMWE had partnered with UNEP-DTIE to establish the Project Management Unit (PMU). The nodal role was shifted from MEMWE to ONEE during the project period to enable operational efficiency of the project.

22. The phasing-out of Incandescent Lamps (ILs) from the Moroccan lighting market was expected to accelerate the adoption of energy efficient lighting technologies and contribute to a sustainable market transformation in parallel to other existing Compact Fluorescent Lamps (CFL) dissemination projects adopted by the Government of Morocco (GoM). Consequently, the success of the energy efficiency lighting Project largely depended on the commitment of the Government of Morocco to carry out market transformation activities at the national level.

23. This document constitutes the final report towards the Terminal Evaluation (TE) of the UNEP/GEF project “Market Transformation for Energy Efficient Lighting in Morocco” (hereafter referred to as the ‘Project’). In line with the UNEP’s Evaluation Policy and the UNEP Programme Manual, the TE was undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the Project, including their sustainability.

24. The evaluation is conducted on the basis of the Evaluation Office of UNEP’s ‘Evaluation Criteria’, which outlines the key principles underpinning the evaluation and the adopted methodology, described in the section that follows, under Chapter 2 ‘Evaluation Methods’. This evaluation covers the period of the project from 21st March 2012 till 30th September 2019. In line with the UNEP Evaluation Policy and the UNEP Programme Manual, the Terminal Evaluation (TE) is undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing

through results and lessons learned among UNEP and the main project partners. Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation, especially for the second phase of the project or a continuation of the same.

25. The following aspects are important strategic aspects for UNEP that are also addressed in this evaluation:

- The degree of success achieved by the Project to overcome the identified barriers, gaps and challenges to the transformation of the lighting market through its efforts to promote the rapid uptake of energy efficient lighting technologies in Morocco.
- Which challenges in the energy efficient lighting market transformation would persist post-project, and how likely (and to what extent) it is that the factors identified by this evaluation, serving as key assumptions/drivers for achieving Impact, would hold.
- Pertaining to the sustainability of results that can be attributed to this intervention, which opportunities exist or have already been set in motion, that are likely to have a catalytic effect of positive outcomes within the country and/or region?
- Identification of any unintended results (positive or negative) from the Project's implementation, how these might have affected the intended Impact.

26. The evaluation is managed by the Evaluation Office (UNEP) and is executed by Mrs. Noara Kebir, acting as an independent evaluation consultant. The timeline for activities and milestones is described in the following [Table 2](#):

Table 2: Terminal Evaluation Timeline

Feedback on the Inception Report	May 2020
Data collection and analysis, desk-based interviews and surveys	June-September 2020
Draft report to UNEP (Evaluation Manager and Peer Reviewer)	September 2020
Draft Report shared with UNEP Task Manager and Project Team	October 2020
Draft Report shared with a wider group of stakeholders	November 2020
Final Report	December 2020

2 Evaluation Methods

2.1 Key evaluation principles

27. While the evaluation methods are based on UNEP's stipulated evaluation criteria, the consultant kept under consideration the following key principles throughout the course of the TE:

- i. **Performance rationale:** The achievement of the Project outcomes was measured not only as a function of what was achieved and in what ways the project failed to perform, but also the reason as to why a certain outcome was achieved or not achieved. This formulated the basis for which lessons were drawn from the Project. An important methodology to address this was through concepts encompassed within the Theory of Change (ToC).
- ii. **Fact-check:** The Project evaluation was conducted based on documents provided by the project team and information collected during stakeholder consultation. There was a clear demarcation formulated between baselines, targets established, and what was actually achieved. In the event that such baseline information, progress and counterfactuals were missing or inconsistent, the same has been pointed out as part of this final TE report.
- iii. **Key stakeholder involvement:** The evaluation consultant has endeavored to involve all key stakeholders and experts involved in the project and encourage their participation in the evaluation process. This has been especially attended to considering the impact of COVID -19 pandemic related restrictions in Morocco. Since a field visit was not possible, the consultant has used all other channels and made a concerted effort to contact all key stakeholders, and incorporate their inputs as part of the final evaluation. The results would also be circulated amongst all involved in the project by the evaluation office.

28. As per the framework outlined by the evaluation office, all evaluation criteria was rated on a six-point scale. The set of evaluation criteria are grouped in nine categories: (A) Strategic Relevance; (B) Quality of Project Design; (C) Nature of External Context; (D) Effectiveness, which comprises assessments of the delivery of outputs, achievement of outcomes and likelihood of impact; (E) Financial Management; (F) Efficiency; (G) Monitoring and Reporting; (H) Sustainability; and (I) Factors Affecting Project Performance. The consultant has recorded detailed findings as per this framework under the section 'Evaluation Findings'.

2.2 Overall methodology

29. The objective of the TE was to conduct a thorough Project analysis which requires a critical review of all documents, identifying gaps, and a complete understanding of its performance by interaction with the project team and related stakeholders. Quantitative and qualitative evaluation methods were used to determine project achievements against the expected outputs, outcomes and impacts. The change process was assessed using the ToC analysis.

30. Due to the COVID-19 pandemic no field missions could be undertaken (and face-to-face meetings were kept to a minimum) during this evaluation. The measures taken to ensure that diverse voices were still heard, project records were verified and information from multiple sources was triangulated. This included online surveys to collect information about the Project from the project staff and key public and private stakeholders of the Project from Morocco. The structure of enquiry incorporated cross validation using direct and indirect

questions about the project. The responses were evaluated before setting up direct interviews with the respondents, where their perspective on components of the project and its outcomes were cross verified. Further gaps which emerged, if any, were also confirmed with the project team. This process of data gathering replaced the field mission.

31. Accordingly, the evaluation was restricted to a desk review of provided project documents and reports, review of supporting documentation, press review (digital), interviews and surveys with stakeholders who were either directly or indirectly involved in the project.

32. The desk review included perusal of project background information, and these included: project design documents (PIF and ProDoc); progress reports consisting of half-yearly reports and PIRs; minutes of meetings and workshops including inception, steering committees, final closing; legal instruments for grant, project preparation, execution, revisions and communication campaign; financial reports consisting of initial GEF and co-financing budgets, revisions and yearly expenditure reports; additional monitoring efforts through the GEF tracking tool and work plan adjustments; final project outputs including communication campaign material, market study, technical reports, publications, policy reports, public opinion survey, training agendas along with participant lists, and waste management reports; and finally, any other sources discovered through the interaction with stakeholders during the next phase of evaluation.

33. It was noted that the co-finance reports were not submitted by MEMSD and ONEE to the project team. These were requested by the respective organizations during the evaluation, and the responses (where available) have been included in the section on Evaluation Findings.

34. The TE methodology, which is captured in the Figure 1 below, can be broadly divided into three stages: (i) Inception Phase, (ii) Data Collection and Analysis, and lastly (iii) TE Report Finalization.

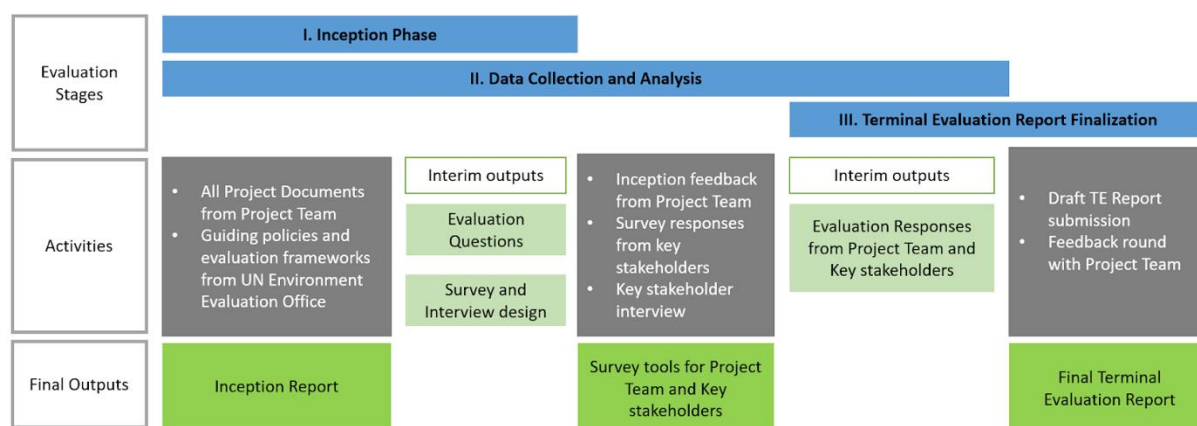


Figure 1. Evaluation Methodology

Inception Phase

35. This phase was centered around desk review, with main inputs from the project team and involved a first level deep-dive into all project documents. This stage was also used to closely study the guiding policies and evaluation frameworks that form a part of UNEP Evaluation Policies. The interim outputs from this phase were (i) Draft evaluation questions for the project team and other public/private stakeholders, and (ii) Preliminary consultation

strategy consisting of survey and interview design. These were included as part of the final output of this phase, that is, the 'Inception Report' submitted to the Evaluation office.

Data Collection and Analysis:

36. While data collection and analysis were carried out nearly throughout the entire duration of the evaluation, a structured effort was followed to collect inputs from other experts and organizations involved, apart from the UNEP project team and Evaluation Office. In addition to project documents received from the evaluation office and project team, collection of data was planned with key stakeholders with whom it was possible to establish contact through the project team and direct outreach.

37. Given the large scope of the evaluation, it was decided to first collect responses through online surveys, in order to give the stakeholders adequate time and resources for appropriately addressing evaluation questions. Interviews were conducted only after receiving responses, in order to clarify and validate the responses from the survey participants. To encourage responses from as many participants as possible, it was ensured that the surveys were a combination of both objective and subjective evaluation, and that they were easily accessible through both desktop / laptop and mobile phones. The survey followed a structure consisting of the following five themes, based on the UNEP guidelines for conducting the evaluation:

- Section A. Project Sustainability and Replication
- Section B. Achievement of Project Objectives
- Section C. Financial Management
- Section D. Learning and Recommendations
- Section E. Strategy and Project Design

38. While the aforementioned structure was followed for each survey, these were adapted in terms of depth of detail, depending on the target respondents. A common survey was prepared for the project team and other stakeholders from the UNEP / GEF constellation of participants. The project team was approached again in the second round of consultation along with the first draft submission, to receive their comments on the inputs collected from other public and private stakeholder consultations. The other key stakeholders involved in the Project were reached out to through surveys, in order to collect their perspective on the project parameters, as well as reflect on their corresponding organization's relevance, involvement and impact in the project.

39. The consultant reached out to the following key stakeholders for conducting the survey and holding online interviews:

- UNEP Climate Change Mitigation Unit (Implementing Agency)
- UNEP Finance Unit (Executing Agency)
- UNEP Experts (consultant)
- Global Environment Facility (operations, focal point, cooperation unit)
- Ministry of Energy, Mines and Environment (MEME), Morocco
- Project Management Team members of other Efficient Lighting Projects (Tunisia)
- Project partners, including National Office for Electricity and Potable Water (ONEE), Public Laboratory of Tests and Studies (LPEE), Minister of Economy, Finance and Administration Reform (MEFRA), Administration of Customs and Indirect Taxes (ADII), Ministry of National Planning, Urbanism, Housing and City Policy (MATNUHPV), MICIEN, Ministry of Energy, Mines and Sustainable Development (MEMSD), Moroccan Institute of Standardization/ Moroccan Industrial Standardization Service (IMANOR/SNIMA), Moroccan Agency for Energy Efficiency/National Agency for the Development of Renewable Energies and Energy Efficiency (AMEE/ADEREE), Ministry of Interior-Department of Public

and Private Electricity Utilities at the Ministry on Interior (DRSC), Public and Private Electricity Utilities (PPEU's)

- Private sector partners, particularly representatives from INSTALLECs, OSRAM North Africa, FENALEC, and PLM
- Any other consultants / agencies revealed during the interactions, who are considered significant for the purpose of evaluation.

40. A participatory approach was applied and the key stakeholders were kept informed and consulted throughout the evaluation process. The final list of individuals from respective agencies who were available for the TE consultation is available at Annexure II. Additional to the individuals listed, SME representatives and actors of civil society were identified and contacted during the evaluation process.

Ethical Considerations, Informed Consent and Confidentiality:

41. The consent process for this evaluation was an important consideration and took place as follows. The consultant had initiated contact through email informing the potential respondents about the project evaluation objective and process. In case of no response, the project team was sought to establish contact. Lastly, direct calls were also used to reach out and receive a response from stakeholders about their consent and interest in participation. The evaluation consultant clearly explained to the respondent that his/her confidentiality is protected and that there will be no adverse consequence if he/she refuses to participate.

42. The respondents who replied in the affirmative and confirmed availability to participate in the evaluation were sent questions online through a form. These were individually sent to all respondents and the responses were not made available between participants. The questions and flexibility in response were framed keeping in mind institutional sensitivities. The evaluation participants were informed that they do not have to answer any question that they do not want to / are not able to and are free to withdraw any time from the evaluation process. It was also explained to them that their responses can be processed anonymously if requested, and that the outcomes of the final evaluation will be shared with them. In case the respondent refused to participate, the consultant conveyed that their right to do so is respected and thanked them for their time.

43. The evaluation consultant complied with ethical rules during data collection. The research methodology was appropriately oriented on study protocols, gender awareness, data storage procedures, consent protocols and the data collection tool. The consultant was aware of the importance of obtaining informed consent, respecting voluntary participation of respondents, gender considerations, awareness about vulnerable groups, and the privacy of the respondents as well as the confidentiality of data collected. These procedures were practiced during all stages of the evaluation.

Terminal Evaluation Report Finalization:

44. Utilizing the responses from the project team based on their feedback on the inception report, along with analysis of data collected, it was possible to structure the final TE report as per the protocols provided by the Evaluation Office. The first draft of the terminal report was submitted on 18th September 2020 to the evaluation manager. This would be circulated amongst all key project partners for their feedback, which would be incorporated before the final TE report is released.

3 The Project

3.1 Context

45. Lighting is considered by most consumers as a major form of energy use responsible for high energy consumption. The phase-out of inefficient lighting is therefore considered to be one of the most important short-term initiatives that nations can take in combating climate change created by GHG emissions, especially when the baseload generation is from fossil fuel fired power plants. While this presents a solid basis for the campaign for Energy-Efficient Lighting, considering its large dependence on coal and gas-based power generation, there are a number of barriers that limit deployment of cost-effective lighting technologies in the market.

46. As of 2011, Incandescent Lamps (ILs) were most commonly purchased globally due to their low price and longstanding familiarity. They were used extensively in residential lighting applications. Their poor efficiency and low lighting output efficacies amongst modern electric lamp types (6-18 lumens per watt) was a considerable argument for focusing on a transition to CFLs which consumed 20% to 25% of the energy used by incandescent light bulbs. These were also technologically superior since about 25% of the energy consumed by CFLs is converted to visible light as compared to only 5% for an incandescent lamp.

47. Historically, the main barrier hampering the proliferation of energy-efficient lighting products has been (and continues to be) their high initial cost. When first launched in the early 1980s, CFLs were 20 to 30 times more expensive to produce than their incandescent equivalents, but CFL costs have steadily declined since. Globally, the estimated CFL growth rates have been impressive, but relatively few countries have benefited from this technology so far. This means that there are still significant opportunities for promoting efficient lighting worldwide. Unfortunately, mercury is a hazardous substance currently included in fluorescent lamps.

48. In 2011, Morocco was (and continues to progress as) a developing country with rapid economic growth that has resulted in a higher demand for power. The Moroccan lighting market was mainly driven by four types of lamps, namely: ILs, CFLs and fluorescent tubes, halogen lamps, and high intensity discharge lamps. An analysis done in 2008 showed that 88% of the imported quantities by lamp type consists of ILs and CFLs, with about 45 million ILs per year (59%), and about 22 million CFLs and fluorescent tubes per year (29%). ONEE's CFL dissemination project under the INARA Program of the National Plan of Priority Actions, was initiated in 2008 to replace ILs with CFLs in households and offices. Unfortunately, the quantity of CFLs installed under the INARA Program decreased over time mainly due to a number of barriers, including: time lapse between the commencement of the first phase and the launch of the GoM's large-scale communication campaign; incompatible CFL thread types; inadequate quantities of CFLs at some ONEE local offices; billing and payment challenges; inadequate personnel to monitor delivery and installation of CFLs; among other challenges.

49. A major institutional barrier was the absence of a specific national institution that would be responsible for the deployment of energy efficiency strategies and policies. This barrier was however removed in 2010 when the National Agency for the Development of Renewable Energy and Energy Efficiency (ADEREE) under the Law No. 16-09 was created (today, it is called Moroccan Agency for Energy Efficiency, or AMEE). The absence of a specific policy to promote energy saving lamps (ESLs) also constituted a major barrier to their dissemination and accelerated use. A new policy was therefore required that would provide (i) regulations and directives for energy efficient lighting, (ii) incentives and fiscal measures for the promotion of energy efficient lighting, (iii) a roadmap for the phasing out of ILs with

corresponding fiscal measures, (iv) strengthening of the regulatory framework for testing of CFLs as well as the harmonization of the existing standards with international best practices, and (v) a regulatory framework for the disposal and recycling of CFLs.

50. The Global Environment Facility (GEF) launched the Global Lighting Initiative in November 2007 in an effort to assist developing countries in phasing-out incandescent bulbs and accelerating market transformation of environmentally sustainable energy efficient lighting technologies, while reducing global greenhouse gas emission from the lighting sector, and the co-benefit of containing mercury release. This is because coal sourced power plants have their own mercury by-products that act as pollutants. Therefore, continued use of more electricity-intensive ILs would lead to far larger amounts of mercury in the environment than from the hazard of recycling CFLs corresponding to that capacity in the market.

51. The implementation approach built upon the experiences and best practices of IFC and the World Bank in the late 1990s, largely with GEF support, in developing large scale energy-efficient lighting programs in Thailand, Mexico, Poland, Philippines etc. that led to the establishment of the Efficient Lighting Initiative (ELI). Morocco would therefore have been able to learn from the experiences and actions taken in other countries that were at a similar stage of market transformation for ESL products as Morocco was at the time of project implementation.

52. Governments and other stakeholders had expressed concern about the mercury content of CFLs, hence the issue of developing policies to address this issue has a high priority in most countries. Cognizant of this concern, the Project also sought to find feasible energy efficient alternatives to CFLs, in addition to addressing the current need to find environmentally sound recycling and disposal of CFL waste (In this direction, it may be noted that during the course of the project, Light Emitting Diodes (LED) lighting technologies were also included where feasible as part of the market transformation strategy).

53. The project was aligned to UNEP's Medium-Term Strategy (MTS) 2010-2013 at conception, which placed energy efficiency as a component of the priority area 'Climate Change'. The Project was developed in accordance with the common unified approach outlined for all its regional offices as per UNEP's Programme of Work (PoW).

54. The project goal was to accelerate the transition of the Moroccan market towards environmentally sustainable efficient lighting technologies. The development objective was to reduce greenhouse gases emissions through (i) the promotion of high-quality CFL and (ii) progressive phasing-out of ILs in Morocco. To achieve the objective mentioned above, the Project was conceptualized with the following four primary components:

- Energy efficiency policy enhancement for promotion of CFLs and phasing-out of ILs;
- Technology and standards/CFLs quality improvement;
- Generation of demand for CFLs through applicable consumer financing and, as applicable, financial support schemes; and
- Information, consumers education, and awareness raising.

3.2 Result framework

55. Each of the four project components are defined by their respective project outcomes. These project outcomes can be mapped to outputs which are to be achieved by corresponding project activities.

3.2.1 Component 1: 'Energy Efficiency Policy Enhancement'

56. Outcome 1.1 'An enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market', further broken down into outputs that included analysis, recommendations, and associated advocacy work for:

- Output 1.1.1 Introduction of adequate public financial and fiscal incentives to promote the CFL market; and
- Output 1.1.2 Setting up the required regulatory framework for CFLs norms and quality control (under the national framework).

57. Outcome 1.2 'State Government legislation adopted for the phase-out of ILs' consisting of output 1.2.1: Identification of possible new regulations to promote the phase-out of ILs (included in the development of the national framework).

3.2.2 Component 2: 'Technology and standards - CFLs quality improvement'

58. Outcome 2.1 'An effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco, and enhanced capacity of the supply chain to offer products and services promoting a sustainable CFL market' to be achieved through:

- Output 2.1.1 Set of CFL standards and associated certification system developed (or adapted) for Moroccan conditions (included in the national framework) and
- Output 2.1.2 Availability of effective and affordable testing procedures to check compliance of imported CFLs with standards (included in the national framework)
- Output 2.1.3 Training for CFLs installers (INSTELECs) to collect, package and return the replaced ILs was cancelled as per the TOR issued for the Terminal Evaluation of the Project;

59. Outcome 2.2 'ILs destruction and CFLs recycling procedures' targeted through:

- Output 2.2.1 'A mechanism to collect and destroy the replaced ILs'; and
- Output 2.2.2 'A mechanism to recycle CFLs'.

3.2.3 Component 3: 'Generation of demand for CFLs through applicable consumer financing and, as applicable, financial support schemes'

60. Outcome 3.1 'Increased demand for energy efficient lighting products based on availability of attractive end-user financing mechanisms' consisting of outputs:

- Output 3.1.1 Design the financial structure and implementation arrangements for specific purpose financing vehicles that will address consumer needs in the CFL market; and
- Output 3.1.2 As a pilot initiative, financial incentives provided to end-users to encourage the uptake of efficient lighting products.

61. Outcome 3.2 'Public utilities and private distributors and installers fully involved in the dissemination of energy efficient lighting products' to be achieved through:

- Output 3.2.1 Enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market; and
- Output 3.2.2 Ten million CFLs distributed to households, commercial establishments, and public service organizations in accordance with contracts signed between MEMWE and the electricity distributors. It is clarified in the TOR for Terminal Evaluation, that this output

was modified by reducing the target of distributing 10 million CFLs to 6.35 million CFLs instead, owing to a short project duration of 2 years. It was mentioned that the installation and distribution was to be carried out by INSTELECs.

3.2.4 Component 4: 'Information, Consumers' Education, and Awareness Raising'

62. Outcome 4.1 'Enhanced consumers awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments', which is to be achieved through

- Output 4.1.1 Public awareness raising and marketing campaigns implemented in cooperation with relevant public utilities entities and private electricity distributors; and
- Output 4.1.2 Materials for public awareness raising and marketing campaigns developed or adapted into Moroccan conditions.

3.3 Stakeholders

63. In the project document key stakeholders were identified and presented under two main groups. These two groups were consulted prior to the project design and were instrumental to its implementation.

Table 3: Project Identification Table

Government Ministries / Agencies		Private Companies
Name at Project start	Name at Project Evaluation	
MEMWE - Ministry of Energy, Mines, Water, and Environment	MEMSD - Ministry of Energy, Mines and Sustainable Development	PLM - Philipps Lighting Maghreb
ONE - National Office for Electricity	ONEE - National Office for Electricity and Potable Water	OSRAM North Africa
ADEREE - National Agency for the Development of Renewable Energies and Energy Efficiency	AMEE (2016 onwards) - Moroccan Agency for Energy Efficiency	Beghelli
DRSC - Department of Public and Private Electricity Utilities at the Ministry on Interior PPEUs - Public and Private Electricity Utilities	(no change)	--
SNIMA - Moroccan Industrial Standardization Service	IMANOR - The Moroccan Institute of Standardization	--
MEF - Ministry of Economy and Finance	MEFRA - Minister of Economy, Finance and Administration Reform (MEFRA)	--
AC - Administration of Customs and Indirect Taxes, under MCI - Ministry of Industry and Trade	(no change)	--

Government Ministries / Agencies		Private Companies
Name at Project start	Name at Project Evaluation	
LPEE - Public Laboratory of Tests and Studies		--

64. Furthermore, the project document identifies other stakeholders. These are global stakeholders consisting mainly of different UN organizations, bi-lateral and multilateral organizations, and international harmonization institutes such as the International Electrotechnical Commission (IEC) who have been involved in supporting Efficient Energy (EE) lighting activities. All these stakeholders were planned to be involved during the project implementation through different types of interventions. Furthermore, following stakeholders are mentioned in the ProDoc.

65. A stakeholder analysis was developed by the evaluator based on analysis of documents pertaining to the project and a preliminary interview with members of the project staff. This was further updated after phase II, that is 'data collection and analysis' based on survey data collected and interviews conducted with respondents. The overall analysis is provided in the following table in accordance with the 'Johari Window' framework:

Table 4: Stakeholder Analysis

Stakeholders	Explain the power they hold over the project results	Did they participate in the project design and how	Potential roles & responsibilities in project implementation	Changes in their behaviour expected through implementation of the project
Type A: High power / high interest = Key player				
MEMWE (today MEMSD)	These stakeholders hold power over all project outcomes, explained as follows:	- According to project document (p96) MEMWE was the project initiator - Consultations	- Door opener - Project and process facilitation - Provision and monitoring of data - Attendance at workshops, training programs - Co-financing - Use of adequate and timely procurement procedures for the CFLs - Design of the new CFLs awareness raising and marketing campaign - Use of appropriate national media	- Continuation of the support and the implementation of quality assurance measures in the future - Facilitate the integration of CFLs into new housing developments and into other promising new market segments
ADEREE (National Agency for the Development of Renewable Energies and Energy Efficiency - Today AMEE)	- Facilitation of the policy process for the implementation of an enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market and to phase out ILs - Implementation of an effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco			
DRSC - Department of Public and Private Electricity Utilities at the Ministry on Interior				

SNIMA (Moroccan Industrial Standardization Service)	<ul style="list-style-type: none"> - Enforcement of a sustainable disposal process and the destruction of replaced ILs - Implementation of attractive end user financing mechanisms in order to increase the demand for CFLs - Dissemination of energy efficient lighting products - Enhancement of consumer awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments 		- adaptation of instruction material	
Department of Environment				
LPEE (Public Laboratory for Studies and Testing)				
Office National de l'Electricité et de l'Eau Potable (ONEE) (previously ONE)				
Philipps Lighting Maghreb (PLM)				
OSRAM North Africa				
Behelli				
Key private stakeholders for recycling CFLs	<ul style="list-style-type: none"> - Collection, disposal and recycling of CFLs - Advocacy for their business 	No	<ul style="list-style-type: none"> - Appropriate handling, disposal and storage of the CFLs (not clear who is responsible for these activities) 	<ul style="list-style-type: none"> - Continuation and gradual improvement of recycling processes
Key private stakeholders (IL Value Chain)	<ul style="list-style-type: none"> - Conversion towards efficient lighting business - Advocacy for conversion strategies 	No	<ul style="list-style-type: none"> - Phasing out ILs 	<ul style="list-style-type: none"> - Continuation and gradual increasing of the CFL portfolio
End user - Head of household	Willingness to convert to CFLs and remove ILs	No	<ul style="list-style-type: none"> - Development of acceptance and sharing (good) experience 	<ul style="list-style-type: none"> - Willingness to continuously convert to efficient lighting technologies and behavior and proper returning of ILs and CFLs after reaching end of life
End user - Person paying the electricity bills		No		
End user - Person controlling the use of light in the household	Willingness to adopt energy efficient behaviors	No		
Type B: High power / low interest over the project = Meet their needs				
Ministry of Economy and Finance (MEF)	These stakeholders have a high power over the outcomes of the project, but might have other interests	- Consultations	<ul style="list-style-type: none"> - Door opener - Project and process facilitation - Provision and monitoring of data 	<ul style="list-style-type: none"> - Continuation of the support and the implementation of quality assurance measures in the future

Public and Private Electricity Utilities (PUEs)	<ul style="list-style-type: none"> - Revising and strengthening GoMs energy efficiency policy. - Reducing import duties for CFLs and increase the import duty for ILs 	<ul style="list-style-type: none"> - Consultations 	<ul style="list-style-type: none"> - Attendance at workshops, training programs - adaptation of instruction material 	<ul style="list-style-type: none"> - Facilitate the integration of CFLs into new housing developments and into other promising new market segments
Ministry of Trade and Industry (MCI)	<ul style="list-style-type: none"> - Enforcement of an effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco - Dissemination of energy efficient lighting products 	<ul style="list-style-type: none"> - Consulted during the project design as the administration of Taxes and customs is under the MCI's supervision. - MCI was also to be involved during project implementation in coordinating with trade representatives - however, response was reluctant since IL phase out was not favored, and lack of clarity in the private sector hindered further interaction through workshop or direct consultations. 		<ul style="list-style-type: none"> - Continuation of the support of a progressive energy efficient customs and tax policy - Permanent and progressive prohibition of the import of ILs and outdated lighting products
Administration of Customs and Indirect Taxes (ADII)				<ul style="list-style-type: none"> - Continuous support of the conversion process of the outdated lighting products industry - Continuous support the development of a recycling industry for outdated lighting products
Housing developers (e.g. through an association)	<ul style="list-style-type: none"> - Advocacy for energy efficient lighting - Creating of demand 	Participation of Housing Developers is not visible	Development of acceptance and sharing of good experiences	Willingness to continuously convert to efficient lighting technologies and behavior and proper returning of ILs and CFLs after end of life
Type C: Low power / high interest over the project = Show consideration				
GEF	<p>These stakeholders have a high interest in this project but limited influence on the outcomes, however, they can:</p>	<p>The GEF was involved in the project design and the project went through two rounds of comments from the GEF secretariat (GEF SEC)</p>	<ul style="list-style-type: none"> - Door opener - Project and process facilitation - Provision and monitoring of data - Attendance at workshops, training programs 	<ul style="list-style-type: none"> - Disseminating lessons learned to other projects and initiatives - Continuous identification of possible synergies with other initiatives
UNEP/DTIE	<ul style="list-style-type: none"> - provide data, best practice examples - Synergies with other projects - Financing instruments - Replication opportunities 	<ul style="list-style-type: none"> - The Project Management Unit (PMU) was part of UNEP/DTIE - UNEP/DTIE was instrumental to design the project - Also provided in-kind co-financing 	<ul style="list-style-type: none"> - Offering workshops and training programs - Co-financing - Timely completion of market surveys - Development of instruction material 	
UNDP		Unknown		
WB		Unknown		

Efficient Lighting Initiative		- Involved through the U4E (erstwhile en.lighten) initiative - Participated in design stage through inception workshops - Led the development of the TORs to recruit the technical experts and reviewed all the studies developed within the project.		
ICE, COPANT etc.		Unknown		
USAID		Unknown		
GIZ		Unknown		
Other bilateral donors		Unknown		
The project consultants		Two consultants were hired to help with the project design		
Civil society: Environmental NGO	Long term advocacy and pressure on the A stakeholders	No	Advocacy and pressure on the A stakeholders	- Long term integration of energy efficiency and recycling topics into the agenda
Civil society: Social inclusion NGO	Long term advocacy and pressure on the Stakeholders	No	Advocacy and a better understanding of the energy needs of marginalized groups of the moroccan society and how to include them	
Type D: Low power / low interest over the project= Least important				
Persons using light in the household without being responsible for the bill	Willingness to adopt energy efficient behavior	No	- development of acceptance and sharing (good) experience	Willingness to continuously convert to efficient lighting technologies and behavior and proper returning of ILs and CFLs after end of life

66. During inception of the TE, several questions were developed by the evaluator to assess stakeholder engagement mentioned in the project document. While some categories of stakeholders were missing from project participation, others experienced varied levels of engagement in the implementation as compared to initially planned. These questions were posed to the project team and their responses were incorporated in corresponding sub-sections falling under the chapter 'Evaluation Findings'.

3.4 Implementation structure and partners

67. The Project was structured under a cluster of representation from GEF, UNEP and Moroccan stakeholders. UNEP had two roles: it was the Implementing Agency for the GEF (through its Climate Change Mitigation Unit) and also responsible for overall project management (through UNEP/DTIE's Finance Unit). The implementation structure consisted of the Project Steering Committee (PSC), the National Project Director (NPD), the Project Management Unit (PMU), the Project Management Office (PMO) and the Technical Working Group (TWG). The organogram of the project along with major stakeholders can be seen in Figure 2 as follows, as per the ProDoc:

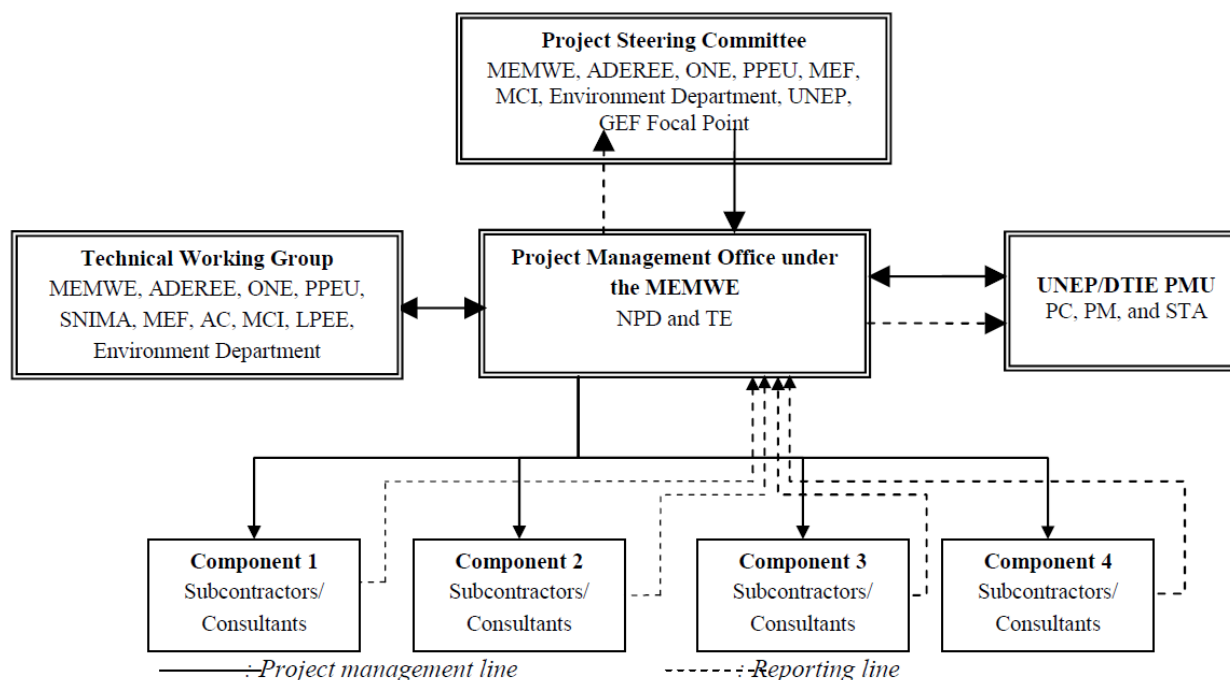


Figure 2. Organogram of the Project with key project key stakeholders

68. Project Steering Committee (PSC): The main role of the PSC was (i) to guide and oversee the technical progress and performance of the Project, and (ii) to enhance and optimize the contributions of various partner organizations through coordination of all activities and inputs. The PSC included high level representatives from MEMWE, ADEREE, ONE, PPEU, MEF, MCI, Environment Department, UNEP, and the GEF focal point. The PSC was due to meet at least once a year, to discuss the Project key performance indicators and provide future guidance to the Project. However, the PSC had only three formal meetings during the course of the entire project and the frequency was lower than once a year. These were held in November 2012 with the inception workshop, in January 2015 and in lastly in June 2019 along with the closing workshop.

69. National Project Director (NPD): The main role of the NPD was assigned to Secretary General of MEMWE. The NPD represented MEMWE and was responsible for mobilizing all national inputs in a timely manner, coordinating and supporting the management and implementation of the Project, organizing project activities in accordance with the project work plan, and reporting to MEMWE and UNEP/DTIE about the progress of the Project. Mrs. Maya Aherdan was designated NPD from 2012-2015 as Secretary General of MEMWE (MEMSD) as evidenced by her participation in the PSC meetings. However, the NPD's involvement after 2015 could not be confirmed in the evaluation, and there was no representation during the final workshop in 2019.

70. **Project Management Unit (PMU):** The PMU was supposed to be headed by a part-time project coordinator (PC) who was assisted by a part-time project manager (PM); a part-time special technical adviser (STA); and support staff. This unit was responsible for monitoring the implementation of the project activities and ensuring their consistency with the project design and UNEP and GEF regulations and as per delegated authority from MEMWE was also responsible for overall project management and reporting. The STA was not to be a permanent staff but recruited from time to time to assure the quality of the outputs. In addition, a number of subcontractors and international experts supported the PMU as and when needed to undertake the project activities. The PMU was responsible for preparing quarterly progress reports to review achievement in the previous quarter, prepare financial reports and develop work plan and budget for upcoming quarters. All such documents were due to be endorsed by the UNEP Task Manager. During the course of the project, progress reports were prepared on a half-yearly basis from 2013 to 2018 and the endorsement was in fact done by the Project Manager (Mrs. Myriem Touhami), with the exception of the 2018 report, which was endorsed by the Programme Officer (Mrs. Ghita Hannane). The Project Implementation Reports (PIRs) were prepared from 2013 to 2019 with inputs from both the Project Manager and the UNEP Task Manager.

71. MEMWE was responsible for establishing a PMO headed by NPD (assisted by a part-time technical expert (TE) and support staff). The PMO was responsible for organizing quarterly meetings between MEMWE and the PMU to discuss the quarterly progress report, the quarterly work plan, the quarterly budget and any other relevant issues. It was also responsible for developing annual progress reports for submission to the PSC at least two weeks before the semi-annual meetings. At the end of the Project, the PMO was also due to assist with the preparation of the terminal report, which was to be submitted to the PSC at least two weeks before the final meeting. The relationship between staff in the PMU and the PMO is presented in Figure 3, as per the ProDoc. While there is evidence of meetings organised by MEMWE and ONEE in 2013 and 2014 in the half-yearly progress reports, these were not 'quarterly meetings' but more of partner consultation meetings including participants also outside of MEMWE and the PMU. There is no evidence of the occurrence of these meetings, or the PMO's appointment / contribution to the terminal report.

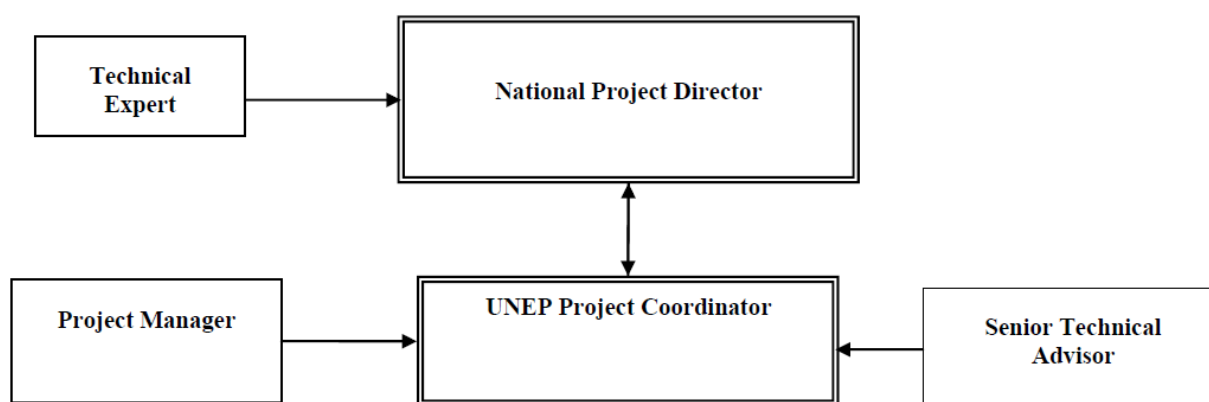


Figure 3. Relationship between the staff in the PMO and the PMU

72. **Technical Working Group (TWG):** A TWG was to be established to provide overall comments of key project activities including fund commitments and co-financing arrangements. The TWG was supposed to consist of senior representatives from the relevant departments of MEMWE (MEMSD), ADEREE (AMEE), ONE (ONEE), PPEU, SNIMA (IMANOR), MEF(MEFRA), Administration of Customs and Indirect Taxes (AC), MCI(MCIEN), LPEE,

Environment Department (part of MEMSD), and key private stakeholders. The TWG was due to meet regularly during project implementation, and was responsible for

- i. Implementation of any project activity was supposed to include the following steps:
- ii. Preparation of the work plan, development of Terms of Reference (TOR);
- iii. Recruitment of consultants;
- iv. Verification of the quality of the outputs;
- v. Documentation and printing of the output; and
- vi. Dissemination of the output.

However, there was no evidence in either documentation of direct consultation during the evaluation, that the TWG was constituted in the first place. There is consequently also no evidence of their meetings being held.

73. UNEP formally participate in PSC meetings, the final evaluation and the clearance of half yearly and annual reports. UNEP/DTIE, on behalf of MEMWE, was to also be accountable to GoM and UNEP for ensuring: (i) the quality of the different outputs and outcomes of the project; (ii) the effective use of both international and national resources allocated to it; (iii) the timely availability of financing to support project implementation; and (iv) the proper coordination among all project stakeholders, in particular, national parties. However, the involvement of MEMWE (MEMSD) was highly reduced during the project. While UNEP/DTIE remained involved in project implementation, there was no evidence of coordination with MEMWE. However, UNEP/DTIE did support the GoM through its support to ONEE. This was evidenced in its reporting in co-finance reports which evidences support through hiring of experts and required personnel, support for achieving project outputs by expenditure on sub-contracting and administrative tasks pertaining to the project.

3.5 Project Financing

74. The total project cost was pegged at US\$ 6,820,295 at the time of preparing the original ProDoc, including US\$ 889,091 contribution approved by the GEF through its letter titled 'CEO Approval' dated September 29, 2011. The total expenditure varied quite extensively for the project when evaluated upon actual completion. The overall expenditure by GEF was US\$ 833,955.06 and there was an unspent amount of US\$ 55,136. The co-finance amount by MEMWE was never clarified during the project or after the evaluation, but considering ONEE's contribution, GoM's contribution to the project was pegged at US\$ 13.24 million. Combined with UNEP/DTIE's co-finance contribution of US\$ 256,037 evidenced by its financial reports, the co-finance in total was US\$16,026,037.00 against the planned US\$5,931,204.00.

75. The finance was a combination of cash and in-kind contributions from co-financiers including MEMWE, ONEE and UNEP/DTIE, the breakdown for which is available in Table 4 as follows (as per the original ProDoc):

Table 5: Project Financing

Description	US\$	%
Cost to the GEF Trust Fund	889,091	13.0
Co-financing		

Description	US\$	%
<i>Cash</i>		
Ministry of Energy, Water and Environment (MEMWE)	890,000	13.0
National Electricity Utility (ONEE)	3,466,244	50.8
UNEP - DTIE (Italian Trust Fund)	1,080,000	15.9
Sub-total	5,436,204	
<i>In-Kind</i>		
Ministry of Energy, Water and Environment (MEMWE)	185,000	2.7
National Electricity Utility (ONEE)	120,000	1.8
UNEP - DTIE (Italian Trust Fund)	190,000	2.8
Sub-total	495,000	
Total Co-financing	5,931,204	
Total Project	6,820,295	100.0

76. The project finance deviations are detailed in the evaluation findings under section 5.5 titled Financial Management.

3.6 Changes in design during implementation

77. As explained in the stakeholder analysis, it can be seen that the project design was carried out by involving most of the key stakeholders from GEF, UNEP and Moroccan National stakeholders (both, public and private). This was instrumental in ensuring a good design at inception, with the UNEP-DTIE playing a focal role as PMU and the MEMWE as the nodal in-country organisation.

78. However, in order to adapt to changing circumstances (both internal and external to the project), there were certain changes in design which took place to enable continuity of the project as well as realistic adaptation to changes in environment.

79. **Implementation period:** The initial project was planned for 24 months starting September 2011, which was far shorter than the actual time of implementation. While the project successfully received approval in end of 2011, the inception phase was kick-started effectively by 2012 and it was concluded eight years later in 2019 after going through several rounds of extension. This was a major deviation from the initial timeline.

80. **Technology:** The larger goal of energy efficiency lighting was initially defined through the lens of market transformation by shifting from ILs to CFLs. While this may have been prudent keeping in view the baseline market conditions in 2011, and the initial implementation period, eventually technology for efficient lighting in the market saw visible changes towards uptake of LED lamps. In the project, through the monitoring reports, it is observed that in 2017,

the deliverables were also modified to include LED products as part of the market transformation effort.

81. **Strategic interest:** The central ministry for the project, MEMSD's (MEMWE's) interest in the project fluctuated considerably. Despite deep involvement at the design stage, acting as a significant co-financier, MEMSD reduced its participation in project coordination at the national level. Consequently, large activities were either passed on to ONEE or faced failure because of lack of the ministry's involvement and response at critical decision junctures. This is evidenced by the progress reports prepared by UNEP and is reiterated in the closing report. One of the significant indicators was a shift in project finance from MEMWE to ONEE. In fact, in 2017, the progress reports have indicated stalling of activities and deliverables since MEMWE's was yet to approve an extension to the project.

82. **Distribution channels:** The involvement of Public and Private Electric Utilities (PPEUs) was envisaged for distribution of 3.35 million CFLs (to complement the 6.35 million that ONEE was responsible for). Initially this was planned through contracts to be signed between MEMWE and the PPEUs. Eventually, these program contracts were signed between ONEE and the PPEUs (due to MEMWE's reduced participation). However, the distribution pilots carried out on behalf of the utilities failed, and this activity was also taken over by ONEE.

83. **Industry participation:** There were several engagement channels initially planned to create an enabling environment for businesses in the Moroccan market, such as awareness building across the value chain for lighting products (from the end-user, suppliers and all the way to tax and customs officers) and the creation of the Minimum Energy Performance Standards (MEPS) for improved product standardization in the market. However, the resistance from the private sector exercised through the Ministry of Industry and Trade (MICIEN today) was not adequately addressed through either of the ministries involved. This caused a lack of industry participation; certain outputs were cancelled since phasing out of ILs was very strongly rejected by trade representatives. There was not enough project budget in those components to continue further negotiations and address the root cause for this lack of private sector participation.

4 Reconstructed Theory of Change

84. The Theory of Change (ToC) as depicted in the Original Logical Framework in the project document (design) was constructed at evaluation to identify the links between the project's outputs, outcomes and intermediary states, and how these lead to the intended impact. Since there was no ToC prepared at the design stage of the project, the purpose of this reconstruction was to clearly identify the causal pathways in the intervention and demonstrate linkages, dependencies and a chronology. The impact is defined according to the overall Project objective, which is reduction of Greenhouse Gases (GHG) emissions through (i) the promotion of high quality CFLs (LEDs were also included during later stages of the project) and (ii) the progressive phasing-out of ILs in Morocco.

85. The original ProDoc was referred to while identifying causal pathways and developing the initial draft. These were based on: revisions in the work plan which happened 4 times over the project period, the monitoring reports and final closing report of the project. Further to deep dive into the project documents, there was consultation carried out with the project team. Their feedback was received and also incorporated into the ToC. The revisions are captured in the [Table 6](#) with the Sample Comparison presented.

86. During the re-construction of the ToC, the initial task was defining the components of the logical framework (LogFrame) and placing them along the causal pathways in the ToC. This included identifying which parts of the LogFrame were categorised as Outputs, Project Outcomes (POs), Medium-term outcomes, Intermediate States and Impact. The Theory of Change developed during evaluation makes a distinction between Outcomes (the uptake / adoption / application of an output by intended beneficiaries, observed as a change in institutions or behaviors, attitudes or conditions) as follows: 'Project Outcomes' (PO 1.1 to PO 4.1) refer to those outcomes that are intended to be achieved by the end of project timeframe/funding envelope, whereas 'Medium-term Outcomes' (MO 1.1 to MO 4.1) refer to those outcomes that require a longer time frame to emerge but which are necessary interim before the achievement of the project Impact.

87. With the baseline as the point of reference, certain assumptions were assumed to hold true and drivers were to be established by the project to lead from outputs to project outcomes and medium-term outcomes. From the outcomes, further assumptions were required to hold (especially related to GoM) to move towards achieving 'Intermediate States' (IS.1 to IS.4). These intermediate states being achieved together would create the envisioned Impact due as a result of the project.

88. Sections 4.1 through 4.3 below attempt to describe the causal pathways from project Outputs through to Impact, including the intermediary results levels, as well as the drivers and assumptions identified by the evaluation. Figure 4 below represents the Theory of Change in a diagrammatic form.

4.1 Causal pathways from Outputs² to Outcomes

89. PO 1.2 'State Government legislation is adopted for the phase-out of ILs' was planned as a direct outcome of the output OP1.2.1, which involved the Identification of possible new regulations to promote the phase-out of ILs (included in the development of the national framework). The GoM's commitment to enforce higher taxation was an important assumption

² An output is the availability (for intended beneficiaries/users) of new products and services and/or gains in knowledge, abilities and awareness of individuals or within institutions. For example, access by the intended user to a report; new knowledge held by a workshop participant at the end of a training event; heightened awareness of a serious risk among targeted decision-makers. (Outputs are viewed from the perspective of the intended beneficiary or user of the output rather than the provider).

that was expected to hold true (A1.2.1) and the timely completion of the market research activities was required for achieving this outcome (D1.2.1).

90. PO 2.1 'An effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco is established, and there is capacity enhancement of the supply chain to offer products and services promoting the establishment of a sustainable CFL market' was planned as a direct outcome of the output OP 2.1.2 which involves the availability of effective and affordable testing procedures to check compliance of imported CFLs with standards. For this to succeed, the GoM would have to endorse the development of a certification system and enforced CFL Quality compliance by CFL distributors as well as assure enforcement by Customs & MCI officials (A2.1.1 and A2.1.2). The LPEE was supposed to continue the testing of CFLs after completion of the project (A2.1.3). The instruction materials & training programs were supposed to be developed as per stakeholder needs (D2.1.1) and training of customs officials, MCI controllers and all relevant stakeholders should have been conducted as well (D2.1.2) to drive this outcome.

91. PO 2.2 'ILs destruction is carried out and CFLs recycling procedures are established' was planned as a direct outcome of the output OP2.2.2 which provides a mechanism to recycle CFLs in collaboration with ONEE. The assumptions A2.2.1 (ONE's commitment to collection and destruction of ILs (as per INARA)) and A2.2.2 (All concerned ministries and national agencies promote & enforce CFL recycling/ disposal regulations) were supposed to hold with ONEE's commitment for the collection and destruction of ILs (as per INARA) and all concerned ministries and national agencies were expected to promote & enforce CFL recycling/ disposal regulations. The introduction of consumer incentive to turn over replaced ILs was to be developed by the project (D.2.2.1).

92. MO 1.1 'An enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market is established' was planned as a medium term outcome of the outputs OP1.1.1 and OP1.1.2, that included the introduction of adequate public financial and fiscal incentives to promote the CFL market and regulatory framework for CFLs norms and quality control (under the national framework). For this pathway to succeed, GoM's commitment to introduce policies for promotion and increase of CFLs and to develop CFL standards were important assumptions (A1.1.1 and A1.1.2). The timely completion of the market research activities was expected to drive this outcome (D1.2.1).

93. MO 3.1 'Increased demand for energy efficient lighting products is observed as a result of attractive end-user financing mechanisms' was planned as a medium term outcome of the output OP3.1.1, OP 3.1.2 and OP3.2.1 that involved the design of a financial structure and implementation arrangement for specific purpose financing vehicles that will address consumer needs in the CFL market and as a pilot initiative, financial incentives were provided to end-users to encourage the uptake of efficient lighting products as well as to enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market. The assumptions (A3.1.1 and A3.1.2) for the commitment of ONEE and relevant ministries to implement a more affordable purchase cost of CFLs by consumers, and to use the results of the pilot for establishment of a more favourable financing mechanism were expected to exist.

94. MO 3.2 'Public utilities, private distributors and installers are fully involved in the dissemination of energy efficient lighting products' was planned as a medium term outcome of the output OP3.2.1 and OP3.2.2 to enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market and ONEE purchased 10 million CFLs under the INARA and 6.35 million CFLs were distributed. The timely procurement procedures for the CFLs were to be developed (D3.2.2).

95. MO 4.1 'Enhanced consumers awareness and capacity of the targeted end users, housing developers and other key stakeholders to facilitate the integration of CFLs into new

housing developments and into other promising new market segments' was planned as a medium term outcome of the output OP4.1.2 to develop or adapt materials for the public awareness raising and marketing campaigns into the Moroccan conditions. Cooperation of 5 major cities & 2 rural centres to design & implement conditions and adequate GoM / MEMWE support for further surveys & maintenance of the database were supposed to hold (A4.1.1 and A4.1.2). The drivers (D4.1.1 and D4.1.2) to ensure that public & key private stakeholders involved in design and that appropriate national media are used, were to be developed.

4.2 Causal pathways from Outcomes to Intermediate States³

96. In order to reach the IS 1 'Energy efficiency policy enhancement', an enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market together with the state government's legislation to adopt for the phase-out of ILs needed to be established (MO1.1 and PO1.2). It was assumed that the GoM will implement CFLs promotion policies established and continue to support it in the future as well as the implementation of the ILs phase out roadmap and acceptance of the same by shareholders (A1.1 and A1.2). The acceptance of the legislation by stakeholders and GoM's commitment to agree to CFL certification and quality control scheme & support enforcement through including customs authorities was supposed to take place (A1.3 and A2.1).

97. To achieve IS2 'Technology and standards/CFLs quality improvement', an effective and affordable certification and quality control scheme that is applicable for all CFLs imported into Morocco needs to be established and a capacity enhancement of the supply chain to offer products and services promoting the establishment of a sustainable CFL market is needed (DO2.1). The ILs destruction was to be carried out and CFLs recycling procedures were supposed to be established (PO2.2). The GoM's commitment to enhance the testing capacity of LPEE - national testing laboratory and to enforce ILs destruction and CFLs recycling procedures were supposed to be developed (A2.2 and A2.3).

98. To attain IS3 'Generation of demand for CFL through applicable consumer financing and as applicable, financial support schemes', an increased demand for energy efficient lighting products needs to be observed as a result of attractive end-user financing mechanisms (MO3.1). Public utilities, private distributors as well as installers are supposed to be fully involved in the dissemination of energy efficient lighting products (MO3.2). It was assumed that the GoM will make the purchase cost of CFLs more affordable through taxation with the commitment of all parties to implement the remainder of the INARA program as agreed (A3.1 and A3.2).

99. In order to reach IS4, 'Enhanced public information, consumers' education, and awareness on EE lighting', an enhanced consumers awareness and capacity of the targeted end users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments were needed (MO 4.1). The GoM's commitment to increase awareness and acceptance of EE lighting by the general public and to prepare guidelines for the integration of EE lighting in other sectors were supposed to be put in place (A4.1 and A4.2).

4.3 Causal pathways from Intermediate States to Impact

100. The final link in the pathways leads from intermediate states to impact. As explained above, the outcomes are expected to eventually lead to 'Intermediate States' (IS.1 to IS.4) which together are expected to create an enabling environment. that would result in the desired impact, that is: (i) the promotion of high-quality Compact Fluorescent Lamps (CFL)

³ Intermediate states are changes (i.e. changes at the outcome level) beyond the Project Outcome(s) that are required to contribute towards the achievement of the intended impact of a project

and Light Emitting Diode (LEDs) Lamps and (ii) progressive phasing-out of incandescent lamps (ILs) in Morocco.

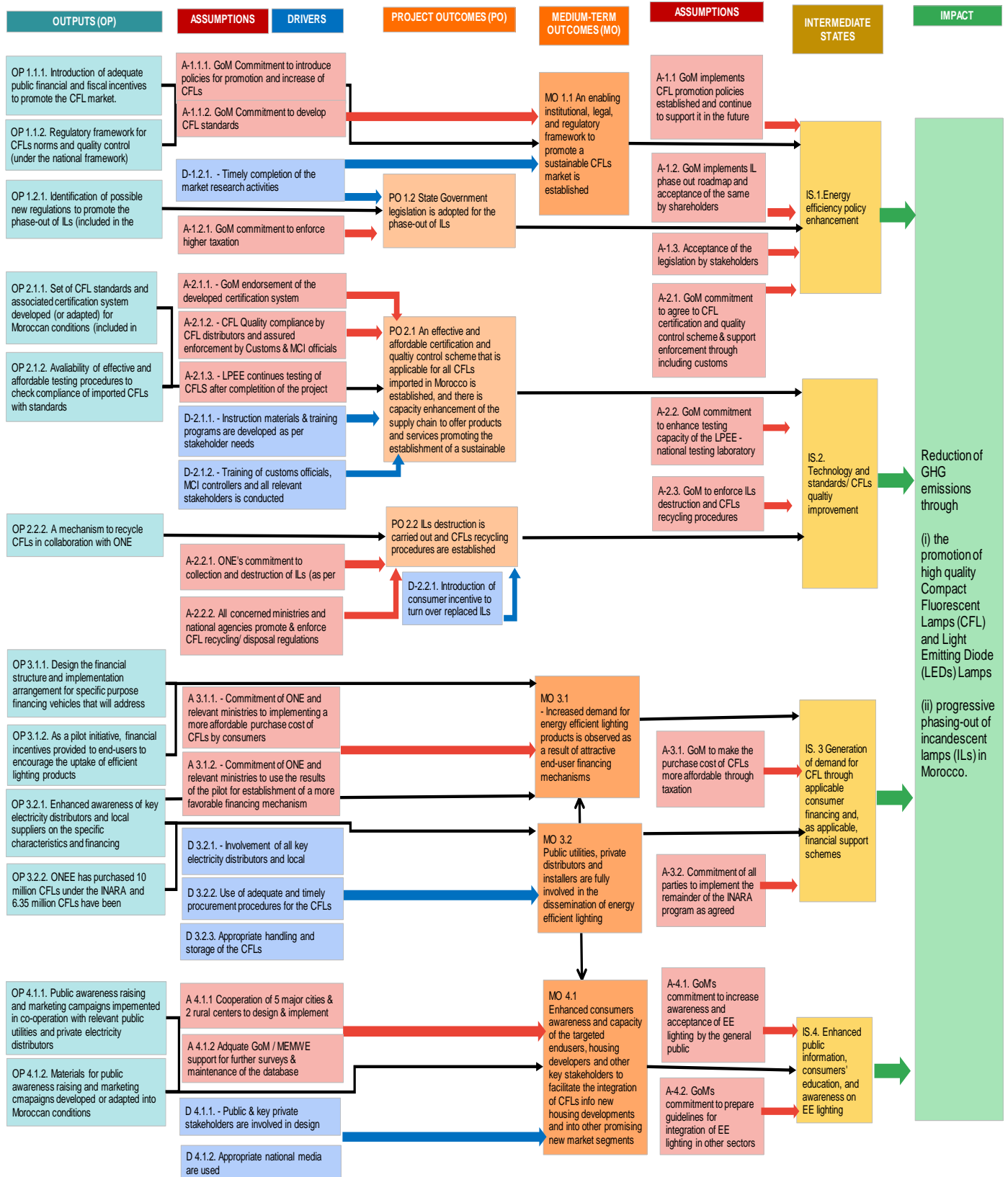


Figure 4. Reconstructed Theory of Change (ToC)

Table 6: Comparison Table

Project Document (Prodoc)		Reconstructed TOC		Justification for Reconstruction
Impact (Long-term)	Reduction of GHG emissions through (i) the promotion of high quality Compact Fluorescent Lamps (CFL) and (ii) progressive phasing-out of incandescent lamps (ILs) in Morocco.		Reduction of GHG emissions through (i) the promotion of high quality Compact Fluorescent Lamps (CFLs) and Light Emitting Diode (LED) Lamps (ii) progressive phasing-out of incandescent lamps (ILs) in Morocco.	Given the longer timeframe of the project than expected, this was modified to include efficient lighting technologies beyond CFLs, which in this case was 'LEDs'. This is evidenced by the modification in deliverables corresponding to components 1 and 2, where CFL specific outputs were extended to include LED (not just CFLs) in the definition of energy efficient lighting for the project
Overall Development Objective	Accelerating global market transformation of environmentally sustainable, energy efficient lighting technologies as well as to develop a strategy to phase-out incandescent bulbs, thereby reducing global greenhouse gas emission from the lighting sector and the co-benefit of reducing mercury, release from coal combustion being the main source of energy.	Intermediate States (IS)	IS.1 Energy efficiency policy enhancement IS.2 Technology and standards/ CFLs quality improvement IS.3 Generation of demand for CFL through applicable consumer financing and, as applicable, financial support schemes IS.4 Enhanced public information, consumers' education, and awareness on EE lighting	The initial ToC was constructed presenting two levels of intermediate states. However, the first level of intermediate results were changed to 'medium-term outcomes'. This medium-term outcomes would (under certain assumptions) lead to 4 intermediate states (IS) corresponding to the 4 component objectives. IS.4 was reformulated from the component 'Information, consumers' education, and awareness raising' to match a statement more appropriate for describing an 'intermediate state' (based on recommendation during evaluation feedback)
Overall Project Objective/Purpose	The main objective of the project is to reduce greenhouse gases emissions through (i) the promotion of high quality Compact Fluorescent Lamps (CFLs); and (ii) progressive phasing-out of incandescent lamps (ILs) in Morocco			
Outcomes	Outcome 1.1 An enabling institutional, legal and regulatory framework to promote a sustainable market for CFLs	Project Outcomes (PO) and Medium-term Outcomes (MO)	MO 1.1 An enabling institutional, legal, and regulatory framework to promote a sustainable CFL and LED market is established	The outcomes outlined in the original project document were not modified in terms of content or design. The reconstruction was aimed at aligning statements with the definition of the term outcome. They were reworded to explain the use of outputs as an uptake, adoption or application through institutional and/or behavioural change by the
	Outcome 1.2 State Government legislation adopted for the phase-out of ILs		PO 1.2 State Government legislation is adopted for the phase-out of ILs	

Project Document (Prodoc)		Reconstructed TOC		Justification for Reconstruction
	Outcome 2.1: An effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco, and enhanced capacity of the supply chain to offer products and services that will promote the establishment of a sustainable CFL market		Outcome 2.1: An effective and affordable certification and quality control scheme that is applicable for all CFLs and LEDs imported in Morocco is established, and there is capacity enhancement of the supply chain to offer products and services promoting the establishment of a sustainable CFL and LED market	<p>target beneficiaries. LED was added since it is presently the latest most efficient lighting technology.</p> <p>Policy change was further clarified to be done through identification of possible new regulations which is included in the development of the national framework.</p>
	Outcome 2.2: IL destruction and CFL recycling procedures		PO 2.2: ILs destruction is carried out and CFLs/LED lamps recycling procedures are established	
	Outcome 3.1: Increased demand for energy efficient lighting products based on availability of attractive end-user financing mechanisms		MO 3.1: Increased demand for energy efficient lighting products is observed as a result of attractive end-user financing mechanisms	
	Outcome 3.2: Public utilities and private distributors and installers fully involved in the dissemination of energy efficient lighting products.		MO 3.2: Public utilities, private distributors and installers are fully involved in the dissemination of energy efficient lighting products	
	Outcome 4.1: Enhanced consumers' awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments		MO 4.1: Enhanced consumers' awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs and LED lamps into new housing developments and into other promising new market segments	

Project Document (Prodoc)		Reconstructed TOC		Justification for Reconstruction
		All Outputs		<p>The outputs were re-worded as per the last workplan revision (also coherent with the closing report), to be visible as products, services, knowledge and/or capacity enhancement by the beneficiaries.*</p> <p>A significant change in the outputs was alignment with the national framework for energy efficiency measures which was concurrently under development.</p>
Outputs	Output 1.1.1. Analysis, recommendations, and associated advocacy work for the introduction of adequate public financial and fiscal incentives to promote the CFLs market	Outputs	Output 1.1.1. Introduction of adequate public financial and fiscal incentives to promote the CFL market.	The original output statement from the ProDoc was reworded by the Project during the first revision of the workplan, as per the revision documents. This remained so for the rest of the project period.
	Output 1.1.2. Analysis, recommendations, and associated advocacy work for setting up the required regulatory framework for CFLs norms and quality control		Output 1.1.2. Regulatory framework for CFLs norms and quality control (under the national framework)	As per closing report
	Output 1.2.1. Identification of possible new regulations to promote the phase-out of ILs		Output 1.2.1. Identification of possible new regulations to promote the phase-out of ILs (included in the development of the national framework)	As per closing report
	Output 2.1.1. Set of CFL standards and associated certification system developed (or adapted) for Moroccan conditions		Output 2.1.1 Set of CFL standards and associated certification system developed (or adapted) for Moroccan conditions (included in the national framework)	As per closing report
	Output 2.1.2. Availability of effective and affordable testing procedures to check compliance of imported CFLs with standards		Output 2.1.2 Testing procedures to check compliance of imported CFLs with standards (included in the national framework)	As per closing report

Project Document (Prodoc)		Reconstructed TOC		Justification for Reconstruction
	Output 2.1.3. A training and recognition system in place for CFL installers		Cancelled	Output 2.1.3 was cancelled since the activities pertaining to the destruction of ILs related to the CDM mechanism and could be sustained only through the CDM revenue. The other reason was that the CFL installers were eventually only ONEE staff or sub-contractors and they did not need training.
	Output 2.2.1. A mechanism to collect and destroy the replaced ILs		Cancelled	For the same reason as for Output 2.1.3, Output 2.2.1 was also cancelled.
	Output 2.2.2. A mechanism to recycle CFLs		Output 2.2.2 A mechanism to recycle CFLs in collaboration with ONEE	Output 2.2.2 was reworded in the final report to include 'in collaboration with ONEE'. This resonates with the decision to streamline the project's efforts through the U4E consultants with ONEE's own ongoing Environment Impact Study.
	Output 3.1.1. Design the financial structure and implementation arrangement for specific purpose financing vehicles that will address consumer needs in the CFL market		Output 3.1.1 Design the financial structure and implementation arrangement for specific purpose financing vehicles that will address consumer needs in the CFL market	no change
	Output 3.1.2. As a pilot initiative, financial incentives provided to end-users to encourage the uptake of efficient lighting products		Output 3.1.2 As a pilot initiative, financial incentives provided to end-users to encourage the uptake of efficient lighting products	no change
	Output 3.2.1. Enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market		Output 3.2.1 Enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market	no change

Project Document (Prodoc)		Reconstructed TOC		Justification for Reconstruction
	Output 3.2.2. Ten million CFLs distributed to households, commercial establishments, and public service organisations in accordance with contracts signed between MEMWE and the electricity distributors		Output 3.2.2. ONEE has purchased 10 million CFLs under the INARA and 6.35 million CFLs have been distributed	Output 3.2.2 was revised due to the short duration of the project of two years, reducing the target to only 6.35 million CFLs which were to be distributed and installed only by INSTELECs. Output was reworded based on Project Team consultation feedback during the evaluation
	Output 4.1.1. Public awareness raising and marketing campaigns implemented in co-operation with relevant public utilities and private electricity distributors		Output 4.1.1 Public awareness-raising and marketing campaigns implemented in cooperation with relevant public utilities entities and private electricity distributors	no change
	Output 4.1.2. Materials for public awareness raising and marketing campaigns developed or adapted into Moroccan conditions		Output 4.1.2 Materials for public awareness raising and marketing campaigns developed or adapted into Moroccan conditions	no change

5 Evaluation Findings

5.1 Strategic Relevance

5.1.1 Alignment to UNEP's MTS and POW

101. The project was designed in accordance with UNEP's Medium Term Strategy (MTS) (2010-2013) operational at the time of project conception, which consisted of six-cross cutting thematic priorities. Out of the six themes, the project had direct alignment with the Climate Change sub-programme, through its objective 'to strengthen the ability of countries to integrate climate change responses into national development processes', and the Resource Efficiency Sub-programme with the aim 'that natural resources are produced, processed and consumed in a more environmentally sustainable way'. UNEP's Expected Accomplishments (EAs) across these themes which are directly relevant are:

- That countries make sound policy, technology, and investment choices that lead to a reduction in greenhouse gas emissions and potential co-benefits, with a focus on clean and renewable energy sources, energy efficiency and energy conservation;
- That improved technologies are deployed and obsolescent technologies phased out, financed through private and public sources including the Clean Development Mechanism;
- That resource efficiency is increased and pollution is reduced over product life cycles and along supply chains;
- That consumer choice favours more resource efficient and environmentally friendly products.

102. As per the latest Medium-Term Strategy 2018-2021, this alignment is maintained and specific outcomes are envisioned to lead to climate resilience, reduced vulnerability and abatement of CO₂ emissions aligned to SDGs 1, 7, 13 and 15.

103. The project was aimed at delivering on the above EAs through UNEP's Programmes of Work (PoW) by utilizing the capacity and expertise of UNEP staff presence through the means of implementation described below, working with the full range of stakeholders and partners:

- Sound science for decision-makers: The project supported required market study in Morocco along with expert studies to produce the MEPS (Minimum Energy Performance Standards) in order to propose policy changes, and these were conducted under the existing national framework for regulations.
- Awareness-raising, outreach and communications: UNEP supported ONEE in its consumer outreach and awareness raising campaign conducted in June 2019 to clearly communicate the message from the project to intended audiences, ranging from end-users, including business owners across the value chain and also policy makers.
- Capacity-building and technology support (Bali Strategic Plan): Appropriate training was included as part of project activities to be provided to CFL installers and MCI (Ministry of Trade and Industry) controllers. This was in line with UNEP's agenda to ensure that capacity-building and technology support run through the implementation of all priority areas.

104. The Programme of Work (PoW) includes implementation guidance for project design and the programme budget as per strategic priorities. The Project adheres to following the

common unified approach outlined for all of UNEP's regional offices as per the PoW. Project alignment can be seen particularly in the case of Programme 3 'Adapting Production and Consumption Patterns', which included expected results for country and regional analysis of 'the potential for improving the energy efficiency in buildings' in Morocco, budgeted for EUR 70,000 between 2010 and 2011 (also including Lebanon and Tunisia).

5.1.2 Alignment to Donor Strategic Priorities

105. The Global Environment Facility (GEF) programming direction GEF-7 reiterated that 'Climate Change Mitigation' continues to be one of its 5 focal areas consisting of GHG emissions reduction in terms of CO₂ equivalent(e) as an indicator (1500 million metric tonnes of CO₂e reduction). The project's overall objective is tied to this indicator, with an outlook that indicates that the CFL distribution programme which is a major outcome of the project could result in a direct reduction of 4.19 million tonnes of CO₂e by 2022 and indirect reduction 11.10 million tonnes of CO₂e by 2024.

106. The United Nations Development Assistance Framework (UNDAF) 2017-2021 outlines a Moroccan strategic agenda, based on the UN's medium-term results framework. Out of the 4 impact areas, the project clearly aligns with 'Sustainable Inclusive Development' corresponding to the indicator 'inclusive and sustainable solutions are adopted to increase energy efficiency and equitable access to clean energy.'

5.1.3 Relevance to Regional, Sub-regional and National Priorities

107. South-South Cooperation: The project draws strength from previous initiatives which enable an energy efficient lighting market transformation, and it builds on learnings from them to identify what kind of political, social, economic and technological steps can be taken. This alignment was evidenced by:

- Cooperation with global stakeholders including World Bank, the Efficient Lighting Initiative (ELI) (IFC/GEF), international and regional harmonization institutes and organisations such as the International Electro-technical Commission (IEC) and the Pan-American Standards Commission (COPANT), bilateral donors that are involved in EE lighting through their specific projects such as USAID in Asia and German Agency for Technical Cooperation (GTZ) in India.
- More specifically, the component 1 which included targets for policy measures adapted from Tunisia's policy (2007) for phasing out ILs. Also, the involvement of private sector players such as OSRAM (one of the pioneers of lighting in the private sector) and Beghelli in project concept had been planned in order to bring in their experience from North African markets in the region (Tunisia was used as reference) and contribute to market entry strategies in Morocco towards the same goal.
- It was also aimed that ELI experience was to be brought to project components through the United for Efficiency (U4E) consultants who prepared draft regulations for the efficient lighting programme, including MEPS guidelines and recycling strategies for both CFLs and LEDs, all under the ambit of Morocco's national framework.

108. Bali Strategic Plan for Technology Support and Capacity-building (or, the Bali Strategic Plan, February 2005) "aims at a more coherent, coordinated and effective delivery of environmental capacity-building and technical support at all levels and by all actors, including UNEP, in response to country priorities and needs", in particular emphasizes the principle of national ownership. This was incorporated by the following aspects of the project design:

- The Project Management Office was instituted under the nodal Moroccan ministry, MEMWE, to oversee project implementation.

- The ONEE was responsible for implementing INARA, which was MEMWE's flagship mission towards distribution of CFLs. The Project was completely in alignment with the INARA project and ONEE was a major implementation partner.
- National authorities responsible for regulation and standardization such as ADEREE (present day AMEE) and SNIMA (present day IMANOR) were to be involved as major project partners for institutionalizing the proposed policy changes under the national framework.
- Synergies with other ministries were identified (including the Ministry of Finance, Ministry of Interior and the Ministry of Housing) in order to include all important public national actors in the sectors, and solicit the inputs of the private sector as well, through training and workshops.

5.1.4 Complementarity with Existing Interventions

109. INARA, the Program of the National Electricity Utility (ONE): was conceived for the dissemination of 15 million CFLs in 3 phases, with each phase aiming to distribute 5 million CFLs. The 1st phase of the INARA program was conducted with the help of the Government of Morocco. The project was expected to support the second and third phases of the INARA Program, and these expectations were incorporated into all project components.

Rating for Strategic Relevance: Highly Satisfactory

5.2 Quality of Project Design

110. The review of the project design was undertaken through an assessment of the project document (ProDoc), project reports and interviews with the project team. The Template for Assessment of Project Design Quality (PDQ), provided by the Evaluation Office of UNEP, was used to conduct a criteria-based scoring of various project aspects resulting in a final evaluation score. The complimentary aim of the PDQ is development of evaluation questions for stakeholder interactions and developing the reconstructed ToC at Evaluation. The overall rating of 4.48 (out of 6 points) indicates that the project design was evaluated as 'Satisfactory'.

111. The main sources of information for completing this assessment include the project document (ProDoc), the Project Review Committee (PRC) review sheet and the project logical framework. No ToC was undertaken for this project, neither at the design stage nor at midterm.

112. The ProDoc provides a detailed overview of the baseline situation, project barriers and the intervention strategy through both policy and market restructuring. It looks at institutional framework analysis and market landscaping in order to establish objectives, outcomes and pathways to reach the project goals. The monitoring protocols at multiple stages of the project play a crucial role in overall evaluation. The strengths and weaknesses of the project are described in this section.

113. The objectives of the project were well established with clear pathways for reaching those outcomes. The strategic relevance of the project was well aligned with UNEP's Medium-Term Strategy, Programmes of Work (PoW), several SDGs and other cooperation protocols. However, the entire potential of the GEF project framework was not used, a fact that is visible in the inadequate representation by civil society and SMEs.

Strengths

114. The challenges of the energy sector, especially with respect to lighting applications in Morocco, have been well described. This had led to a clear overall understanding of the problem being addressed through the project. The goods and services are clearly described and differentiated in terms of technology for lighting (prevalent and upcoming). There is also information on supply volumes and appliance penetration in households on the demand side, with clear targets in terms of number of appliances and supporting services required to enable this.

115. The Logical Framework (LF) was well articulated consisting of SMART indicators and has enabled development of a Theory of Change (at evaluation). The experiences of the national programme INARA 1 were used as a baseline for developing the Project's LF. The well-defined targets enabled implementation of the monitoring framework during the course of the project, consisting of trackable milestones as well as a separate budget for the activities under monitoring.

116. The Project's role in abatement of carbon dioxide emissions is captured very clearly, along with outlining the impact of this market transition on the electricity sector, especially technical aspects.

117. The end of life considerations resulting from the transition to CFL was identified as an environmental risk, along with discussion on ways to mitigate this environmental hazard. Addressing the issue of recycling constitutes a major part of the project design, including recycling of CFLs and equally importantly, that of ILs to enable their systematic phase out. This has also been linked to the need for quality standards as part of the situation analysis.

118. The adaptation of the project to include LEDs along with CFLs as part of the energy efficiency policy design was a definitive strong point and addressed across all research activities. This was done particularly after the market shift in Morocco (following global and regional trends) was evident in LEDs garnering significant share as compared to CFLs amongst 'energy efficient' technologies. This is appreciable as a long term impact, which was despite the short period of time and limited market baseline information available about the LED market size in Morocco.

119. The flexibility exhibited by the project partners in overcoming unforeseen barriers due to project delays and extensions was commendable. The role of the partners was clearly re-structured, especially after 2017 (following the uncertainties surrounding the Moroccan government) and ONEE proactively took under its wing the distribution campaign for CFLs (coincident with INARA phase II). They also exceeded their target in terms of technology penetration in households by the end of the project duration.

Weaknesses

120. The demand side analysis of lighting needs was limited to appliance usage trends on an aggregated level. The socio-economic impact of the interventions was considered based on studies by ONEE, that include household level indicators of improvement. However, this data collection did not include analysis on a social grouping level, such as based on income, profession, gender, role in the family, etc.

121. The impact measurement included discussions about energy savings and appliance penetration but without considering rebound effects. Energy efficiency measures could stimulate more energy consumption after the market intervention. The risk of a counter-productive end result was not included in the situation analysis.

122. The project was missing focus on the outcome of a market transition from ILs to CFLs on SMEs in Morocco. The narrative is centred around policy change and introduction of the products into household usage, but omits the impact of the technology change on supply

chains and trade protocols for distributors and manufacturers. Organizing CFL recycling was identified as a risk in Morocco due to lack of experience in mercury handling and limited knowledge about the local recycling market within the project team. The Moroccan value chain for IL destruction and CFL recycling was not evaluated from the local industry's perspective in detail. The evaluation results reflected this as an expensive process and this is included in the policy recommendations by the U4E consultants.

123. Incentive to transition from IL to CFL usage is not very well elaborated from the perspective of either ONE, Public and Private Electricity Utilities (PPEUs) or the consumer segment targeted. The economic advantage to the 'relatively poor' consumer segment is unclear and therefore the incentive for a major behavioural change in usage of appliances by an average low-middle income Moroccan household does not seem incentivized. In parallel, ONE's incentive to target this consumer segment is not clear, in absence of its energy consumer profile in terms of past, current and projected electricity consumption and revenue generated from the target consumer segment. The advantage for or impact on PPEU is also not explained considering that they are only responsible for distribution of electricity.

124. Stakeholder analysis in the ProDoc has been restricted to 'Type A' grouping under the Johari Window framework. This includes only those entities which hold high power and high interest in the project. Other stakeholders were meant to be addressed during later stages of the project, and during evaluation (refer to section 'Stakeholder participation and cooperation'). Overall, it is evident that limited diversity in stakeholder involvement from other groups has resulted in nearly no civil society participation and very limited private sector participation during the entire project. Following discussions with the project team so far, it was agreed that identification of effective civil society partners and their deeper involvement could have positively impacted lobbying efforts for the energy efficiency policy transition along with more willing adoption of the technology by consumers.

125. The Project was designed from gathering learnings from the INARA program and involved stakeholders from the same. However, in terms of partnerships, the capacities of new partners such as the MEF, SNIMA and LPEE could have been potentially better explored and utilized for the Project. The interest of PPEUs and their concurrence of interest or conflict is also not evaluated in the discussions in the ProDoc, even though their individual roles are clearly mentioned.

126. Gender considerations are mentioned in the context of public awareness and communication strategy. The discussion on impact of the energy efficiency intervention on gender equality, and its pathways to reach those outcomes, are not included. The role of women is largely restricted to household activities in Moroccan society, limiting decision making authority despite being largely impacted by household related decisions. This context makes gender impact a very relevant topic for Morocco and it was not addressed by the project. It is significant to note that considerations for human rights, including in relation to differentiated gender needs, were not included in the project design. It is noted that UNEP Gender Policy was not in place in 2010/2011. However, it was implemented in 2015 and the project could have adapted its guidelines during its lifespan.

127. The link between quality assurance strategy for CFLs and communicating this to impacted stakeholders in the supply chain is not present. While these issues are addressed separately, there is no reference to developing a plan of action to ensure information dissemination to SMEs for effecting these standards as part of the market transition.

128. The communication strategy is not building upon existing channels for information dissemination as per the ProDoc, which does not identify synergies with the already established methods of outreach. This weakness becomes more evident considering that the entire communication and consumer awareness campaign was eventually carried out through ONEE (with UNEP's support) and its existing distribution channels. This strategy might have

been very effective for the purpose of overcoming barriers in achieving specific project outcomes, by integrating the responsibility under one entity. However, it is assessed that a more proactive strategy including more key private players in the industry, industry associations, consumer protection agencies and other public lobbying organizations could have been used more effectively.

Rating for Project Design: Satisfactory

5.3 Nature of External Context

129. This section provides an assessment of the prevalence of conflict, natural disasters and political upheaval which may have served as external factors that impacted the operational aspects of the project.

130. The aim was to identify any unusually challenging operational factors that are likely to negatively affect project performance. As per the project document, there were no conflicts going on in Morocco and there was no likelihood of a situation of conflict predicted to arise at the time. Morocco is a country with very diverse landscapes and climates and is not particularly exposed to natural disasters with a nationwide impact. As the project could be implemented across the whole country and was not dependent on a certain landscape or resources, there was almost no risk that the project would be affected by a natural disaster.

131. Originally the project was planned for a two years period. Therefore, the likelihood of the project to be impacted by a government change during implementation was low. However, with the extension of the project, this became a serious issue. The 2016 general elections in Morocco were quite controversial and became a major barrier to many aspects within the project. Decisions from the implementing partners on ground were unendingly delayed, and therefore there was a need to extend the project. Even the project extension approval was delayed because the government was in limbo for months. Nearly all of 2017 was focused therefore on strengthening existing deliverables, but almost no decision came from public offices, especially MEMSD.

132. Consequent to the restabilizing of the political atmosphere by end of 2017, there was also reduced interest from MEMSD, which was a large barrier, considering their pivotal position in the project. As a result, the project had to adapt to the new stakeholder situation and was restructured to shift several activities from MEMSD towards ONEE from an implementation perspective. A large proportion of distribution which was also planned through the electric utilities (PPEUs) in Morocco had actually failed. At this point, ONEE decided to also take on board this activity of distributing all 10 million CFLs by itself. Operationally, the required adjustments were made so that the project continues to perform despite these externalities.

133. A likelihood of change of national government is always there. Maybe not during the implementation phase, but afterwards. Accordingly, it is important to involve civil society actors to ensure an ongoing advocacy for the topic in the longer run, even after the official end of the project.

Rating for nature of external context: Moderately favourable

5.4 Effectiveness

5.4.1 Availability of Outputs

134. Output 1.1.1 'Introduction of adequate public financial and fiscal incentives to promote the CFL market' required that the Observation and Planning department of (erstwhile) MEMWE would undertake a detailed market study of CFLs and IL in Morocco, to be followed by three workshops. The first workshop was aimed at establishing a regulatory framework for energy efficient lighting, the second to enable recommendations on tax reductions scenarios for CFLs and the third workshop to examine a proposal for a market monitoring system for the CFL and IL markets in Morocco. The following was the status of activities on project close:

- A report on the "Development of a national strategy for efficient lighting for Morocco" consisting of market research and policy pathways was completed and made available in 2017 by the expert consultants hired for the task.
- Morocco had implemented a fiscal incentive wherein tax on CFLs was reduced from 10% to 2.5%. Having achieved this timely, later an additional component was introduced, to develop recommendations on financial mechanisms for promoting LEDs or EE lighting products. This was also reported as completed in the fourth work plan revision.

The output above was made available to all important stakeholders and the tasks were completed as planned, or adapted to include more aspects relevant to technology updates in the market which appeared during the course of the project.

135. Output 1.1.2 'Regulatory framework for CFLs norms and quality control (under the national framework)' was planned for updating the two national standards for CFLs in Morocco, to include minimum required safety and performance standards. This was considered necessary owing to the high share of low quality CFLs in the Moroccan market. Accordingly,

- Workshop 4 was planned to collect recommendations for updating the standards in cooperation with SNIMA (today IMANOR). This was overseen by the national consultant in collaboration with the U4E experts.
- The MEPS proposal was submitted for public validation by the U4E consultants for CFLs and this also included LED lighting technology. This was made available to the GoM for adoption as part of the national framework that was already underway. Additionally, a labelling programme for efficient lighting was reportedly initiated by MEMSD, but the status of this initiative is not clear at the time of evaluation.

The output above was made available during the final workshop to all stakeholders present and adapted to include latest market technological advancements.

136. Output 1.2.1. 'Identification of possible new regulations to promote the phase-out of IIs (included in the development of the national framework)' was required to help eradicate IIs from the market, through the following action:

- MEMWE was expected to prepare a new law (following the one from 2007) concerning phase out of IIs by setting specific yearly targets for gradually increasing consumption tax. The dialogue with private sector players was considered important, but the project documents do not evidence this exchange with private industry, at the time of evaluation.
- MEPS was developed as part of the activities but not adopted towards legal implementation. However, a circular was issued from Morocco's Prime Minister office, which made the use of CFLs mandatory in public buildings and administration.

- The workshop designed to receive feedback from the private sector to 'Develop and agree on proposed progressive higher taxation of ILs and the phasing out of ILs' was cancelled, citing non-compliance with Moroccan free-trade agreement.

137. Output 2.1.1. 'Set of CFL standards and associated certification system developed (or adapted) to Moroccan conditions (included in the national framework)' was envisaged to promote good quality CFLs, including the following activities:

- The proposal for MEPS on lighting (CFLs and LEDs) was prepared by the U4E consultants, and this included recommended testing procedures and certification schemes.
- A report on the national status of lighting was also prepared.
- These results were made available to stakeholders during the final closing workshop.
- ONEE updated the technical specifications of the CFLs distributed within the programme, including using 20W bulbs instead of 18W with a lifetime of 12,000 hours instead of 10,000 hours for the first phase of distribution.

138. Output 2.1.2. 'Testing procedures to check compliance of imported CFLs with standards (included in the national framework)' was envisaged to promote good quality CFLs, including the following activities:

- High testing standards for the 10 million procured CFLs was evidenced by a rate of only 0.01% fault rate amongst products in the second phase of INARA (during warranty) as compared to a maximum of 0.05% (during the first phase, 2007 to 2010).
- Capacity assessment of the Public Laboratory of Tests and Studies (LPEE) was conducted and it was concluded that the French accreditation committee (COFRAC) certified LPEE was self-sufficient in terms of equipment and knowledge resources. Further recommendations for quality control and testing procedures were included in the assessment report and presented during the national dissemination workshop held on June 17-18th, 2019.
- Customs officials were to be trained in documentary control/quality inspection procedures and proper recording of imported CFLs and MCI controllers in quality inspection of CFLs at distributors. Training for MCI controllers was planned as a quality control measure in order to limit import of counterfeit CFLs. Since MCI (erstwhile Ministry of Industry in Trade, and present day MICIEN) could not be mobilized at the time, the activity had to be cancelled.

139. Output 2.1.3 'A training and recognition system in place for CFL installers (INSTELECS) to collect, package and return the replaced ILs' was cancelled during the second project revision since the activities pertaining to the destruction of ILs was related to the Clean Development Mechanism (CDM) and could be sustained only through the CDM revenue. Also, this component was designed to help with enforcement of the proposed norms by training the installers for also collecting ILs at the end of their life from the source of use. However, the project could not ensure that the enforcement is in place and therefore made this output partially obsolete. Secondly, in the absence of a formal system, it was decided that the CFL installers would be ONEE staff or subcontractors and they did not need additional training on norms.

140. Output 2.2.1 'A mechanism to collect and destroy the replaced ILs' was also related to the French accreditation committee and hence cancelled due to the same reason as for output 2.1.3, stated above.

141. Output 2.2.2 'A mechanism to recycle CFLs in collaboration with ONEE' was evaluated as follows:

- As planned during the project design, a study was conducted by the U4E consultants to prepare a report on collection and recycling of efficient lamps, and this was presented in the final dissemination workshop to all stakeholders.
- The collaboration with ONEE on their report on the collection and recycling of CFLs was still under internal validation at the organization. Due to this reason, the consultants U4E were unable to provide their inputs on the study and collaborate with ONEE on this specific task.
- During evaluation, it was also pointed out by the project team that the expensive cost of recycling CFLs caused KfW to waive the 'recycling condition' placed by its loan to ONEE for procuring CFLs.

142. Output 3.1.1 'Design the financial structure and implementation arrangement for specific purpose financing vehicles that will address consumer needs in the CFL market' was achieved to a large extent, which is detailed as follows:

- A survey to evaluate the financing mechanism used under the first phase of the INARA program was completed as initially planned.
- Economic, financial, and fiscal studies to determine an affordable purchase cost of CFLs for consumers, in particular, for the relatively poor, were conducted as planned.
- The development of a CDM approach for the next phase of INARA was an activity which was cancelled during workplan revisions since it relates to the CDM mechanism only sustainable through the CDM revenue. The absence of this activity was by change in design during workplan revisions and not left incomplete by the project itself.

The achieved outputs were made available after their completion in March 2015.

143. Output 3.1.2 'As a pilot initiative, financial incentives provided to end-users to encourage the uptake of efficient lighting products' was completed in March 2015 in order to develop a final financing mechanism applicable to and acceptable to the end-users. This included the adoption of a reduced taxation for CFLs from 10% to 2.5%. Stakeholder consultations for this activity took place in March-April 2019.

144. Output 3.2.1 'Enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market' was achieved through the organization of a workshop on 'fiscal and financial support for CFL market transformation'. ONEE conducted the second phase of the communication campaign (through its local commercial agencies). This output was made available to stakeholders (also key to components 1 & 2) during the final workshop presentation.

145. Output 3.2.2 'Ten million CFLs distributed to households, commercial establishments, and public service organizations in accordance with contracts signed between MEMWE and the electricity distributors' was achieved to the following extent:

- The purchase of 10 million CFLs by ONEE was planned, along with the subsequent dissemination of 6.35 million CFLs under the second phase of the INARA program. This activity was completed and the distribution campaign concluded in June 2019. The closing report commented that only 6.35 million CFLs were to be finally distributed due to the paucity of time (using only INSTELLECS for distribution and installation). However, the same report also informs us that the INARA program manager confirms distribution of 10 million CFLs. To clarify this inconsistency, the evaluation consultant has reconfirmed with the project team and ONEE that 10 million lamps have been distributed as part of this activity by the end of the project.

- It was planned that procedures would be developed to ensure the timely payment of the financing incentives to INSTELECs to install CFLs and collect ILs (to be implemented by ONEE). This was also completed for the distribution channel which comes under ONEE.
- Based on feedback from the project team during evaluation, it was also noted that even though KfW made recycling of CFLs as a pre-condition for its loan to purchase the lamps, given the high cost of the recycling facility, it had agreed that recycling could not be performed by ONEE and waived the recycling condition.

By the end of the project, this output was revised to 'ONEE has purchased 10 million CFLs under the INARA and 6.35 million CFLs have been distributed' (as per the project team's feedback during evaluation). The availability of the outputs was clarified by the ONEE team and INARA representative during the final workshop (closing workshop) held in June 2019. However, this remained to be substantiated by a budget / expenditure statement or letter of confirmation by ONEE to the Project team, as per the closing report.

146. Output 4.1.1 'Public awareness raising and marketing campaigns implemented in cooperation with relevant public utilities entities and private electricity distributors' required, according to the ProDoc, that MEMWE would modify and adjust existing awareness raising and marketing campaigns regarding the adoption of CFLs. To achieve this output, three tasks were conducted:

- The preparation of an implementation plan by the project team was finalized in January 2013, was updated twice and last modified in January 2016 as per progress reports.
- The draft of an agreement for the implementation of communication activities was completed and the agreement was signed in Q3 2018 after a delay due to the absence of a valid legal instrument and a formal extension request from MEMSD.
- The implementation of the communication campaign activities was completed by ONEE in July 2019 after a delay in procurement of services, as per the revision in the work plan (2018 and 2019).

The first communication campaign including TV spots was conducted by the agency Saga from 5th June to 2nd July (2019). This included communication support material for connecting with ONEE branches. This activity which required the delivery of LED screens and communication equipment was also monitored by and reported on by the PMU. The second communication campaign within ONEE branches was to take place in Aug-Sep 2019. However, there was no confirmation of this activity at the time this evaluation was concluded.

147. Output 4.1.2 'Materials for public awareness raising and marketing campaigns developed or adapted into Moroccan conditions' required, according to the ProDoc, that MEMWE would assess the impact of the communication activities through public opinion surveys on energy use. To achieve this output, three tasks were undertaken:

- The preparation of the barometer TORs, which was completed in July 2013.
- Preparation of the call for bids for communication agencies was completed in December 2013.
- Completion of the evaluation and selection report, which was done by October 2014.

Following the selection process, the agency B-marketing was engaged to conduct the barometer surveys and this was structured into four phases: (i) May 2015, (ii) November and December 2015, (iii) November and December 2016, and (iv) May 2017. Accordingly, the task of the implementation of the public awareness and marketing campaign material

development was completed in June 2017. During the period between 2015-2017, the project used marketing materials such as posters, flyers, broadcast vehicles and TV screens to achieve a wider audience. This period was dedicated to understanding household attitudes and energy behaviour, awareness raising for CFLs and ILs and estimate demand of these technologies through iterative surveys. It was used to assess awareness about and participation in the GoM's CFL campaign, in addition to motivations, barriers, expectations and perceptions held by the public about the CFL programme. The National Communication Campaign was conducted by ONEE with the help of UNOPS between 5th June to 2nd July 2019, to communicate information about the project outcomes on radio (MFM, MED Radio and ASWAT), TV channels (Al Aoula and 2M) and the internet (YouTube and Teads). The impact of the campaign was analysed and presented by the agency Saga, which reported consumer impact as highly successful. This was conducted by Saga as part of the post-evaluation through its partnerships with PopTV and PopRadio (radio), TV Advertising of Marocmétric (TV ad monitoring) and Teads and Google (for internet media).

148. It should be noted that all outputs developed were made available to project stakeholders through the final workshop and meeting of the steering committee. These were primarily major public stakeholders and there was no visible participation from public or private sector (refer to section 5.9.2 to see list of stakeholders attending the said meetings). The campaign outputs were delivered to the public as described earlier through B-marketing and ONEE led UNOPS campaign through its branches. Over 100 LED monitors were procured under the agreement with UNOPS for this support.

149. As per the outputs present in project documents shared by the evaluation team along with the closing report by UNEP, it was noted that most of the outputs were delivered. There were some modifications to the initial timeline and implementing agency for these outputs. Certain outputs were cancelled for practical reasons but did not hinder achievement of major outcomes. Eventually, the outputs which were derived proved to be of good quality, since it provided the project with vital information about the consumer base for such a CFL promotion project (visible through B-marketing's report). Tangible changes were visible such as financial incentives including the reduced taxation of CFLs from 10% to 2.5%, and achieving an end-user price of 18-20 MAD as compared to the project target value 21 MAD. The technical specification of the distributed CFLs was improved (20W/ 12,000 hour bulbs in INARA phase II versus 18W / 10,000 hour bulbs for the first phase of INARA) and the fault rate of the products was reduced from 0.05% to 0.01%. The outputs were accepted and used by ONEE and MEMSD to take the findings and project awareness to public domain with large impact (as per Saga's impact assessment).

150. Therefore, this section is overall evaluated as '**Satisfactory**'.

5.4.2 Achievement of Project Outcomes

151. Across the four project components, there were seven (7) outcomes that were expected to take effect. The ToC was reconstructed to demonstrate these outcomes and their achievement depended on the availability of corresponding outputs. However, certain assumptions and drivers formed an inextricable part of these causal pathways, such that each outcome would result in intermediate states necessary for the realisation of the desired Impact.. The aforementioned outcomes as per the reconstructed ToC are as follows:

- Outcome 1.1 An enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market
- Outcome 1.2 State Government legislation is adopted for the phase-out of ILs
- Outcome 2.1: An effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco is established, and there is capacity

enhancement of the supply chain to offer products and services promoting the establishment of a sustainable CFL market

- Outcome 2.2: ILs destruction is carried out and CFLs recycling procedures are established
- Outcome 3.1: Increased demand for energy efficient lighting products is observed as a result of attractive end user financing mechanisms
- Outcome 3.2: Public utilities, private distributors and installers are fully involved in the dissemination of energy efficient lighting products
- Outcome 4.1: Enhanced consumers 'awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments

152. Achievement of project outcome 1.1 'An enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market is established' was evaluated as a function of outputs 1.1.1 and 1.1.2, as follows:

- The GoM's commitment to implement policies for the promotion and increase of CFLs along with the development of CFL standards, was assumed to be instrumental in achieving Outcome 1.1. The timely completion of market research was expected to support this outcome, which is evidenced by the availability of the report on the "Development of a national strategy for efficient lighting for Morocco" developed by the consultant, U4E. This report included results of a market survey along with a recommended policy for the promotion of CFLs. It also included an assessment for refining the monitoring, verification and enforcement (MVE) Strategy already in place in Morocco.
- The taxation for CFLs was reduced from 10% to 2.5% in support of increasing their dissemination. Following the achievement of this measure at an early stage, recommendations on financial mechanisms to promote LEDs or EE lighting products were also prepared as part of the report.
- The preparation of the Minimum Energy Performance Standards (MEPS) report was commissioned as an expected output and made available by the U4E consultant. It included a regulatory framework for standards and quality control for CFLs and LEDs. This demonstrated the expansion of project scope to include new technology based on a market shift observed towards LEDs in the Moroccan lighting sector.
- A report which included research on collection and recycling of CFLs, along with recommendations for the GoM to operationalize these procedures was provided towards enabling policy for end-of-life practices.
- The final project report was appreciative of the high technical specifications for the bid issued by ONEE to procure 10 million lamps, matching international quality standards. On consultation of the Program Manager during evaluation, it was further explained that to make implementation effective, MEMWE signed '*des contrats programmes*' that specified the number of products which are targeted to be installed by ONEE and several private distributors.

153. Achievement of project outcome 1.2 'State Government legislation is adopted for the phase-out of ILs' was evaluated as a function of output 1.2.1, as follows:

- While MEPS was developed, MEMSD's efforts to draft a decree for the phase out of ILs was not agreed to by the Ministry of Industry, citing reasons of threat to free markets. However, the Government made it obligatory to use CFLs in public buildings and administration.

- Additionally, one of the activities seeking private sector feedback through a workshop to discuss progressive higher taxation of ILs was cancelled due to unwillingness of the private enterprises to discuss this measure.
- These activities reveal that private sector players lacked the confidence to make this transition from ILs to CFLs without it hurting their businesses (despite the MEPS not including a direct ban on ILs from the Moroccan market). It is concluded therefore, that there exists a gap in understanding between the regulators and the affected businesses about which are best measures to adapt for ensuring a phase out of ILs.

154. Achievement of project outcome 2.1 'An effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco is established, and there is capacity enhancement of the supply chain to offer products and services promoting the establishment of a sustainable CFL market', was gauged as a function of planned outputs 2.1.1 and 2.1.2 (since 2.1.3 was cancelled), as follows:

- The consultations at MEMSD for policy framework led to the development of the MEPS framework, with significant technical assistance from the consultants. These results were presented in the form of a report during the final results dissemination workshop.
- However, since the MEPS could not be adapted into the legal framework as of the conclusion of the project, it was not possible to enforce these quality control and testing standards implicit within the MEPS framework documents. This also posed a barrier to capacity building activities since these would ideally be based on the draft MEPS content. It was not efficient to carry out the trainings on frameworks that are not as of yet legally enforceable or obligatory for stakeholders participating in training activities.
- Another activity concerning training of quality controllers was cancelled despite being contracted, since there was no response received from the Ministry of Industry and Trade (erstwhile MCI, present day MICIEN) for assistance in mobilizing the participants.

155. Achievement of project outcome 2.2 'ILs destruction is carried out and CFLs recycling procedures are established' was evaluated based on output 2.2.2 (since output 2.2.1 was cancelled), as follows:

- The cancellation of the output pertaining to the CDM mechanism led to eliminating the end-of-life management activities for ILs.
- The implementation of CFL recycling procedures was planned as part of these outcomes, but this was stalled because of the MEMSD's restraints and therefore inability to adopt the MEPS directive (as stated in the evaluation of aforementioned outcomes). Therefore, this target could not be completely met in terms of enforcement, even though the content was made available to stakeholders during the final workshop.

156. Achievement of project outcome 3.1 'Increased demand for energy efficient lighting products is observed as a result of attractive end-user financing mechanisms' was evaluated based on outputs 3.1.1 and 3.1.2, as follows:

- The commercial offer to the end-users was even better than terms proposed at design stage. The targeted purchase price of CFLs was 21 MAD at project commencement. However, the final validated value stands at 20 MAD (repayment period 20 months) and 18 MAD (payment on delivery) options.
- ONEE also extended its distribution to external points beyond its own clients, increasing access to all end-users so they can buy CFLs at 18 MAD. This is a great benchmark

considering the market price of CFLs in 2019 was 20 MAD and for LEDs it was around 27 MAD, in comparison.

Overall, this outcome was considered over-achieved due to the higher than expected benchmarks as compared to established targets.

157. Achievement of project outcome 3.2 'Public utilities, private distributors and installers are fully involved in the dissemination of energy efficient lighting products' was evaluated as a function of outputs 3.2.1 and 3.2.2, as follows:

- ONEE's distribution program, which began in May 2015 envisaged that 6.35 million CFLs were to be distributed by ONEE, and 3.35 million by Public and Private Electricity Utilities (PPEUs). Despite signing of 'program contracts' between ONEE and the PPEUs, the distribution got derailed due to failed pilots by the PPEUs. As reported in the closing report, therefore the distribution of 9.7 million CFLs was carried out by ONEE.

This outcome was achieved by the project actors collectively. While these results were presented in the final closing workshop, the co-finance budget statement from ONEE substantiating these figures was not available at the conclusion of this evaluation.

158. Achievement of project outcome 4.1 'Enhanced consumers awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments' was evaluated through outputs 4.1.1 and 4.1.2, as follows:

- As per the closing report, the final public opinion survey reflected that the use of CFLs reached 81% (as compared to the target 75%) in April 2017.
- The communication campaign was well coordinated by ONEE all the way downstream to its distribution points. The monitoring and support carried out by the PMU was also instrumental in achieving the outputs.

Considering the original target, this outcome was also evidently over-achieved by the project.

159. The outcomes which were the most important to attain intermediate states have been achieved to a large extent, while other direct outcomes are only partially achieved. Therefore, this section is rated overall **'Moderately Likely'**:

5.4.3 Achievement of Likelihood of Impact

160. The achievement of desired impact by the project was evaluated with the support of the Evaluation Office of UNEP's tool for rating 'Likelihood of Impact'. This rating was used to measure project effectiveness based on the level of achievement of direct outcomes and intermediate states. These were supported through 'drivers' positively affecting the project and assumptions which were considered to hold in place for achieving the project goals.

161. The drivers to support transition of outputs to direct outcomes were only partially in place. The project was able to ensure timely completion of the market research work. However, capacity building through development of training material and holding workshops was held only partially. There were workshops conducted for information dissemination and feedback from industry (Output 3.2.1) on the subject of 'fiscal and financial support for CFL market transformation'. However, some workshops such as those to discuss and gather consensus on progressive taxation for ILs was cancelled due to a lack of willingness from the participants (Output 1.2.1). A limited collaboration between MEMSD and MICIEN also posed a barrier to the training of customs officials and MCI controllers, along with related stakeholders. In terms of the CFL distribution program, since all activities eventually were streamlined under ONEE, the involvement of many stakeholders (not all) was possible. The

procurement was successful but delayed. The appropriate handling and storage of CFLs was ensured since ONEE's experienced INSTELLECs were the only ones authorised to carry out the distribution. The program was able to spread awareness using all possible national media with maximised outreach. While the process involved most important public stakeholders, not all key private stakeholders were involved for the communication campaign (since they were not involved during the project's progress period).

162. Assumptions for the change process from outputs to direct outcomes partially held true. However, some discrepancies emerged in this assumption, such as the reduced interest in the project by the nodal ministry MEMSD which became evident during the latter phase of the project. Another cleave within the GoM's dedication to the project objectives was the low cooperation between MEMSD and MICIEN, since the project was not able to reach an understanding about phasing out ILs with industry representatives. The assumption that ONEE would follow through with its commitment to continue INARA, implement better financing mechanisms and end-user friendly purchase costs was found to hold true. ONEE's role in implementation of the distribution and consumer outreach activities was also significant. This also enabled successful deployment of drivers to achieve the direct outcomes, which in fact helped overachieve certain benchmark target outcomes. LPEE's testing capabilities for CFLs was confirmed during the project. There was limited achievement towards implementation of IL collection and disposal regulations, since at the time of project conclusion these were still in draft stage and not legally enforceable.

163. The involvement of other key stakeholders was dependent on the above-mentioned observations, at times resulting in high participation by other actors (such as key experts, communication channels and the project team as well) resulting in strong drivers for reaching the well achieved project outcomes.

164. Based on the above situation analysis, it is concluded that several direct outcomes were completely achieved, and some were partially achieved. These were the most important outcomes since all the intermediate states for the project were achieved. However, the outcomes not achieved are expected to impact the stability of the intermediate states in the long term. Therefore, it is also inferred that the intermediate states were achieved only partially and not completely as envisaged during project design.

165. The overall impact in terms of reduction of GHG emissions was achieved to some extent. The ProDoc established a target of lifetime direct emission reduction of 4,185,097 tonnes of CO₂ equivalent. The actual achievement was impacted and only 1,300,000 tonnes of CO₂ equivalent was achieved. However, the lifetime direct post project GHG emission reduction amounted to 5,200,000 tonnes of CO₂ equivalent. This is significantly higher than the direct post project GHG emissions estimated to be 1,445,369 tonnes of CO₂ equivalent in the ProDoc. It may be inferred that the project sustainability is considered impactful in relation to especially follow up investments (such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds) envisaged by the GEF after the project conclusion.

Rating for Effectiveness: The overall rating for likelihood of impact of the Project is Moderately Likely.

5.5 Financial Management

5.5.1 Completeness of project financial information

166. The financial management of the project was evaluated primarily from the set of documents made available by the project team, which included the documents listed as evidence in the [Table 9](#) under this section, titled 'Financial Management'. Most of the key

documents were made available to the evaluation consultant. The major lacuna was only the absence of some co-finance reports. A consultation with the key stakeholders during evaluation helped clarify certain values. This is explained in more details through the findings presented in this section.

167. The expenditure by component was prepared in accordance with UNEP budget lines for each component of the project, that is 'Personnel', 'Sub-contract', 'Training', 'Equipment and Premises' and 'Miscellaneous Component'. The table categorizes the funding source as 'GEF Financing' and 'Co-financing' and seeks to compare the actual expenditure as a ratio of the planned budget from these sources.

168. The overall expenditure by GEF was \$833,955.06 as against the original GEF planned budget amounting to \$889,091.00. This total planned budget remained constant during each budget revision (four in total) during the course of the project. The budget revisions along with yearly / half yearly expenditure statements from UNEP's Finance Unit was instrumental in assessing this. The internal budget shifts (original approved vs. final revision) and actual expenditures occurred as follows:

- Project personnel cost increased by 33%, consultant costs increased by 42% and project staff travel expenses were reduced by 80%. Overall personnel component costs increased by 30%. The actual expenditure was \$151,243.48 and the expenditure ratio thus calculated is 1.26.
- The sub-contract budget for cooperating agencies was reduced by 77% by the 4th revision. This was shifted to sub-contract budget for supporting organization, leading to total decrease of only 3% for this total component budget. The actual expenditure was \$677,896.00 and with an expenditure ratio 0.97.
- The training budget was reduced to only 6% of the original planned value and the actual expenditure was \$306.33 which resulted in an expenditure ratio of 0.6
- The equipment and premises budget component was removed completely by the 4th revision, and finally there was no expenditure under this head, resulting in expenditure ratio 0. However, it is to be noted that part of the equipment budget was covered under the agreement with UNOPS (over 100 LED monitors were procured) and used for the communication campaign.
- Other miscellaneous expenses were reduced by 17% by the 4th revision and actual expenditure was only \$4,509.25 resulting in expenditure ratio 0.94

The total expenditure ratio for only GEF costs was calculated as 0.94.

Table 7: Component-wise Expenditure

Component (All figures as USD)	Estimated cost at design	Actual Cost/ expenditure	Expenditure ratio (actual/ planned)	Component (All figures as USD)	Estimated cost at design	Actual Cost/ expenditure	Expenditure ratio (actual/ planned)
	GEF Financing	Co-Financing	Total		GEF Financing	Co-Financing	Total
10 Personnel Component	120,000.00	n.a.	n.a.	151,243.48	n.a.	n.a.	1.26 (only GEF)
20 Sub-contract component	696,091.00	n.a.	n.a.	677,896.00	n.a.	n.a.	0.97 (only GEF)
30 Training Component	5,000.00	n.a.	n.a.	306.33	n.a.	n.a.	0.06 (only GEF)
40 Equipment and Premises Component	2,000.00	n.a.	n.a.	0.00	n.a.	n.a.	- (only GEF)

50 Miscellaneous Component	66,000.00	n.a.	n.a.	4,509.25	n.a.	n.a.	0.07 (only GEF)
Total	889,091.00	5,931,204.00	6,820,295.00	833,955.06	15,770,000.00	16,603,955.06	0.94 (Project Total)

169. The co-financing costs were based on three funding sources: the UNEP-DTIE (the UNEP Executing Agency), MEMSD and ONEE. The co-finance reports were only available for UNEP-DTIE even after consultation with the other co-financiers during terminal evaluation. As a result, the co-finance budget and expenditure was assessed as follows:

- The UNEP-DTIE budget was originally planned with an allocation for \$266,000.00 towards personnel, \$875,000.00 for sub-contracting, \$70,000.00 for training, \$6,000.00 for equipment and premises and \$53,000.00 for miscellaneous purposes. The actual expenditure was only \$256,037.00 against the budgeted \$1,270,000.00. The largest reduction was due to no sub-contracting, training or equipment and premises costs incurred during the project. As observed in the budget shifts, this can be attributed to shifting these personnel costs towards supporting organizations and cancellation of certain study and training components during work plan revisions.
- MEMSD's original approved budget was \$1,075,000.00, but the actual expenditures were not known, since no co-finance reports or other supporting documents were available. It was assessed that a major proportion of the activities originally with MEMSD were shifted to ONEE, and therefore the financial contribution of the Government of Morocco was primarily measured through ONEE's contribution to the project.
- ONEE's original approved budget was \$3,586,204.00 towards the project. Due to the absence of co-finance reports or any other supporting documents, the expenses of ONEE were not available as per UNEP budget lines and were interpreted based on GEF tracking report, the project Closing Report and consultation with project team and ONEE during the terminal evaluation. Due to conflicting values, the assessment was carried out as follows:
 - The closing report outlines a contribution of \$13.24 million from ONEE as co-finance, which is primarily the cost incurred on procuring 10 million CFLs. The exact procurement cost reported by ONEE during the TE consultation was clarified to be \$12.67 million (without VAT) and \$15.2 million (with VAT). The project team confirmed that the tax was underestimated by ONEE in its reporting.
 - Therefore, non-procurement costs were calculated as the difference between reported value in the project closure report and the tax-excluded procurement costs reported by ONEE. This difference of \$570,000 is interpreted as expenses by ONEE apart from the CFL procurement costs.
 - Total ONEE expenses are calculated as a sum of tax-inclusive cost of CFLs procured (\$15.2 million) and other costs (\$570,00) which together sum up to \$15.77 million. Although the evaluation consultant is aware part of this was based on a KfW loan to ONEE, the exact nature of the loan amount and ONEE's own contribution is unknown.
- Therefore the total expenditure for the project from all co-financing is estimated at \$16,026,037.00 against the planned \$5,931,204.00 resulting in an expenditure ratio of 2.7 (see table [Table 8](#) below). This was due to ONEE taking the responsibility to

distribute all 10 million CFLs itself, up from the initial 3.35 million target (the rest was initially planned through PPEUs).

Table 8: Co-financing

	UNEP-DTIE Planned	MEMSD Actual	ONEE Planned	Total Actual	Planned	UNEP-DTIE Actual	MEMSD Planned	ONEE Actual
Grants	1,080,000.00	256,037.00		890,000.00		-		3,466,204.00
Loans	-		-		-		-	
Credits		-		-		-		-
Equity Investments		-		-		-		-
In-kind support		190,000.00		-		185,000.00		-
Other		-		-		-		-
Total	1,270,000.00	256,037.00	1,075,000.00	n.a.	3,586,204.00	15,770,000.00	5,931,204.00	16,026,037.00

The rating for completeness of financial information is **Moderately Satisfactory.**

5.5.2 Communication between finance and project management staff

170. The internal agreement between UNEP Finance Unit (executing agency) the Climate Mitigation Unit (GEF implementing agency), outlines the respective roles between the GEF funders and those involved in the execution of the project. Ms. Leena Darlington (Fund Management Officer, or FMO) and Mr Julien Lheureux (Associate Programme Management Officer) representing the GEF implementing agency were surveyed for the terminal evaluation. On behalf of the executing agency (Finance Unit), Ms. Myriem Touhami (Project Manager, or PM), Ms. Ghita Hannane (Programme Officer) and Mr. Hind Il Idrissi (Associate Programme Officer) participated in the terminal evaluation by taking surveys, participating in feedback during inception phase on the initial evaluation.

171. The PM demonstrated in-depth knowledge about the project during the interactions, especially while providing feedback on project gaps identified by evaluation consultant in the beginning of the evaluation. Supported by complementary information from Ms. Touhami and Ms. Hannane, the feedback from the executing agency was useful in in correcting certain initial evaluation results. These were also confirmed later (by triangulation) during interviews and surveys carried out with other project stakeholders. There was also an emphasis on communicating which aspects of the project's performance were not clear, and the lack of know-how was also communication (if that was the case). For instance, the limited participation of several stakeholders initially identified who are not involved later in the project. It was clear that the team was well informed on critical aspects which led to successes and failures in the project, and this reflects coherence and coordination.

172. The Fund Management Officer (FMO) was adequately aware of the financial status of the project (confirmed through survey). The legal documentation from the GEF implementing agency includes internal agreements, workplan change notifications, budgetary changes, disbursement papers, which combined with survey responses were all evidence of constant communication between the implementing agency (FMO's office included) and the project executors. Both agencies were proactive in raising and resolving financial and administrative issues through budgetary shifts and work plan revisions. The financial analysis provided in the previous section 5.5.1 explains in detail several limitations due to changing stakeholder constellations amongst Moroccan partners, resulting in changes. Setting instruments of change in motion to overcome this unpredictability required formal procedures and clear communication. The successful adaptation of the project to meet its objectives describe the large variables present also confirm a continuous communication ethic between the staff.

The rating for communication between finance and project management staff is Satisfactory.

173. The detailed justification for the rating is presented in the Financial Management table

Table 9: Financial Management

Financial management components:		Rating	Evidence/ Comments
1. Completeness of project financial information:		MU	This section is rated Moderately Unsatisfactory since there are not enough documents evidencing expenditures from co-financiers (both cash and in-kind) as per UNEP budget lines (the co-financiers were followed up several times also during terminal evaluation). Consequently, several disbursement documents are not available, and transaction costs are not clearly visible. However, legal documentation and reporting within the project staff and financing unit provided satisfactory information for carrying the large part of the assessment.
Provision of key documents to the evaluator (based on the responses to A-G below)			Most of the key documents were made available to the evaluation consultant. These were complete, especially from GEF's end, UNEP-DTIE and UNEP Finance Unit. The major lacuna was only the absence of co-finance reports. A consultation with the key stakeholders during evaluation could clarify only one lumpsum figure from ONEE regarding total disbursement for the CFL distribution. Specific expenses as per components from co-financier expenses remained absent. No information was received from MEMSD either by the project team, or by the evaluation consultant. This is explained in more detail in the following sections A-G. This section is rated Moderately Unsatisfactory.
	Document	Availability (Yes/No)	Explanation
A.	Co-financing and Project Costs tables at design (by budget lines)	Yes	Partially: Co-financing reports are provided by UNEP-DTIE. MEMSD and ONEE's are missing and were not made available during evaluation consultation

Financial management components:		Rating	Evidence/ Comments
B.	Revisions to the budget	Yes	Revision took place 4 times – all budget changes were available as per UNEP budget lines, per component: <ul style="list-style-type: none"> · Rev 1: 29th May 2015 (+17 months) · Rev 2: 31st December 2016 (+36 months) · Rev 3: 31st March 2019 (+63 months) · Rev 4: 30th September 2019 (+69 months)
C.	All relevant project legal agreements (e.g. SSFA, PCA, ICA)	Yes	<ul style="list-style-type: none"> · Internal Cooperation Agreement (ICA) for the PPG between GEF and DTIE, 7th April 2010 · MoU between UNEP and MEMWE, 21st March 2012 · Project Approval Group (PAG) decision sheet, 4th April 2012 · Renewal of Internal Agreement (IA) for the Medium-Size Project, between Climate Mitigation unit and Finance Unit, August 2018 · Revisions to Project Document in the form of extension approvals (all four) are available <p>Missing:</p> <ul style="list-style-type: none"> · Program contracts signed between MEMWE (or ONEE) and electric utilities for CFL distribution programme · UNOPS Agreement (communication campaign) and procurement request (2018)
D.	Proof of fund transfers	No	Not available
E.	Proof of co-financing (cash and in-kind)	Yes	Partially <p>Available:</p> <ul style="list-style-type: none"> · UNEP-DTIE co-financing reports were available as per UNEP budget lines (2012-2019). <p>Missing:</p> <ul style="list-style-type: none"> · The co-financing reports from MEMSD and ONEE were not available.

Financial management components:		Rating	Evidence/ Comments
			<ul style="list-style-type: none"> · MEMSD's own expenditure is not confirmed from any document · ONEE confirmed procurement expenses for CFLs over email consultation during evaluation, but no component wise budget was available.
F.	A summary report on the project's expenditures during the life of the project (by budget lines, project components and/or annual level)	No	<p>These were only available for UNEP-DTIE's expenditure between 2012 to 2019 in the form of yearly or half yearly expenditure statements and unliquidated obligations reports. These were as per UNEP budget lines, per component, along with explanations for expenditures reported.</p> <p>These were not available for MEMWE or ONEE. Only ONEE's response was received on an email confirming their cost of procuring 10 million CFLs.</p>
G.	Copies of any completed audits and management responses (where applicable)	n/a	
H.	Any other financial information that was required for this project (list)	Yes	<ul style="list-style-type: none"> · UNOPS Receiving and Inspection Report (RIR) dt. 25th Oct 2019 · Inventory of non-expendable equipment · Letters confirming transfer of ownership of TV screens (2019, 3 letters)
	Any gaps in terms of financial information that could be indicative of shortcomings in the project's compliance with the UNEP or donor rules	Yes	Co-finance reports from ONEE and MEMWE were not available. These would have been useful in assessing budget expenditures across components.
	Project Manager, Task Manager and Fund Management Officer responsiveness to financial requests during the evaluation process	Yes	Highly Satisfactory. All queries were addressed and suitably redirected to project partners, when applicable. Support was also provided in response gathering from key stakeholders during the terminal evaluation.
2. Communication between finance and project management staff		S	This section is rated 'Satisfactory'.
	Project Manager and/or Task Manager's level of awareness of the project's financial status.	HS	This was evidenced during feedback on the inception phase and a continuous

Financial management components:	Rating	Evidence/ Comments
		interaction with the Project Manager during the terminal evaluation process.
Fund Management Officer's knowledge of project progress/status when disbursements are done.	S	A survey response from the FMO evidences good knowledge of the financial management in the project. The FMO also expressed gaps in reporting during the phase, especially from co-financiers. The information dependent on the co-financiers was not available to the FMO. A direct call with the FMO was not possible during the evaluation phase. However, the FMO's clearance on revision documents was evident of joint decisions with the PM.
Level of addressing and resolving financial management issues among Fund Management Officer and Project Manager/Task Manager.	HS	All legal and financial extensions seem to be well addressed between the FMO, Project Manager, Task Manager and administrative staff, especially in relation to internal/ external contracts (new or revisions) and budget shifts. The reallocations were particularly well managed to new adjusted activities and change in the role of project partners.
Contact/communication between the Fund Management Officer, Project Manager/Task Manager during the preparation of financial and progress reports.	S	All documents for reporting expenditures and progress reports are prepared with approval from Project Manager.
Overall rating (both sections 1 and 2)	MS	Moderately Satisfactory <i>Completeness of project financial information was rated 'Moderately Unsatisfactory (MU)'. Communication between finance and project management staff was rated 'Satisfactory (S)'</i>

The rating for Financial Management is **Moderately Satisfactory.**

5.6 Efficiency

174. In accordance with the OECD/DAC definition of efficiency, the evaluation assesses the extent to which the project delivered optimum results from the given resources and defined timeframe for its activities. This is divided into an assessment of the cost-effectiveness and timeliness of project execution.

175. Overall, it is assessed that the project efficiency was not good because of several deviations which occurred during the project lifespan, and may have been overlooked in project design. This is still not reflective of the quality of project design, since several assumptions which were due to hold true were compromised, and this caused project inefficiencies. These deviations are mentioned in the sub-criteria evaluation below, along with efforts made by the project team to optimise project resources and implementation timeframe.

5.6.1 Timeliness

176. Timeliness refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The Project faltered in this aspect to a large extent since the original project was designed for implementation in 24 months, between September 2011 and August 2013, as compared to the actual duration which lasted approximately 7.5 years (almost 4 times the initial period), stretching between 21 March 2012 and 30 September 2019.

177. The project went through 4 rounds of work plan revisions, project extensions and budget shifts (no increase in budget was carried out from the GEF front). These extensions may be summarized as follows:

- Revision 1, 29th May 2015: The KfW loan negotiation and the procurement of CFLs under ONEE's distribution program was delayed. Accordingly, the case for revising the workplan and extension to 31st December 2016 was presented and approved at the national steering committee meeting held in January 2015.
- Revision 2, 31st December 2016: The two primary reasons reported for deviation were (i) Change in UNEP and ONEE's contractual arrangements (due to changes in UNEP's internal fund management system) for the national communication campaign, presumably due to UNEP's shift to a new fund management system, and (ii) MEMWE's unavailability for launching the next research and implementation activities in the project, since COP22 summit related activities were prioritised during the period. Therefore the timeline for activities was extended for completion to Q3 2017.
- Revision 3, April 2018: Since early 2017, most of the project activities were stalled due to the non-responsiveness of MEMWE, who was the central nodal agency for the project. In-country government changes and power re-arrangement could be reasons which contributed to this downward shift in priority and there were no high-level meetings that could be arranged concerning the project. It was only in April 2018 that MEMWE requested for an extension letter so that implementation closure could be targeted for 31st March 2019.
- Revision 4, 31st March 2019: Considering a few months of delay due to setbacks in the procurement process for the communication campaign, technical completion of the project was shifted from March 2019 to September 2019. The delay in implementation of INARA's program goal to install 10 million CFLs was resolved by June 2019 with completion of activities. Therefore the project was finally closed on 30th September 2019.

178. To conclude, several delays could be tied to interdependencies with INARA. The positive steps taken towards project completion to make up for the delays included closer involvement in the activities of CFL procurement and the communication campaign with ONEE from 2018 onward (instead of conducting these through MEMWE), excluding third party dependencies by bringing all activities under ONEE directly (excluding PPEUs for distribution) and using their

own distribution channel partners. The existing experience of the INSTELLECs (from INARA Phase I experience) was instrumental in fast-tracking the installation activities.

179. The government changes could not have been predicted to bring instability at the time of project conception. In fact, the project was planned initially for only two years and therefore this risk was not adequately mitigated in project concept.

180. It is also assessed that on underestimating the budget required for meeting CFL installation targets, ONEE may have required additional time to manage funding from additional avenues (KfW in this case), which added to the project delay.

5.6.2 Cost Efficiencies

181. Focusing on the translation of inputs into outputs, cost-effectiveness is here described based on the extent to which an intervention had achieved, or was expected to achieve, its results at the lowest possible cost. This evaluation is well derived from the analysis under 'Financial Management' and refers to budget shifts (4 times) conducted for aligning with the revision in work plan with respect to the project.

- Increase in costs: These occurred mainly due to an (i) Personnel expenses and (ii) CFL distribution campaign. There was an overall 30% increase in personnel costs, due to research requirements being outsourced, through partner organizations (not including GEF). The CFL distribution campaign was highly underestimated and almost 3 times more expenditure was incurred by ONEE for its contribution to the project as compared to the original combined budget of MEMWE and ONEE (around \$ 4.5 million). However, the shift in implementation strategy was where the CFL distribution activities were centralized under ONEE and shifted away from involving ONEE and the PPEUs helped centralize and optimized some management costs.
- Decrease in costs: All work plan revisions in timeline and activities were no cost extensions (from GEF and UNEP-DTIE's perspective) and the budget cost reductions were carried out for project travel costs, training costs, equipment and premises (refer to Financial Management sections for details). These were reallocated to mainly external experts for conducting research work to back up implementation targets. A smaller proportion of this budget shift was directed at monitoring and project management due to the extended timelines. From ONEE's and MEMSD's perspectives, specific budget shifts are hard to assess since no co-financier reports were made available to the project team and the evaluation consultant by these organizations. However, it was noted through progress reports that ONEE was also able to fund the INARA campaign. This was done through a KfW funded loan for CFL procurement. However, the exact internal budget allocation is not clear enough for an objective evaluation of this component.

182. It is therefore clear that though there were efforts made to override time constraints and implementation barriers to still achieve the project outcomes, the project was highly inefficient. This was evidenced by the fact that there were four no-cost extensions against the formally approved results framework. The delay in project implementation had a negative impact on many project stakeholders. While several project outputs were prepared for inclusion in Morocco's national framework, most of these have not been enforced yet and a legal formalization is still pending in most cases. The CFL distribution program and consumer awareness program was the only aspect able to operate independently but was also very delayed. These have clearly resulted in a highly unsatisfactory level of project efficiency and undermined the effect of the project outcomes.

The overall rating for efficiency is **Highly Unsatisfactory**.

5.7 Monitoring and Reporting

5.7.1 Monitoring design and budgeting

183. The project had a sound M&E plan to monitor results and track progress towards achieving project objectives. The stakeholder responsibilities were clearly defined with a time frame specified for various M&E activities. The original project logical framework was well designed on the basis of a market study which included several assumptions and associated drivers for the project outcomes to be achieved. In addition, specific SMART indicators were clearly defined for each of the project objectives. The baseline course of action was presented in a clear manner including the background context and the situation analysis at the start of the project. The information had an overview of the lighting market in the country in addition to the threats and barriers analysis of diffusion of the energy efficient lighting technologies.

184. The project outputs were specified with quantified targets. Also, desired levels of achievements were illustrated for all indicators of objectives and outcomes. The monitoring plan covered all indicators in the logical framework, and the M&E budget was adequate as per the decided timeline of the project. The original budget was well defined in the documents provided by the project team, across all components as per UNEP budget lines detailed in: (i) Project document and work plan including the LogFrame and the Results Framework , (ii) Approved Project Identification Form (PIF) dated 16 December 2009, (iii) CEO (GEF)'s letter approving the PIF dated 29th January, 2010 , (iv) MEMWE's letter Co-financing confirmation letter for the ministry and ONEE's involvement, dated 7th July 2010, (v) Budget Reconciliation between GEF activity based on budget and UNEP budget line, (vi) GEF final approved budget (original) component wise and by calendar year, and the (vii) GEF tracking tool for Climate Mitigation Projects for reporting on lifetime emissions avoided, submitted on 10th June, 2011.

185. This aspect was rated '**Satisfactory**'.

5.7.2 Monitoring of project implementation

186. The monitoring activities were planned based on the foundational monitoring and evaluation framework of the UNEP. However, specific activities and the frequency of their occurrence were mutually decided with the national partners. This section was evaluated based on information gathered from reports that recorded the parameters marking the progress in the project.

187. The monitoring reports revealed that not all impacted stakeholders were reachable during the project to discuss interim results. This could have been valuable while re-designing the adapted targets especially with respect to private players and civil society organizations' involvement. One way to monitor this was through the participant list of the final steering committee meeting and closing workshop where very limited or no stakeholders were present from the private sector or civil society organizations. The impact indicators designed for the project were not disaggregated in accordance with vulnerable groups or keeping in view gender considerations, and therefore final reporting was not categorized with respect to impacts on these groups either. However, it is appreciated that gender related considerations were not present since this was not a part of the project design for GEF-UNEP initiatives during project conception.

188. The requirements of monitoring project implementation were partially met. The PSC meetings were quite restricted which did not allow for a triangular validation of outcomes (GEF, UNEP and Moroccan partners). Despite the same, there was sufficient reporting to track workplan progress and very detailed information on collected monitoring data. This was

overall lead by UNEP, with support from GEF and ONEE. The distribution of outputs was also evidenced by the agenda and contents of the inception meeting, PSC meeting (2015) and final workshop. These outputs were also used for beneficiaries during the project, for instance the distribution of CFLs at market competitive prices (arrived at during the project) and public awareness which was impactful through the consumer awareness campaigns conducted nation-wide.

189. As per the revisions, the project implementation had deviated from the original work plan in the project document. The project was supposed to commence from September 2011 and conclude until August 2013 but due to unforeseen reasons it commenced in Q4 of 2012 and completed in Q3 of 2019. The inception report has no information on the plan for periodic meetings with project stakeholders to monitor the implementation progress. However, each year around June half-yearly progress reports were being prepared. Hence, there are 6 reports for the year 2013 to 2018. In addition, there are 7 yearly Project Implementation Review (PIR) reports available which runs from the year 2013 to 2019.

190. The extension of the project was recorded through the four work plan revisions which were made available. This was also in line with budget revisions submitted by GEF corresponding to their allocation. UNEP-DTIE signed co-finance reports (2013 to 2019) and signed expenditure statements and unliquidated obligations reports were available (2012 to 2019), as per UNEP budget lines.

191. However, this was not available from the co-financing organizations MEMSD and ONEE which created a large gap in understanding their internal budget changes for the project. There is a lack of details on annual monitoring which usually are meant to occur at Tripartite Project Review (TPR) meetings at least once a year. Nevertheless, a draft of the Terminal Project Report was made available and the project outcomes' level of achievement was assessed at the end of the project. The UNEP GEF PIR reports were instrumental in tracking the cause of project deviations and decisions to reallocate resources and modify targets.

192. In the context of outputs, all research findings and documentation of results of studies conducted across the work packages were made available to stakeholders through project steering committee meetings and the final closing workshop. With regards to the consumer awareness campaign, letters from UNEP requesting transfer of ownership of market material (from UNEP to ONEE) was made available for the evaluation. Through the outputs made visible in the project, the budget allocation and project expenses (UNEP-DTIE and GEF) were matched and validated as part of the monitoring process. These were validated through progress reports as well as the Appendix 12 of the final report dated 6th January 2020.

193. This section is rated '**Moderately Satisfactory**'.

5.7.3 Project reporting

194. **Inception Report:** The inception workshop was held on 29th November 2012 at MEMSD in Rabat. The opportunity was taken to introduce project goals and objectives to all stakeholders present, including details about the en.lighten initiative, report on Policy Pathways for Energy Efficient Lighting in Morocco, implementation and financial guidelines for collection and recycling (C&R) of lighting equipment, ONEE's progress of the CFL distribution program and results of the ONEE led public opinion survey. These included in particular the objectives envisaged for the first year of the work plan and an outlook for what was planned for the remaining duration of the project. These initial outputs were an important driver to solicit support from key stakeholders, and was successful in receiving commitments from LPEE regarding testing infrastructure for lamps, IMANOR for updating Moroccan standards for energy efficiency lighting, and ONEE to continue the the second phase of INARA with learnings from the first distribution phase.

195. Half-yearly Progress Reports (2013-2018): These documents provided a concise update about semi-annual progress of the project. The reports were detailed to the extent of output wise progress in terms of expected completion date, implementation status (percentage of completion) for the reported period, and any challenges or modifications experienced for any of the outputs during the said duration. The reports also included an action plan to overcome the shortcomings thus identified, defining the actors responsible for it and proposing the timeline for such actions. The reports identified risk management strategies for those risks identified as 'substantial' or 'high' during the Project Implementation Review (PIR). The risks became substantial for the project 2016 onward, when incomplete reporting from ONEE and MEMSD, uncertainty about project completion and pendency regarding project extension letter from MEMSD were repeatedly highlighted till the end of the project. These resulted in follow up action plans to overcome insights for time management by taking actions such scheduling meetings with the ministry and pressing MEMSD and ONEE for co-finance reports. Further, the progress reports detailed staff, contracts, meetings and outputs. For meetings this included partner consultation meetings (including location, participants and reporting status). The contracting highlights included B-marketing (communication and survey agency) and UNOPS. The progress reports also recorded output material including, media such as a brochure and booklet (Arabic and English) published by UNEP for the public and articles published by the Moroccan newspapers l'Economista and La Vie Eco (November 2016) about the project. The report for 2019 is not available, but the closing report of 2020 consists of the detailed progress between this period and closes the gaps in identifying which outputs were delivered and to what extent.

196. Project Implementation Review (PIR): The GEF mandated PIR reports were available for each fiscal year from 2013 to 2019. Although these should have been approved by the PSC consisting of the GEF, UNEP/DTIE and GoM representatives (yearly meetings) in Tripartite Project Review meetings, there is no record of these meetings being held. This meeting was expected to result in annual project reports, which were also found to be unavailable. However, the PIRs prepared were comprehensive and provided a detailed report of how the project had progressed during the reported year. This consists a review of progress across each of the four components through indicators such as, status of the adoption of standards by the Moroccan government, planned workshops for dissemination of results and collection of feedback from stakeholders, status of CFL distribution, and other end-of-project targets connected to outputs. The PIRs also contained indicators such as peak reduction, quantity of electricity production, fuel savings and GHG emission reduction due to the project. The price of CFLs were reduced to make them market competitive for the consumer and achieved a value better than the target price, reaching a lower value than planned. Consumer outreach and awareness activities were also detailed in terms of which channels of communication were used, frequency of communication and which agency implemented the same. The risk rating of the project has varied during the primarily in the years 2016-2018 due to lack of responsiveness from the government and a shift in responsibilities which caused implementation delays. This is also captured in the critical stakeholder review in the PIRs. The specific outputs from the project each year are categorized here. The PIRs are the only reports where for each indicator outlined in the ProDoc, the progress towards target from baseline values is measured and reasoned. Ideally these should also resonate with the APRs for validation, which were not available for the project. The progress rating at output level was also presented in these reports. The risks identified and status of mitigation strategies presented in the PIRs were reflected as a follow up in the Half-yearly progress reports.

197. Project Terminal Report: The final report was prepared by UNEP and approved in January 2020 by the Project Manager and Project Manager supervisor. This final report submitted enlisted the accomplishments of the project. A break-down of the budget as of the project completion was included that stated US\$ 838,686.85 was spent and US\$ 50,404.15 was unspent by the GEF. A total co-financing amount from GoM was reported as US\$ 13.24

million and from the UNEP Executing Agency as US\$ 256,037. The project delivery was reported at the output level, for each component, and subsequently outcome. This included indicators reported on in the PIRs and Half-yearly reports, including the justification for the rating and which outputs were still incomplete leading to only partial impacts. There was, however, no cross-validation possible with terminal tripartite review, which would typically be completed two weeks before the Tripartite Terminal Review Meeting (there is no record of this meeting, which also includes PSC members' approval).

198. **Mid-term independent evaluation:** There was no mid-term independent evaluation carried out for the project. This is evidenced by the documents provided for terminal evaluation and also confirmed with the evaluation office.

199. **Final external evaluation:** The final external evaluation was conducted between August February 2020 to November 2020 by the Evaluation office of the UNEP through an independent consultant (responsible for the current report). The involvement of UNEP and GEF team was very beneficial in understanding the nuances of the project. However, it was found that the GoM was not responsive enough for participating in the evaluation. The limited working conditions in Morocco following the COVID-19 pandemic also made it more challenging to solicit more participation from the project partners. A field visit was also not feasible due to global travel restrictions. However, online interactions through email, direct phone calls and surveys were instrumental in collecting information for the terminal evaluation.

The rating for Monitoring and Reporting is Moderately Satisfactory.

5.8 Sustainability

200. This section evaluates the extent to which social or political factors, financial requirements and institutional frameworks support the continuation and further development of the project's direct outcomes. The evaluation consultant has rated this section as overall 'Moderately Likely'.

5.8.1 Socio-political sustainability

201. This sub-section reflects on the extent to which social or political factors support the continuation and further development of project direct outcomes. It considers the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forward.

202. Dependence: The sustainability of project outcomes has a high degree of dependency on social/political factors. The social factor concerns technology acceptance by the target end-users, the buy in of the private sector players and continued interest of the government to support policy change recommendations.

203. The mitigation measures which have been adopted to counter these risks arising from socio-political dependence are as follows:

- The MEMSD was a key stakeholder and was due to play a focal role as the primary national partner for the project. This ensured complete alignment with the ministry's strategic objectives at project design stage. This was especially useful when the ownership of the project shifted due to the change of power in the GoM. The ONEE, as a public organization under the ambit of MEMSD, was able to take over, and maintain country-ownership and driven-ness towards the project.
- The baseline survey conducted amongst consumers to understand the market size for CFLs, typical consumption patterns and expenditures provided a realistic set of

SMART indicators to transform into project targets and objectives. However, a gender impact study was missing from this stage of market study and thus certain important social factors were not taken into account in the findings.

- Capacity building measures were included to solicit the buy-in of the private sector and regulatory officials. However, these were not finally realized and therefore there was a lack of connection to on-ground / implementation realities.

204. Overall, a strong ownership was sustained for the project amongst national partners (despite internal shift of interests), but there is still scope for improvement and therefore policy changes were only partially met. More measures could have been taken by deeper involvement of other public organizations like IMANOR, AMEE, LPEE, etc., other civil society organizations, private sector players and consumer protection agencies, in order to safeguard against and adequately mitigate socio-political risks. Therefore, the socio-political sustainability of outcomes is rated '**Moderately Likely**'.

5.8.2 Financial sustainability

205. The sustainability of the project in financial terms is measured in two steps. Firstly, there may be some outcomes which would not provide a benefit or be usable without further funding after the project. This could be a direct requirement or due to dependence on other activities flows which themselves require funding. The evaluation identifies this causality. As a next step, the efforts that have been made to identify and / or secure funding for the sustainability of the project will be judged to rate project sustainability.

206. In terms of the outcomes envisioned for the project, there is 'moderate dependency' on future funding / financial flows to persist. The dependence exists since the first two components of the project were evaluated as short on budget by the project team. This was further supported by the assessment that 2 years was too short a period for affecting policy change. Conclusively, more funding would be needed to push policy recommendations so that they are legally adopted by the government. The enforcement of such a policy would also require more consumer awareness, stronger lobbying for energy efficiency, an effort to transform the lighting appliances supply chain for private suppliers, and support regulators in adapting to this transition.

207. The project identifies U4E's central role in producing major outputs, through its market expertise. The project team confirmed through the closing report that the U4E consultants would be able to follow through on the policy recommendations over the next few years. This would be done under two programs:

- **SwitchMed II programme funded by the EU⁴:** Sustainable Consumption and Production National Action Plan (SCP-NAP): The Moroccan Sustainable Consumption and Production National Action Plan (SCP-NAP) was developed under the coordination of the Ministry of Environment and Sustainable Development under the EU-funded SwitchMed Programme, with advisory services and technical support from UNEP. One of the two priority sectors addressed by the SCP-NAP eco-construction and sustainable buildings and preparing a 10-year sectoral action plan for it. The SCP-NAP of Morocco has been integrated in the Moroccan National Sustainable Development Strategy and implementation is currently on-going.

⁴ SwitchMed Programme in Morocco, EU: <https://switchmed.eu/wp-content/uploads/2020/04/04.-Factsheet-SCP-NAP-Morocco.pdf>

- **Joint U4E-AEC African Energy Efficiency Programme 2020-2025⁵**: The program focuses on efficient lighting as a target application consisting of objectives such as: (i) saving Assessment for the Region and its country members, to quantify electricity, climate and financial benefits from the switch to energy efficient lighting, (ii) Development of recommendations for supporting strategic policies and frameworks, such as MEPS, Labelling programs and MVE for energy efficient lighting, (iii) Support testing laboratories for the enforcement of MEPS and labelling, (iv) Delivery of capacity building workshops to relevant stakeholders on product registry systems and sustainable public procurement practices, (v) Support the on-going national and regional efforts on Market Transformation through strategic 5-year policy programs and the development of specific tools/resources for its implementation.

208. The aforementioned funding avenues would provide sustainable future pathways to ensuring the continuity of the project as one can see almost 100% overlap in strategic objectives, catering to nearly all funding requirements. The involvement of U4E experts, common to all these programs, further ensures common implementation strategies and technical coherence. Consequently, the financial sustainability of outcomes is rated '**Highly Likely**'.

5.8.3 Institutional framework sustainability

209. The evaluation assesses the extent to which the sustainability of project outcomes (particularly policies and laws) is dependent on institutional frameworks and governance. In Morocco, the National Energy Strategy 2030 encompasses an action plan for reducing energy consumption through energy efficiency measures by 20% (2030), which is quite ambitious especially compared to counterparts in the region⁶.

210. The project outcomes are only moderately dependent on the government / sensitive to institutional frameworks. This was particularly in case of Components 1 and 2 which are more dependent on policy and regulatory integration of the findings. It is assessed that a robust mechanism is in place to support the institutionalisation of direct outcomes. The outputs of components 1 and 2 are made available and some of the proposed policies have been accepted (tax reduction for CFLs) and some are validated and only awaiting ministry approval (MEPS framework and collection/recycling guidelines).

211. The nodal ministry is MEMSD, and other directly impacted organizations in the sector include ONEE, AMEE, IMANOR, LPEE and the PPEUs. The learnings from past projects (such as INARA phases I and II), restructuring of the regulatory bodies to make them more robust (many since project inception in 2011), and now the presence of a relatively stable political environment in the country, sets a good precedent for next steps.

212. In particular, institutional capacity development efforts are still only partially met and need to be transferred especially to other institutions directly impacted such as the Ministry of Interior (including regulatory department officials), Ministry of Finance, Ministry of Housing and other possible sectors (especially the electrical and electronics industry). These have a dependency on acceptance of the norms proposed into legislation.

213. Capacity of experts engaged in the project has enhanced particularly in the Moroccan context. This was evidenced by U4E consultants who made vital contributions to outputs.

⁵ African Energy Efficiency Programme 2020-2025 Factsheet, AEC-U4E: https://www.afrec-energy.org/publications/u4eafrec/U4E_FACTSHEETS_AFRICA%20ENERGY%20EFFICIENCY%20PROGRAM.pdf

⁶ Overview of MeetMED target countries, 2019: https://www.rcreee.org/sites/default/files/meetmed_report_a1_1_final_191009.pdf

They are likely to stay engaged with next steps in the project through the EU funded SwitchMed II programme and U4E-AEC African Energy Efficiency Programme described under the section on 'Financial Sustainability'. These programmes have a focus also on institutional components, and it is therefore inferred that the project's exit strategy has been initiated.

214. The institutional framework sustainability is rated '**Likely**'.

The overall Sustainability rating is Moderately Likely.

5.9 Factors affecting performance and cross-cutting issues

215. This section refers to evaluation assessments which are not specific to the above evaluation criteria (sections 5.1 - 5.8) but includes cross-cutting issues which are applicable across different results. These references are present in the narrative that follows.

5.9.1 Preparation and readiness

216. This criterion focused on the inception or mobilisation stage of the project (i.e. the time between project approval and first disbursement). The evaluation assessed if required measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation.

217. **Problem Analysis:** In general, the environmental problem and the problem for the energy sector is well described in the Project Document. Some aspects are missing, such as:

- Technical: Discussion of possible rebound effects (typical for energy efficiency measures)
- Socio-economic: Impact of electricity prices and energy efficiency measures on household level is present but not differentiated by social groups (by income, gender, role in the family, access to household budget within family members etc.)
- Economic: Impact of the project on SMEs in Morocco (Value chain of ILs, CFLs, value chain for IL destruction and CFL recycling, conversion potential of the local industry, etc.)

218. **Stakeholder Analysis:** The project includes a stakeholder analysis but focuses on only Type A Stakeholders. The gender or minority groupings are only discussed with regard to awareness raising, communication and mainstreaming strategy by choosing a language that they understand. According to the project team, several trials to identify civil society actors (e.g. consumer protection organisations) were not successful. Consequently, they are missing along the whole project. During the course of the terminal evaluation, several reasons emerged for this reduced interest and these reasons are captured in more detail under section 5.9.3 'Stakeholders participation and cooperation' that follows. However, the project team made concerted efforts throughout the project to involve all critical contributors. There were certain project design deficiencies, which may have not completely convinced these players to actively participate. The recommendations to overcome this is proposed section 6.3 'Recommendations' of this report.

219. During the course of the final evaluation, several aspects were clarified about the preparation and readiness of the project team for the project. Based on the rationale and evidence stated, this section's rating was improved from 'Moderately Unfavourable' (during inception, under quality of project design) to 'Moderately Satisfactory'.

The rating for preparation and readiness is Moderately Satisfactory.

5.9.2 Quality of project management and supervision

220. In this parameter, the project management performance of the executing agency (UNEP through UNEP-DTIE) and the technical backstopping and supervision provided by UNEP is evaluated. The project management team was focused on steering the project towards achieving the planned outcomes. It played an important role in managing team structures and coordinating with Moroccan partners. This was done through steering committee meetings / workshops where outputs were presented, and important decisions for next steps were taken. There was significant evidence of adaptive management which helped overcome persistent project barriers.

221. The project partners met through workshops conducted in tandem with Steering Committee meetings, the details of which are presented as follows (including representation based on list of participants / minutes provided during evaluation)

- **Inception workshop and first meeting of the steering committee, 29th November 2011, Rabat:** Participants included the Ministry of Energy Mines and Water (MEMWE, now MEMSD), Ministry of Finance, Ministry of Interior, ONE (now ONEE), National agency for renewable energy (ADEREE, now AMEE), Moroccan Industrial Standardization Service (IMANOR), Administration des Douanes et Impôts Indirects (ADII, now ACI), FENELEC, Public Laboratory for Studies and Testing (LPEE), OSRAM and PPEUs. The PPEUs present included: RADEEJ- Regie Eljadida, RADEM- Regie Meknes, RADEES – Regie Safi, RAK- Regies de kenitra, RADEEL- Regie de Larache, RADEEMA – Régie de Marrakech, RADEEF- Régie de Fès, REDAL- Rabat and AMENDIS Tetouan.
- **Second meeting of the Project Steering Committee, 23rd January 2015, Rabat:** Participants included MEMWE (now MEMSD), UNEP project team staff, ONEE and representatives from B-Marketing.
- **Closing / Final Workshop and meeting of the Project Steering Committee, 17-18th June 2019, Rabat:** Participants included MEMSD, AMEE, DRSC, Ministry of Interior, IMANOR, MCINT (Ministry of Industry and Trade), Ministry of Finance, ONEE, Philips Lighting Maghreb; UNEP consultants and project team members..

222. As evident, the project team was able to begin the project and witnessed participation from almost all identified stakeholders at project inception. However, it can also be seen that this interest seemed to decline and also shift as the project progressed. The outputs were presented to all stakeholders at these meetings. The working relationship between the PM and project partners was strong and this also reflected during the TE consultation, wherein the response time between the evaluation office and stakeholders was accelerated with the UNEP team's efforts.

223. The UNEP staff capacity was well maintained with several staff members available for most of the time during the project. Project handover between staff also was well executed, since the evaluation consultant did not face difficulty accessing documents pertaining to the implementing agency or executing agency.

224. The adaptive management exhibited by the project management unit was effective since major project delays and project constraints had occurred and yet the impact on outcomes was minimized. This is visible in budget cuts and reallocation (discussed under 'Financial Management') and modifications made to the work plan (detailed under 'Reconstructed ToC' and reiterated under 'Effectiveness').

The rating for quality of project management and supervision is Satisfactory.

5.9.3 Stakeholders participation and cooperation

225. The participation of stakeholders, as pointed out under the last section 'Quality of Project Management and Supervision', saw a significant change from project beginning till end. The original role of stakeholders is captured as part of the stakeholder analysis in the section 'Project'. This part of the evaluation will use that as a reference to analyse the change in stakeholder participation and cooperation. Consultation with the project team was carried out in depth through surveys for each stakeholder, which is also incorporated here.

226. MEMSD was identified as a Type A stakeholder (high power/high interest) and was supposed to be the nodal national partner for implementing the project. Through financial commitment, MEMSD demonstrated project interest and ownership. However, their contribution to achieving outcomes across the project components was not up to expectations. They were adequately informed on the subject of energy efficiency. However, their interest waned during the project owing to change in the political environment. This also caused a delay in project extension. Moreover, the shift in priority at the ministry around COP22 was also a reason for delay in the project. A lack of communication increased with time which was perceived as lowering of interest. Eventually their financial commitment was also not met, and MEMSD's role was shifted largely (including financing on behalf of the GoM) to ONEE instead. At this stage, the ministry was externally supportive to ONEE, but withdrew from operational activities. Other internal reasons which may have existed are unknown, since MEMSD was not available for consultation during the TE. They were not responsive to the project team's request for co-finance reports and therefore it is not possible to assess their financial contribution, in cash or in kind.

227. ONEE was identified as a Type A stakeholder (high power/high interest) and responsible for steering implementation of the project, especially ensuring alignment with the GoM's flagship INARA project. They had a high level of subject matter awareness as well as incentive to maintain a central role in the project. The interest to invest in the project was not very high at inception. ONEE had one of the largest roles in successful implementation of especially project components 3 and 4. This included the CFL distribution target which was overachieved, along with a very widespread communication campaign. There was significant coordination with UNEP staff and United Nations Office for Project Services (UNOPS). In terms of financial management, it was not possible to accurately assess their budget shift and constraints, since no co-finance reports were reported. During the TE consultation and outreach with the help of the UNEP project staff, only a total value of procurement of CFLs was confirmed. This was in fact 2.5 higher than the initial commitment (during evaluation it was revealed that the cost of CFLs at project design were actually underestimated). ONEE was also of the view that implementation of the recommendations of the baseline study was not adequately taken into account in its design and that affected the project (socio-politically and economically). The achievements despite barriers demonstrate ONEE's commitment and ability to mobilize funds for their (extended) role in the project. The communication was effortless with the stakeholder, in the experience of the project team.

228. DRSC was identified as a Type A stakeholder (high power/high interest) considering their ability to involve the PPEUs in the project, along with the fact that the PPEUs were also directly impacted by its outcomes. It was perceived, however, that DRSC had a moderate level of knowledge about the project and awareness of the benefits and challenges of energy efficient lighting interventions. This translated into a moderate interest and not much interest to invest financially in the project. Consequently, their impact on the achievement of project outcomes was low. Their contribution was limited to the communication campaign (limited extent) and aspects related to technological standards for energy efficiency impacts on the electric utilities. Despite the limited involvement, the project staff also found it easy to communicate with the stakeholder. With more consultation, DRSC could have played a central

role in reaching out to the huge consumer base through PPEUs and activating higher demand for energy efficient lighting technologies.

229. AMEE was identified as a Type A stakeholder (high power/high interest) as the nodal agency for 'energy efficiency'. Their subject matter knowledge along with ties to the private sector would be central for the project's successful dissipation. Their ability to actively participate in the project was viewed as relatively moderate, and there was no financial commitment demonstrated by AMEE. Their impact on achievement of project objectives was not a huge factor. However, AMEE would be one of the most significantly impacted stakeholders considering the projects direct and long-term outcomes. AMEE was active in promoting energy efficiency in the project, advising on what is achievable in Morocco and efficiency levels of other technologies like LEDs when they entered the Moroccan market. Their involvement in the project was viewed as satisfactory by the project team. However, the evaluation consultant assessed the need for more involvement and this was validated when AMEE also expressed stronger will for more intense cooperation for the potential next phase of the project. According to consultation with AMEE, it was confirmed that the project was very aligned with it strategically, and found the project outcomes very useful.

230. IMANOR was identified as a Type A stakeholder (high power/high interest) as the relevant nodal standardization agency. The relevance of IMANOR (erstwhile SNIMA) was critical for preparation of a standards framework for making their implementation successful. However, in the opinion of the project team, IMANOR's subject knowledge on energy efficiency lighting was moderate and they were informed about the project only in terms of relevant components. This was primarily in establishing the regulation on CFL standards and preparation of quality standards for lamps including LEDs. As per project design the project team felt that IMANOR's contribution and communication was very satisfactory. This was also validated during the TE consultation. IMANOR's response was enthusiastic and they were strongly in favor of the MEPS standards, expressing willingness to support implementation from immediate effect.

231. LPEE was identified as a Type A stakeholder (high power/high interest) as the relevant standards implementation and testing unit. They had a moderate level of awareness of the benefit and challenges of Energy Efficient lighting in Morocco and moderate knowledge about the project. Their demonstrated incentive to actively participate in the project was not there. However, their involvement was still managed by the project and they had a significant role in ascertaining if adequate testing capability exists within the current infrastructure in Morocco. Under component 2, LPEE's testing capability for CFLs and LEDs was assessed and found adequate, along with their COFRAC (Comité français d'accréditation, or French Accreditation Committee) credentials. LPEE also helped define what is technically feasible to test for market surveillance in order to maintain product quality. Overall, their role in the project was evaluated as satisfactory.

232. MICIEN, MEFRA and ACI were all identified as Type B stakeholders (high power/low interest) owing to their strong influence on private sector involvement and ensuring seamless market transition from a regulatory perspective. All three stakeholders had a low level of awareness of the benefit and challenges of Energy Efficient lighting in Morocco, along with a low understanding about the project itself. Therefore, their incentive for active participation was very low and they were not able to contribute adequately to project objectives. MICIEN (Ministry of Trade and Industry) supported marginally with some data on lamp import volumes during the market study. The department for customs and taxes (ACI) was also an important stakeholder, and would have been vital for capacity building components for customs and quality control officials, as a follow up to development of standardization and testing protocols. Due to low awareness amongst the private sector, their involvement was further hindered and there was no support for the proposed regulatory changes or capacity building for their implementation. Not surprisingly, there was no intention for financial commitment

that emerged. The evaluation consultant assessed that these stakeholders need to be involved more actively in the project design for a next phase, as key stakeholders.

233. PPEU's: This stakeholder group was categorized as Type B stakeholder (high power, low interest) since they have the largest consumer base who are the end users targeted as beneficiaries of the energy efficient products. Despite this important role, the evaluation assessed that PPEU's awareness on the subject of energy efficiency and the impact of the project outcomes on their operations was low. It appears the PPEU's have not contributed to the project. Indeed, ONEE started its distribution programme in May 2015 and as per the project document, it was planned that 6.35 million CFLs would be distributed by ONEE and 3.35 million would be distributed by PPEUs. Although the PPEUs had already signed "Program contracts" to implement CFL distribution programmes, it seems that they suspended their distribution program after the inconclusive results of pilot operations. Hence, the objective of 9.7 million CFLs was reached through ONEE's distribution programme only. Overall, their participation was not satisfactory in the project and this was validated during the TE consultation with the project team.

234. Civil society, industry associations and consumer protection agencies were almost not involved in the project and the impact of this is visible across the project challenges (also described under 'Weaknesses' (refer to section 'quality of project design'). FENELAC, OSRAM and Beghelli were initially involved but this was not sustained for later stages of the project (PLM was the private partner actively involved during the project lifetime, since they procured the ONEE tender for CFLs).

235. Type C stakeholders (low power, high interest) or project partners were the executing agency, implementing agency, GEF and associated experts, such as the U4E experts. These stakeholders were actively involved throughout the project and this is well explained across the section on evaluation findings.

236. Type D stakeholders (low power, low interest) includes the group which is the consumer or end-user of the energy efficient appliance (CFLs or LEDs). It is important to consider this group in planning, since they are the most impacted in terms of lifestyle changes, expenditure changes, consumer behaviour and impact on well-being. Moreover, gender considerations were not a component of project design, which excluded women's perspective, and this is especially important considering the social and economic role of Moroccan women in an average household.

237. The possible involvement strategies for future expansion of the project along with improvement in stakeholder participation is explained more vividly in sections 6.2 'Lessons learned' and 6.3 'Recommendations'.

The rating for stakeholder participation and cooperation is Moderately Satisfactory.

5.9.4 Responsiveness to human rights and gender equality

238. The evaluation consultant explored the extent to which the project has applied the UN Common Understanding on the human rights-based approach (HRBA) and the UN Declaration on the Rights of Indigenous People. Within this human rights context, the evaluation assessed to what extent the intervention is in line with UNEP's Policy and Strategy for Gender Equality and the Environment.

239. As per the terms of references for this criteria, the project was evaluated as not responsive to this criteria: (i) No evaluation was carried out on possible gender inequalities in access to the CFLs/LEDs appliances under consideration, or their position as decision makers; (ii) specific vulnerabilities of women and children to environmental degradation was not considered during the initial baseline study, since the market results were not

disaggregated by these groups; and (iii) the role of women in mitigating or adapting to energy efficiency measures was not considered in the project, either as an indicator or as a project outcome.

240. Human Rights and Sustainable Development Goals: The project clearly addresses SDG7. The impact of the project on the environment is a broad goal, and therefore well incorporated into context, logical framework and implementation. In the logical framework, the relatively poor are named as a target group, but the lack of disaggregated results in the market assessment doesn't make it clear how these groups are incentivised on the long term. This leaves some questions unanswered, such as savings impact, and if the project outcomes are relevant for these groups (such as low income households).

241. Gender: It is relevant, particularly in a society like Morocco, where women have very little power and spend a lot of time in the house. The project only identifies them as a relevant group with regard to the communication strategy. However, the project team consultation also clarified that the inclusion of gender considerations was not a major focus when the project was conceived, especially since there was no UN Gender Policy in 2010/2011. This was recognized and now holds an improved priority in the UNEP's project design criteria. Moreover, the project team's feedback mentioned that the project outcomes were already ambitious across different outcomes, hence making it difficult to include gender considerations into existing components during the course of the project. It was evaluated that the gender scoring for the project is 'Highly Unsatisfactory' and the project design was gender blind, since gender relevance is evident but not at all reflected in the project document either through context, implementation, logframe or the budget.

The rating for responsiveness to human rights and gender equality is Highly Unsatisfactory.

5.9.5 Country ownership and driven-ness

242. In this section, the quality and degree of engagement of government / public sector agencies in the project is assessed. While there is some overlap between Country Ownership and Institutional Sustainability, this criterion focuses primarily on the forward momentum of the intended projects results, i.e. either a) moving forwards from outputs to direct / medium term outcomes or b) moving forward from direct / medium term outcomes towards intermediate states.

243. It considers not only Type A but also those official representatives whose cooperation is needed for change to be effected in their respective institutions. This factor is concerned with the level of ownership generated by the project over outputs and outcomes for the national Moroccan partners and that which is necessary for long term impact to be achieved and sustainable.

244. Evidence suggests that all Government ministries and agencies that are essential for moving from outputs to direct outcomes or from direct outcomes to intermediate states took a leadership role in the following ways:

- Provision of in-kind and / or cash co-financing contributions (MEMSD, ONEE)
- Strategic guidance of project delivery (MEMSD, ONEE, DRSC/PPEUs)
- Securing additional resources (MEMSD, ONEE)
- Endorsing / accepting project results (MEMSD, ONEE, DRSC, IMANOR, AMEE, LPEE)
- Driving or advocating for change to achieve higher level results (MEMSD, ONEE, IMANOR, AMEE, LPEE, DRSC/PPEUs, MEF, MICIEN, ACI)

245. Based on the above rationale, it is deduced that all key stakeholders were motivated by and dedicated to the project objective. The consequent contributions varied, and certain national partners performed a more prominent role in driving outputs to direct / medium term outcomes or from direct / medium term outcomes to intermediate states. These roles also shifted during the project. On the other hand, Type C stakeholders would be important for the sustenance of the project outcomes, and these require more country driven-ness on behalf of MEF, MICIEN, ACI and the PPEUs.

The rating for country ownership and driven-ness is Moderately Satisfactory.

5.9.6 Communication and public awareness

246. In this part, the evaluation consultant evaluated: a) communication of learning and experience sharing between project partners and interested groups resulting from the project during its lifetime and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large.

247. Communication and public awareness activities of the “Market Transformation for Energy Lighting in Morocco” project were implemented under primary component 4 “Information, Consumers’ Education, and Awareness Raising”. According to the communication campaign and public survey output documents provided by UNEP, there are sufficient indications to suggest impact. The steering committee meetings and results dissemination workshops were conducted to communicate results were carried out by the project team and experts who worked on producing the outputs. The terminal evaluation consultation also confirmed this transmission of knowledge to IMANOR, AMEE and LPEE and acceptance of the outcomes. These organizations were not involved fully in every stage of the project. However, their cooperation was noticeable and available when required and they have also provided suggestions on next steps and improvements to ensure enforcement and capacity building enable the targeted market transition measures.

248. The public awareness activities undertaken during the implementation of the project were effective in their way to communicate the project’s objective, progress, outcomes and lessons. According to the post evaluation of the media placement for the ONEE campaign in 2019, the impacts are equivalent or greater than what was planned originally, making the UNOPS ad one of the top 10 broadcasted that year.

249. The communication and public awareness activities used different communication channels and networks. The first phase of the INARA communication (2007-2010) was based on internal communication, sales location communication, media (TV and radio) and events. The second phase was based on front office and staff information, ONEE-BE agencies information, events, mass media campaigns and awareness-raising sessions at school level. However, the presence of feedback channels is not mentioned in the output documents provided by the Project team.

250. The communications activities had a measurable effect on public awareness as the results of 4 surveys from May 2015 to May 2017 “Baromètre d’opinion sur l’énergie au Maroc” show. During this period, the perception of the public to CFL has seen a clear improvement. It evidenced the public knowledge of the CFL program and its satisfaction rate has grown significantly.

251. However, the evaluation consultant also realised that the impact of the campaign was effective but not technology agnostic. For example, during consultation it was revealed that the consumers were reluctant to accept LEDs instead of CFLs (promoted as ‘lampe économique’), despite the better performance and price comparability. This was due to a misleading perception which was unintentionally delivered during the campaign. This reflects

an effective campaign, but made it hard to adapt to LEDs when the project needed it. The experience provides a good indication about what positive changes can be included. These suggestions are included in chapter 6 'Conclusions, Lessons Learned and Recommendations'.

The rating for communication and public awareness is Satisfactory.

6 Conclusions, Lessons Learned and Recommendations

6.1 Conclusions

252. The Evaluation has revealed that the project had a very positive impact on affecting the market transformation in Morocco's energy efficient lighting sector. The project set into motion important policy and regulatory instruments to pave the path for future initiatives in Morocco. While some outputs were limited in achievement, the barriers were useful in identifying loopholes which can be addressed in future energy efficiency initiatives in both Morocco, as well as UNEP's projects across geographies which concern this sector and subject.

253. The project was largely focusing on a top-down approach to stimulating an energy efficiency transition in Morocco by replacing ILs with a substantial CFL market share. During the course of the project, MEMSD and ONEE have been able to successfully continue with completing the second phase of INARA with its CFL distribution programme. The project gave continuity aligned to the national stakeholders' strategic objectives at that time. The definition of energy efficiency measures was also expanded for inclusion beyond CFLs, to include LEDs and other energy for lighting optimisation technologies. The project has caused a conversation to evolve further around energy efficiency lighting. The limited direct involvement of private companies, industry associations and civil society representatives are all interlinked and this understanding gap between the project and the said groups directly affected availability of all outputs that were incomplete or cancelled. These were identified as the largest challenges to the project.

254. Despite the above-mentioned barriers, the project has created tangible outputs and an enabling environment for sustaining the objectives, such as:

- Minimum Energy Performance Standards (MEPS) to promote energy efficient lighting products, including quality control and testing procedures for CFLs and LEDs. Recommendations for recycling and safe disposal of used CFLs and LED lamps are also in place. Both of these are still pending legislative approval. In terms of infrastructure for testing, the ability of LPEE to provide the required infrastructure has been reaffirmed and contributes to closing an important link in the process of introducing new technology in the Moroccan market.
- Financial mechanisms are in place which have reduced the purchase price of CFLs for Moroccan consumers. The distribution programme was largely enabled by the reduced price of 18 MAD instead of the 2019 market price of 20 MAD. The 10 million CFLs distributed have resulted in a peak demand in electricity reduction of 5.6% in June 2019 as compared to 2015 peak levels. This is equivalent to a 330 MW capacity or 700 GWh/year reduction of electricity production. This has led to 300 ktep fuel savings and GHG emission reductions of 650 kteCO₂/year.
- The distribution of CFLs has reached its 10 million target resulting in 81% penetration amongst the consumer base, according to the last public opinion survey in 2017. The Moroccan Government has invested 128 million MAD (13.24 million USD) for purchasing 10 million CFLs for its campaign. The GEF recognizes

that about 12.56 million USD out of this were co-finance for the Project, while other costs were inferred to be raised outside of the Project.

255. The energy efficiency achieved as per GEF's terminal evaluation findings for the project was measured in terms of lifetime energy savings that amounted to 2,900,000 Million Joules of fuel saved. The lifetime direct GHG emissions avoided are 1,300,000 tonnes of CO₂ equivalent (which is lower than the target of 4,185,097 tonnes established in the ProDoc), whereas the lifetime direct post-project GHG emission avoided are estimated as 5,200,000 tonnes of CO₂ equivalent (which is higher than the direct post project GHG emission reduction of 1,445,369 tonnes CO₂ equivalent estimated in the ProDoc).

256. While the findings have been detailed as per UNEP's evaluation criteria, the consultant also identified the following outcomes which address certain strategic questions pertaining to the project:

1. **Success of the Intervention:** With the objective of enabling a rapid offtake of energy efficient lighting technologies, the project has made a significant impact in enabling a shift from ILs to CFLs. The barometer surveys reveal an increase in interest, uptake and understanding about the technology and purpose of intervention. As per the surveys, the satisfaction rate from participating in the CFL programme increased from 65% in the first phase of the survey to 95% in the fourth phase. The project implementation also identified some critical gaps, such as a lack of awareness raising amongst (and participation from) the private sector. There were gaps in communication between nodal ministries in order to address the concerns of small and large businesses across the lighting supply chain. A reduced interest by public stakeholders over a period of time, and a limited involvement of industry posed a barrier to some important outputs from the project, such as progressive taxation for IL reduction and capacity building to implement the new measures especially amongst regulators (customs and MCI controllers). A continued interest by the MEMSD (also inclusive of Environment as a subject) to implement these standards is an important assumption which must hold in order to make the intervention successful in the long run. The involvement of MICIEN in this process is as crucial in implementing the said measures on ground keeping in view the interest of businesses.
2. **Post-project challenges:** A major challenge that remains is the formal adoption of the MEPS recommendations and associated regulatory guidelines with respect to waste collection and disposal which were very useful outcomes from the project. The sustenance of these measures is also challenging since the duration of the project was far greater than initially planned, wherein the subject of energy efficient lighting has changed from the market's perspective (such as LED technology overtaking CFLs in many markets). If policy is not legally enforceable, the probability of a top-down effort to this market transformation will be limited and may not be able to sustain. Unpredictability in regulations also makes it difficult for the businesses to respond adequately to such a market change.
3. **Sustainability of results:** There are several regional initiatives and financial avenues which have been identified to maintain the achieved momentum, such as the Switch Med 2 EU funded programme and the U4E-AUC African Energy Efficiency programme 2020-2025. Overall, more private sector and civil society actors would need to be addressed in future versions of the programme to make sure the outputs are effectively transmitted. This is crucial, since the training of tax and customs officials (which is still pending) will not be effective if the private sector which is to

be regulated is largely left out of the awareness raising campaigns and the decision making process.

4. **Unintended results:** One of the unintended outcomes from the programme was a disinterest and misunderstanding with representatives of the industry. This was revealed in an inflection point during discussion on financial incentives and disincentives (such as progressive taxation for ILs). The MICIEN was reluctant to mobilise its stakeholders because it was felt that the regulation was in conflict with free trade norms. The distinction between free-trade norms and incentivised market transitions need to be bridged by alleviating the concerns of businesses who will be directly impacted, and possibly need financial aid in overcoming such a transition phase. However, a positive outcome which was not planned during project design was the inclusion of LEDs as an energy efficient technology, which went beyond the scope of the project initially restricted to CFLs. The study for MEPS framework and waste collection, disposal and recycling standards were also extended to include CFLs.

257. A summary of project findings and ratings is captured in [Table 10](#) below. In the following section, lessons learned from the project and corresponding recommendations are captured, which emerged from the Terminal Evaluation.

Table 10: Summary of the evaluation criteria ratings

Criterion	Summary assessment	Rating
Strategic Relevance		HS
1. Alignment to MTS and POW	Strong alignment with MTS, BSP and SSC	HS
2. Alignment to UNEP /Donor strategic priorities	Strongly aligned with GEF 7's GHG emission reduction indicator	HS
3. Relevance to regional, sub-regional and national environmental priorities	Relevance to Morocco's corporation with ELI, IEC, COPANT, OSRAM, the 2005 Bali Strategic Plan, SSC, UNDAF	HS
4. Complementarity with existing interventions	Incorporated multiple phases of INARA program by ONEE (Para 102)	HS
Quality of Project Design	Although strength of Project design is in its holistic approach, improvements could have been made to align the preparation of the PRF with best practices	S
Nature of External Context	The project was not affected by climatic events, notwithstanding the 2016 general elections in Morocco were quite controversial and became a major barrier to many aspects within the project. Therefore, it is important to involve civil society actors to ensure an ongoing advocacy for the topic in the longer run, even after the official end of the project.	MF
Effectiveness	The project outcomes were partially achieved with most of the outputs being delivered.	S
1. Availability of outputs	Most of the outputs for the project were delivered, which were the most important for achieving outcomes.	S
2. Achievement of project outcomes	Most of the direct and medium term outcomes of the project have been achieved, that were most important for reaching intermediate states.	MS
3. Likelihood of impact	The overall rating for likelihood of impact of the Project was 'Likely' based on the Likelihood of Impact Assessment, ref. to Annex VII.	L
Financial Management	The completeness of financial information was a challenge and not very satisfactory. The largest gap was due to absence of co-financing reports from both MEMSD and ONEE.	MS
1. Completeness of project financial information	Most of the key documents were made available to the evaluation consultant. The major lacuna was only the absence of some co-finance reports.	MU
2. Communication between finance and project management staff	Consistent communication between financial and project staff members has kept the project well managed in budget and was well re-allocated to activities as per priority changes.	S
Efficiency	Overall, it is assessed that the project efficiency was not good because of several deviations which occurred during the project and may have been overlooked in project design or during implementation. There were four no-cost extensions that lasted, against the formally approved results framework.	HU
Monitoring and Reporting		MS
1. Monitoring design and budgeting	M&E plan is well designed on the basis of market study and clearly defines stakeholder responsibilities with the time frame and budget for various activities.	S
2. Monitoring of project implementation	Implementation deviated from original work plan. PIRs available from 2013-2019. No details about TPR and large gap in estimating internal budget changes.	MS

Criterion	Summary assessment	Rating
3. Project reporting	PIRs PO provide result-based monitoring and reporting that can be instrumental in providing continual improvements and adaptive management measures to Project implementation	MS
Sustainability		ML
1. Socio-political sustainability	Overall, a strong ownership was sustained for the project amongst national partners (despite internal shift of interests), and there were no conflicts persisting in the region at the time, which may have threatened the Project.	ML
2. Financial sustainability	There is 'moderate dependency' on future funding / financial flows to persist, in order to achieve the project objectives. These dependencies are also well addressed since future funding has also been successfully identified.	HL
3. Institutional sustainability	The project outcomes are only moderately dependent on the government / sensitive to institutional frameworks, and those identified as risks were mitigated to a satisfactory extent.	L
Factors Affecting Performance	According to the project team, several trials to identify civil society actors (e.g. consumer protection organisations) were not successful. Consequently, they are missing along the whole project.	MS
1. Preparation and readiness	The Project had considered all criteria in preparation for implementing the project. The period between approval and implementation was utilized for feedback and this was channelized to strengthen the preparedness.	MS
2. Quality of project management and supervision	The adaptive management exhibited by the project management unit was effective since major project delays and project constraints had occurred and yet the impact on outcomes was minimized.	S
3. Stakeholders' participation and cooperation	These stakeholders were actively involved throughout the Project but a broader base would have increased the rate of success of achieving outcomes.	MS
4. Responsiveness to human rights and gender equity	It was evaluated that gender relevance or special needs of low income groups is evident for the sector, but not adequately reflected in the project document. It appears briefly through context, but not reflected in implementation, logframe or the budget.	HU
5. Country ownership and driven-ness	All government ministries and public sector agencies working with the Project were involved from the beginning. While some key players reduced their interest, the responsibility was shifter to other National Partners who proactively took part in the Project thereafter.	MS
6. Communication and public awareness	The communication and awareness program was very well executed and reached a broad consumer base. The public survey results evidence this and the corresponding project outcomes were in-fact well achieved / overachieved. However, a shortfall was that some key decision-making public / private partners for other project components were not very strongly engaged.	S
Overall Project Performance Rating	Moderately Satisfactory: Project has served as an excellent vehicle for Morocco's market transition towards energy efficient lighting market transformation and significant national energy savings were realized in terms of fuel and GHG emissions in both, project lifetime and those estimated for post-project savings due to its impact.	MS

6.2 Lessons Learned

258. The implementation of the Project has generated several national benefits including the beginning of an effective transition of the market towards energy efficient lighting. This achievement is a strong indicator of the excellent management of the implementation, despite major setbacks experienced by the Project. To this end, there are several lessons that may serve future projects in the renewable energy and energy efficiency sector globally:

<p>Lesson Learned #1:</p>	<p>A project which places market transformation at the core of its objectives runs the risk of isolating the private sector if it fails to include the largest directly impacted group of stakeholders, such as technology providers, distributors, retail and wholesale operators, supply chain / logistics companies and trade unions.</p> <p>A non-inclusive effort is bound to negatively impact market dynamics and turn counterproductive by forcing businesses into the informal and unregulated market space.</p>
<p>Context/comment:</p>	<p>Stakeholders Management was decently well done, although there were certain gaps observed. It is important to note the following for future efforts:</p> <p>The involvement of the Government of Morocco was very well handled considering the project deviations. After reduced participation from MEMSD was realized, the centralization of activities under ONEE was the correct transition required to realize the project outcomes.</p> <p>The inclusion of other ministries and sectoral institutions was not very successful, due to a perceived lack of incentive from their side. This should be adequately addressed in future.</p> <p>Civil society members, industry associations and consumer protection agencies were completely absent. This reduced the resilience of the project to shifts in government priorities and externalities. It also added to an additional gap between the project and the main beneficiaries, that is, the consumers (purchasing/using the CFLs/LEDs and instrumental to their proper end-of-life management) and SMEs along the technology supply chain.</p> <p>The organizations actively involved in the project were well integrated. The project was able to realize its outcomes which did not have dependencies on other stakeholders (as pointed out here) such as the Ministry of Interior, Ministry of Trade and Industry, Administration for Customs and Indirect Taxes. In fact, it was the outcomes dependent on these next set of stakeholders which suffered from incomplete conclusions. The indirect reason was limited private sector, civil society and industry association participation.</p>
<p>Lesson Learned #2:</p>	<p>Projects on market transformation of EE lighting require sound market knowledge, technical and policy backing, and also strong lobbying by cross-cutting sectoral representatives; failure to provide ample time and funding for transitioning technology could easily result in great losses due to inappropriate technologies and waning commitment by key stakeholders.</p>
<p>Context/comment:</p>	<p>Most of the uncertainties that emerged in the project, were a result of a very tight budget and timeline for achieving the outcomes. It is typical for policy level transitions to take more time and budget, since it requires sound market knowledge, technical backing and also strong lobbying by other organizations and cross-cutting sectoral representatives. The latter was missing in the project</p>

	<p>implementation. Therefore, this could not be effected within the stipulated project timeframe.</p> <p>The budget and period initially planned for the project was too short, and it was assessed that:</p> <p>The two-year implementation period was too short, especially for effecting policy changes that cut across sectors (and therefore many layers of the Moroccan Government).</p> <p>The delay in the project due to unforeseen changes (in government, procurement delays and the ministry’s focus on COP22) were not accounted for. There were too many activities with dependencies. This further constrained the budget and increased costs for continuing the project.</p> <p>This delay caused CFLs to become obsolete as an ‘energy efficiency focus’, with LEDs dominating the market as the new technology 2017 onward. The focus on CFLs was befitting for a 2 year project (2011-2013). It would have been the right transition technology (given the lifetime of about 5 years), before LEDs became affordable. The sole focus on CFLs only became a barrier due to the project extension to a 7-8 year period.</p>
<p>Lesson Learned #3:</p>	<p>Cross-cutting sectoral projects which adopt a top-down approach (policy led initiatives) for achieving their impacts require a parallel communication strategy, strong lobbying base and more time for the project to create cohesion between the country’s top government bodies (i.e., ministries and regulators).</p> <p>While focusing on only select public institutions can produce faster results, such outputs may be stalled from implementation in case of dependence on other stakeholders with possible conflicts of interest.</p>
<p>Context/comment:</p>	<p>Standardization and Quality assurance realised slow progress, due to what emerged to be lack of incentive for other public enforcement agencies to be involved:</p> <p>The Ministry of Trade and Industry (MICIEN) was not in favor of certain policy recommendations. There was not enough cooperation with the private sector to resolve their apprehensions about regulation, especially with regards to phasing out of ILs.</p> <p>The cooperation with IMANOR, AMEE and LPEE started on a strong note, although their role in the project was limited and there was no action taken on how to mutually create an enabling environment for enforcing standards and quality control measures.</p> <p>The private sector engagement was not high enough to incentivize their active participation in the decision-making process.</p> <p>It is a good sign that fundamental institutional arrangements are already in place for standards development (IMANOR) and testing of quality standards (LPEEs facilities are adequate for CFL and LED testing requirements, as assessed by experts during the Project). The delay in GoM’s acceptance of the MEPS proposal and enacting the legislation under the national framework was not very clear. One deduction by the evaluation consultant is the desire to conduct another consultation with nodal ministries such as MEF, MICIEN and cross-cutting sectors (like the Ministry of Housing). It will be valuable that this is addressed immediately when activities for a potential next step in the project are pursued.</p>

<p>Lesson Learned #4:</p>	<p>Environmental regulations are typically market disruptive since most of the value chain surrounding technologies do not include this cost in their offering. Projects, especially for new technologies / appliances, need the loop to be closed by translating outcomes of Environmental Impact Assessments to economic results, such as collection cost incentives (collectors and end-users), penalties for improper disposal, or promoting product prices inclusive of end-of-life management related expenses for the technology provider / distributor.</p>
<p>Context/comment:</p>	<p>Environmental safety and waste management best practices were included in project design. However, the expertise to create a strong baseline assessment for the end-of-life management was not conducted at the beginning of the project:</p> <p>There was no alignment with major national programs to include CFL (and later LED) collection and recycling framework such as, the National Program for Household Waste Management (PNDM, 2008-2023, led by Ministry of Interior), National Hazardous Waste Master Plan (2007, launched by MEMWE).</p> <p>The technology shift to include LEDs increased the need to look at end-of-life management practices for both CFLs and LEDs, since CFLs were already introduced into the market during the life of the project.</p> <p>The Environment Impact Assessment was translated to policy and regulatory recommendations, which was commendable within the given timeframe. However, the lack of any private sector player involved in e-waste management in Morocco (which also has a huge informal recycling market) revealed that these regulations may not be aligned to exact market requirements.</p> <p>Environmental regulations surrounding appliances is evident in Morocco’s Solid Waste Management approach through various institutional mechanisms. There is a large informal sector also involved, which makes the market study a very sensitive process. The collection and recycling of CFLs and LEDs would need to be integrated into the existing value chains in the country. Creating a parallel system would be inefficient and could give rise to compliance issues, further isolating the informal sector players.</p>
<p>Lesson Learned #5:</p>	<p>Although projects that produces tangible fiscal incentives can go a long way in generating private sector confidence, especially when there is an agenda to move towards a technology which is more efficient, they can easily fall outside of the typical consumer’s affordability range. The role of fiscal incentives from the government can play a vital role in closing the viability gap for businesses, and activate demand amongst the target consumers, therefore providing a realistic buffer for the market to mature and reach equilibrium.</p>
<p>Context/comment:</p>	<p>Fiscal incentives were very well introduced into the policy framework through the project outcomes:</p> <p>Taxation on CFLs was reduced from 10% to 2.5% which was a major incentive for increasing its presence in the market.</p> <p>However, the proposed progressive higher taxation of ILs was not received positively by the private sector, which means that their apprehensions again about protecting their competitive market interests were still prevalent and not adequately addressed.</p> <p>The commercial price of CFLs was significantly reduced to make the appliance more attractive, under ONEE’s program. This target was overachieved and is a good example of how to activate consumer demand for new technologies.</p>

	<p>Similar initiatives must be encouraged for other energy efficient technologies (like LEDs). The measures can be made more flexible to extend beyond CFLs, so that ease of market entry of a new technology is based on quality and cost parameters, and not only on that technology. A more effective communication strategy for private sector engagement is required to alleviate their concerns about fiscal incentives / disincentives introduced by the government (such as those related to progressive taxation of ILs).</p>
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<p>Lesson Learned #6:</p>	<p>Energy efficient lighting projects in developing markets are controversial owing to the contradiction between activating electricity demand for socio-economic development on one hand and the urgency to contain wasteful energy consumption by poor performing (but affordable) appliances on the other. Disaggregated consumer impact studies are necessary to identify priority consumer segments for leapfrogging to higher performing technologies/appliances; ignoring this aspect can be counter-productive and further hinder alleviation of groups which are often structurally / socially disadvantaged.</p>
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<p>Context/comment:</p>	<p>A detailed consumer Impact Study was missing from the baselines study at a disaggregated level. A future follow-up program will be measurable in impact, if the data collected during market assessment is better categorized by:</p> <p>Social groups: such as by income, age, household size, social clusters (if applicable)</p> <p>Gender disaggregated data was missing, and that could be one of the reasons the project was not gender sensitive in its design. Naturally, gender considerations were absent from all outcomes planned for the project.</p> <p>A gender-based approach should be explored in the next phases of the project, through gender impact studies. Women play a central role in Moroccan households, and this is not always translated to economic autonomy or decision-making authority. This is why for energy efficiency projects such an intervention is required at the design stage.</p> <p>The price impact for low income households can completely reverse the rationale for introducing energy efficiency measures. This is closely linked to energy access. ILs continue to be a cheaper alternative and dominate almost 50% of the market, as confirmed during interviews as part of this evaluation. This trade-off between energy access and energy efficiency has the highest social-economic and well-being impact on low income households.</p> <p>This lesson is applicable not only for energy efficiency lighting technologies, but energy efficiency interventions in general, including heating, ventilation and cooling applications.</p>
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<p>Lesson Learned #7:</p>	<p>Inclusion of women as end-users of energy efficient appliances, in economic activities connected to the value chain surrounding energy efficient lighting solutions could go a long way in creating technology acceptance and outreach to a generally inaccessible consumer base (women, young adults and children). A Gender Impact Assessment study would evaluate this need and help translate baseline results into measurable project indicators and activities.</p>
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Context/comment:	<p>While the extent of gender involvement differs from one project to another, it is not gender neutral i.e. assuming women and men have the same needs, priorities, opportunities and expectations. Thus, it is important that gender mainstreaming is carried out and the future project and activities take into consideration the differing needs, roles and expectations of both men and women.</p> <p>Economic activities: Studies have also reflected that women are more receptive to energy conservation measures as compared to single men as decision makers. They could perform a significant role in acting as ambassadors, capacity builders, marketing / advocacy agents and even entrepreneurs for the target technologies. A value chain assessment of the market, a 'skills need assessment', and results from the aforementioned gender study would more clearly reveal opportunities for this alignment.</p> <p>The project team has reported that currently there is no UNEP funding for this area of work at least in Morocco. However, it is suggested that the requirement of such an intervention is relayed to the relevant authority in UNEP, in order to incorporate the right support and implementation strategy for a possible future phase of the project. This would be relevant not just in energy efficient lighting as a sub-sector, but for energy sector projects in general.</p>
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6.3 Recommendations

259. The recommendations presented herewith, presents some suggestions along with proposed partnerships and implementation frameworks:

Recommendation #1:	<p>Activate a larger stakeholder base including civil society, private companies across the lighting industry value chain, industry associations and consumer protection organizations for collecting feedback on the outputs of the MEPS framework, guidelines for collection, disposal and recycling of lighting products.</p>
Context/comment:	<p>The absence of these critical stakeholders was observed consistently during the project lifetime, especially exposed during project deviations. The following could serve as mitigating factors for future energy efficient lighting projects:</p> <p>The involvement of civil society organizations (CSOs) who have outreach capacities to consumers and business owners along the lighting value chain.</p> <p>Focus group meetings with private sector stakeholders to identify the business case for them is recommended. This includes CFLs, LEDs or connected lighting solutions (through IoT applications). This becomes even more significant considering the large informal market, the challenge of counterfeit products' and closing gaps between the private and public sector's ability to work together.</p> <p>Eg. Council of Competition, Moroccan Consumer Forum (FOMAC), Consumer Defense and Protection Association. According to the project team, it was revealed that consumer protection organizations were very weak and almost non-existent at the time of project inception. However, the consultant recommends that even if they don't have the outreach required,</p>

	<p>future projects should identify other NGOs that could play this role and strengthen them instead.</p> <p>The evaluation consultant proposes to involve Microfinance Institutions (MFIs). They are adept at conducting financial education for customers and can explain clearly the payback of investment in efficient lighting to vulnerable target groups. They could make very suitable partners for even offering sets of lamps as a top-up loan. The umbrella organisation for MFIs in Morocco is JAIDA.</p> <p>This is important not only for sustainability of the project impact, but also realization of several outcomes which were stalled due to insufficient cooperation achieved with all required key stakeholders.</p>
Priority Level:	Critical recommendation
Type of Recommendation:	Project and institutional
Responsibility:	MICIEN in collaboration with a CSO or MFI (such as JAÏDA microfinance fund)
Proposed implementation time-frame:	Using outcomes from the Project, this next action plan can be set into motion immediately, for achieving within a 1-year period.

Recommendation #2:	Organise a gender audit of public institutions responsible for the mandate of energy efficient lighting in order to mainstream gender considerations at the design stage itself. This action would be applicable to MEMSD, ONEE, MICIEN and associations deemed fit for developing policy level interventions.
Context/comment:	<p>It is important to consider gender differences across the stages of the energy efficiency project cycle in order to enhance the effectiveness, sustainability and development impact of energy projects and reduce gender inequalities and injustice in, access to and control over resources, benefits and risks of development.</p> <p>Gender audits: It is valuable if a future project can witness a gender balanced composition at the strategic and management level. This can be incorporated by including more women who are sensitive to Morocco's gender context at the project conception stage. It is also valuable to present the value of conducting gender audits for nodal institutions so that this aspect is embedded as an institutional mentality, instead of a one-time effort.</p> <p>This measure has an impact on not only energy efficient lighting, but the institutions involved in the energy sector as a whole due to the cross cutting issues public institutions are involved in.</p>
Priority Level:	Opportunity for improvement
Type of Recommendation	Institutional
Responsibility:	MEMSD, ONEE, MICIEN and other public institutions as deemed suitable by the nodal ministries.

Proposed implementation timeframe:	Futuristic recommendation: A gender audit can be initiated with immediate effect depending on resource availability, since it is project independent and is decoupled from its outputs at the current stage.
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Recommendation #3:	<p>Develop fiscal incentives for helping organisations along the energy efficient lighting supply chain (irrespective of technology, i.e., including CFLs, LEDs and lighting solutions using IoT) to invest in end-of-life management practices. This recommendation applies to future actions in developing best practices for end-of-life management for CFLs, LEDs and / or any other future energy efficient technology which may be an intervention choice. Consideration should be given to the following aspects:</p> <p>a. Technology agnosticism: The waste management framework which includes collection, proper handling and recycling need to be in line with the general waste management practices in Morocco. Whether it is CFLs or LEDs, special guidelines can be developed and aligned to this common framework.</p> <p>b. Informal sector: Households continue to be the largest appliance waste producers. Nearly 90% of the Moroccan solid waste sector continues to be informal and this makes their integration more sensitive. A dialogue must be initiated with them to assure a level playing field for mainstreamed e-waste handlers, and the role they can play in integrating CFL and LED collection, safe handling and proper recycling methods. The fiscal incentives could offer a direct economic incentive for their formalised involvement.</p> <p>c. Industry associations and civil society organisations would need to be used as outreach channels for the actors in the recycler value chain, including waste collectors, mid-level dealers and final recyclers.</p> <p>d. The recommendations for disposal and recycling regulations must be pilot tested in cooperation with the waste sector actors. The lessons from the experience must be incorporated into the recommended policy for ILs, CFLs and LEDs, before a full scale up. This is an important step for testing the success of the recommended action.</p>
Context/comment:	Environmental measures were introduced as significant project outcomes but remained one of the lowest achievements in the project. This was partially due to a Project dependent approach to the regulatory changes that were major outputs.
Priority Level:	Critical recommendation
Type of Recommendation	Project and Institutional
Responsibility:	MEMSD (Department of Environment), in cooperation with municipalities of the target areas. Microfinance Institutions
Proposed implementation timeframe:	<p>Immediate: A pilot operation of recommended actions may be organized as soon as in the next 6 months.</p> <p>Following, the incorporation of learnings and improvements a full-scale dissemination of the regulations and enforcement can be planned in phases over a two-year period.</p>

<p>Recommendation #4:</p>	<p>Energy efficient lighting solutions and applicable standards for future interventions should be modified to become more technology agnostic (unbiased), by focusing on performance standards generally applicable to all related appliances. This directly impacts implementation of the MEPS and can simplify regulations for the technology providers, providing more predictability, clarity and flexibility for organic market transitions when new innovations / technologies emerge. To protect regulations/ standards from becoming obsolete, the following is recommended:</p> <p>a. The MEPS can be adapted with changes to make it more general in framework, creating benchmarks for energy performance irrespective of the technological solution. Therefore, the introduction of a new technology would only need to be matched with this benchmark and approved to be a certain grade of 'energy efficient' lighting technology. This grade can be linked to a labelling mechanism</p> <p>b. The benchmarking of the technology / new product can be performed by testing at LPEE's facility, which (as already established) has the capacity to conduct testing for CFLs and LEDs.</p> <p>c. Following the benchmarking, the product may be approved for a certain 'energy efficiency label' which could be issued by the standardization nodal agency IMANOR issued.</p> <p>d. Consequently, similar to the fiscal incentives for CFLs (which were quite successfully implemented in the Project) could also be applied not only to LEDs, but any appliance that matches an approved performance criteria, in order to avail tax benefits/special commercial offers on those products.</p>
<p>Context/comment:</p>	<p>The technology focus on CFLs was the ideal strategy for a 2-year timeframe for the project. However, the extension into the next years revealed that making the standards specific to a solution may not be ideal for the 'energy efficiency' applications introduced in the Moroccan market. The shift of focus on LEDs was an example of this.</p> <p>However, this modification should not stall the current draft regulations in review with MEMSD. It is recommended as a parallel process</p>
<p>Priority Level:</p>	<p>Important recommendation</p>
<p>Responsibility:</p>	<p>Led by IMANOR, in consultation with MEMSD and collaboration with LPEE.</p>
<p>Proposed implementation timeframe:</p>	<p>Over the next 2 years</p>

Annexes

Annex I. Terms of Reference

Section 1: PROJECT BACKGROUND AND OVERVIEW

A. Project General Information

Table 1. Project summary

GEF Project ID:	4139	Umoja no.:	S1-32GFL-000251 / SB-000685.33
Implementing Agency:	UNEP Economy Division, Energy & Climate Branch, Climate Mitigation Unit	Executing Agency:	UNEP Economy Division, Energy & Climate Branch, Finance Unit ⁷
Sub-programme:	Climate Change	Expected Accomplishment(s):	Subprogramme 1 Climate Change – Expected Accomplishment (b)
UNEP approval date:	04 April 2012	UNDAF linkages	Morocco UNDAF 2017-2021 UNDAF. Result No. 2: Inclusive & Sustainable Development
GEF approval date:	29 September 2011	Project type:	Medium Size Project
GEF Operational Programme #:	GEF IV	Focal Area(s):	Climate Change
Link to relevant SDG target(s) and SDG indicator(s)	The project is aligned with SDG-7. Target 7.3	GEF Strategic Priority:	CC-SP-1: Building EE
Expected start date:	1 September 2011	Actual start date:	21 March 2012
Planned completion date:	31 August 2013	Actual completion date:	30 September 2019 (rev 4)
Planned project budget at approval:	US\$ 6,820,295	Actual total expenditures reported as of 30 June 2019:	US\$ 838,686.85
GEF grant allocation:	US\$ 889,091	GEF grant expenditures reported as of 30 June 2019:	US\$ 838,686.85
Expected Medium-Size Project co-financing:	US\$ 5,931,204	Secured Medium-Size Project co-financing as of June 2018:	US\$ 8,433,209
First disbursement:	10 April 2012	Date of financial closure:	N/A
No. of revisions:	4	Date of last revision:	Rev 4: 30 September 2019 (+69 months)
No. of Steering Committee meetings:		Date of last/next Steering Committee meeting:	
Mid-term Review/ Evaluation (planned date):	N/A	Mid-term Review/ Evaluation (actual date):	N/A
Terminal Evaluation (planned date):	June 2020	Terminal Evaluation (actual date):	December 2019 – June 2020
Coverage - Country:	Morocco	Coverage - Region(s):	Africa
Dates of previous project phases:	N/A	Key Project Partners:	Ministry of Energy, Mines and Environment (MEME); National Electricity Utility (ONE)

B. Project rationale

Lighting is considered by most consumers as the top energy use responsible for high energy consumption. The phase-out of inefficient lighting is therefore considered to be one of the most important short-term initiatives that nations can take in combating climate change created by GHG emissions. While this presents a solid basis for the campaign for Energy-Efficient Lighting, there are a number

⁷ On behalf of the Moroccan Ministry of Energy, Mines and Environment (MEME), previously called the Ministry of Energy, Mines, Water and Environment (MEMWE)

of barriers that limit deployment of cost-effective lighting technologies in the market, such as: cost and technological barriers; organization of the lighting market; behavioural or consumer preferences; and health risk due to mercury content.

Incandescent lamps (ILs) are the most commonly purchased globally due to their low price and longstanding familiarity and are heavily used in residential lighting applications. They however suffer from very poor efficiency as they still have the lowest lighting output efficiencies of any modern electric lamp type, ranging from 6-18 lumens per watt. In contrast, Compact Fluorescent Lamps (CFL) consume from 20% to 25% of the energy used by incandescent light bulbs, and about 25% of the energy consumed by CFLs is converted to visible light as compared to only 5% for an incandescent lamp. Historically, the main barrier hampering the proliferation of energy-efficient lighting products has been their high initial cost. When first launched in the early 1980s, CFLs were 20 to 30 times more expensive to produce than their incandescent equivalents, but CFL costs have steadily declined since. Globally, the estimated CFL growth rates have been impressive, but relatively few countries have benefited from this technology so far. This means that there are still significant opportunities for promoting efficient lighting worldwide. Unfortunately, mercury is a hazardous substance currently included in fluorescent lamps.

Morocco is a developing country with rapid economic growth that has resulted in a higher demand for power. The Moroccan lighting market is mainly driven by four types of lamps, namely: Incandescent lamps (ILs), CFLs and fluorescent tubes, halogen lamps, and high intensity discharge lamps. An analysis done in 2008 showed that 88% of the imported quantities by lamp type consists of ILs and CFLs, with about 45 million ILs per year (59%), and about 22 million CFLs and fluorescent tubes per year (29%). The CFL dissemination project - ONE⁸ INARA⁹ Program of the National Plan of Priority Actions, was initiated in 2008 to replace ILs with CFLs in households and offices. Unfortunately, the quantity of CFLs installed under the INARA Program decreased over time mainly due to a number of barriers, including: time lapse between the commencement of the first phase and the launch of the Government of Morocco (GoM's) large-scale communication campaign; incompatible CFL thread types; inadequate quantities of CFLs at some ONE local offices; billing and payment challenges; inadequate personnel to monitor delivery and installation of CFLs; among other challenges.

A major institutional barrier was the absence of a specific national institution that would be responsible for the deployment of energy efficiency strategies and policies. This barrier was however removed in 2010 when the National Agency for the Development of Renewable Energy and Energy Efficiency (ADEREE) under the Law No. 16-09 was created. The absence of a specific policy to promote energy saving lamps (ESLs) also constituted a major barrier to their dissemination and accelerated use. A new policy was therefore required that would provide (i) regulations and directives for energy efficient lighting, (ii) incentives and fiscal measures for the promotion of energy efficient lighting, (iii) a roadmap for the phasing out of ILs with corresponding fiscal measures, (iv) strengthening of the regulatory framework for testing of CFLs as well as the harmonization of the existing standards with international best practices, and (v) a regulatory framework for the disposal and recycling of CFLs.

The Global Environment Facility (GEF) launched the Global Lighting Initiative in November 2007 in an effort to assist developing countries in phasing-out incandescent bulbs and accelerating market transformation of environmentally sustainable energy efficient lighting technologies, while reducing global greenhouse gas emission from the lighting sector, and the co-benefit of reducing mercury release. The GEF-funded project "Market Transformation for Energy Efficient Lighting in Morocco" (hereafter referred to as "Project") was designed to support Morocco in phasing out incandescent bulbs in the residential, municipal, institutional and tertiary sectors by: restricting the supply of less energy efficient lighting products through legislative initiatives; and promoting the demand for energy efficient lighting products at all levels.

The implementation approach builds upon the experiences and best practices of IFC and the World Bank work in the late 1990s, largely with GEF support, in developing large scale energy-efficient lighting programs in Thailand, Mexico, Poland, Philippines etc. that led to the establishment of the Efficient Lighting Initiative (ELI). Morocco would therefore be able to learn from the experiences and actions taken in other countries that were at a similar stage of market transformation for Energy Saving Lamps (ESL) products as Morocco was at the time of project implementation.

Governments and other stakeholders have however expressed concern about the mercury content of CFLs, hence the issue of developing policies to address this issue has a high priority in most countries. Cognizant of this concern, the Project also sought to find feasible energy efficient alternatives to CFLs, in addition to addressing the current need to find environmentally sound recycling and disposal of CFL waste.

The phasing-out of ILs from the Moroccan lighting market is expected to accelerate the adoption of Energy Efficient lighting technologies and contribute to a sustainable market transformation in parallel to other existing CFL dissemination projects adopted by the Government of Morocco. Undeniably, the success of the Energy Efficiency lighting Project largely depends on the commitment of Government of Morocco to carry out market transformation activities at the national level.

C. Project objectives and components

The overall goal of the Project is to accelerate the transformation of the Moroccan market for environmentally sustainable efficient lighting technologies. The development objective is **to reduce greenhouse gases emissions through (i) the promotion of high-quality Compact Fluorescent Lamps (CFL) and (ii) progressive phasing-out of incandescent lamps (ILs) in Morocco**. To achieve the objective mentioned above, the Project was structured around four main components as follows: (i) energy efficiency policy enhancement for promotion of CFLs and phasing-out of ILs; (ii) technology and standards/CFLs quality improvement; (iii) generation of demand for CFLs through applicable consumer financing and, as applicable, financial support schemes; and (iv) information, consumers education, and awareness raising.

⁸ National Electricity Utility (ONEE)

⁹ Program of the National Electricity Utility (ONE) for the dissemination of 15 million CFLs in 3 phases, each phase aims at distributing 5 million CFLs. The 1st phase of INARA program has been done with the support of GoM. The Market transformation for Energy Efficiency lighting project will support the second and third phases of INARA Program

The activities under the Project are also coordinated with those of the “Global Market Transformation for Efficient Lighting” project. This global project facilitates the following: establishment of methodologies for the development of labelling procedures and quality certification; the identification of appropriate policy options for phasing out ILs and introducing latest technology CFLs; and the development of financing mechanisms, appropriate standards, and detailed environmental safeguards under the project. Table 2 below provides an **abridged version** of the Project’s results framework:

Table 2: Planned Outputs and Outcomes by Project Component

Programmed Outputs	Expected Outcomes	Outcome Indicators
Component 1: Energy Efficiency Policy Enhancement		
Output 1.1.1: Introduction of adequate public financial and fiscal incentives to promote the CFL market.	Outcome 1.1: An enabling institutional, legal, and regulatory framework to promote a sustainable CFLs market.	Appropriate institutional, legal, and regulatory framework to promote a sustainable CFLs market is in place and operational
Output 1.1.2: Regulatory framework for CFLs norms and quality control (under the national framework)		
Output 1.2.1: Identification of possible new regulations to promote the phase-out of ILs (included in the development of the national framework)	Outcome 1.2 State Government legislation adopted for the phase-out of ILs	Law and roadmap for the gradual phasing-out of ILs is ready for implementation following workshop 5
Component 2 - Technology and standards - CFLs quality improvement		
Output 2.1.1: Set of CFL standards and associated certification system developed (or adapted) for Moroccan conditions (included in the national framework)	Outcome 2.1: An effective and affordable certification and quality control scheme that is applicable for all CFLs imported in Morocco, and enhanced capacity of the supply chain to offer products and services promoting a sustainable CFL market	Effective and affordable CFL certification and quality control scheme is in place and operational
Output 2.1.2: Testing procedures to check compliance of imported CFLs with standards (included in the national framework)		
Output 2.1.3: training for CFLs installers (INSTELECs) to collect, package and return the replaced ILs - cancelled		
Output 2.2.1: A mechanism to recycle CFLs in collaboration with ONEE	Outcome 2.2: ILs destruction and CFLs recycling procedures	Procedures for destruction of ILs and recycling of CFLs are in place and operational in accordance with the corresponding directive
Output 2.2.2: A mechanism to recycle CFLs		
Component 3 - Generation of demand for CFLs through applicable consumer financing and, as applicable, financial support schemes		
Output 3.1.1: Design the financial structure and implementation arrangements for specific purpose financing vehicles that will address consumer needs in the CFL market.	Outcome 3.1: Increased demand for energy efficient lighting products based on availability of attractive end-user financing mechanisms	A more favourable financial mechanism for the purchase of CFLs is adopted that makes the purchase of CFLs more affordable for consumers, in particular, the relatively poor
Output 3.1.2: As a pilot initiative, financial incentives provided to end-users to encourage the uptake of efficient lighting products		
Output 3.2.1: Enhanced awareness of key electricity distributors and local suppliers on the specific characteristics and financing opportunities in CFL market.	Outcome 3.2: Public utilities and private distributors and installers fully involved in the dissemination of energy efficient lighting products	All parties are fully involved in the distribution and installation of CFLs and are satisfied with the responsibilities, requirements, and rewards of their involvement
Output 3.2.2: Ten million CFLs distributed to households, commercial establishments, and public service organizations in accordance with contracts signed between MEMWE and the electricity distributors ¹⁰		

¹⁰ Note: The original PIF envisaged that all 10 million CFLs would be installed under the Project; however, due to the short duration of the Project of two years, only 6.35 million CFLs will be installed and only INSTELECs will be used for distribution and installation of the CFLs

Programmed Outputs	Expected Outcomes	Outcome Indicators
Component 4 - Information, Consumers' Education, and Awareness Raising		
Output 4.1.1: Public awareness raising and marketing campaigns implemented in co-operation with relevant public utilities entities and private electricity distributors	Outcome 4.1: Enhanced consumers awareness and capacity of the targeted end-users, housing developers and other key stakeholders to facilitate the integration of CFLs into new housing developments and into other promising new market segments	The general public and stakeholders are largely aware of the benefits of CFLs and have become familiar with the integration of CFLs in new housing developments and other promising markets
Output 4.1.2: Materials for public awareness raising and marketing campaigns developed or adapted into Moroccan conditions.		

D. Executing Arrangements

UNEP is the GEF Implementing Agency as well as the Executing Agency for this project. Under this arrangement, the Project is considered to be internally executed, and in this particular case authority has been delegated to the Finance Unit of the Energy and Climate Branch in UNEP's Economy Division. Originally, the Executing Agency was the Ministry of Energy, Mines, Water and Environment (MEMWE)¹¹ which was initially responsible for coordinating the implementation of the Project. MEMWE retained its position as the Project's main national stakeholder. On the other hand, the UNEP Climate Mitigation Unit acted as the project's Implementing Agency.

The UNEP Economy Division, on behalf of MEMWE, was accountable to GoM and UNEP for ensuring: (i) the quality of the different outputs and outcomes of the project; (ii) the effective use of both international and national resources allocated to it; (iii) the timely availability of financing to support project implementation; and (iv) the proper coordination among all project stakeholders, in particular, national parties. The UNEP Economy Division Finance Unit formed a project management unit (PMU) to provide supervision, ensure consistency with GEF and UNEP policies and procedures, be responsible for overall project management, coordinate Project Steering Committee (PSC) meetings, ensure clearance of half yearly and annual reports, provide the technical review of project outputs, and oversee the mid-term and final evaluations. The PMU was headed by a Project Manager (PM). During the last year of project implementation, the Project Management Unit benefited from the technical support of 2 international U4E experts: a MEPS expert and a Waste Management expert. ONE was actively involved in providing support for the implementation of key project activities.

E. Project Cost and Financing

The project falls under the Medium-size Project (MSP) category, with an overall budget of **USD 6,820,295** made up of a GEF allocation of **USD 889,091**, and an expected co-financing support of **USD 5,931,204** from the government (MEMWE and ONE) and UNEP, both in cash as well as in-kind support. Table 3 below shows the estimated project budget and sources of funding as per the project design documentation.

Table 3. Planned project budget at Project Approval¹²

Source	Type	Amount (USD)
GEF Trust Fund	<i>Cash</i>	889,091
Co-financing		
<i>Ministry of Energy, Mines, Water, and Environment (MEMWE)</i>	<i>Cash</i>	<i>890,000</i>
<i>National Electricity Utility (ONE)</i>	<i>Cash</i>	<i>3,466,204</i>
<i>UNEP – DTIE (Italian Trust Funds)</i>	<i>Cash</i>	<i>1,080,000</i>
<i>Sub-total</i>		<i>5,436,204</i>
<i>Ministry of Energy, Mines, Water, and Environment (MEMWE)</i>	<i>In-kind</i>	<i>185,000</i>
<i>National Electricity Utility (ONE)</i>	<i>In-kind</i>	<i>120,000</i>
<i>UNEP – DTIE (Italian Trust Funds)</i>	<i>In-kind</i>	<i>190,000</i>
<i>Sub-total</i>		<i>495,000</i>
Total Co-financing		5,931,204
Total Project Budget		6,820,295

¹¹ Now called the Ministry of Energy, Mines and Environment (MEME)

¹² Extracted from the Project Document 2011

F. Implementation Issues

The Project was initially designed for a duration of 24 months starting from September 2011, but it has since undergone several extensions with the management and oversight costs carried by UNEP. At the onset, there was a delay of about one year and this meant that implementation of project activities could not properly take off until later in 2012. There was a further delay by MWEWE in signing a Legal Instrument to extend the project since the initial one was going to expire. Implementation began to pick up pace again in 2014/2015, particularly on the project components 3 which focused on market structure and fiscal incentives; component 4 on national communication and awareness raising only started around May-June 2019. On the other hand, project components 1 and 2 which focused on policy development, legal frameworks, standards and labelling, were faced with challenges due to sub-optimal ownership and political buy-in to support their uptake at the institutional level.

There was also political turmoil at around this same time with the government in power at that time being overthrown, and Morocco went for about 6 months without a government in place. This actually in 2016-2017 during which time project implementation was completely frozen between January 2017 and September 2018. There was also low engagement of the private sector in the project activities – a key stakeholder for energy efficient lighting market transformation.

Another significant challenge faced by the Project was the materialisation of co-financing commitments made at project design, which was realised only in as far as the engagement of the Utility Company (ONE) in the distribution of energy efficiency lamps.

Despite these challenges however, the project has managed to deliver most of the programmed outputs to the extent possible through adaptive management strategies such as: identifying and recruiting international consultants from the U4E initiative, organising events and workshops that can help the Project gain more traction with government counterparts, aggressive communication campaigns, etc.

▣ Section 2. OBJECTIVE AND SCOPE OF THE EVALUATION

G. Key Evaluation principles

Evaluation findings and judgements should be based on **sound evidence and analysis**, clearly documented in the evaluation report. Information will be triangulated (i.e. verified from different sources) as far as possible, and when verification is not possible, the single source will be mentioned (whilst anonymity is still protected). Analysis leading to evaluative judgements should always be clearly spelled out.

The “Why?” Question. As this is a terminal evaluation and a follow-up project is likely [or similar interventions are envisaged for the future], particular attention should be given to learning from the experience. Therefore, the “Why?” question should be at the front of the consultants’ minds all through the evaluation exercise and is supported by the use of a theory of change approach. This means that the consultants need to go beyond the assessment of “what” the project performance was, and make a serious effort to provide a deeper understanding of “why” the performance was as it was. This should provide the basis for the lessons that can be drawn from the project.

Baselines and counterfactuals. In attempting to attribute any outcomes and impacts to the project intervention, the evaluators should consider the difference between *what has happened with, and what would have happened without, the project*. This implies that there should be consideration of the baseline conditions, trends and counterfactuals in relation to the intended project outcomes and impacts. It also means that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project. Sometimes, adequate information on baseline conditions, trends or counterfactuals is lacking. In such cases this should be clearly highlighted by the evaluators, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

Communicating evaluation results. A key aim of the evaluation is to encourage reflection and learning by UNEP staff and key project stakeholders. The consultant should consider how reflection and learning can be promoted, both through the evaluation process and in the communication of evaluation findings and key lessons. Clear and concise writing is required on all evaluation deliverables. Draft and final versions of the main evaluation report will be shared with key stakeholders by the Evaluation Manager. There may, however, be several intended audiences, each with different interests and needs regarding the report. The Evaluation Manager will plan with the consultant(s) which audiences to target and the easiest and clearest way to communicate the key evaluation findings and lessons to them. This may include some or all of the following; a webinar, conference calls with relevant stakeholders, the preparation of an evaluation brief or interactive presentation.

H. Objective of the Evaluation

In line with the UNEP Evaluation Policy¹³ and the UNEP Programme Manual¹⁴, the Terminal Evaluation (TE) is undertaken at completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The evaluation has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP and the main project partners (MEMWE, ONE National Electricity Utility)]. Therefore, the evaluation will identify lessons of operational relevance for future project formulation and implementation [especially for the second phase of the project, if applicable].

I. Key Strategic Questions

In addition to the evaluation criteria outlined in Section 10 below, the evaluation will address the **strategic questions** listed below. These are questions of interest to UNEP and to which the project is believed to be able to make a substantive contribution:

¹³ <http://www.unep.org/eou/StandardsPolicyandPractices/UNEPEvaluationPolicy/tabid/3050/language/en-US/Default.aspx>

¹⁴ http://www.unep.org/QAS/Documents/UNEP_Programme_Manual_May_2013.pdf . *This manual is under revision.*

In its efforts to promote the rapid uptake of high-energy efficient lighting technologies, to what degree of success has this intervention overcome the identified barriers, gaps and challenges to the transformation of the lighting market in Morocco?

For challenges in efficiency-energy lighting market transformation that will persist post-project, to what extent are the factors identified by this evaluation as key assumptions/drivers for achieving Impact likely to hold?

Pertaining to the sustainability of results that can be attributed to this intervention, which opportunities exist or have already been set in motion, that are likely to have a catalytic effect of positive outcomes within the country and/or region?

Has the evaluation identified any unintended results (positive or negative) deriving from the project's implementation, and if so, what was it and how might it affect the intended Impact?

J. Evaluation Criteria

All evaluation criteria will be rated on a six-point scale. Sections A-I below, outline the scope of the criteria and a link to a table for recording the ratings is provided in Annex 1). A weightings table will be provided in excel format (link provided in Annex 1) to support the determination of an overall project rating. The set of evaluation criteria are grouped in nine categories: (A) Strategic Relevance; (B) Quality of Project Design; (C) Nature of External Context; (D) Effectiveness, which comprises assessments of the delivery of outputs, achievement of outcomes and likelihood of impact; (E) Financial Management; (F) Efficiency; (G) Monitoring and Reporting; (H) Sustainability; and (I) Factors Affecting Project Performance. The evaluation consultants can propose other evaluation criteria as deemed appropriate.

I.Strategic Relevance

The evaluation will assess, in line with the OECD/DAC definition of relevance, *'the extent to which the activity is suited to the priorities and policies of the target group, recipient and donor'*. The evaluation will include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. Under strategic relevance an assessment of the complementarity of the project with other interventions addressing the needs of the same target groups will be made. This criterion comprises four elements:

II.Alignment to the UNEP Medium Term Strategy¹⁵ (MTS) and Programme of Work (POW)

The evaluation should assess the project's alignment with the MTS and POW under which the project was approved and include, in its narrative, reflections on the scale and scope of any contributions made to the planned results reflected in the relevant MTS and POW.

III.Alignment to UNEP / Donor/GEF Strategic Priorities

Donor, including GEF, strategic priorities will vary across interventions. UNEP strategic priorities include the Bali Strategic Plan for Technology Support and Capacity Building¹⁶ (BSP) and South-South Cooperation (S-SC). The BSP relates to the capacity of governments to: comply with international agreements and obligations at the national level; promote, facilitate and finance environmentally sound technologies and to strengthen frameworks for developing coherent international environmental policies. S-SC is regarded as the exchange of resources, technology and knowledge between developing countries. GEF priorities are specified in published programming priorities and focal area strategies.

IV.Relevance to Regional, Sub-regional and National Environmental Priorities

The evaluation will assess the extent to which the intervention is suited, or responding to, the stated environmental concerns and needs of the country, sub-region or region where it is being implemented. Examples may include: national or sub-national development plans, poverty reduction strategies or Nationally Appropriate Mitigation Action (NAMA) plans or regional agreements etc.

V.Complementarity with Existing Interventions

An assessment will be made of how well the project, either at design stage or during the project mobilization, took account of ongoing and planned initiatives (under the same sub-programme, other UNEP sub-programmes, or being implemented by other agencies) that address similar needs of the same target groups. The evaluation will consider if the project team, in collaboration with Regional Offices and Sub-Programme Coordinators, made efforts to ensure their own intervention was complementary to other interventions, optimized any synergies and avoided duplication of effort. Examples may include UN Development Assistance Frameworks or One UN programming. Linkages with other interventions should be described and instances where UNEP's comparative advantage has been particularly well applied should be highlighted.

Factors affecting this criterion may include:

- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity
- Country ownership and driven-ness

VI.Quality of Project Design

¹⁵ UNEP's Medium Term Strategy (MTS) is a document that guides UNEP's programme planning over a four-year period. It identifies UNEP's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes.

¹⁶ <http://www.unep.org/GC/GC23/documents/GC23-6-add-1.pdf>

The quality of project design is assessed using an agreed template during the evaluation inception phase, ratings are attributed to identified criteria and an overall Project Design Quality rating is established (www.unep.org/evaluation). This overall Project Design Quality rating is entered in the final evaluation ratings table as item B. In the Main Evaluation Report a summary of the project's strengths and weaknesses at design stage is included, while the complete Project Design Quality template is annexed in the Inception Report.

Factors affecting this criterion may include (at the design stage):

- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equity

VII. Nature of External Context

At evaluation inception stage a rating is established for the project's external operating context (considering the prevalence of conflict, natural disasters and political upheaval). This rating is entered in the final evaluation ratings table as item C. Where a project has been rated as facing either an Unfavourable or Highly Unfavourable external operating context, and/or a negative external event has occurred during project implementation, the ratings for Effectiveness, Efficiency and/or Sustainability may be increased at the discretion of the Evaluation Consultant and Evaluation Manager together. A justification for such an increase must be given.

VIII. Effectiveness

i. Delivery of Outputs

The evaluation will assess the project's success in producing the programmed outputs (*products, capital goods and services resulting from the intervention*) and achieving milestones as per the project design document (ProDoc). Any *formal* modifications/revisions made during project implementation will be considered part of the project design. Where the project outputs are inappropriately or inaccurately stated in the ProDoc, reformulations may be necessary in the reconstruction of the TOC. In such cases a table should be provided showing the original and the reformulation of the outputs for transparency. The delivery of outputs will be assessed in terms of both quantity and quality, and the assessment will consider their ownership by, and usefulness to, intended beneficiaries and the timeliness of their delivery. The evaluation will briefly explain the reasons behind the success or shortcomings of the project in delivering its programmed outputs and meeting expected quality standards.

Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision¹⁷

ii. Achievement of Direct Outcomes

The achievement of direct outcomes (short and medium-term effects of the intervention's outputs; a change of behaviour resulting from the use/application of outputs, which is not under the direct control of the intervention's direct actors) is assessed as performance against the direct outcomes as defined in the reconstructed¹⁸ Theory of Change. These are the first-level outcomes expected to be achieved as an immediate result of project outputs. As in 1, above, a table can be used where substantive amendments to the formulation of direct outcomes is necessary. The evaluation should report evidence of attribution between UNEP's intervention and the direct outcomes. In cases of normative work or where several actors are collaborating to achieve common outcomes, evidence of the nature and magnitude of UNEP's 'substantive contribution' should be included and/or 'credible association' established between project efforts and the direct outcomes realised.

Factors affecting this criterion may include:

- Quality of project management and supervision
- Stakeholders' participation and cooperation
- Responsiveness to human rights and gender equity
- Communication and public awareness

iii. Likelihood of Impact

Based on the articulation of longer-term effects in the reconstructed TOC (*i.e. from direct outcomes, via intermediate states, to impact*), the evaluation will assess the likelihood of the intended, positive impacts becoming a reality. Project objectives or goals should be incorporated in the TOC, possibly as intermediate states or long-term impacts. The Evaluation Office's approach to the use of TOC in

¹⁷ In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UNEP.

¹⁸ UNEP staff are currently required to submit a Theory of Change with all submitted project designs. The level of 'reconstruction' needed during an evaluation will depend on the quality of this initial TOC, the time that has lapsed between project design and implementation (which may be related to securing and disbursing funds) and the level of any changes made to the project design. In the case of projects pre-dating 2013 the intervention logic is often represented in a logical framework and a TOC will need to be constructed in the inception stage of the evaluation.

project evaluations is outlined in a guidance note available on the Evaluation Office website, <https://www.unenvironment.org/about-un-environment/evaluation> and is supported by an excel-based flow chart, 'Likelihood of Impact Assessment Decision Tree'. Essentially the approach follows a 'likelihood tree' from direct outcomes to impacts, taking account of whether the assumptions and drivers identified in the reconstructed TOC held. Any unintended positive effects should also be identified and their causal linkages to the intended impact described.

The evaluation will also consider the likelihood that the intervention may lead, or contribute to, unintended negative effects. Some of these potential negative effects may have been identified in the project design as risks or as part of the analysis of Environmental, Social and Economic Safeguards.¹⁹

The evaluation will consider the extent to which the project has played a catalytic role or has promoted scaling up and/or replication²⁰ as part of its Theory of Change and as factors that are likely to contribute to longer term impact.

Ultimately UNEP and all its partners aim to bring about benefits to the environment and human well-being. Few projects are likely to have impact statements that reflect such long-term or broad-based changes. However, the evaluation will assess the likelihood of the project to make a substantive contribution to the high-level changes represented by UNEP's Expected Accomplishments, the Sustainable Development Goals²¹ and/or the high-level results prioritised by the funding partner.

Factors affecting this criterion may include:

- Quality of Project Management and Supervision (including adaptive management)
- Stakeholders participation and cooperation
- Responsiveness to human rights and gender equity
- Country ownership and driven-ness
- Communication and public awareness

IX. Financial Management

Financial management will be assessed under two themes: *completeness* of financial information and *communication* between financial and project management staff. The evaluation will establish the actual spend across the life of the project of funds secured from all donors. This expenditure will be reported, where possible, at output level and will be compared with the approved budget. The evaluation will assess the level of communication between the Project/Task Manager and the Fund Management Officer as it relates to the effective delivery of the planned project and the needs of a responsive, adaptive management approach. The evaluation will verify the application of proper financial management standards and adherence to UNEP's financial management policies. Any financial management issues that have affected the timely delivery of the project or the quality of its performance will be highlighted.

Factors affecting this criterion may include:

- Preparation and readiness
- Quality of project management and supervision

X. Efficiency

In keeping with the OECD/DAC definition of efficiency the evaluation will assess the extent to which the project delivered maximum results from the given resources. This will include an assessment of the cost-effectiveness and timeliness of project execution. Focussing on the translation of inputs into outputs, cost-effectiveness is the extent to which an intervention has achieved, or is expected to achieve, its results at the lowest possible cost. Timeliness refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The evaluation will also assess to what extent any project extension could have been avoided through stronger project management and identify any negative impacts caused by project delays or extensions. The evaluation will describe any cost or time-saving measures put in place to maximise results within the secured budget and agreed project timeframe and consider whether the project was implemented in the most efficient way compared to alternative interventions or approaches.

The evaluation will give special attention to efforts by the project teams to make use of/build upon pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. to increase project efficiency. The evaluation will also consider the extent to which the management of the project minimised UNEP's environmental footprint.

The factors underpinning the need for any project extensions will also be explored and discussed. As management or project support costs cannot be increased in cases of 'no cost extensions', such extensions represent an increase in unstated costs to implementing parties.

Factors affecting this criterion may include:

- Preparation and readiness (e.g. timeliness)

¹⁹ Further information on Environmental, Social and Economic Safeguards (ESSES) can be found at <http://www.unep.org/about/eses>

²⁰ *Scaling up* refers to approaches being adopted on a much larger scale, but in a very similar context. Scaling up is often the longer term objective of pilot initiatives. *Replication* refers to approaches being repeated or lessons being explicitly applied in new/different contexts e.g. other geographic areas, different target group etc. Effective replication typically requires some form of revision or adaptation to the new context. It is possible to replicate at either the same or a different scale.

²¹ A list of relevant SDGs is available on the EO website www.unep.org/evaluation

- Quality of project management and supervision
- Stakeholders participation and cooperation

XI. Monitoring and Reporting

The evaluation will assess monitoring and reporting across three sub-categories: monitoring design and budgeting, monitoring implementation and project reporting.

i. Monitoring Design and Budgeting

Each project should be supported by a sound monitoring plan that is designed to track progress against SMART²² indicators towards the delivery of the project's outputs and achievement of direct outcomes, including at a level disaggregated by gender, vulnerability or marginalisation. The evaluation will assess the quality of the design of the monitoring plan as well as the funds allocated for its implementation. The adequacy of resources for mid-term and terminal evaluation/review should be discussed if applicable.

ii. Monitoring of Project Implementation

The evaluation will assess whether the monitoring system was operational and facilitated the timely tracking of results and progress towards projects objectives throughout the project implementation period. This should include monitoring the representation and participation of disaggregated groups (including gendered, vulnerable and marginalised groups) in project activities. It will also consider how information generated by the monitoring system during project implementation was used to adapt and improve project execution, achievement of outcomes and ensure sustainability. The evaluation should confirm that funds allocated for monitoring were used to support this activity.

iii. Project Reporting

UNEP has a centralised Project Information Management System (PIMS) in which project managers upload six-monthly status reports against agreed project milestones. This information will be provided to the Evaluation Consultant(s) by the Evaluation Manager. Some projects have additional requirements to report regularly to funding partners, which will be supplied by the project team (e.g. the Project Implementation Reviews and Tracking Tool for GEF-funded projects). The evaluation will assess the extent to which both UNEP and donor reporting commitments have been fulfilled. Consideration will be given as to whether reporting has been carried out with respect to the effects of the initiative on disaggregated groups.

Factors affecting this criterion may include:

- Quality of project management and supervision
- Responsiveness to human rights and gender equity (e.g. disaggregated indicators and data)

XII. Sustainability

Sustainability is understood as the probability of direct outcomes being maintained and developed after the close of the intervention. The evaluation will identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved direct outcomes (i.e. 'assumptions' and 'drivers'). Some factors of sustainability may be embedded in the project design and implementation approaches while others may be contextual circumstances or conditions that evolve over the life of the intervention. Where applicable an assessment of bio-physical factors that may affect the sustainability of direct outcomes may also be included.

i. Socio-political Sustainability

The evaluation will assess the extent to which social or political factors support the continuation and further development of project direct outcomes. It will consider the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forwards. In particular, the evaluation will consider whether individual capacity development efforts are likely to be sustained.

ii. Financial Sustainability

Some direct outcomes, once achieved, do not require further financial inputs, e.g. the adoption of a revised policy. However, in order to derive a benefit from this outcome further management action may still be needed e.g. to undertake actions to enforce the policy. Other direct outcomes may be dependent on a continuous flow of action that needs to be resourced for them to be maintained, e.g. continuation of a new resource management approach. The evaluation will assess the extent to which project outcomes are dependent on future funding for the benefits they bring to be sustained. Secured future funding is only relevant to financial sustainability where the direct outcomes of a project have been extended into a future project phase. Even where future funding has been secured, the question still remains as to whether the project outcomes are financially sustainable.

iii. Institutional Sustainability

The evaluation will assess the extent to which the sustainability of project outcomes (especially those relating to policies and laws) is dependent on issues relating to institutional frameworks and governance. It will consider whether institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. are robust enough to continue delivering the benefits associated with the project outcomes after project closure. In particular, the evaluation will consider whether institutional capacity development efforts are likely to be sustained.

Factors affecting this criterion may include:

- Stakeholders participation and cooperation

²² SMART refers to indicators that are specific, measurable, assignable, realistic and time-specific.

- Responsiveness to human rights and gender equity (e.g. where interventions are not inclusive, their sustainability may be undermined)
- Communication and public awareness
- Country ownership and driven-ness

XIII. Factors and Processes Affecting Project Performance

(These factors are rated in the ratings table, but are discussed within the Main Evaluation Report as cross-cutting themes as appropriate under the other evaluation criteria, above)

i. Preparation and Readiness

This criterion focuses on the inception or mobilisation stage of the project (ie. the time between project approval and first disbursement). The evaluation will assess whether appropriate measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation. In particular, the evaluation will consider the nature and quality of engagement with stakeholder groups by the project team, the confirmation of partner capacity and development of partnership agreements as well as initial staffing and financing arrangements. *(Project preparation is included in the template for the assessment of Project Design Quality).*

ii. Quality of Project Management and Supervision

In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping and supervision provided by UNEP.

The evaluation will assess the effectiveness of project management with regard to: providing leadership towards achieving the planned outcomes; managing team structures; maintaining productive partner relationships (including Steering Groups etc.); communication and collaboration with UNEP colleagues; risk management; use of problem-solving; project adaptation and overall project execution. Evidence of adaptive management should be highlighted.

iii. Stakeholder Participation and Cooperation

Here the term 'stakeholder' should be considered in a broad sense, encompassing all project partners, duty bearers with a role in delivering project outputs and target users of project outputs and any other collaborating agents external to UNEP. The assessment will consider the quality and effectiveness of all forms of communication and consultation with stakeholders throughout the project life and the support given to maximise collaboration and coherence between various stakeholders, including sharing plans, pooling resources and exchanging learning and expertise. The inclusion and participation of all differentiated groups, including gender groups should be considered.

iv. Responsiveness to Human Rights and Gender Equity

The evaluation will ascertain to what extent the project has applied the UN Common Understanding on the human rights-based approach (HRBA) and the UN Declaration on the Rights of Indigenous People. Within this human rights context the evaluation will assess to what extent the intervention adheres to UNEP's Policy and Strategy for Gender Equality and the Environment.

In particular the evaluation will consider to what extent project design, implementation and monitoring have taken into consideration: (i) possible gender inequalities in access to, and the control over, natural resources; (ii) specific vulnerabilities of women and children to environmental degradation or disasters; and (iii) the role of women in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation.

v. Country Ownership and Driven-ness

The evaluation will assess the quality and degree of engagement of government / public sector agencies in the project. While there is some overlap between Country Ownership and Institutional Sustainability, this criterion focuses primarily on the forward momentum of the intended projects results, i.e.. either a) moving forwards from outputs to direct outcomes or b) moving forward from direct outcomes towards intermediate states. The evaluation will consider the involvement not only of those directly involved in project execution and those participating in technical or leadership groups, but also those official representatives whose cooperation is needed for change to be embedded in their respective institutions and offices. This factor is concerned with the level of ownership generated by the project over outputs and outcomes and that is necessary for long term impact to be realised. This ownership should adequately represent the needs of interest of all gendered and marginalised groups.

vi. Communication and Public Awareness

The evaluation will assess the effectiveness of: a) communication of learning and experience sharing between project partners and interested groups arising from the project during its life and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large. The evaluation should consider whether existing communication channels and networks were used effectively, including meeting the differentiated needs of gendered or marginalised groups, and whether any feedback channels were established. Where knowledge sharing platforms have been established under a project the evaluation will comment on the sustainability of the communication channel under either socio-political, institutional or financial sustainability, as appropriate.

Section 3. EVALUATION APPROACH, METHODS AND DELIVERABLES

The Terminal Evaluation will be an in-depth evaluation using a participatory approach whereby key stakeholders are kept informed and consulted throughout the evaluation process. Both quantitative and qualitative evaluation methods will be used as appropriate to determine project achievements against the expected outputs, outcomes and impacts. It is highly recommended that the

consultant(s) maintains close communication with the project team and promotes information exchange throughout the evaluation implementation phase in order to increase their (and other stakeholder) ownership of the evaluation findings. Where applicable, the consultant(s) should provide a geo-referenced map that demarcates the area covered by the project and, where possible, provide geo-reference photographs of key intervention sites (e.g. sites of habitat rehabilitation and protection, pollution treatment infrastructure, etc.)

The findings of the evaluation will be based on the following:

(a) **A desk review** of:

Relevant background documentation;

Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, revisions to the project (Project Document Supplement), the logical framework and its budget;

Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence and including the Project Implementation Reviews (PIRs); supervision mission reports, etc.;

GEF Tracking Tool

Steering Committee Minutes;

Quarterly expenditure reports, co-financing records, budget revisions,

Technical reports on project Outputs, studies, publications, outreach material, etc.;

Mid-Term Review or Mid-Term Evaluation of the project – if available;

Terminal Report (or draft) of the project including final project output, audit report, and final financial statements;

Other reports deemed useful to the terminal evaluation of the project.

(b) **Interviews** (individual or in group) with:

UNEP Task Manager (TM) and the Project Management Unit;

UNEP Fund Management Officer (FMO)²³ and Sub-Programme Coordinator;

Representatives from the Project Steering Committee, Technical Working Group,

Project partners, including MEME, ONE, INARA, ADEREE, ONE authorized installation companies, SNIMA Moroccan Industrial Standardization Service, relevant line Ministries in the GoM, etc.

Other relevant resource persons.

(c) **Survey** (this will be determined at the inception phase)

(d) **Field visit** to Morocco

(e) Other data collection tools as may be deemed useful by the Evaluator.

K. Evaluation Deliverables and Review Procedures

The evaluation team will prepare:

Inception Report: containing an assessment of project design quality, a draft reconstructed Theory of Change of the project, project stakeholder analysis, evaluation framework and a tentative evaluation schedule (see Annex 1 for links to all templates, tables and guidance notes).

Preliminary Findings Note: typically in the form of a PowerPoint presentation, the sharing of preliminary findings is intended to support the participation of the project team, act as a means to ensure all information sources have been accessed and provide an opportunity to verify emerging findings.

Draft and Final Evaluation Report: containing an executive summary that can act as a standalone document; detailed analysis of the evaluation findings organised by evaluation criteria and supported with evidence; lessons learned and recommendations and an annotated ratings table(see links in Annex 1).

Evaluation Brief: a 2-page summary of key evaluation findings for wider dissemination through the UNEP Evaluation Office website.

Review of the draft evaluation report. The evaluation team will submit a draft report to the Evaluation Manager and revise the draft in response to their comments and suggestions. Once a draft of adequate quality has been peer-reviewed and accepted, the Evaluation Manager will share the cleared draft report with the UNEP Task manager and the Project Manager in Morocco, who will alert the Evaluation Manager in case the report contains any blatant factual errors. The Evaluation Manager will then forward revised draft report (corrected by the evaluation team where necessary) to other project stakeholders, for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions as well as providing feedback on the proposed recommendations and lessons. Any comments or responses to draft reports will be sent to the Evaluation Manager for consolidation. The Evaluation Manager will provide all comments to the evaluation team for consideration in preparing the final report, along with guidance on areas of contradiction or issues requiring an institutional response.

²³ Please note there are 2 FMOs for this project, since it is internally executed: 1 for the Energy & Climate Branch - Finance Unit (Executing Agency) and 1 for the Climate Mitigation Unit (Implementing Agency)

Based on a careful review of the evidence collated by the evaluation consultants and the internal consistency of the report, the Evaluation Manager will provide an assessment of the ratings in the final evaluation report. Where there are differences of opinion between the evaluator and the Evaluation Manager on project ratings, both viewpoints will be clearly presented in the final report. The Evaluation Office ratings will be considered the final ratings for the project.

The Evaluation Manager will prepare a **quality assessment** of the first and final drafts of the main evaluation report, which acts as a tool for providing structured feedback to the evaluation consultants. The quality of the report will be assessed and rated against the criteria specified in template listed in Annex 1 and this assessment will be appended to the Final Evaluation Report.

At the end of the evaluation process, the Evaluation Office will prepare a **Recommendations Implementation Plan** in the format of a table, to be completed and updated at regular intervals by the Task Manager. The Evaluation Office will track compliance against this plan on a six monthly basis.

L. The Evaluation Consultant

For this evaluation, one independent consultant will work under the overall responsibility of the Evaluation Office represented by an Evaluation Manager (Pauline Marima), in consultation with the UNEP Task Manager (Ruth Zugman Do Coutto), UNEP Project Manager (Myriem Touhami), consultant (Julien Lheureux), Climate & Energy Branch Fund Management Officer (Amanda Lees), Climate Mitigation Unit Fund Management Officer (Leena Darlington), Head of Energy & Climate Branch (Mark Radka), Head of the Finance Unit, Energy & Climate Branch (Françoise D'Estais), and the Coordinator of UNEP Sub-programme on Climate Change (Niklas Hagelberg). The consultant will liaise with the Evaluation Manager on any procedural and methodological matters related to the evaluation. It is, however, the consultant's individual responsibility to arrange for their travel, visa, obtain documentary evidence, plan meetings with stakeholders, organize online surveys, and any other logistical matters related to the assignment. The UNEP Task Manager and project teams will, where possible, provide logistical support (formal introductions, meetings etc.) allowing the consultant to conduct the evaluation as efficiently and independently as possible.

The consultant will be hired over the period **December 2019 to June 2020** during which time the evaluation deliverables listed in Section 11 'Evaluation Deliverables' above should be submitted.

S/he should have: an advanced university degree, at least 5 years' experience in evaluation of programs and projects, with experience in the area of climate change and energy. Knowledge of **English** and **French** language along with excellent writing skills in English is required. Experience in managing partnerships, knowledge management and communication is desirable for all evaluation consultants.

The consultant will be responsible, in close consultation with the Evaluation Office of UNEP, for overall management of this evaluation and timely delivery of the outputs described in Section 11 Evaluation Deliverables, above. The consultant will ensure that all evaluation criteria and questions are adequately covered. Detailed guidelines for the Evaluation Consultant can be found on the Evaluation Office of UNEP website: (<http://web.unep.org/evaluation/working-us/working-us>).

Specific Responsibilities:

The Consultant will be responsible, in close consultation with the Evaluation Office of UNEP, for overall management of the evaluation and timely delivery of its outputs, described in Section 10 Evaluation Deliverables, above. The consultant will ensure that all evaluation criteria and questions are adequately covered. S/he will be responsible for the evaluation design, data collection and analysis, and report-writing. More specifically:

Inception phase of the evaluation, including:

- preliminary desk review and introductory interviews with project staff;
- draft the reconstructed Theory of Change of the project;
- prepare the evaluation framework;
- develop the desk review, interview protocols, and data collection and analysis tools;
- plan the evaluation schedule;
- prepare the Inception Report, incorporating comments received from the Evaluation Office.

Data collection and analysis phase of the evaluation, including:

- conduct further desk review and in-depth interviews with project implementing and executing agencies, project partners and project stakeholders;
- conduct an evaluation mission to **Morocco** to visit the project locations, interview project partners and stakeholders, including a good representation of private sector stakeholders. Ensure independence of the evaluation and confidentiality of evaluation interviews.
- regularly report back to the Evaluation Office on progress and inform of any possible problems or issues encountered and;
- keep the Project/Task Manager informed of the evaluation progress and engage the Project/Task Manager in discussions on emerging findings throughout the evaluation process.

Reporting phase, including:

- draft the Main Evaluation Report, ensuring that the evaluation report is complete, coherent and consistent with the Evaluation Office guidelines both in substance and style;
- liaise with the Evaluation Office on comments received and finalize the Main Evaluation Report, ensuring that comments are taken into account
- prepare a Response to Comments annex for the main report, listing those comments not accepted by the Evaluation Consultant and indicating the reason for the rejection; and

- prepare a 2-page summary of the key evaluation findings and lessons;

Managing relations, including:

- maintain a positive relationship with evaluation stakeholders, ensuring that the evaluation process is as participatory as possible but at the same time maintains its independence;
- communicate in a timely manner with the Evaluation Office on any issues requiring its attention and intervention.

M. Schedule of the evaluation

The table 4 below presents the tentative schedule for the evaluation.

Table 4. Tentative schedule for the evaluation

Milestone	Tentative schedule*
Consultant recruitment process	December 2019
Kick-off meeting (via Skype)	January 2020
Inception Report	January 2020
Data collection and analysis, desk-based interviews and surveys	January – February 2020
Field Mission (based on meeting arrangements and available budget)	February 2020
Draft report to UNEP (Evaluation Manager and Peer Reviewer)	March 2020
Draft Report shared with UNEP Task Manager and Project Team	April 2020
Draft Report shared with wider group of stakeholders	May 2020
Final Report	June 2020

*Allowances have been provided for incidental and unexpected delays

N. Contractual Arrangements

Evaluation Consultants will be selected and recruited by the Evaluation Office of UNEP under an individual Special Service Agreement (SSA) on a “fees only” basis (see below). By signing the service contract with UNEP/UNON, the consultant(s) certify that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project’s executing or implementing units. All consultants are required to sign the Code of Conduct Agreement Form.

Fees will be paid on an instalment basis, paid on acceptance by the Evaluation Manager of expected key deliverables. The schedule of payment is as follows:

Table 6: Schedule of Payment for the consultant:

Deliverable	Percentage Payment
Approved Inception Report (document 9 in Annex 1)	30%
Approved Draft Main Evaluation Report (document 16 in Annex 1)	40%
Approved Final Main Evaluation Report	30%

Fees only contracts: Air tickets will be purchased by UNEP and 75% of the DSA for each authorised travel mission will be paid up front. Local in-country travel will only be reimbursed where agreed in advance with the Evaluation Office and on the production of acceptable receipts. Terminal expenses and residual DSA entitlements (25%) will be paid after mission completion.

The consultant may be provided with access to UNEP’s Programme Information Management System (PIMS) and if such access is granted, the consultant agrees not to disclose information from that system to third parties beyond information required for, and included in, the evaluation report. In case the consultant is not able to provide the deliverables in accordance with these guidelines, and in line with the expected quality standards by the UNEP Evaluation Office, payment may be withheld at the discretion of the Director of the Evaluation Office until the consultants have improved the deliverables to meet UNEP’s quality standards.

If the consultant fails to submit a satisfactory final product to UNEP in a timely manner, i.e. before the end date of their contract, the Evaluation Office reserves the right to employ additional human resources to finalize the report, and to reduce the consultants’ fees by an amount equal to the additional costs borne by the Evaluation Office to bring the report up to standard.

Annex II. People Consulted during the Terminal Evaluation

Table 11: List of individuals consulted during TE

Organization	Name	Position	Gender
Project Team			
UNEP Climate Change Mitigation Unit (Implementing Agency)	Julien Lheureux	Climate Change Mitigation Policy consultant	Male
	Leena Darlington	Administrative Officer	Female
UNEP Finance Unit (Executing Agency)	Myriem Touhami	Project Manager	Female
	Ghita Hannane	Programme Officer	Female
	Hind Il Idrissi	Associate Programme Officer	Male
UNEP Experts (Consultant)	Rafik Missaoui	Market study expert, CEO - Alcor	Male
	Ignacio Duque	Waste Management expert	Male
	Bruno Lafitte	Policy expert	Male
Public:			
MEMSD (MEMWE)	no response	--	--
DRSC	no response	--	--
ONEE (ONE)	Mounia Jarir	Head of Communication Department	Female
	Zhour Ouhadi	Project Manager, INARA	Female
AMEE (ADEREE)	El haouari Mohamed	Director, Renewable Energy and Energy Efficiency	Male
MICIEN (MCI)	no response	--	--
AC	no response	--	--
PPUEs	no response	--	--
MEF	no response	--	--
IMANOR (SNIMA)	Mr Issam Alouz	Head of Energy, Water and Sustainable Development Department	Male
LPEE	no response		
Associations:			
FENALEC	no response	--	--
Private Enterprises			
Signify/PLM	Nezha Larhrissi	General manager	Female

Annex III. Key Documents Consulted

1. Terms of Reference for the Terminal Evaluation of the UNEP/Global Environment Facility project "Market Transformation for Energy Efficient Lighting in Morocco".
2. Project identification form Part III: Approval/ Endorsement by GEF operational focal point and GEF agency (16.12.2009)
3. Original Project Document (2011)
4. GEF approved work plan and budget
5. GEF ID4139_CEO PIF Approval letter, 29.01.2010
6. GEF OFP Letter of Endorsement, 15.04.2009
7. GEF CEO Approval letter, 29.09.2011
8. Co-financing confirmation letter, (additional GEF funding) 07.07.2010
9. UNEP Half-yearly progress reports (2013-2018)
10. UNEP GEF PIRs (Fiscal Years 2013-2019)
11. UNEP Reports of planned and actual co-finance by budget line (2013-2019)
12. UNEP Annual Expenditure and Unliquidated Obligations Reports (2012-2016)
13. UNEP Half-yearly Expenditure and Unliquidated Obligations Reports (2017-2019)
14. Steering Committee meetings training agendas / minutes and participant lists (2011, 2015 and 2019)
15. Final Closing Workshop report, along with all project outputs
16. GEF Approved revisions of workplan (2015, 2016, 2017, 2019), and supporting legal documents
17. Legal instruments for project execution (UNEP-MEMWE MoU, Internal Agreement and supporting documents)
18. UNEP templates included in the table below:

Table 12: UNEP Guideline documents and Templates

Document	Name	URL link
1	Evaluation Process Guidelines for Consultants	Link
2	Evaluation Consultants Team Roles (<i>Team Leader and Supporting Consultant</i>)	Link
3	List of documents required in the evaluation process	Link
4	Evaluation Criteria (<i>summary of descriptions, as in these terms of reference</i>)	Link
5	Evaluation Ratings Table (only)	Link
6	Matrix Describing Ratings by Criteria	Link
7	Weighting of Ratings (excel)	Link
8	Project Identification Tables	Link
9	Structure and Contents of the Inception Report	Link
10a	Template for the Assessment of the Quality of Project Design (Word template)	Link
10b	Template for the Assessment of the Quality of Project Design (Excel tool)	Link
11	Guidance on Stakeholder Analysis	Link
12	Gender Note for Evaluation Consultants	Link
13	Use of Theory of Change in Project Evaluations	Link
14	Assessment of the Likelihood of Impact Decision Tree (Excel)	Link
15	Possible Evaluation Questions	Link
16	Structure and Contents of the Main Evaluation Report	Link
17	Cover Page, Prelims and Style Sheet for Main Evaluation Report	Link
18	Financial Tables	Link
19	Template for the Assessment of the Quality of the Evaluation Report	Link

Annex IV. Response to Stakeholder Comments

There were no contradictory responses to evaluation results. Most of the findings were validated during TE consultation. In case they were not validated, the rationale for the rating has been provided based on desk based sources referred to or consultations with the project team during the evaluation process.

Any contested results with the project team after first round project team and peer review will be incorporated here.

Annex V. Summary of the evaluation criteria ratings

Table 13: Summary of the evaluation criteria ratings

Evaluation criteria	Rating	Score	Weight	Weighted Score
Strategic Relevance (select the ratings for sub-categories)	Highly Satisfactory	6	6	0.4
<i>Alignment to MTS and POW</i>	Highly Satisfactory	6	0.5	
<i>Alignment to UNEP/GEF/Donor strategic priorities</i>	Highly Satisfactory	6	0.5	
<i>Relevance to regional, sub-regional and national issues and needs</i>	Highly Satisfactory	6	2.5	
<i>Complementarity with existing interventions</i>	Highly Satisfactory	6	2.5	
Quality of Project Design	Satisfactory	5	4	0.2
Nature of External Context	Moderately Favourable	3		
Effectiveness (select the ratings for sub-categories)	Satisfactory	4	45	2.0
<i>Delivery of outputs</i>	Satisfactory	5	5	
<i>Achievement of direct outcomes</i>	Moderately Satisfactory	4	30	
<i>Likelihood of impact</i>	Likely	5	10	
Financial Management (select the ratings for sub-categories)	Moderately Satisfactory	4	5	0.2
<i>Completeness of project financial information</i>	Moderately Unsatisfactory	3		
<i>Communication between finance and project management staff</i>	Satisfactory	5		
Efficiency	Highly Unsatisfactory	1	10	0.1
Monitoring and Reporting (select the ratings for sub-categories)	Satisfactory	4	5	0.2
<i>Monitoring design and budgeting</i>	Satisfactory	5		
<i>Monitoring of project implementation</i>	Moderately Satisfactory	4		
<i>Project reporting</i>	Moderately Satisfactory	4		
Sustainability (select the ratings for sub-categories)	Moderately Likely	4	20	0.8
<i>Socio-political sustainability</i>	Moderately Likely	4		
<i>Financial sustainability</i>	Highly Likely	6		
<i>Institutional sustainability</i>	Likely	5		
Factors Affecting Performance (select the ratings for sub-categories)	Moderately Satisfactory	4	5	0.2
<i>Preparation and readiness</i>	Moderately Satisfactory	4		
<i>Quality of project management and supervision</i>	Satisfactory	5		
<i>Stakeholder participation and cooperation</i>	Moderately Satisfactory	4		
<i>Responsiveness to human rights and gender equity</i>	Highly Unsatisfactory	1		
<i>Country ownership and driven-ness</i>	Moderately Satisfactory	4		
<i>Communication and public awareness</i>	Satisfactory	5		
			100	4.02
Overall Rating:				Moderately Satisfactory

Annex VI. Likelihood of Impact Decision Tree

Last revised: 17.04.18

UN ENVIRONMENT EVALUATION OFFICE

A GUIDE FOR THE RATING LIKELIHOOD OF IMPACT

Reset Form

Select Response



Drivers to support transition from outputs to direct outcomes are?	Partially in place
--	--------------------

Assumptions for the change process from outputs to direct outcomes	Partially hold
--	----------------

Proportion of direct outcomes fully or partially achieved	All	
---	-----	--

Which outcomes? (the most important to attain intermediate states / impact or others)		Answer not required
---	--	---------------------

Level of direct outcome achievement	Partial
-------------------------------------	---------

Drivers to support transition from direct outcome(s) to intermediate states are?	Partially in place
--	--------------------

Assumptions for the change process from direct outcomes to intermediate states	Partially hold
--	----------------

Proportion of Intermediate states achieved	All	
--	-----	--

Level of Intermediate state achievement	Partial	
---	---------	--

Drivers to support transition from intermediate states to impact are?	Partially in place
---	--------------------

Assumptions for the change process from intermediate states to impact	Partially hold
---	----------------

Likelihood of impact

HU	U	MU	ML	L	HL
Not in place	Partially in place	Partially in place	In place	In place	In place

Do not hold	Partially hold	Partially hold	Hold	Hold	Hold
-------------	----------------	----------------	------	------	------

None	Some	Some	Some	Some	All
------	------	------	------	------	-----

n/a	Others	Others	Most important	Most important	n/a
-----	--------	--------	----------------	----------------	-----

n/a	Partial	Full	Partial	Full	Full
-----	---------	------	---------	------	------

n/a	Not in place	Not in place	Partially in place	Partially in place	In place
-----	--------------	--------------	--------------------	--------------------	----------

n/a	Do not hold	Do not hold	Partially hold	Hold	Hold
-----	-------------	-------------	----------------	------	------

n/a	n/a	None	None	Some	All
-----	-----	------	------	------	-----

n/a	n/a	n/a	n/a	Partial	Full
-----	-----	-----	-----	---------	------

n/a	Not in place	Not in place	Not in place	Partially	In place
-----	--------------	--------------	--------------	-----------	----------

n/a	Do not hold	Do not hold	Do not hold	Partially	Hold
-----	-------------	-------------	-------------	-----------	------

Likelihood of impact

	1	1			
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	1	1			
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					1
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					1
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	1		1		
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			1	1	
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			1		
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					1
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				1	
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Annex VII. Evaluation Brief

Terminal Evaluation of the UN Environment/GEF Project “Market Transformation for Energy Efficient Lighting in Morocco” GEF ID 4139 (2011-2019)

Results and Lessons Learned

About the Project

The Global Environment Facility (GEF) launched the Global Lighting Initiative in November 2007 to assist developing countries in phasing-out incandescent bulbs and accelerating market transformation of environmentally sustainable energy efficient lighting technologies. The GEF funded project “[Market Transformation for Energy Efficient Lighting in Morocco](#)” (hereafter the “Project”) is aligned to UNEP’s Subprogramme 1 Climate Change, designed with the objective to phase-out incandescent bulbs, along with the introduction of Compact Fluorescent Lamps (CFLs), thereby reducing global greenhouse gas emission from the Moroccan lighting sector.

The project was budgeted at US\$ 6,820,295, including a 13% contribution by the GEF Trust Fund amounting to US\$ 889,091. The project began in 2011 and was initially planned for two years. However, after several cost neutral extensions it was finally concluded in 2019. The Terminal Evaluation (TE) of the project was carried out by the Evaluation Office of the UNEP between January 2020 to September 2020.

Relevance

As of 2011, Incandescent Lamps (ILs) were the most purchased lighting technology across the globe due to their low price and longstanding familiarity, even though there was price competitiveness with more efficient lighting products, such as CFLs. As a developing country, Morocco had demonstrated high economic growth and a huge demand for power associated with it. At project inception, ILs constituted the largest import share of lighting technologies in the Moroccan market (59%) followed by CFLs and fluorescent tubes (29%).

In order to enable a market transition, the Ministry of Energy, Mines, Water, and Environment (MEMWE) launched its national programme, INARA, to carry out the dissemination of 15 million CFLs in 3 phases, each phase aims at distributing 5 million CFLs through the National Office for Electricity and Potable Water (ONEE). MEMWE, and later ONEE, were nodal national partners for the Project, which was intended to align with INARA, and

eventually lead to long term impact on reduction of GHG emissions due to efficient lighting technologies.

Performance

The TE revealed that the project had a very positive impact on affecting the drivers required for a transformation in Morocco’s energy efficient lighting market. The project set into motion important policy and regulatory instruments to pave the path for future initiatives in Morocco.

The Project achieved significant energy efficiency policy enhancement for promotion of CFLs, despite barriers to achieving quantified phasing-out targets for ILs, especially due to lack of buy-in from the private sector. Technology and standards quality improvement was assured through preparation of Minimum Energy Performance Standards and waste management practices recommendations for both CFLs and LEDs. However, the regulations were not formally approved by the government as of this terminal evaluation. Generation of demand for CFLs through applicable consumer financing was overachieved through fiscal incentives and ONEE’s proactive distribution strategy. Lastly, information dissemination, consumers education, and awareness raising was instrumental in achieving these outcomes. However, capacity building for strengthening institutions was in some cases even cancelled due to difficulty in mobilizing participants from important stakeholder groups (especially private sector) when the project was extended.

The energy efficiency achieved as per GEF’s terminal evaluation findings for the project was measured in terms of lifetime energy savings that amounted to 2,900,000 Million Joules of fuel saved. The lifetime direct GHG emissions avoided are 1,300,000 tonnes of CO₂ equivalent, whereas the lifetime direct post-project GHG emission avoided are estimated as 5,200,000 tonnes of CO₂ equivalent.

Factors Affecting Performance

Overall, it was deduced during this evaluation that the extent of activities planned under the components were far greater than what the budget could cover within a period of 2 years. Due to this project design limitation, many activities got delayed and exposed the project to instability typical of medium- or long-term projects. For instance, there was no accounting for threat to political stability, shift in short term institutional goals or any changes in strategic priority for the Government of

Morocco. However, the flexibility of the project design was well evidenced by adaptations made by the project management team due to unforeseen circumstances, such as the operational charge taken by ONEE instead of the nodal ministry MEMWE, and adaptation of new technologies (LEDs) in technical studies and regulatory recommendations made by the project.

Key Lessons Learned

Amongst the lessons which were identified during the evaluation, the following may be considered key takeaways:

- For a market transformation to be effective, a project should involve a wide group of actors at the developmental stages. Cross-cutting sectoral projects which adopt a top-down approach (policy led initiatives) for achieving their impacts require a parallel communication strategy so that there is cohesion between the country's top government bodies (i.e., ministries and regulators). **Involvement of more enterprises, industry associations and civil society can create a strong lobbying force and support an institutional transition which is market friendly.** This includes (i) Private stakeholders such as technology providers, distributors, retail and wholesale operators, supply chain / logistics companies, and industry association; (ii) Civil Society Organisations including trade unions, labour unions, business sectoral associations, consumer protection groups, women support organisation and other minority groups. Such a cooperation can especially be instrumental in strengthening civil society and it would be valuable to include this as a measurable project outcome.
- Environmental regulations are typically market disruptive since most of the value chain surrounding technologies are not including this cost in their offering. **Environmental Impact Assessments need to result in economic results and propose strategies for cost recovery in order to set achievable objectives for such projects.**
- Fiscal incentives can go a long way in generating private sector confidence, especially with respect to a technology which is more efficient but may be marginally outside of the typical consumer's affordability range. **Fiscal measures can close the viability gap for businesses, and activate demand amongst the target consumers,** therefore providing a realistic buffer for the market to mature and reach equilibrium.
- **Disaggregated consumer impact studies are necessary to identify priority consumer segments for leapfrogging to higher performing technologies and appliances.** Ignoring this aspect can be counter-productive and further hinder alleviation of groups which are often structurally and socially disadvantaged. For example, there was no identifiable UNEP related programme or credit line in Morocco during this evaluation which could be used to conduct Gender Impact Assessment studies or Gender Audits of institutions in the energy sector. Early inclusion could go a long way for positively affecting a consumer base generally difficult to reach out to, such as women, young adults, and children.

Annex VIII. Consultant's Resume

Short biography

Ms. Noara KEBIR is a Senior Consultant at MicroEnergy International Ltd, Germany and a board member of ME SOLShare Bangladesh. She is also a member of the SEE4ALL Clean Energy Minigrid HIO Working Group, founder of the Action Group "Green Microfinance" at the European Microfinance Platform, board member of the Microenergy Systems Association at the Technical University of Berlin, Chair of the Microenergy Society, member of the Industry Board of the Pan African University for Water and Energy (PAUWES), member of the German Scientists Initiative for Peace and Sustainability and member of the German Metal Worker Union.

She has eighteen years of experience in development cooperation along the whole project value chain, from project and research design to evaluation. Experiences in evaluating markets (e.g. Tanzania, Burkina Faso), companies and their businesses (technical and financial due diligences in Africa), evaluation of products and services, project evaluation, evaluation of scientific paper (MES conferences 2011, 2013), evaluation of mini-grid project proposals (Lesotho, Saudi Arabia), socioeconomic and environmental impact evaluation. Familiar with required quantitative and qualitative methodologies and tools for socioeconomic and environmental impact measurement and evaluation, project design technical and financial evaluation, programmatic approach, Theory of Change, improvement of the continuous learning process for development cooperation, such that regular iterations are enabled, and programme synergies are possible. Communication and moderation skills with the required attitude of transparency, empathy and independence.

She has more than 20 years of expertise in energy efficiency labeling and certification of household appliances (R&D department of Bosch Siemens Household Appliances). Extensive experience with efficient lighting technologies (IL, CFL, LED etc.) through participation in the design, implementation, monitoring and evaluation of several household and SME off-grid solar energy projects (solar home systems, mini-grids) in which there is an implicit interdependency of the renewable energy transformation, storage and the efficiency of loads (lighting, appliances, productive uses).

Language skills: German, English, French, Maghreb Arabic, Arabic, Italian

Key specialties and capabilities cover:

- Business Development: Co-founder of several companies and NGOs in Germany, Bangladesh, Singapore and Algeria. Coach and advisor for several ventures in Germany and different developing countries.
- Leadership: Key expert, leader and Project Manager in many consortiums, leading up to 40 employees at MicroEnergy International Ltd. 15 years' experience as a lecturer in the field of energy in developing countries, supervisor of many scientific research projects and conferences.
- Expert with more than 20 years' experience in manufacturing, energy and process engineering and economics, community development, end-user digital finance and strategic business development, technology design, implementation and monitoring
- Experience alongside RE+EE companies offering technical assistance to expand towards new markets. Deep knowledge of renewable energy technical design of solar systems and mini-grids (solar, hybrid and hydro), quality specifications and after-sales services, social and beneficiary assessment, delivery models, operational and demand assessments, demand-side management, last-mile distribution, value chain and end-user financing. Qualitative and quantitative data gathering, analysis and statistics.
- Process Moderation: Training in intercultural and interdisciplinary communication.
- Familiar with evaluation procedures: Initiator and organizer of several scientific and practice-oriented conferences and call for papers, member in different juries and selection committees.
- Regular supervisor of research projects. Assignments as evaluator of CfPs.

Annex IX. Quality assessment of the Evaluation Report

All UNEP evaluations are subject to a quality assessment by the Evaluation Office. This is an assessment of the quality of the evaluation product (i.e. evaluation report) and is dependent on more than just the consultant's efforts and skills. Nevertheless, the quality assessment is used as a tool for providing structured feedback to evaluation consultants, especially at draft report stage. This guidance is provided to support consistency in assessment across different Evaluation Managers and to make the assessment process as transparent as possible.

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
<p>Quality of the Executive Summary:</p> <p>The Summary should be able to stand alone as an accurate summary of the main evaluation product. It should include a concise overview of the evaluation object; clear summary of the evaluation objectives and scope; overall evaluation rating of the project and key features of performance (strengths and weaknesses) against exceptional criteria (plus reference to where the evaluation ratings table can be found within the report); summary of the main findings of the exercise, including a synthesis of main conclusions (which include a summary response to key strategic evaluation questions), lessons learned and recommendations.</p>	<p>The Executive summary provides a detailed breakdown of the approach, findings, analysis and conclusions.</p>	5
<p>I. Introduction</p> <p>A brief introduction should be given identifying, where possible and relevant, the following: institutional context of the project (sub-programme, Division, regions/countries where implemented) and coverage of the evaluation; date of PRC approval and project document signature); results frameworks to which it contributes (e.g. Expected Accomplishment in POW); project duration and start/end dates; number of project phases (where appropriate); implementing partners; total secured budget and whether the project has been evaluated in the past (e.g. mid-term, part of a synthesis evaluation, evaluated by another agency etc.)</p> <p>Consider the extent to which the introduction includes a concise statement of the purpose of the evaluation and the key intended audience for the findings?</p>	<p>The Introduction covers most of the required aspects with only minor omissions noted</p>	5
<p>II. Evaluation Methods</p> <p>A data collection section should include: a description of evaluation methods and information sources used, including the number and type of respondents; justification for methods used (e.g. qualitative/quantitative; electronic/face-to-face); any selection criteria used to identify respondents, case studies or sites/countries visited; strategies used to increase stakeholder engagement and consultation; details of how data were verified (e.g. triangulation, review by stakeholders etc.).</p>	<p>This section has been well elaborated. It is quite thorough in its content and clearly lays out the processes undertaken as well as their rationale. Ethical considerations have also been adequately addressed.</p>	6

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
<p>Methods to ensure that potentially excluded groups (excluded by gender, vulnerability or marginalisation) are reached and their experiences captured effectively, should be made explicit in this section.</p> <p>The methods used to analyse data (e.g. scoring; coding; thematic analysis etc.) should be described.</p> <p>It should also address evaluation limitations such as: low or imbalanced response rates across different groups; gaps in documentation; extent to which findings can be either generalised to wider evaluation questions or constraints on aggregation/disaggregation; any potential or apparent biases; language barriers and ways they were overcome.</p> <p>Ethics and human rights issues should be highlighted including: how anonymity and confidentiality were protected and strategies used to include the views of marginalised or potentially disadvantaged groups and/or divergent views. Is there an ethics statement?</p>		
<p>III. The Project</p> <p>This section should include:</p> <ul style="list-style-type: none"> • <i>Context:</i> Overview of the main issue that the project is trying to address, its root causes and consequences on the environment and human well-being (i.e. synopsis of the problem and situational analyses). • <i>Results framework:</i> Summary of the project's results hierarchy as stated in the ProDoc (or as officially revised) • <i>Stakeholders:</i> Description of groups of targeted stakeholders organised according to relevant common characteristics • <i>Project implementation structure and partners:</i> A description of the implementation structure with diagram and a list of key project partners • <i>Changes in design during implementation:</i> Any key events that affected the project's scope or parameters should be described in brief in chronological order • <i>Project financing:</i> Completed tables of: (a) budget at design and expenditure by components (b) planned and actual sources of funding/co-financing 	<p>The sub sections have been covered to varying degrees of quality but in general every aspect required by the ToR has been assessed.</p>	<p>5</p>
<p>IV. Theory of Change</p> <p>The <i>TOC at Evaluation</i> should be presented clearly in both diagrammatic and narrative forms. Clear articulation of each major causal pathway is expected, (starting from outputs to long term impact), including explanations of all drivers and assumptions as well as the expected roles of key actors.</p>	<p>The TOC is presented in both diagrammatic and narrative forms, with the major causal pathways described briefly. Some improvements in the terminologies and clarification of issues has been provided. The results hierarchy at Prodoc and TOC at</p>	<p>5</p>

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
This section should include a description of how the <i>TOC at Evaluation</i> ²⁴ was designed (who was involved etc.) and applied to the context of the project? Where the project results as stated in the project design documents (or formal revisions of the project design) are not an accurate reflection of the project's intentions or do not follow UNEP's definitions of different results levels, project results may need to be re-phrased or reformulated. In such cases, a summary of the project's results hierarchy should be presented for: a) the results as stated in the approved/ revised Prodoc logframe/TOC and b) as formulated in the <i>TOC at Evaluation</i> . <i>The two results hierarchies should be presented as a two-column table to show clearly that, although wording and placement may have changed, the results 'goal posts' have not been 'moved'.</i>	evaluation have been presented side by side to clarify where reconstruction has been done and why	
V. Key Findings A. Strategic relevance: This section should include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. An assessment of the complementarity of the project at design (or during inception/mobilisation ²⁵), with other interventions addressing the needs of the same target groups should be included. Consider the extent to which all four elements have been addressed: <ol style="list-style-type: none"> 1. Alignment to the UNEP Medium Term Strategy (MTS) and Programme of Work (POW) 2. Alignment to Donor/GEF Strategic Priorities 3. Relevance to Regional, Sub-regional and National Environmental Priorities 4. Complementarity with Existing Interventions 	The assessment of relevance is well structured, and all elements are discussed in detail	6
B. Quality of Project Design To what extent are the strength and weaknesses of the project design effectively <u>summarized</u> ?	The project design strengths and weaknesses are described clearly and in a concise manner. Reference is also made to the PDQ assessment template.	6

²⁴ During the Inception Phase of the evaluation process a *TOC at Evaluation Inception* is created based on the information contained in the approved project documents (these may include either logical framework or a TOC or narrative descriptions), formal revisions and annual reports etc. During the evaluation process this TOC is revised based on changes made during project intervention and becomes the *TOC at Evaluation*.

²⁵ A project's inception or mobilization period is understood as the time between project approval and first disbursement. Complementarity during project implementation is considered under Efficiency, see below.

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
<p>C. Nature of the External Context For projects where this is appropriate, key <u>external</u> features of the project’s implementing context that limited the project’s performance (e.g. conflict, natural disaster, political upheaval²⁶), and how they affected performance, should be described.</p>	<p>The external factors that affected project implementation are clearly described (in this case, political upheaval and regime changes).</p>	6
<p>D. Effectiveness (i) Outputs and Project Outcomes: How well does the report present a well-reasoned, complete and evidence-based assessment of the a) availability of outputs, and b) achievement of project outcomes? How convincing is the discussion of attribution and contribution, as well as the constraints to attributing effects to the intervention. The effects of the intervention on differentiated groups, including those with specific needs due to gender, vulnerability or marginalisation, should be discussed explicitly.</p>	<p>It is noted that a lot of effort has been taken to assess each output and outcome individually, providing evidence and showing linkages between results. The quality of outputs and extent of outcome achievement is also discussed to varying levels of detail.</p>	6
<p>(ii) Likelihood of Impact: How well does the report present an integrated analysis, guided by the causal pathways represented by the TOC, of all evidence relating to likelihood of impact? How well are change processes explained and the roles of key actors, as well as drivers and assumptions, explicitly discussed? Any unintended negative effects of the project should be discussed under Effectiveness, especially negative effects on disadvantaged groups.</p>	<p>The analysis is clear and consistent with the TOC narrative. Causal pathways to Impact as well as the respective Assumptions for the change process have been adequately assessed</p>	5
<p>E. Financial Management This section should contain an integrated analysis of all dimensions evaluated under financial management and include a completed ‘financial management’ table. Consider how well the report addresses the following:</p> <ul style="list-style-type: none"> • <i>Adherence</i> to UNEP’s financial policies and procedures • <i>completeness</i> of financial information, including the actual project costs (total and per activity) and actual co-financing used • <i>communication</i> between financial and project management staff <p>1.</p>	<p>While this is usually a difficult criterion to assess, it is noted that a good effort was made to obtain data, particularly for the aspects on completeness and communication.</p>	6

²⁶ Note that ‘political upheaval’ does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project’s design and addressed through adaptive management of the project team.

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
<p>F. Efficiency To what extent, and how well, does the report present a well-reasoned, complete and evidence-based assessment of efficiency under the primary categories of cost-effectiveness and timeliness including:</p> <ul style="list-style-type: none"> • Implications of delays and no cost extensions • Time-saving measures put in place to maximise results within the secured budget and agreed project timeframe • Discussion of making use during project implementation of/building on pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. • The extent to which the management of the project minimised UNEP's environmental footprint. 	<p>The section is covered sufficiently, providing a clear assessment of timeliness and cost effectiveness against the implications these have had on project implementation. The assessment also looks at some of the measures taken to minimize the adverse effect on project efficiency</p>	5
<p>G. Monitoring and Reporting How well does the report assess:</p> <ul style="list-style-type: none"> • Monitoring design and budgeting (<i>including SMART results with measurable indicators, resources for MTE/R etc.</i>) • Monitoring of project implementation (<i>including use of monitoring data for adaptive management</i>) • Project reporting (<i>e.g. PIMS and donor reports</i>) 	<p>All aspects of monitoring have been covered. There is a stronger focus on 'Reporting' and perhaps not as much on monitoring as a management tool for tracking results so we do not get a clear sense of how the project adapted based on its monitoring data.</p>	5
<p>H. Sustainability How well does the evaluation identify and assess the key conditions or factors that are likely to undermine or contribute to the persistence of achieved project outcomes including:</p> <ul style="list-style-type: none"> • Socio-political Sustainability • Financial Sustainability • Institutional Sustainability 	<p>All the required aspects of sustainability have been addressed satisfactorily. The findings are adequately supported with examples and the analysis is quite clear</p>	5
<p>I. Factors Affecting Performance These factors are <u>not</u> discussed in stand-alone sections but are integrated in criteria A-H as appropriate. Note that these are described in the Evaluation Criteria Ratings Matrix. To what extent, and how well, does the evaluation report cover the following cross-cutting themes:</p> <ul style="list-style-type: none"> • Preparation and readiness 	<p>All the prescribed factors affecting performance have been covered as stand-alone sections and found to be acceptable. Cross referencing has been done to relevant sections of the report where necessary.</p>	6

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
<ul style="list-style-type: none"> • Quality of project management and supervision²⁷ • Stakeholder participation and co-operation • Responsiveness to human rights and gender equity • Environmental and social safeguards • Country ownership and driven-ness • Communication and public awareness 		
VI. Conclusions and Recommendations		
<p>i. Quality of the conclusions: The key strategic questions should be clearly and succinctly addressed within the conclusions section. It is expected that the conclusions will highlight the main strengths and weaknesses of the project and connect them in a compelling story line. Human rights and gender dimensions of the intervention (e.g. how these dimensions were considered, addressed or impacted on) should be discussed explicitly. Conclusions, as well as lessons and recommendations, should be consistent with the evidence presented in the main body of the report.</p>	Key strategic questions have been addressed systematically. The summation of projects strengths and weaknesses has been included in the conclusions section. The summary of ratings table is presented.	5
<p>ii) Quality and utility of the lessons: Both positive and negative lessons are expected and duplication with recommendations should be avoided. Based on explicit evaluation findings, lessons should be rooted in real project experiences or derived from problems encountered and mistakes made that should be avoided in the future. Lessons must have the potential for wider application and use and should briefly describe the context from which they are derived and those contexts in which they may be useful.</p>	The lessons learned are well formulated. They are anchored on findings presented in the report, are relevant, and are described in a comprehensive manner	6
<p>iii) Quality and utility of the recommendations: To what extent are the recommendations proposals for specific action to be taken by identified people/position-holders to resolve concrete problems affecting the project or the sustainability of its results? They should be feasible to implement within the timeframe and resources available (including local capacities) and specific in terms of who would do what and when.</p> <p>At least one recommendation relating to strengthening the human rights and gender dimensions of UNEP interventions, should be given. Recommendations should represent a measurable performance target in order that the Evaluation Office</p>	The recommendations are also well formulated. There is sufficient contextual data and the proposed action (and agency for such action), priority and timeframe for implementation are clearly described.	6

²⁷ In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UNEP.

	UNEP Evaluation Office Comments	Final Report Rating
Substantive Report Quality Criteria		
can monitor and assess compliance with the recommendations.		
VII. Report Structure and Presentation Quality		
i) Structure and completeness of the report: To what extent does the report follow the Evaluation Office guidelines? Are all requested Annexes included and complete?	The report is complete and requested annexes are present	6
ii) Quality of writing and formatting: Consider whether the report is well written (clear English language and grammar) with language that is adequate in quality and tone for an official document? Do visual aids, such as maps and graphs convey key information? Does the report follow Evaluation Office formatting guidelines?	The language is clear, and the tone professional. Visual aids used convey information clearly. Formatting is also okay. Some sections are text heavy but not to the detriment of the assessment given.	6
OVERALL REPORT QUALITY RATING		5.6 – Highly Satisfactory

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1. The overall quality of the evaluation report is calculated by taking the mean score of all rated quality criteria.