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Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة

联合国环境规划署


PROJECT DOCUMENT
SECTION 1: PROJECT IDENTIFICATION

1.1	Project title:	Strengthening Low Carbon Energy Island Strategies	
1.2	Project number:	GFL/ 4629 PMS: 788	
1.3	Project type:	FSP	
1.4	Trust Fund:	GEF	
1.5	Strategic objectives:		
	GEF strategic long-term objective:	CC2	
	Strategic programme for GEF V:		
1.6	UNEP priority:	Resource efficiency - sust. consumption/production	
1.7	Geographical scope:	National	
1.8	Mode of execution:	Internal	
1.9	Project executing organization:	Ministry of Environment and Energy (MEE), Maldives	
1.10	Duration of project:	48 months Commencing: July 2014 Technical completion: June 2018	
	Validity of legal instrument:	54 months	
1.11	Cost of project	US\$	%
1.11	Cost to the GEF Trust Fund	3,885,000	10.13
	Co-financing		
	In-Kind		
	UNEP	250,000	0.73
	Maldivian Government	34,205,835	89.14
	Total	38,340,835	100

1.12 Project summary

The Republic of the Maldives is located in the Indian ocean, where some 300,000 people enjoy a chain of 26 natural atolls – 1,192 islands, over 190 inhabited – stretching 860 km. Tourism and fisheries make up 40% of GDP, the majority of exports and employment, both of which are energy intensive. The country relies almost entirely on imported fossil fuels for energy needs, with diesel accounting for 82% of primary energy demand in 2009. Universal electricity access is provided via STELCO (including for Malé, the capital city), via FENAKA (consolidating six utilities across the country), and via Island Development Committees on the smaller inhabited islands, with resort islands operating their own utility systems. The Maldives is also highly vulnerable to climate change, with 80% of the country being less than one metre above sea level.

The government of the Maldives is taking steps on the international and national stage to move towards a carbon-neutral future. Internationally, it is speaking up at various forums, and building partnerships. It has declared a goal to be carbon-neutral by 2020, and is collaborating with various development partners, national stakeholders and others to achieve this. The government's approach is reflected in the project objective, to “mainstream energy efficiency measures into housing policies, guidelines, standards and building practices in the Maldives and to achieve a substantial reduction of GHG emissions as a result of improved buildings and building management practices and to leverage substantial investment in activities leading to increased energy efficiency in the Maldives.” Further, one benefit of reducing the electricity demand will be to make it possible to delay investment in an expansion of the electricity supply that would otherwise be required to satisfy the projected annual increase in demand. This will be achieved by strengthening the building sector to address energy efficiency issues and promoting expansion of investment in energy efficiency technologies/design in the housing, public and tourism building sub-sectors.

To date, attention has been focussed on renewable energy; for example the Maldives is one of the eight pilot countries under the Scaling up Renewable Energy Project (SREP). Energy efficiency is a gap that is now being addressed, as it can provide even better environmental, social and economic returns than renewables, but also requires more complex and diverse interventions.

Despite the popular image of idyllic white-sand islands, the Maldives is home to one of the most densely populated cities on earth, with 35% of Maldivians living on Malé, at 18,000 people/km². Over 90% is covered with tightly packed multi-story buildings, and Malé also has the highest per capita utility electricity consumption in the Maldives. As a result, over 70% of all electrical energy is used on Malé, making it the natural choice for an intervention on electrical energy efficiency. Further, a number of substantial building projects have been scheduled for the medium term, providing a great opportunity to improve building stock and avoid ‘lock in’ of high consumption rates. Therefore, the building sector has been chosen for this intervention, as it is not currently being addressed by other activities, has a high potential for improvement, and is undergoing substantial development.

Currently, the building sector is generally under-investing in energy efficiency and other low carbon energy building technologies due to diffused responsibility for energy consumption over the lifetime of any given building. For example, there are no nationally coordinated efforts to promote energy efficient building and municipal technologies, such as efficient lighting. Heavy subsidies on electricity use mean that households do not value energy consumption as it is not a burden to them directly, although it is a strain on the government finances and is diverting funds from other needs. Building design, and building material and equipment purchasing, reflect this paradigm, with buildings observed as high thermal mass with minimal shading, instead relying on wide-spread air-conditioner use. Further, with Malé as the capital, this influences the perception of advancement in other islands, and new construction in the inhabited islands often mimics the approach taken on Malé.

GHG emissions from building result not only from energy use but also from Ozone Depleting Substances (ODS) which can have high Greenhouse Warming Potential (GWP). Leakage of ODS from equipment during manufacturing, installation, operation and recovery leads directly to emissions of greenhouse gases, although these are covered under the Montreal Protocol (not the Kyoto Protocol). Good building material and design, and relevant policy measures could have the effect of reducing both indirect emissions (through energy efficiency gains) and direct emissions (by use of low-GWP refrigerants). Under the Montreal Protocol, countries are phasing out hydrochlorofluorocarbons (HCFCs) through approved HCFC Phase-out Management Plans (HPMP). This provides an opportunity to select non-HCFC, low-GWP refrigerants and embrace energy efficiency in full measure to reap the benefits of ozone layer protection as well as climate change. Energy efficiency standards integrated with the standards for non-HCFC, low-GWP refrigerant can deliver these twin

benefits, in RHVAC as well as in selecting insulation and foams (which can have these gases used as blowing agents).

The intervention logic is designed in consideration of the barriers identified during research and stakeholder consultation. While “lack of awareness” and “lack of regulations for energy efficiency in buildings” were commonly identified, deeper discussions identified four barriers to a self-sustaining market for energy efficiency in buildings: consumers are not motivated; policies and institutional structures are not supportive; lack of energy efficiency capacity; and poor building material and design, leading to energy intensive solutions.

The project has four activities, comprised of eight components, each chosen to complement each other in not only addressing the barrier, but in positively promoting an energy efficiency market.

Activity 1 – Monitoring and assessment	
Component 1 – Implement a monitoring and assessment system	Description: establish a monitoring and assessment system to create an energy use baseline and to track the changes in energy use in buildings; includes surveys, database creation and maintenance, and data analysis.
Activity 2 – Increasing investment in building related energy efficiency	
Component 2 – investment in residential and commercial buildings	Description: loan guarantee fund for financial support, financial incentives for building owners/developers, assistance to access funding; link to use of guideline from Component 7.
Component 3 – investments by Government	Description: show leadership and demonstrate EE by selecting one government/public building, and one housing project, identify EE design/improvements and implement.
Component 4 – investments by the tourist industry	Description: technical support and incentives, through auditing, financing advice, and assistance with certification
Activity 3– Capacity building to support investment development	
Component 5A – technical training for auditing, design, installation and maintenance of energy efficient systems for buildings	Description: develop technical training programs and deliver through local institutions
Component 5B – business training for marketing, purchasing, and managing commercial energy efficiency components	Description: build businesses’ awareness of energy management, and build business skills of technical staff, through local institutions
Component 5C – develop and deploy public information and education programmes	Description: raise energy awareness to various groups using existing systems, from school curricula to energy bills
Component 5D – develop the capacity to market energy efficiency loans and to understand and use building efficiency measure guidelines and standards for new buildings and renovations	Description: train staff in local financial institutions to understand, apply and communicate energy efficiency guidelines, and link this to loan approval processes
Component 5E – develop the capacity to monitor and manage energy in government facilities	Description: train facility managers to enhance energy management skills

Activity 4 – Policy and regulation	
Component 6 – development of policies and programmes within government to improve government Department energy efficiency	Description: government to show leadership, through enhance department-level energy management through policy review, procurement, incentives for certification, creating working groups, and other systematic improvements to energy management
Component 7 – Development and adoption of a phased implementation for legislation on building energy efficiency.	Description: The development will involved the preparation of practical and easily enforceable construction and renovation guidelines and standards for improving energy efficiency, including the selection of building materials, in new and existing residences, commercial buildings, government buildings and tourist facilities, that can be applied by designers, contractors, and financial institution staff
Component 8 – appliance labeling and energy efficiency related import regulations for large energy use appliances	Description: determine appropriate labeling plan to provide consumers advice on lifetime energy consumption at point-of-sale, potentially banning less efficient appliances. This would be in synergy with the regulations under the Montreal Protocol to encourage use of low-GWP refrigerant based technologies.

Overcoming the barriers identified, and so improving the energy efficiency of buildings and equipment, will create local skills and markets and therefore shift the economy of the Maldives to a low-carbon approach that is self-sustaining. It is a holistic approach, addressing technical and business skills to enable private sector participation, building government leadership, inclusive of visible demonstrations, providing knowledge tools and guidelines, and supported by financial incentives to boost the market and start this transition. The two funds – a loan guarantee, and an incentive such as a subsidy or interest rate reduction – will continue beyond the life of the project, and it is anticipated that eventually they will decline naturally as the efficiency measures promoted become business-as-usual and no longer require incentives.

The Global Environmental Benefits of this project can firstly be considered as the greenhouse gas reductions caused by the project. As a result of these activities during the project implementation period of 4 years, direct greenhouse gas emission reductions totalling 120,222 t CO₂-e will be achieved over the lifetime of the investments of 5 years.

In the non-GEF case, these energy needs would need to be satisfied by diesel-powered grid electricity, with a marginal generation of 0.8 t CO₂-e/MWh (default factor for diesel generation). Given the Maldives' very visible vulnerability to sea level rise, and its very public statements and advocacy on this issue, leadership benefits are expected to arise from this project. With support from the government, this project can enable attention to be called to the often less popular area of energy efficiency, and the many benefits available.

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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AOSIS	Alliance of Small Island States
CO ₂ -e	CO ₂ equivalent
CFC	Chlorofluorocarbon
DGEF	Division of Global Environment Facility
DRR	Disaster Risk Reduction
DSA	Daily Subsistence Allowance
EA	Executing Agency
EC	European Commission
EC	Energy Conservation
EE	Energy Efficiency
EIB	European Investment Bank
EOU	Evaluation and Oversight Unit
FMO	Financial Management Officer
GHG	Greenhouse Gas
GDP	Gross Domestic Product
GWP	Greenhouse warming potential
HCFC	Hydrochlorofluorocarbon
HFDC	Housing Finance Development Corporation Limited
HPMP	HCFC Phaseout Management Plan
IA	Implementing Agency
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
LCE	Low Carbon Energy
LDC	Least Developed Countries
LDCF	Least Developed Countries Fund
LED	Light-Emitting Diode
MACI	Maldives Association of Construction Industry
M&E	Monitoring and Evaluation
MATI	Maldives Association of Tourism Industry
MEA	Maldives Energy Authority
MEE	Ministry of Environment and Energy
MHI	Ministry of Housing and Infrastructure
MOA	Memorandum of Agreement
MoFT	Ministry of Finance and Treasury
Mt	Megatonnes
NCSA	National Capacity Self-Assessment
NAPA	National Adaptation Plan of Action
NGO	Non-Government Organisation
ODS	Ozone depleting substance
OFP	Operational Focal Point
PIF	Project Identification Form
PIR	Project Implementation Review
PMU	Project Management Unit
PRC	Project Review Committee
PV	Photovoltaics
RE	Renewable Energy
RETDAP	Renewable Energy Technology Development and Application Project
SARI/E	South Asia Regional Initiative on Energy
SIDS	Small Island Developing States
SREP	Scaling up Renewable Energy Project
STELCO	State Electric Company Limited
STO	State Trading Organization Limited

TA	Technical Assistance
TM	Task Manager
TNA	Technology Needs Assessment
TOE	Tonne of Oil Equivalent
TOR	Terms of Reference
UN-DESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNDAF	United Nations Development Assistance Framework
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
USD	United States Dollar
WB	World Bank
WBCSD	World Business Council for Sustainable Development

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context



1. The Republic of Maldives is located 750km south west of Sri Lanka and comprised of 1,192 small, low lying coral islands, made up of 26 natural atolls stretching 860 km (north-to-south) from latitude 7°6'35"N crossing the equator to 0°42'24"S and lying between 72°32'19"E and 73°46'13"E across the Indian Ocean. The total land area is estimated at around 300 square km and the average size of the islands is 25 hectares.

2. The Maldives enjoys a warm and tropical climate, with weather being dominated by two monsoon periods; the southwest monsoon (the wet period, from May to November); and the northeast monsoon (the dry period from January to March) with little variation in temperature throughout the year. Daily temperatures range from 31°C during the day and 23°C at night. The Maldives on average receives 2,700 hours of sunshine each year.

3. The tourism and fisheries sector makes up approximately 40% of the national GDP, and together the two sectors are the biggest contributor to export receipts and employment. Both sectors are energy intensive with the tourism sector being the single most energy intensive sector in the economy. Other sectors such as construction also rely heavily on energy. Thus, the entire economy of the country is vulnerable to external shocks caused by fluctuations in the price of fossil fuels.

4. Energy needs for the Maldives are primarily met through imported fossil fuels. Energy security is critical for the country whose 300,000 plus population resides in over 190 islands that are flung across more than 100,000 km² of the Indian Ocean. The government recognizes that adequate energy supplies are important for food security, the delivery of essential public services, social equity and protection groups including women and children, governance and for economic growth throughout all of its inhabited islands and as such the government considers energy security a right of every citizen and is committed to the provision of energy resources at the lowest cost.

5. In 2009, diesel accounts for 82% of the total primary energy demand. 280,746 TOE of diesel was consumed in the country of which 67.7 % was utilized for electricity generation, 21% for sea transport, 8.9% by fishing boats, and 1% for land transport. The demand for diesel by the tourism sector for electricity generation, sea transport and leisure activities amounts to 36.6% of the diesel imported.

6. There are now seven operating utilities providing power across the country namely, STELCO, Upper North Utilities Ltd, Northern Utilities Ltd, Central Utilities Ltd, Central Utilities Ltd, Upper South Utilities Ltd and Southern Utilities Ltd. The total installed power capacity of these seven utilities is 106.2 MW. With the exception of STELCO the other six Utility Companies are now under the umbrella of FENAKA Corporation, a company owned by Government of Maldives, established on 18 June 2012. STELCO has an installed capacity of 61.98 MW, with 49.6MW installed in the capital city Malé alone. STELCO operates 10 power plants in Maldives which run on diesel.

7. Apart from these power plants, as Maldives is not completely connected by a grid system, many residents, industries and tourist resorts operate their own diesel generator sets. Resort islands operate their own captive systems. The Island Councils, with financial assistance from Government of Maldives (in the form of capital and operating subsidies) have setup and operate power generation plants around the islands of country. These are currently in the process of being integrated into the

utilities.

8. The Maldives has been demonstrating progress in various indicators of development. The per capita GDP of the Maldives for the year 2010 was USD 5,273. Tourism and fisheries are the mainstays of the Maldivian economy. As part of the Government tax reforms, the Goods and services Tax Act was introduced in 2011.

The Goods and Services Tax became operational in October 2011, and the Tourism Goods and Services Tax was raised from 3.5%, to 6% from January 2012, and to 8% from January 2013.

9. The Maldivian population enjoys universal access to electricity and the annual electricity production in 2011 reached over 428 GWh in inhabited islands. Malé consumed roughly 217 GWh of electricity which accounts for nearly half of total electricity generated for inhabited islands. The demand for electricity in Malé increases at a rate of 11% annually. Tourist resorts produce and consume about 60% of the national electricity production.
10. Maldives faces a particular series of challenges in the building sector, including high import cost of construction materials, historic depletion of natural resources (past use of coral materials in construction works, which is now prohibited by law) and high population density of its capital city Malé with small population groups dispersed across multiple islands and atolls.
11. The policy of decentralization and bringing vital social services to the outer atolls will draw resources and populations to the outer atolls reducing pressure in Malé. Consequently, it is predicted that there will be an increase of construction work in atolls. These atolls do not always face the severe space restrictions faced in Malé which have necessarily resulted in the construction of densely packed multi-storey residential, commercial and government buildings. New residential and industrial complexes are planned in the atolls to help reduce the high population density of Malé with relocation of the population to other islands. As the capital city, however, what happens in Malé is often duplicated elsewhere, hence lasting change requires both Malé and outer atolls to be influenced.
12. The building sector is generally under-investing in energy efficiency and other low carbon energy building technologies due to diffused responsibility for energy consumption over the lifetime of any given building. For example, there are no nationally coordinated efforts to promote energy efficient building and municipal technologies, such as efficient lighting. A comprehensive set of standards, rating systems, market suasion and innovation incentive tools are needed to break the stagnation in progressive improvements. Key constraints to these processes include fragmentation of stakeholders, lack of awareness, lack of means for key decision makers to participate in the global process to design a common benchmarking system, lack of capacity to adequately analyze the needs for policy intervention at local levels, and inadequate capacity to build capacity to collect local level data required for baselines and policy tools, such as information about availability of materials, products, services and the local level of technological development.
13. The Maldives has an approved HCFC Phaseout Management Plan (HPMP) which will address HCFCs in refrigeration, air-conditioning and potentially other uses such as insulation and foams. Direct emissions (leaks) of HCFCs and other ODS are GHGs but are not managed under the Kyoto Protocol, so are not recorded in the GHG figures here; however avoiding these emissions can provide substantial benefits. Further, as businesses and households make changes, such as purchasing new equipment, this can be tied with energy efficiency improvements so that the indirect savings from avoided fuel consumption can be achieved more effectively.

2.2. Global significance

14. The Maldives has set a target of being carbon neutral (net zero GHG emissions) by 2020. However, as the Maldives' absolute GHG emissions are low, success in achieving carbon neutrality may have a limited global environmental benefit. Instead, the global significance of this project is the potential of the Maldives to showcase how to achieve low-carbon energy policies and strategies, and encourage, even provide support, for its replication not only in other SIDS but also in many small island communities in larger archipelagic countries.
15. Part of this project includes training programs, which could be made open for other countries to attend. It is the global replication of successfully adopted low-carbon energy policies and strategies, which can generate more concrete global environmental benefits. The Maldives is a very high profile country; its officials have been very articulate in many international forums on the impacts of climate change on island states and communities. The fact that the country is also a popular high-end tourist destination adds to the country's high profile, and positively contributes to the promotion of any low-carbon energy and other sustainable policies adopted by the country, and their global replication.

16. The total GHG emissions from the country in 2009 were estimated at¹ 1.33 Mt CO₂-e (megatonnes of CO₂-equivalent), projected to rise to 2.7 Mt CO₂-e by 2020. The report estimated that around 51% of this is from electricity generation. A scoping study conducted by ADB in early 2011 indicated that at least 22% of 2009 GHG emissions (about 290,000 t CO₂e) will be avoided if EE measures were adopted by two end-using sectors targeted by this project: (1) residential/institutional/commercial buildings; and (2) tourist-oriented buildings in resorts. The scoping study assumed 100% penetration of energy efficient air-conditioners, refrigerators and pumps in both sectors, plus adoption of further energy efficient technologies in resorts for water heating, cooling/freezing applications, desalination, laundry and waste heat recovery.
17. As most of the energy use in Maldives is Refrigeration and Air Conditioning (RAC) equipment, a key element of the action plan evolved to achieve carbon neutrality is the implementation of the HCFC Phase-out Management Plan (HPMP) .

2.3. Threats, root causes and barrier analysis

18. The Republic of the Maldives is highly dependent on imported fossil fuels to meet its energy needs. Further, as a SIDS, it also relies on fossil-fuel based transport for the imports that provide the needs and wants of the population. As a result, the cost of energy and energy-dependant products can be both high, and unreliable, causing strain on national and individual finances. Ironically, the Maldives is also highly vulnerable to the consequences of fossil fuel use and associated climate change.
19. In declaring their goal of carbon neutrality by 2020, the Maldives shows they wish to change their fossil fuel dependence. A significant opportunity is to improve the efficiency of energy use. However, this transition requires directed action to change the current way of doing things, create an enabling environment, and promote change.
20. During consultation, all groups identified "lack of awareness" and "lack of regulations for EE in buildings". Through discussions, stakeholders agreed this could more appropriately be considered lack of motivation by consumers, helping to define the root causes of this barrier. Similarly, lack of regulations was agreed to be part of a wider problem of an unsupportive regulatory and policy environment which often gave perverse signals to the market. A lack of capacity, and poor design (and associated lock-in of energy intensive approaches to building comfort), rounded out the four main barriers identified in consultations.
21. Through this further investigation and analysis, a root cause analysis was defined, identifying four root causes which were considered in developing the detailed project design. These four root causes are:
 - a. Consumers are not motivated
 - b. Policies and institutional structures are not supportive (of low-carbon initiatives)
 - c. Buildings are poorly designed (requiring energy intensive solutions)
 - d. There is a lack of energy efficiency capacity

¹ All data from the Maldives 2009 Carbon Audit, BeCitizen, November 2010

2.4. Institutional, sectoral and policy context

22. The Government of Maldives is addressing the significant growth in developmental activities at regional and national level that has led to an escalation in the use of energy by decentralization (i.e.; restructuring transport networks using regional hubs rather than the capital Malé), privatization and opening of markets (particularly to energy suppliers promoting renewable energy and achieving greater energy efficiency). The country can no longer rely entirely on imports to meet its energy demands in order to sustain socio-economic development, thus, the urgency for developing energy policies to guide the growth and manage the energy sector, ensuring efficient energy use.
23. The government has set an ambitious national goal of achieving carbon neutrality by 2020 to mitigate the use of fossil fuels by adopting renewable sources and achieving greater energy efficiency. Energy efficiency is a central component of the National Energy Policy and will help reduce GHG emissions and energy costs, and contribute directly to energy security and affordable energy. Developing energy efficient products and services will support the growth of the energy sector and create jobs.
24. The Maldives was one of the first countries to sign the Kyoto Protocol and ratify it in 1998. The Maldives also actively participates in UNFCCC activities. They submitted their First National Communication in 2001, with a supplementary national carbon audit to IPCC standards in 2009. The Maldives also submitted its statement of Nationally Appropriate Mitigation Actions in early 2010, with the goal of achieving carbon neutrality by 2020. The project is also aligned with the market-based and socially integrated approach of the National Adaptation Plan of Action, which identifies energy as a vulnerable system.
25. At the national level, this project aligns with the Maldives National Energy Policy and Strategy (2010), which has energy conservation and energy efficiency as the third statement of the policy. This includes such actions as: "Encourage energy efficiency in both the supply side and demand side through financial and other incentives/disincentives in respect of energy end-use and mandatory measures such as appliance energy labelling, building codes and energy audits.
26. Power services in the Maldives have historically been provided by a number of groups. STELCO, the state-owned power utility, owns and operates thermal (diesel-based) generation for Malé and islands in the vicinity. In the inhabited islands, Island Development Committees were responsible for power generation and distribution; this was divided into 6 state owned utilities, which were recently merged to form FENAKA. Oversight and regulation of these utilities is performed by the MEA (Maldives Energy Authority). Generation, transmission & distribution, and retail functions are joined within the utilities that have a monopoly within their geographic area. As a result of various projects, particularly in the outer islands, the Maldives has achieved full electricity access. Until recently, the MEA was understaffed and constrained in achieving its regulatory function, but has now managed to increase its staffing levels and is improving its performance.
27. Tourist resorts do not participate in the energy services described, instead operating and maintaining their own equipment. Tourism facilities are designated an island - one island, one resort - with the Maldives originally developing as a high-end luxury destination. In recent times the market has been expanded to include some more moderately priced destinations and local guesthouse-type arrangements within the inhabited islands; generally however, a high level of luxury and service is provided. Resorts must also provide for water supply and wastewater treatment, and commonly use desalination to achieve quality drinking water. Where these costs can be passed through to consumers, however, efficiency of energy use in both supply and demand, is a lower priority.
28. In considering consumers, a clear distinction must be made between residents on Malé, residents on outer islands, the government and public building sector, and the commercial sector. Each have different reasons for their consumption, and therefore require different solutions and motivation to improve their efficiency. With Malé one of the world's most densely populated areas, a large population of residential users can be reached very cost effectively. For government buildings, there is no centralised record of energy use, and individual departments may be unaware of their consumption and how this compares with other similar sized organisations.
29. In addition, the government makes available a subsidy to consumers, for the first 300 kWh/month. The subsidy threshold is sufficiently high for households in Malé to have their electricity bill fully paid; in fact 60% of domestic electricity is below this threshold. This policy essentially discourages any perception of value to electricity, seeing it as a public good, disassociated from personal benefits.

30. The building sector is overseen by the Ministry of Housing and Infrastructure (previously Ministry of Housing and Environment; other functions moved to the Ministry of Energy and Environment). There is a draft building code, and various regulation relating to household safety, electrical safety (overseen by STELCO/FENAKA for grid-connected facilities). Suggestions have been made to include energy efficiency requirements in the building code; however, many of the supporting frameworks (e.g. acceptable lighting; enforcement) are not sufficiently developed for this to be effective in the short term. Also, under the Ministry of Housing of Infrastructure is the National Ozone Officer, responsible for implementation of the HPMP.
31. The building sector is well supported with 8 banks, as well as financing institutions such as HFDC and STO. They each offer different products and target different markets, for example HFDC's Home Loan Renovate package offers a loan up to USD 6,549 for essential repairs to upgrade the home (waterproofing, roof repairs, plumbing and electrical works). STO provides loans, repaid through deductions from payroll, for government employees only; STO is the only organisation that offers loans for appliances and equipment.
32. Ongoing provision of capacity relies on the Maldives National University, Maldives Polytechnic, various colleges, and opportunities for overseas training. For example, there are seven private colleges offering courses in management, business or marketing, together with the Maldives National University; however, courses in technical aspects of energy are not so widely available.
33. Strengthening of the building sector in both technical and commercial aspects relies on strengthening of the capacity providing institutions. For the finance sector, capacity building can be provided directly. Involvement in the program will be an effective mechanism to contribute to ongoing skills development, as experience will help in fine-tuning the program.

2.5. Stakeholder mapping and analysis

34. For the project to succeed, it is important to look at energy users as well as a wide variety of other stakeholders who influence the use of energy in the Maldives. Analysis of these groups and their interests was a critical preparatory activity undertaken and their continued participation will be crucial for the outcomes of the project activities to be sustained. One of the aims of the project is to bring widespread behavioural changes when making technical choices, and this cannot be achieved only by the project. Additional activity and programmes would be required.
35. The major stakeholder groups that impact the energy sector of Maldives have been identified and analysed. They consist of Consumers, Government, Commercial Sector, Utilities, Civil Society (NGOs), Development Partners, Educational Institutions and Financial Institutions. The following analysis should be considered dynamic as stakeholder interests, expectations and fears may shift, which requires continual observation of stakeholders and constant update of their interests, expectations and fears to be part of the monitoring process of the project.
36. **Consumers:** The electricity consumers can be broadly categorized as domestic (residential households), business (commercial) and government institutions (government and state entities). There are considerable differences between and within these sub-groups with respect to energy consumption volume, usage patterns and tariff levels. The most significant difference is the block tariff structure with clear distinction in the rates between the consumer sub-groups with the business and government cross-subsidising the domestic sub-group. There is a clear distinction between the consumers in the more affluent Greater Malé Region and the outer Islands. In addition, all domestic consumers (who wish to apply) and business consumers in the Outer Islands receive a direct subsidy from the Government which is currently a further reduced tariff rate for up to 300 kWh per month. This has posed a major challenge to promoting energy efficiency and conservation habits and investing in more pricy energy efficient appliances and building designs and materials. Reliability and quality of supply are ranked higher on their expectations instead of costs. However, this is expected to change as the subsidy reduces in the future.
37. **Government:** The Government's commitment to transform the energy sector from a fossil fuel dependant to a low carbon energy sector is evident with programmes for scaling up of renewable energy and development of the necessary regulations and capacity to back the Policies. "Promoting Energy Efficiency and Energy Conservation" is one of the National Energy Policies and supports the objective of this project. In 2012 fuel imports accounted for nearly 35% of GDP which has a significant impact on the balance of payment. The Government is also a very large consumer of electricity and the higher tariff has a major

impact on the budget. At the same time Government entities offer the most significant energy conservation potential as wasteful practices in energy are common. The long term Government priority is energy security or reducing vulnerability towards external shocks. Tapping on to the potential of low carbon technologies in most cases goes hand in hand with an increase in energy security and thus, this project is fully aligned with this important government interest.

38. **Commercial Sector:** The basic interest of this stakeholder group is an affordable and reliable supply. The cost of supply interruptions is high. The major sub-group within this stakeholder group are the Tourist Resorts, who operate independent power systems. They consume more than 40% of the diesel imported. While their major concern is the price of oil the efficient production, supply and use of electricity is beneficial to them commercially. They have already initiated energy conservation programs and have adopted low carbon technologies, predominantly solar water heating. Measurement of energy use and advice on conservation is an integral part of this project.
39. **Utilities:** The two national power utilities, STELCO and FENAKA, produce electricity entirely from diesel engines. STELCO, which provides electricity to the capital Malé Region, has initiated a power purchase agreement to purchase electricity generated from solar PV on six islands within their area of its operation. The local population is dispersed on about 200 separate islands. As there is no national grid, each of these islands has its own independent diesel based power system, which is very expensive to operate. Demand side management and scaling up of renewable energy need capacity development. Both utilities share limitations with respect to their capacity to plan, design, implement and monitor new technologies. While there is a keen interest in building knowledge and skills related to low carbon technologies, any project aiming to assist here has to take into account that capacity building needs to become part of the effort particularly to carry out energy audits.
40. **Civil Society (NGOs):** There are several active NGOs in the Maldives but none of them is active in the energy sector. Their interest is currently focussed as a consumer. In Malé Region, where the majority of the NGOs are based, they do not receive a subsidy but the NGOs based in the outer islands benefit from the Government subsidy. There are a number of NGOs involved in environmental protection and climate change related activities. They have been active in awareness raising and advocacy for climate change mitigation and adaptation and have been very visible particularly in advocating for protecting the reefs and marine life. These NGOs could become an important potential partner as implementers of certain activities of the project such as awareness raising.
41. **Development Partners:** With the announcement of the Government's carbon neutral goal in 2009 several development partners have taken a keen interest in assisting towards achieving this goal. The most important bilateral donor has been the Japanese government which had funded not only diesel based power systems but recently implemented grid connected solar PV project in Malé through grant funds. The government has also received funding under SREP which would be utilised for developing the RE sector. A common concern of development partners committed to low carbon energy systems is the difficulty to identify viable strategies and projects that reflect the reality on the ground with respect to the problems to be solved and capacities available. The recently formulated SREP Investment Plan addresses this issue partially as it is focussed on Renewable Energy technologies capacity development and investments. Initial discussion with development partners and Government is supportive of a well-designed innovative funding mechanism that would enable transition to a low-carbon energy market.
42. **Educational Institutions:** The Institutions would play a key role in developing local capacity necessary to adopt low-carbon energy technology and energy conservation and management. The Maldives Polytechnic currently focusses on conducting engineering and Technician training courses. They have introduced a certificate level training course for Technicians in installation and maintenance of renewable energy systems. The Maldives National University and a handful of private colleges offer courses in Management, Accounting and Marketing up to Bachelor Degree level. They would be important partners to design and conduct courses to train ESCOs in energy auditing and marketing their services to create a market for such services.
43. **Financial Institutions:** Lack of affordable finance was identified as a major barrier to adopting low carbon technologies and purchasing energy efficient appliances by most stakeholders. Commercial banks exist in Maldives, predominantly in Malé, with branches of the national Bank of Maldives on islands considered development centres. Their interest lies in expanding their operations without taking undue risks.

Participation in energy efficient appliance financing could be a potential new business opportunity. Lack of specialist expertise in the energy sector is an area of concern and building capacity would be required.

2.6. Baseline analysis and gaps

44. The current petroleum dependent economy of the Maldives is attempting to transition to a carbon neutral future. The primary focus to date has been renewable energy (RE), supported through numerous projects which either install RE themselves, or support an expansion in RE. Energy security is critical, especially for remote islands which may have extended supply chains that add cost, time, and uncertainty to energy supplies. However, any reduction in use also reduces the amount of RE required to provide energy services to the people of the Maldives.
45. Average electricity consumption is highest in the STELCO area, at 1,679 kWh/person/year, a little lower in the area previously covered by the Southern Utility, at 1,112 kWh/person/year, and between 398-512 kWh/person/year for the remaining utilities on the outlying islands. This reflects both the higher level of industrialisation in Malé (including the airport), as well as the significance of domestic energy use.
46. Maldives faces a particular series of challenges in the building sector; including high import cost of construction materials, historic depletion of natural resources (past use of coral materials in construction works, which is now prohibited by law) and high population density of its capital city Male' with small population groups dispersed across multiple islands and atolls. The low-lying nature of atolls and inhabited islands exposes the population to flooding and the long-term effects of incremental sea-level rise, including a projected increase in salinity of soil and groundwater.
47. The policy of decentralization and bringing vital social services to the outer atolls will draw resources and populations to the outer atolls reducing pressure in Male'. Consequently, it is predicted that there will be an increase of construction work in atolls. These atolls do not always face the severe space restrictions faced in Male' which have necessarily resulted in the construction of densely packed multi-storey residential, commercial and government buildings. New residential and industrial complexes are planned in the atolls to help reduce the high population density of Male' with relocation of the population to other islands. For example, the country is embarking a land reclamation project in the island of Th. Thimarafushi; this will include 10 hectares of land for residential buildings.
48. A building code exists in the Maldives but no provisions to encourage adoption of energy efficient design and the use or integration of efficient appliances, including incentives (or 'push') for existing building stocks to retrofit towards energy conservation and energy efficiency. Efficient lighting is widespread in Male' but have yet to be in other populated islands. Energy efficient refrigerators and air-conditioners can be bought from local suppliers or directly imported by larger users, such as the tourism-based enterprises, but no systematic promotion that include both incentives and regulations, are in place to maximize the potential for market penetration.
49. **RESIDENTIAL BUILDINGS** - The country has an on-going social housing program wherein about 3,000 housing units will be built with about US\$170m financial assistance from China. These include row houses, semi-detached houses, and multi-story flats to be built from 2012 to 2014. Following will be another 4,000 housing units, again with external assistance and financing not only from China but also from India. The construction period of these additional 4,000 residential buildings will coincide within the expected GEF project period (2013-2018).
50. **PUBLIC BUILDINGS** – An Energy Audit of the MHE building showed substantial amount of energy is wasted due to standby losses as well as due to the running of non-essential appliances/ equipment in office off-/night-hours. The wasteful and inefficient use of energy in MHE is duplicates in many other government and public buildings. Such losses can be avoided by having automatic / proper controls like switching off from the panels during such times. The project will target this sub-sector through a strategy that combines behavioral changes in energy use and building retrofitting.
51. **TOURISM SUB-SECTOR** - Tourist-oriented buildings will also be targeted not only because most of the EE & LCE design and technologies that will be promoted in the residential/public buildings will also be applicable to the tourist-oriented buildings, but also because the tourism sector represents the largest energy consuming sector in the country. Behavioral changes and building retrofitting strategies will also be promoted in this sub-sector.

52. The table below shows the pattern of energy consumption in the country for various sector (Maldives Energy Supply and Demand Survey 2009). These tables represent the most recent information regarding trend in energy use of the various end using sectors, which can be assumed to be the energy consumption of the buildings belonging to those sectors and localities:

Table 5.3.1.2: Energy consumption between the different types of end-uses in toe (Male Region)

Greater Male Region		Population: 130850			
toe	Electricity	Biomass	LPG	Kerosene	Total
Households	9,032	6	3,011	88	12,137
Lighting	2,181	0	0	1	
Appliances & AC	6,845	0	0	0	
Cooking and smoking	6	6	3,011	87	
Public	322	0	0	0	322
Manufacturing & Commerce	5,924	0	0	0	5,924
Government Buildings	3,377	0	0	0	3,377
Total	18,665	6	3,011	88	21,759

Table 5.3.1.3: Energy consumption between the different types of end-uses in toe (Atolls)

Atolls		Population: 183140			
toe	Electricity	Biomass	LPG	Kerosene	Total
Households	6,725	527	7,723	692	15,668
Lighting	3,268	0	0	235	3,503
Appliances & AC	3,207	0	0	0	3,207
Cooking and smoking	126	527	7,723	457	8,834
Others	124	0	0	0	124
Public	4,348	0	375	74	4,797
Lighting	2,643	0	0	0	2,643
Appliances & AC	1,705	0	0	56	1,761
Cooking and smoking	0	0	375	18	393
Others	0	0	0	0	0
Manufacturing & Commerce	399	0	20	141	560
Lighting	200	0	0	85	285
Appliances & AC	199	0	0	56	255
Cooking and smoking	0	0	20	18	38
Others	0	0	0	0	0
Total	11,472	527	8,119	907	21,025

53. Although land in Malé is constrained, a policy of decentralisation, as mentioned above, has seen the construction industry - and energy demand - grow throughout the inhabited islands. Even in the Greater Malé area, a land reclamation project on Th. Thimarafushi will include 10 hectares of land for residential buildings. Further, resorts are expected to expand and grow in numbers, with 64 resorts for tender in the next 5 years (Carbon audit), although not all would be expected to succeed in their plans. The Director-General of tourism indicated a number of multi-million dollar resorts are in progress, and without this project, are unlikely to specifically consider energy efficiency.
54. Currently energy efficiency is a low priority for most people. The subsidy scheme sends both an economic and political signal that energy is not a priority, and that individuals can look to the government for assistance. Further, government buildings are not obviously efficient, nor do they demonstrate practices that would support efficiency, such as good building management or proactive maintenance and servicing.
55. The regulatory and policy environment endorses the low priority of energy efficiency. Energy efficiency can be promoted under other names - good lighting, natural ventilation, preventing solar heat gain - to achieve EE outcomes. Even so, good building material and design is also a low priority. Instead, the extremely constrained land area of Malé, and indeed the whole country as an atoll state, creates a preference towards maximising floor area and constructed space, instead of using area for shading, or green space.

56. These can be seen in several on-going and planned building infrastructure projects in the country. The country has also planned RE supply projects, in which opportunities for enduse energy efficiency are not exploited and/or recognized. The GEF project will build on these projects and interventions in order that EE potential and opportunities are integrated and/or added to them (see discussions and table presented in Section 7.: Project Co-financing)
57. As a result, there is a strong possibility of lock-in of energy-intensive buildings. With neither technical guidance nor visible leadership from the government, it is anticipated that energy demand for cooling and lighting will continue to grow in line with the growing population and economic development of the Maldives.
58. On an economy-wide basis, the business as usual scenario, for GHG emissions shows growth of 92% to 2.5 Mt CO₂-e by 2020, from the estimate of 1.3 Mt CO₂-e for 2009 (Carbon audit, conducted to IPCC standards in 2009). Electricity generation/consumption accounted for 82% of greenhouse gas emissions in the 2009 estimates. Electricity use and its associated diesel consumption is expected to grow strongly: from 79MW in 2010 to 117 MW in 2020, 48% in 10 years (SARI/Energy study).

2.7. Linkages with other GEF and non-GEF interventions

59. The Republic of the Maldives has strongly identified their intention to transition to carbon neutrality by 2020. As a result, many interventions have commenced or been proposed. So far, these have been predominantly in the area of renewable energy, particularly solar PV. Transport, as an economically significant and energy intensive sector, is being considered in projects currently under development. However, building sector projects focus on social housing and housing needs, not on the energy efficiency of these contributions.
60. GEF interventions comprise 11 approved national projects, and participation in 4 approved regional projects, funded from the GEF trust fund and LDC fund. The following table shows interventions that are relevant to this focal area, and demonstrates that their outputs have been considered in the analysis of the current situation, and duplication has been avoided.

GEF ID	Project title	Project status	Link
310	National GHG Inventory and Vulnerability Assessment for the Maldives : A Climate Change Enabling Activity	IA Approved First NC submitted	Information used to develop project design
1029	Renewable Energy Technology Development and Application Project (RETDAP)	Completed October 2010	This project was RE focussed while current project is EE focussed. However, much of the context and principles remain valid in achieving success and sustainability and have been used in stakeholder consultation and Project Document development
1835	National Capacity Self-Assessment (NCSA) for Global Environmental Management	IA Approved Implementation jointly with TNA and NAPA project	TNA and NAPA completed and referenced in project development
2353	National Adaptation Plan of Action	IA Approved NAPA complete	This project supports the NAPA through the following areas of policy and priority actions: Critical infrastructure: 2. Strengthen capacity for planning and design of infrastructure to ensure development of resilient infrastructure. 3. Protect powerhouses and utilities.

GEF ID	Project title	Project status	Link
			Water resources 3. Acquire desalination technologies suitable for small islands. [which has significant energy implications] Priority actions #8 Improve building material and designs to increase resilience and strengthen enforcement of building code. #30 Acquire desalination technologies appropriate for small islands
3847	Integrating Climate Change Risks into Resilient Island Planning	IA Approved (LDCF)	Focuses on DRR and coastal planning in light of climate resilience. Relevant elements to be incorporated into any building material and design guidance/codes.
4431	Increasing Climate Change Resilience of Maldives through Adaptation in the Tourism Sector	IA Approved (LDCF)	As tourism is a key sector for energy use, and efficiency is a ‘no regrets’ adaptation measure, ongoing liaison will identify if opportunities for links arise.

61. There are a number of other projects and activities happening in the Maldives that contribute to the goal of carbon neutrality by 2020. However, these predominantly focus on renewable energy; therefore there is little potential for duplication and coordination with other projects. The project will ensure the identification of any important lessons or links to enable adaptive management. An example would be where renewable energy also wishes to undertake an approach involving financing, and then coordination could be used to avoid overwhelming the institution and markets' absorptive capacity. Note that energy efficiency is addressed in only a limited way, hence the need for this project. Major projects are shown in the following table:

Donor/ lead agency	Project name	Status	Description	Linkage to this project
ADB	SREP (Scaling up Renewable Energy Project)	Approved	Increasing use of local renewable energy sources, particularly in outer islands	As this is also a market-based project, coordination is required to manage resource needs of private sector & financing institutions
USAID	SARI/E (South Asia Regional Initiative on Energy)	Launched 2011	Wind and solar resource studies; capacity building	
Japanese government	Project for Clean Energy Promotion in the Maldives	Launched 2011		
Various programs, NGOs	Various	Various	Small-mid size PV installations	Renewables sector, not efficiency
World Bank (through MHE)	Clean Energy for Climate Mitigation Project	Feb 2012 – Sep 2014	Fossil fuel avoidance by Renewable Energy, Energy Efficiency,	Direct action for small islands; not relevant to market-based approaches for Malé and resorts

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Donor/ lead agency	Project name	Status	Description	Linkage to this project
			and Technical Assistance in an island community	
Adaptation Fund (through UNDP)	Integrated Water Resources Management to strengthen climate resilience of Mahibadhoo, Ihavandhoo and Gadhdhoo	Project implementation in progress	Assisting communities with Integrated Water Resource Management, including solar water pumping on small inhabited islands	Not directly related to this project
Montreal Protocol (through UNEP and MEE)	HPMP (HCFC Phaseout Management Plan)	Ongoing	Building on similar work to restrict and phase out CFCs, this now targets HCFCs, encouraging a shift to new refrigerants.	Links in the areas of activities (labelling, enforcement, training) and also in the opportunity as people move to new appliances, to promote the principles (low-ODS, low-GWP, high efficiency) simultaneously and coherently. Experience elsewhere is that confusion may arise if the ideas are promoted in a competing fashion.
DANIDA (by UNEP Risoe Centre and MHE)	Green Facility	Completed	Aims to build capacity and develop Clean Development Mechanism projects in the Maldives	Need to avoid overlap and encourage access to carbon market
Climate Change Trust Fund - EC and Australia (Managed by WB)	Ari Atoll Solid Waste Management Pilot Wetlands Conservation and Coral Reef Monitoring for Adaptation to Climate Change	Under implementation	Reducing greenhouse gas emissions and damage done to the local marine environment in the western atoll; Enabling the local governments to implement a clear strategy for wetland management, drainage management, ecotourism and community rainwater harvesting	Not directly related to this project

62. The 2011-2015 UNDAF Action Plan chapter on “Climate Change Adaptation and Disaster Risk Reduction (DRR)” states that the “National Development Priority: Protect and preserve the natural environment to ensure prosperous economic development and healthy communities; reduce greenhouse gas emissions and

achieve carbon neutrality, promote renewable energy technology applications; build institutional framework for DRR and climate change adaptation.

63. UNEP has the following regional climate change projects being implemented in the Asia-Pacific region, with which the project will link with, for which expert advice and technical support can be provided from. It includes:
- a) **NAMA (Nationally Appropriate Mitigation Action) Development for Building Sector** (Supported by BMU Germany) – The objective of this project is to improve energy efficiency of buildings and the reduction of emission from the building sector; and to identify and assist in the removal of institutional barriers, including financing, and provide the necessary tools specifically for building sector NAMAs.
 - b) **End user Finance for Access to Clean Energy Technology** (Supported by BMU Germany) – The objective of this project is to help overcome the financial barriers to implementing clean energy technologies; to initiate and increase domestic bank lending to end-users of small-scale clean energy.
 - c) **Climate Technology Network and Finance Centre** (GEF funded project jointly implemented by UNEP and ADB) - The objective of this project is to reduce GHG emissions by assisting Asia-Pacific countries in moving towards a low carbon development path and to reduce their vulnerability to climate change by improving climate resilience knowledge and skills in the region. The project will aim to accelerate the adoption and deployment of climate technologies and foster investments in environmentally sound technologies (ESTs). It will build on the encouraging market development rates of the countries and will seek to demonstrate, on a pilot basis, the effectiveness of combining technology and finance mechanisms into catalyzed climate actions.
64. The contribution of this project to the UNEP 2014-2015 Program of Work will be to Expected Accomplishment B of the Sub-Programme on Climate Change; i.e.; "Energy Efficiency is improved and the use of renewable energy is increased in partner countries to help reduce greenhouse gas emissions and other pollutants as part of their low emission development pathways.
65. In order to ensure good coordination with existing projects, or those that might arise, the Project Board will develop a coordination strategy between the various stakeholders, including regular meetings and other forms of communication. This will also stimulate progress, and bring together government and non-government actors (such as retail associations, financing institutions and civil society).

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1. Project rationale, policy conformity and expected global environmental benefits

Building Environment.

66. Over 35% of the population of the Maldives are on the island of Malé and over 70% of all electrical energy is used on that island. Malé is one of the most densely populated islands on earth with 18,000 persons/km². Over 90% of the land area is covered with tightly packed multi-story buildings, mostly of high mass concrete masonry construction with metal or concrete rooves. Land area available for new construction is very limited necessitating high-rise type construction and the reclamation of land from the sea. Over 99% of electricity is generated by diesel engines with a current power cost of around USD 0.26/kWh. Electricity prices more than doubled between 2000 and 2013 and therefore the older buildings that form the bulk of the current building stock were not constructed with energy efficiency as a priority. As a result, air conditioning for comfort reasons is common and is estimated to represent around 40% of total electrical energy use in the resorts.
67. Though only 4.1° north of the Equator, the temperature regime is not excessively hot because of the mitigating effects of the sea. With no part of the Maldives more than 1 km from the sea, there is little variation in temperature from day to night or over the year.
68. There are major opportunities to reduce energy used for air-conditioning, both through the replacement of lower efficiency units with higher efficiency air-conditioners, and through building envelope modifications to reduce solar heat gain and general daytime heat entry day. Refrigerators and freezers are common

appliances on Malé and also should be the target of efficiency improvement programmes. Energy efficient refrigerators and air-conditioners can be purchased from local suppliers or directly imported by larger users, such as the tourism-based enterprises, but there is no systematic promotion for energy efficiency that includes the efficiency standards, incentives and regulation needed to maximize the potential for market penetration of high efficiency units.

69. Currently, the MEE is implementing their HCFC Phase-out Management Plan (HPMP) which restricts imports that have HCFCs, primarily refrigeration and air-conditioning equipment. In conjunction, shrinking import quotas of the HCFC gas means that those with this type of equipment will be restricted in their ability to undertake repairs, and will need instead to replace equipment, or at least retrofit with an alternative gas. By working cooperatively at this transitional time, consumers can be encouraged to shift purchasing behaviour towards more efficient units.
70. Many buildings have a design that limits window heat entry at the expense of day lighting making daytime electric lighting a requirement in most commercial and office spaces as well as in some residences. Most primary lighting uses fluorescent tube lights using transformer type ballasts therefore a lighting energy efficiency improvement can be achieved through their replacement with T5 lamps in combination with high efficiency electronic ballasts. Secondary lighting using incandescent lamps is no longer common on Malé though many remain in use on the outer islands and their replacement by Compact Fluorescent Lights or LED-type lamps can be of benefit.
71. Other significant users of electrical energy are entertainment appliances, computers and small appliances used for cooking and personal care. Water heating is present in the tourist sector but not common in other sectors.
72. Because virtually all of the water supply is produced through reverse osmosis desalination processes and distributed through a public piping system, there is a high energy usage related to water supply, distribution and pumping. In Malé, rooftop gravity tanks are present on many buildings requiring individual pumps to be associated with each multi-story building.
73. Although emigration from the outer islands to Malé has been the principal reason for the high population density on Malé, a policy of decentralization and providing vital social services in designated development centres among the outer atolls has helped to draw resources and populations to those outer atolls and thereby reducing the population growth rate in Malé. Consequently, it is anticipated that there will be a major increase in building construction on these designated outer atolls. These atolls do not generally face the severe space restrictions of Malé and a number of new residential and industrial complexes are planned. For example, a land reclamation project in the island of Th. Thimarafushi will include 10 hectares of land for residential buildings.
74. There is a building code but it includes no guidelines or standards for building material and design, and building construction relating to energy efficiency. Although there is some awareness within the building design and construction industry of the basic design and construction requirements for energy efficiency in buildings, there is room for substantial improvement through the preparation and implementation of guidelines, standards and possibly building codes that focus on energy efficiency measures including EE construction materials for new construction.
75. Since by far the largest energy usage is in buildings on Malé, renovation of existing buildings needs to be a major part of any effort to greatly increase energy efficiency in the Maldives. Currently there are no programmes, guidelines, standards or financial processes focused on improving energy efficiency in the existing building stock. Processes for reducing solar heat gain, integrating natural ventilation, replacing artificial lighting used during the day with natural light and improving the efficiency of lighting and air conditioning will be needed. Although there are competent architects, engineers and building contractors in the Maldives, the scale of the effort to improve overall energy efficiency of existing buildings will require a number of additional personnel who are trained in identifying opportunities for energy efficiency improvements, estimating their life-cycle cost and rate of return to the building owner, accessing finance for energy improvement projects, designing the implementation of those improvements and installing them. Local building financial institutions will need access to low cost funds for the cost effective finance of these improvements and training in risk management for energy efficiency related renovations.
76. The building sector is the major user of RAC equipment. Guidelines, codes for promoting green/ energy efficient building material and design, and building construction using climate friendly alternatives of

HCFC in RAC as well as building insulation could be useful policy tool for achieving accelerated phaseout objectives. This intervention is vital to balance the growth in the building sector in support of sustainable economic development.

77. **Residential Buildings** – The Republic of the Maldives has an on-going social housing program wherein about 3,000 housing units will be built with USD ~\$170 million in financial assistance from China. These include row-houses, semi-detached houses, and multi-storey flats with project completion planned for 2014. Following that will be another 4,000 housing units, again with external assistance and financing from the governments of China and India. The construction period of these additional 4,000 dwellings will coincide with the expected GEF project period (2014-2018). There currently are no energy efficiency standards or guidelines that can be mandated for these buildings.
78. **Public Buildings** – An energy audit of the MHI and MEE building showed a substantial amount of energy wasted due to standby losses and inefficient electrical equipment as well as due to the running of appliances/equipment in offices when not occupied. The wasteful and inefficient use of energy in the audited building is duplicated in many other government and public buildings. The project will target this sub-sector through a strategy that combines policy changes focused on instituting departmental responsibility for energy management, behavioural changes in energy use and building retrofitting.
79. **Tourism Sub-Sector** - Tourist buildings will also be targeted not only because most of the EE and low-carbon energy design and technologies that will be promoted in the residential/public buildings will also be applicable to the tourist-oriented buildings, but also because the tourism sector represents a major energy consuming sector. Detailed energy audits to identify areas for the improvement of equipment efficiencies and the energy characteristics of building envelopes will be provided. Upon completion of audits, assistance in obtaining finance for energy efficiency improvements that are shown by the audits to be cost effective will be the focus of the efforts in this sector.

Policy Conformity

80. A National Energy Policy was adopted in 2009. The government has set itself the ambitious goal of going carbon neutral in ten years and has promulgated the following policies:
 1. Provide all citizens with access to affordable and reliable supply of electricity
 2. Achieve carbon neutrality in the energy sector by year 2020
 3. Promote energy conservation (EC) and energy efficiency (EE)
 4. Increase national energy security
 5. Promote renewable energy technologies
 6. Strengthen the management capacity of the energy sector
 7. Adopt appropriate pricing policy for energy sector
 8. Ensure customer protection
 9. Enhance the quality of energy services”
81. Policies 1, 2, 3, 4, and 6 are clearly being addressed by the GEF project. Policy no. 3 includes strategies to promote energy conservation and energy efficiency including, “advocacy and awareness programs; adoption of incentives, labeling and standards, EE building codes, energy audits; private sector to provide needed specialized services for adopting EE measures; identify all opportunity areas for EE technologies and EC measures for implementation in the country.” All these strategies are included as Components in the GEF project.
82. There are currently discussions on upgrading the status of building standards in the Maldives, including by adding energy efficiency principles. There are a number of challenges to this approach:
 - a. Technical: defining energy efficiency is complex, as it is not only individual choices (lighting, windows, insulation, and equipment) but the interactions between these and other factors (reducing heat generation from equipment or solar gain also reduces the burden on air conditioning and can have complementary outcomes). Experience in other countries (e.g. Australia) have shown that long, complicated and technically detailed requirements are needed to create deemed-to-comply standards; the alternative, outcome-

based standards, transfers this technical complexity to designers, installers, and building inspectors, and at its most extreme requires expensive modelling.

- b. Ability to achieve: efficiency in buildings often requires attention to even small details, such as specification of glazing or insulation levels. In a SIDS like the Maldives, applying this nationally can have perverse outcomes, such as price rises on certified materials/reliable brands, lack of supply, or even an unwillingness to enforce the code if it not seen as reasonable; further, the skills to understand/interpret and apply this would need to be built up rapidly if it were to be a mandatory code
- c. Enforcement: moving from a situation where energy efficiency is a low priority, to becoming mandatory, will create a rapid change and heavy burden on the capacity of all associated steps (retail supply, installers, building designers, inspectors, prosecution of non-compliance); if not achieved, this will provide a counter signal that the government does not consider efficiency as a meaningful activity; in order to build credibility, it is perhaps better to work with early adopters and do efficiency well, rather than push this before it is widely understood. Further, enforcement comes with a price tag for governments to administer and prosecute where necessary.
- d. Results: building codes may only prevent 'worst case' actions, they cannot mandate for everyone to undertake the most advanced (and often most costly) action; for example buildings are usually required to withstand likely risks (typically 1 in 30 year events) but not all foreseeable risks (say 1 in 100 year events or worse). Starting with a mandatory approach may achieve some things, but is unlikely to inspire.

83. Therefore, while in the long term it may be feasible to align energy efficiency actions with the building code, establishing a voluntary guideline, with associated support and incentives, may provide a phased approach to achieving an Energy Efficiency Law and related policies, and inspire new ideas that are associated with the Maldivian environment and culture that would achieve wider uptake than imported systems.

Expected Global Environmental Benefits

84. The Global Environmental Benefits of this project can firstly be considered as the greenhouse gas reductions caused by the project. Part of the output of the projects will be investments in residential and commercial buildings; in government buildings; and in the tourism industry (Components 2, 3 and 4 respectively). These activities will result in direct greenhouse gas emission reductions during the project's implementation phase.
85. As a result of these activities during the project implementation period of 4 years, direct greenhouse gas emission reductions totalling 120,222 t CO₂-e will be achieved over the lifetime of the investments of 5 years. In the non-GEF case, these energy needs would need to be satisfied by diesel-powered grid electricity, with a marginal generation of 0.8 t CO₂-e/MWh (default factor for diesel generation).
86. Using the GEF bottom-up methodology, indirect emission reductions attributable to the project are 240,085 t CO₂-e. This figure assumes a replication factor of 2.
87. Using the GEF top-down methodology, indirect emission reductions attributable to the project are 372,113 t CO₂-e. This figure assumes that total technological and economic potential for GHG emission reductions in this area over 10 years is 372,113 t CO₂-e, with a project causality factor of 80%.
88. Given the Maldives' very visible vulnerability to sea level rise, and its very public statements and advocacy on this issue, leadership benefits are expected to arise from this project. With support from the government, this project can enable attention to be called to the often less popular area of energy efficiency, and the many benefits available. The Maldives is also part of various groups such as AOSIS through which it can effectively network and share stories of the opportunities available. Further, with the participation of UNEP as the Executing Agency, this enables further dissemination through official networks. Further contacts through networks on sustainable, green or energy efficient buildings can also be used, although this may be speaking to those who are already participating in the industry.

3.2. Project goal and objective

89. **Goal.** This GEF project will aim to contribute to: (1) the transformation of markets for energy efficient technologies in buildings and the built environment in the Maldives; and (2) the promotion of energy efficiency investments in buildings, particularly through private-public partnerships. The project will not only target energy efficient technologies, but will also promote emerging low carbon energy technologies for the building sector.
90. **Objective.** The overall objective of this project is to mainstream energy efficiency measures into housing policies, guidelines, standards and building practices in the Maldives and to achieve a substantial reduction of GHG emissions as a result of improved buildings and building management practices and to leverage substantial investment in activities leading to increased energy efficiency in the Maldives. As the electricity demand will be reduced, the project will also make it possible to delay investment in an expansion of the electricity supply to satisfy the projected annual increase in demand.
91. The project will strengthen the building sector to address energy efficiency issues and promote expansion of investment in energy efficiency technologies/design in the housing, public and tourism building sub-sectors.
92. The project will synergise with HPMP to ensure that low-GWP refrigerant options are preferred; ensure that equipments with low-GWP refrigerant based technologies are encouraged for this purpose.

3.3. Project components and expected results

93. The project will include eight specific Components which together form an integrated approach that not only removes barriers, but generates demand for public and private sector investment in energy efficiency improvements for buildings with a minimum of dependence on external expertise. The eight Components are grouped into four activities. The Components allow for the separate approaches needed to address residential, commercial, resort and government building energy efficiency with individual, focused programmes.

94. **Activity 1 -- Monitoring and assessment** – This is required in order to determine the effectiveness of the measures that are being carried out and is universally required for all types of projects.

Component 1 - Implement a monitoring and assessment system.

95. **Activity 2 – Increasing investment in building related energy efficiency** – This represents the primary goal of the project and includes:

Component 2 – investment in residential and commercial buildings;

Component 3 – investments by Government;

Component 4 – investments by the tourist industry.

96. **Activity 3 – Capacity building to support investment development** – These Components focus on creating and maintaining the capacity needed to determine investment opportunities, provide for intelligent purchasing and stocking processes for building materials and equipment, and provide the services necessary to implement and maintain energy efficiency measures. These include:

Component 5A – technical training for auditing, design, installation and maintenance of energy efficiency systems for buildings;

Component 5B – business training for marketing, purchasing, and managing commercial energy efficiency components;

Component 5C – develop and deploy public information and education programmes.

Component 5D – develop the capacity to market energy efficiency loans and to understand and use building efficiency measure guidelines and standards for new buildings and renovations.

Component 5E – develop the capacity to monitor and manage energy in government facilities.

97. **Activity 4 – Policy and regulation** – Includes Components that provide guidelines, standards, codes, legislation and regulations relating to energy efficiency that are needed in order to make investments more effective and attractive. In all of these three components, the promotion of low-GWP cooling and refrigeration technologies will be integrated. These are:

Component 6 – development and adoption of a phased implementation for an Energy Efficiency Law. The law will define priority programmes within government to improve government departments' energy efficiency;

Component 7 – development and adoption of a phased implementation for legislation on building energy efficiency;

Component 8 – appliance labeling and energy efficiency related import regulations for large energy use appliances.

98. A more **detailed description of project components** are given below:
99. **Component 1:** Establish a monitoring and assessment system to create an energy use baseline and to track the changes in energy use in buildings. To do this, energy audits and energy surveys will be carried out in order to establish a base-line for building energy use and to determine opportunities for implementing cost effective energy efficiency measures. A process for on-going monitoring of building energy use will be developed in order to determine the changes in energy use that are the result of the GEF project.
100. **Component 2:** Development of programmes through existing financial institutions to support finance for (i) energy efficiency measures in new buildings, (ii) renovations of existing buildings, and (iii) the replacement of low efficiency major appliances with high efficiency units (which will include use of low-refrigerant based technologies). Through the Maldives Housing Development Financing Corporation, obtain access to existing funds, such as those at the EIB, that target energy efficiency development and use those funds to develop financing programmes for new energy efficient buildings and for retrofitting existing buildings with energy efficient features using guidelines and standards to be prepared under the GEF project.
101. Existing arrangements for the general public to purchase major appliances such as refrigerators, freezers and air-conditioners do not include their finance through monthly payments. To encourage the purchase of high efficiency appliances, a loan guarantee programme would be established to reduce the risk to local financial institutions for the three to five year finance of only high efficiency refrigerators, freezers and air-conditioners approved for finance by Government. Lower efficiency units would not be financed under the programme, nor would units that use refrigerants that are ozone-depleting, but will instead target energy efficient low-GWP refrigerant based technologies.
102. **Component 3:** Implement practical, public demonstrations of energy efficiency design and technology in selected public buildings. As a part of the programme to improve the credibility of Government in its promotion of energy efficiency for buildings, one or more Government buildings will be renovated to become models of cost effective energy efficiency structures and energy management.
103. **Component 4:** Hotel and resort industry support through high quality energy audits and technical assistance such as in the economic use of waste heat from diesel generators and other equipment. Using the audits and their analysis, provide assistance in locating funding/financing for those energy efficiency investments shown to be cost effective through the energy audits.
104. **Component 5:** Capacity building. This component has five sub-components: (i) Capacity building for technical energy efficiency actions; (ii) capacity building for businesses to carry out marketing and financing and project management for energy efficiency measures; (iii) capacity building for financial institutions to market and manage energy efficiency loans; (iv) capacity building for the public and building owners to make decisions that result in the implementation of cost effective energy efficiency measures; and (v) capacity building for government facility energy managers to properly carry out their responsibilities. All capacity-building activities will include subjects and/or courses that discuss use of low-GWP refrigerant technologies as key part of the RAC modules.
105. *Component 5A – Technical Capacity Building:* Provide capacity building for technical expertise in energy auditing, building material and design, building construction, building renovation and building energy management. The project will assist local educational institutions develop the courses necessary to achieve the required capacity building and to maintain it for the long term. The tertiary institutions that can implement the required capacity building include the Maldives National University through their Business and Electrical Engineering programmes and the Maldives Polytechnic through their electrical trades programme. Links would be built with technical training through the HPMP implementation to ensure that

new refrigerants (alternative refrigerants and other new low-GWP alternatives) can be safely and effectively incorporated and existing equipment and materials are disposed of safely.

106. *Component 5B – Capacity Building for Businesses:* Create programmes for energy efficiency related capacity building for local businesses to develop and supply markets for energy efficient products. The project will assist local business schools develop and provide the courses necessary to achieve the required capacity building and provide for its long term maintenance. Institutions in the Maldives that this Component would be directed to include the Maldives National University and the six private business schools currently operating in the Maldives.
107. *Component 5C – Public and Facility Owner Capacity Building:* Prepare and deliver public information and education programmes focusing on energy efficiency, including the effect of refrigerants on climate. The project will work with local media producers to develop and deliver a long term, consistent series of public information messages for delivery through the various media outlets, through STELCO billing processes, fairs, events, posters and booklets.
108. *Component 5D – Financial Institution Capacity Building:* Capacity building will be provided for participating financial institutions to develop the skills needed to market energy efficiency loans and to understand and use the guidelines and standards prepared under the GEF project to qualify applicants for concessional loans for new energy efficient buildings or for building renovations that result in increasing their energy efficiency.
109. *Component 5E – Capacity building for government facility energy managers* for the skills needed to properly carry out their facility energy management tasks correctly, fairly and with authority.
110. **Component 6:** Programme for improved energy management within government. Government facilities are typically not good examples of energy efficiency. In order to retain the confidence of the public relative to government pronouncements of policies to promote energy efficiency in buildings, the Government of the Maldives will need to take the lead. The project will work with the office of the President and the Ministry of Finance and Treasury to develop policies and programmes for improved energy management within Government Departments. The concept to be provided will include establishing a clear chain of authority and responsibility for Departmental energy use and for the management of energy use by the civil servants in Departmental facilities. Incentives will be proposed for Departments to reduce energy usage, for example the sharing of the value of energy reductions between the Ministry of Finance and Treasury and the Departments achieving the reduction. Purchasing policies will be developed to emphasize life-cycle cost rather than first-cost for energy using equipment and also, for building materials. For RAC equipment, this will include low-GWP refrigerant technologies.
111. **Component 7:** Development and adoption of a phased implementation for legislation on building energy efficiency. The development of the legislation will involve the preparation of practical and easily enforceable construction and renovation guidelines and standards for improving energy efficiency, including the selection of building materials, in new and existing residences, commercial buildings, government buildings and tourist facilities. These standards and guidelines will be used by building designers and contractors to prepare new building plans that include energy efficiency measures and to prepare renovation plans that include energy efficiency measures that are a part of the standards and guidelines. Through the use of a government energy efficiency plans approval process, financial institutions will be encouraged to provide for advantageous finance for new buildings that have been approved as energy efficient under the government standards and guidelines approval process as well as for the finance of energy efficiency improvements to existing buildings that also are approved under the guidelines and standards. Among the provisions of the law that will be considered is the revision of the building code to consider introducing voluntary or preferably mandatory minimum EE performance standards for buildings to create the right signals in the market place. Such provisions is expected to create the conditions or right incentives for market actions and the efficiency gains the project is targeting. Finally, in recognition of the current lack of capacity for implementing the law, and that the effort to develop local capacity will just be done at the same time that the EE law will also be formulated, the implementation of the law will be done in phase manner; tied up with the availability of capable staff to implement the law and its implementation. One approach is to target only buildings in Male' during the first phase of the EE implementation (e.g.; the first five years).

112. **Component 8:** Programme to improve electrical appliance energy efficiency through energy labels. The project would determine the most cost effective approach to appliance labeling in the Maldives and assist Government in establishing procedures and standards and in designing and implementing an appliance labeling programme directed mainly toward increasing the percentage of sales of energy efficient large appliances. Included will be the determination of the ability of government to enforce import restrictions to prevent the import of low-efficiency major appliances and if considered reasonable, the project would assist government in the design of such a programme including establishing standards and labeling requirements for acceptable imports. As in the other project components, RAC equipment and appliances using low-GWP refrigerants will be included.

3.4. Intervention logic and key assumptions

113. Energy efficiency in buildings has the potential to provide multiplier benefits to the electricity sector, through infrastructure avoidance; to renewable energy projects underway by reducing energy generation requirements; to the economy, the government and subsequently to the community as generation is heavily subsidised and the economy is vulnerable to oil shocks; and lastly but not leastly to the environment, as electricity in the Maldives is the primary user of diesel.
114. Studies on the potential for energy efficiency show significant opportunities on a national basis, but did not consider how this could be translated into a transformed market so that the opportunities could be realised.
115. The approach being used primarily targets motivation for use of energy efficient equipment, and aims to build demand in the market for improved design and better equipment/appliance choices. Some preliminary TA in the policy and knowledge areas is envisaged, however the main focus of the project is on creating 'pull' factors in the market, through incentivising demand. This will be implemented on a sectoral basis, so that potential buyers (investors) are given coherent information/marketing on a range of products. However, it is acknowledged there will be significant similarities where the same actions are proposed, and cross-sectoral alignment is also planned, for example to prepare marketing materials for air-conditioning or lighting, which can then be adjusted and packaged together with other sector-specific information.
116. Many of the proposed improvements are familiar, or similar in principle to existing energy uses, for example newer air-conditioners and refrigerators require little explanation. However, given the small population of the Maldives, and the high degree of interconnectedness of this small population, there is value in having 'look and touch' opportunities such as in public buildings, which have high traffic yet are familiar in concept. Using government buildings for this purpose is intended to create visible public leadership to gain additional value from the energy efficiency improvements. Public visibility is particularly significant for improvements to design and the building envelope, for which the combined effect is relevant and therefore must be demonstrated.
117. It is for this reason that many of the cofinancing projects provide both a high value of investment and a significant benefit in accordance with the principle of 'learn by doing'. While they occur under both the baseline and project scenarios, the approach to implementation will be vastly different, which is the reason for inclusion as cofinancing. Many energy efficiency actions can be done with similar construction cost, if the necessary guidance is provided early in the project.
118. It has been assumed that retailers are willing to be involved in programmes that would promote energy efficiency. Based on stakeholder discussions, and the opportunity for sales at low-risk - where the project is promoting sales and providing financing for particular items - there has been interest from suppliers. Building designers have also shown interest, as high-profile public support for good design would benefit their industry; it is therefore assumed they would be willing to cooperate.
119. Given the similarities between the Maldives and other Small Island Developing States in the Pacific, it has been assumed that some economic features and benefits would also be similar. For this reason, the project intervention aligns with work previously undertaken on market-based mechanisms for energy efficiency in Palau, and underway in Tonga (both with the respective National Development Banks). Results from these interventions show that by reducing energy costs, borrowers improve their own budgets and are therefore better able to make repayments, having lower rates of defaulting, and improved ability to withstand other costs. Customers also reported higher satisfaction with their properties, which is likely in the longer term to be reflected in better care being taken. The properties themselves benefit from the improvements, and have higher value while being more sustainable, and therefore the value of the portfolio

is improved. Banks may be able to capture market share by promoting the benefits of the program, and participating institutions have previously reported other benefits such as increased liquidity and even increased motivation amongst their own staff who have shown interest in participating in such schemes, as well as being encouraged by the professional development opportunities provided. Further, by providing the scheme as a medium term project (with the loan guarantee fund remaining available after project close), this generates local business (green collar jobs) which can be a further economic benefit. It is assumed the project will be able to communicate these benefits so as to gain the participation of at least one or two financing institutions, for whom training and support would be provided.

120. The intervention logic is therefore strongly aligned with lessons learned from projects in other countries, as identified in the WBCSD (World Business Council for Sustainable Development) 2011 report “Energy Efficient Buildings: Transforming the Markets”. The WBCSD Report states that: “A mix of measures tailored to specific geographies and building subsectors, including increased energy awareness globally, is required for a complete solution. Additional approaches include building energy codes, labeling and reporting mechanisms, appropriate energy prices and carbon costs, investment subsidies, increased and trained workforce capacity, and evolving energy-efficient designs and technologies that use passive and active approaches. Combined, these measures provide the changes needed to reduce energy consumption in buildings, increase energy awareness globally, and influence behavior change and the choices of consumers and investors. However, these changes cannot and will not come through market forces alone.” These measures have been considered and adapted for the Maldives' circumstances.

3.5. Risk analysis and risk management measures

121. A range of risks have been identified, which could impact on the successful implementation of the project. These have been grouped, assessed, and mitigation measures identified.

122. Overall the risk is considered moderate, that is, with suitable attention and effort the project can be delivered and achieve the desired benefits.

Risk	Rating	Comment/Mitigation measures
Natural disaster (tsunami; flooding from excessive rain)	Moderate	The Maldives are not prone to cyclones or flooding, although they did suffer from Cyclone Nilam in 2012; they also suffered in the 2004 Boxing Day tsunami. The dispersed geography means it is unlikely a disaster would affect the whole country. However, the low-lying nature of the islands means risks must be given some consideration. The project's focus on improving building, together with enforcement of existing codes, will bring additional risk mitigation in addition to current efforts and approaches such as insurance. No new risks are created by the project, and the project as a whole would be able to continue and provide benefits (guidelines, enhanced capacity, financial structures, improved markets) even if the hardware is impacted.
<i>Political and institutional risks in EA</i> Change of government may lower priority of project Government may not effectively implement EE in their buildings Government actions may not be perceived to show leadership and discourage others. The project may not be 'owned' or particular components may not be well supported by relevant departments.	High	Strong will and support is necessary to ensure effective coordination and to send appropriate signals to the community and market. The Maldives' commitment to carbon neutrality, however, has support beyond the current government, and as an international commitment, creates a strong incentive for this project to succeed. Stakeholders Consultation Workshops have been held during PPG phase to mitigate the risk and the Minister reaffirmed the Ministry's leadership and determination to implement EE in the buildings. Further, high level and ongoing discussions on this

		(and other) projects will keep energy, and this project, politically relevant.
<i>Financial risks</i> Financing institutions may be unwilling to be involved due to perceived risks or past experiences High rates of defaults on loans may use up project funds.	Low	Financing access, particularly for small, short-term, moderate risk loans such as appliances, has been limited. However, with appropriate capacity building and financial support, early indications are good. Note that a loan guarantee fund under the project will provide the necessary positive reinforcement to overcome any perceptions. Also, success can be achieved even participation by financing institutions is limited.
<i>Other stakeholders</i> Private sector may be unwilling to be involved.	Low	Private sector attendance at workshop was supportive. Appropriate incentives can be included in project, such as pre-purchasing EE equipment and then permitting sell and return, or specifying appropriate EE equipment so retailers will have confidence in sales.
<i>Technical</i> Poor quality equipment may discourage investment in new products. Growth in demand may divert funds to capital and operating costs, reducing appetite for investment and available human resources.	Moderate High	Conditions for financing would specify acceptable products, while consumer information could be used to assist the wider market. This risk ironically underscores the essential nature of this project. Ongoing high-level coordination will emphasise the importance of this project and ensure adequate resources are devoted to it.
<i>Capacity</i> Insufficient technical or other capacity to achieve outcomes Competition for human resources or financial capacity with other projects creates constraints	Moderate	Capacity building included in project to fill this need Coordination with other projects in this sector to maximise effectiveness of resource use, including through co-financing agreements

3.6. Consistency with national priorities or plans

123. The Maldives has long been a vocal activist in the area of climate change, and in 2009 stated its goal to be carbon neutral by 2020. As a result, action is needed in all energy using sectors of Maldives society, and the short timeframe requires these actions to be coordinated and relevant. This is a high priority of the government, bringing credibility to its international leadership role in this area, and has been given wide political support by the various parties. Despite a previous change of leadership, and upcoming elections, this is expected to remain an important commitment.
124. The project is aligned with various national plans and policies, as follows:
125. *UNDAF Action Plan 2011-2015*: the chapter on Climate Change Adaptation and Disaster Risk Reduction” lists “National Development Priority: Protect and preserve the natural environment to ensure prosperous economic development and healthy communities; reduce greenhouse gas emissions and achieve carbon neutrality, promote renewable energy technology applications; build institutional framework for DRR and climate change adaptation.” By working towards lower greenhouse gas emissions and carbon neutrality, UN agency participation will be consistent with the plan.
126. *Maldives Strategic Action Plan 2009-2013*: The project supports two of the five themes, “affordable housing” and “affordable living costs”, as ultimately the outcomes of the project relate to households’ standard of living. In particular, the energy section identifies Policy 3 “Promote energy conservation and energy efficiency to reduce costs”. The approach is also aligned with the government’s methods, the MSAP identifies “our desire to have a small government that places greater emphasis on

the marketplace and a more decentralised system of governance. Our policies are business-friendly". In addition, the MSAP, to improve climate resilience, Policy 3, identifies one strategy "Improve building material and designs to increase resilience and strengthen enforcement of building code." This highlights an opportunity to work within the window of increased awareness of the significance of building material and design. In general, the project is complementary to the MSAP in various ways.

127. *SREP Investment Plan 2013-2017*: Although focused on renewable energy implementation, the SREP-IP notes that "given the high cost of power generation, energy efficiency will play an important and complementary role to the development of RET in the Maldives." When discussing available technologies, heat recovery is noted but not considered under the SREP activities. Energy efficiency is specifically discussed, as it is particularly important in relation to night time electricity use, as this night time usage requires PV to have battery storage; reduced electricity during dark periods reduces storage demands for RE. Energy efficiency actions, however, are not being implemented under the SREP.
128. *Maldives National Energy Policy and Strategy (2010)*: Under this plan, policy 3 is to "Promote energy conservation and energy efficiency". Within this policy, two of the five strategies relate directly: "Encourage energy efficiency in both the supply side and demand side through financial and other incentives/disincentives in respect of energy end-use and mandatory measures such as appliance energy labelling, building codes and energy audits." and "Engage and facilitate private sector participation in providing expertise and specialized services needed to increase energy efficiencies across sectors." This project is clearly relevant to Maldives' energy actions.
129. *HPMP Implementation* by Government where it has agreed to fasttrack the phaseout by 10 years. This is an important element of the carbon neutral initiative.
130. Discussions during project development have indicated that the current subsidy scheme is a heavy financial burden on the government. While it provides some social benefits such as poverty alleviation, at the current scale and blanket availability, it has been re-assessed and is planned to be strategically reduced with a goal of ultimately phasing out the subsidy, releasing the funds for other needs. In this light, reducing consumption and improving efficiency is of particular significance to the government.
131. Overall, the project aligns with the expressed wishes of the Maldives' government. Further, to date interventions have focused on renewable energy, resulting in efficiency opportunities being passed over. A transport energy efficiency project is currently under development. This project therefore fills a clear gap in energy sector activities and will bring co-benefits to the renewable energy activities.

3.7. Incremental cost reasoning

132. The incremental costs and benefits of the project are modest in global terms, however they are significant in moving the Maldives towards a carbon-neutral society. It is important to create success stories for the global stage of such achievements, and as a Small Island Developing State it is practical to undertake such measures in a holistic project and transform an entire economy. It is with this goal in mind that the Government of the Maldives has agreed to use their GEF allocation flexibly in order to ensure the required resources are available.
133. The concept aims to change consumer perception of energy into one where it is valued, and therefore consumers will be willing to invest in energy efficiency improvements. Without the GEF project, energy is likely to remain a low priority in consumer's minds, one that is the responsibility of the government to make cheaper. The GEF project enables a partnership approach, targeting multiple sectors to create additional visibility for the issue, while also removing barriers, increasing capacity and providing financial incentives. Energy efficiency in buildings has not been addressed, and this project is structured to enable further leveraging of resources during the project. Therefore, it is important to achieve early and visible success to motivate further involvement.
134. The GEF project is therefore structured in such a way as to cover essential components while providing for expansion as additional stakeholders become involved. For example, the project will develop guidelines for good building material and design, enabling them to be used by government for specific development as appropriate, or on a voluntary basis within the construction industry. Firstly, this creates an enabling environment, by overcoming barriers such as poor perception of natural ventilation, and sufficient capacity to provide energy services from within the Maldives. Secondly, financial incentives will be provided that

empowers consumers to be able to invest in energy efficient equipment and choices that may otherwise be unavailable due to high upfront cost.

135. Lastly, the project would include standards and labelling. This will not only increase recognition amongst consumers, but enable them to understand the true savings available in making purchasing choices.

3.8. Sustainability

136. The project is specifically designed to provide the foundation and enabling activities needed for sustainable energy efficiency actions in the Maldives. The foundation of the project is the building of local capacity to locate areas where improved energy efficiency is needed and the development of long term financing mechanisms through local institutions to provide for the continuing investment in energy efficiency measures.
137. A major reason for projects of this type to become unsustainable is the loss of local capacity that results when persons trained under the project leave for some reason and there is no source of training for their replacement. For this project, sustainability is maximized through the use of local tertiary institutions to develop both the initial capacity needed under the project and to maintain that capacity through locally available training courses even though previously trained personnel leave the project.

3.9. Replication

138. The project includes all components for the development of a building energy efficiency programme including a survey of the existing conditions, development of needed policies, standards guidelines, capacity building for technical, business, government and financial sectors, investment in new construction, investment in renovation of existing buildings and investment in government buildings for demonstrations of EE technology.
139. Therefore, the project can be readily replicated to address energy efficiency in buildings where there has yet to be a well coordinated, planned effort to address those issues. In particular the project includes processes well suited to small countries or regions where there is limited capacity to enforce legislated building codes and appliance labeling.
140. Replication of public awareness materials will not be practical since they will need to be in the local language which is limited to the Maldives communities. However, the messages and the concepts used in their preparation and distribution will be of interest to other countries and can be at least partially replicated.

3.10. Public awareness, communications and mainstreaming strategy

141. All media outlets in the Maldives will be utilized in the distribution of public awareness messages. Television spots, radio advertisements, paid advertising in local print media will be a part of programmes encouraging building renovation and energy efficient appliance and light replacement as well as describing ways to reduce energy usage through smarter management of energy. Newsworthy events will be included, such as the initiation of specific energy efficiency investment programmes, completion of demonstration buildings, etc. STELCO and other electricity supply companies will be involved in distributing energy efficiency messages through their billing system and posters for schools and public buildings.
142. Community consultations through NGOs, women's organizations, and local governments will be held prior to starting major programmes that affect those communities so that there is an understanding of the project concept, its expected effect on the community members and how those members can take advantage of the project to reduce their energy costs. The energy building standards, guidelines and the appliance labeling arrangements will be well publicized and expected to become well known to residential, business, tourism and government sectors.

3.11. Environmental and social safeguards

143. Environmental and social safeguards are an essential part of achieving true sustainability. Environmentally the project is expected to be positive, as it avoids energy and resource use. The key impact which must be managed is for waste generated under the program - as uptake of efficient products and choices is accelerated, so too is obsolescence of equipment. Links are being built with the national ozone officer and activities under the HPMP to enable ozone depleting substances to be captured and safely disposed of, as air-conditioning and refrigeration is anticipated to be a major target of the project. Similarly, the project has budgeted for a bulb crusher, given the potential for cumulative impact from mercury and other toxins in lights and the sensitive environment for waste disposal capacity at Thilafushi.

144. Socially, consideration must be given to pro-poor and gender sensitive policies in lending and financial mechanisms. This will be incorporated into the requirements when developing the financial mechanism's details. To assure this, energy survey designs will allow for collection of gender disaggregated data. Tools for gender analysis in formulating energy policies and strategies developed by development and funding agencies (e.g.; WB, GEF, UNDP, FAO, UNIFEM , GIZ) will be used to mainstream genders aspects in energy efficient policies and strategies.
145. Currently, households may apply for a subsidy on the first 300kWh of monthly electricity use; in Malé, 43% of households are entirely under this threshold, and 60% of domestic electricity is eligible to be subsidised, although not everyone applies. With average use of 512 kWh and below throughout the outer islands, the vast majority of these households will be fully subsidised. The subsidy therefore creates a substantial burden on the government and utilities. By reducing electricity use, the government's subsidy burden will decline, freeing up funds for other country needs. At network level, improving energy efficiency can decrease peak demand, and defer infrastructure costs, providing a better level of service and freeing up utility funds for maintenance. At the consumer level, efficiency can free up funds for other needs, and encourage maintenance as equipment is perceived to be more valuable; it is often related to improved levels of comfort and utility, for example where lighting, air-conditioning, refrigeration and other services are improved.
146. For details of environmental and social measures in the project, refer to Appendix 16.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

147. The proposed organizational structure for the implementation of this project builds into previous good practices of project implementation through existing partnership arrangements with MEE and its related implementing partner entities to achieve, not only the described project outcomes, but also to support the ongoing capacity building process within the government to further enhance its implementation processes.
148. UNEP, through its Regional Office in Asia & Pacific (ROAP) will act as implementing agency (IA) to GEF, coordinating all the reporting requirements, performing M&E and providing direction through the steering committee to achieve the project results framework. UNEP has a comparative advantage as IA due to their familiarity with similar project models in other SIDS, their existing work in-country, particularly the HCFC Phase Out Management Plan, and enabling activities for the Second National Communication. Further, while UNEP has the technical and management abilities to support the project (see paragraph 63 discussin related CC projects implemented in the region), they are also willing to leverage these relevant experiences to this proposed project.
149. MEE, through its Energy Department, will act as executing agency for the actual execution of the project components in the country. MEE will continue strengthening its internal project management capabilities thorough the implementation of complex projects in the Maldives. The Project Management Unit (PMU) based at MEE will build into further linkages to the on-going activities within MEE. The Project team will consist of a full time Project Manager, a full time Monitor and Evaluation Officer, a full time Project Accountant, a full time Project Assistant, a full time Knowledge Management Administrator, and the support of an international on project management quality assurance (based on 15% part-time cost support). The description of the team's TOR is listed in Appendix 11.
150. The PMU will be responsible on reporting on a quarterly basis through the required reports to UNEP on the achievement of the project goals, as well as on the utilization of the project resources.

SECTION 5: STAKEHOLDER PARTICIPATION

151. The stakeholders identified were invited to a consultation workshop in April 2013 in addition to individual meetings to fully understand their needs and views and to obtain data to establish a base line. A second consultation workshop was held in May 2013 to present the project activities and expected outcomes which were validated by the stakeholders with inputs, comments and suggestions.
152. All the related or co-financing projects identified are implemented by the Government or in close collaboration and guidance of the Government. As such the Government's commitment to transform the energy sector from a fossil fuel dependant to a low carbon energy sector is evident with the substantial

amount of investments underway to introduce RE and is reassuring that similar outcomes are possible for the mainstreaming of EE practices, material and appliances, as a result of implementing this project.

153. This project will involve the development of practical and realistic mechanisms that will enable effective stakeholder coordination. A high priority will be given to consultation and cooperation between government agencies, financial institutions, donors, private sector and educational institutions. The participation of the civil society in consultations will also be encouraged. In order to achieve this, the project will update the stakeholder analysis by engaging with them as the project progresses.
154. The project is designed to provide for the direct contribution of stakeholders who will also benefit from the project activities and outputs. Their participation will be through workshops, seminars, case studies, trainings and in the preparation of investment project proposals that may be financed by the project. The role and expected participation of the main stakeholders are given below.
155. Consumers: The project's main target group is consumers. Their priority is reliability and quality of supply rather than costs (as it is currently subsidised). This reduces the importance to energy efficiency and conservation habits and investing in more pricy energy efficient appliances, building materials and building designs. The project will approach the consumers as a stakeholder group, taking into consideration the diversity and the specific interests of sub-groups. The project will encourage energy saving and conservation by providing information and demonstrations on energy efficient habits and appliances and providing practical guidelines on efficient building designs and selection/use of materials.
156. Government: The Government would undertake the project implementation and would form a project steering committee to oversee the work of the PMU, which will be established at MEE. The continuous engagement of senior government officials MHI, MEE, MEA and the Ozone Unit will be crucial to assist the government to work towards transforming the market to adopt low carbon technologies through appropriate policies, regulations and programmes. In particular, the building code compliance document and best practice guidelines to be developed with assistance from the project and the facilitation of technical input by MEA to the EE sections of the building code would equip the MHI to bring EE in buildings into practice from the design stage, particularly for public buildings and housing projects implemented by the Government. The project will support the long term government interest to increase energy security or reduce vulnerability towards external shocks due to fluctuation of oil prices. As a stakeholder the government is also the largest consumer of electricity especially in the islands. Given that electricity in Government buildings is currently having a major impact on the national budget with the higher tariffs and payment of substantial subsidies. Government agencies would be in the forefront to adopt energy conservation and energy efficiency measures in order to reduce consumption.
157. Commercial Sector: The basic interest of this stakeholder group is an affordable and reliable supply. The cost of supply interruptions is high. The major sub-group within this stakeholder group are the Tourist Resorts, who operate their own independent power systems. They consume more than 40% of the diesel imported, so the efficient use of energy within this sector will have a significant impact on the national energy balance. This was evident during consultations with the Ministry of Tourism and MATI who showed a strong commitment to reducing diesel based energy production. Environmentally-friendly energy production and energy efficiency in Tourist Resorts is one of the priorities noted in the Tourism Masterplan and the Government has introduced an award for the most environmentally-friendly resort. MATI on their part are constructing a resort with energy produced entirely from RE sources. While resorts have implemented EE projects individually they have expressed a desire to facilitate resort participation to implement recommendations of energy audits to be facilitated under the project. Some resorts have already initiated energy conservation programs and have adopted low carbon technologies, predominantly solar water heating. The project will assist the resorts in measurement of energy use and advice on conservation.
158. Utilities: The two major utilities, STELCO and FENAKA, are important stakeholders as their data would be the main yard stick to measure the expected reduction in energy use expected from the interventions of this project. The project will also engage in the demand side management (energy savings at the consumer level) which can help the utilities to save or postpone investment in generation and distribution. Their capacity would be developed to undertake energy audits, monitor energy use in the building sector and implement EE projects. In consultations they have expressed a desire to explore this as a potential new business opportunity.
159. Civil Society (NGOs): There are several active NGOs in the Maldives but none that is active in the energy sector. Their interest is currently focussed as a consumer. In Male' Region, where the majority of the

NGOs are based, they do not receive a subsidy but the NGOs based in the outer islands benefit from the Government subsidy. There are a number of NGOs involved in environmental protection and climate change related activities. They have been active in awareness raising and advocacy for climate change mitigation and adaptation and have been very visible particularly in advocating for protecting the reefs and marine life. These NGOs could become an important potential partner as implementers of certain activities of the project such as awareness raising is difficult.

160. **Development Partners:** With the announcement of the Government's carbon neutral goal in 2009 several development partners have taken a keen interest in assisting towards achieving this goal. The most important bilateral donor has been the Japanese government which had funded not only diesel based power systems but recently implemented grid connected solar PV project in Male' through grant funds. The government has also received funding under SREP which is being utilised for developing the RE sector.
161. A common concern of development partners committed to low carbon energy systems is the difficulty to identify viable strategies and projects that reflect the reality on the ground with respect to the problems to be solved and capacities available. The recently formulated SREP Investment Plan addresses this issue partially as it is focussed on Renewable Energy technologies capacity development and investments. Initial discussions with development partners and Government is supportive of a well-designed innovative funding mechanism that would enable transition to a low-carbon energy market. They are important partners to this project, as implementers of certain activities related to this project and as sources of co-financing.
162. **Educational Institutions:** The Institutions would play the key role in developing local capacity necessary to adopt low-carbon energy technology and energy conservation and management. The Maldives Polytechnic currently focusses on conducting engineering and Technician training courses. They have introduced a certificate level training course for Technicians in installation and maintenance of renewable energy systems. The Maldives National University and a handful of private colleges offer courses in Management, Accounting and Marketing up to Bachelors Degree level. They would be important partners to design and conduct courses to train ESCOs in energy auditing and marketing their services to create a market for such services. During consultations, they have demonstrated a desire to introduce EE into some of their courses and would be potential partners to implement EE demonstration and also in engage advocacy and information dissemination.
163. **Financial Institutions:** Lack of affordable finance was identified as a major barrier to adopting low carbon technologies and purchasing energy efficient appliances by most stakeholders. Participation in energy efficient appliance financing could be a potential new business opportunity. During consultations, Housing Development Finance Corporation (known as HDFC, active in financing housing schemes) in particular appeared to be keen to facilitate the introduction of innovative financing for borrowers to adopt EE into their building plans. Bank of Maldives and Maldives Islamic Bank already have schemes to finance household appliances and they expressed strong interests to explore the possibility of innovative EE financing schemes with the assistance of this project. Lack of specialist expertise in the energy sector is an area of concern and building capacity would be required. Bank of Maldives in particular is an important partner as they have a presence throughout the country and has experience managing funds for the government in developing and implementing RE projects.

SECTION 6: MONITORING AND EVALUATION PLAN

164. The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.
165. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.
166. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and

evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

167. The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.
168. At the time of project approval no building energy consumption data is available for baseline data. Baseline data gaps will be addressed during the first year of project implementation. A plan for collecting the necessary baseline data is presented in Appendix 5, under component 1 of the workplan. The main aspects for which additional information are needed are a sectoral breakdown of end-use consumption for energy, to enable an accurate estimate to be made of the opportunities and achievements of the project. This will involve a statistically valid survey-based approach, a database to assist in data collection and management, and regular analysis so that the data is used to inform any project reviews and realignment..
169. Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.
170. A mid-term management review or evaluation will take place on quarter 2 of 2016 as indicated in the project milestones. The review will include all parameters recommended by the GEF Evaluation Office for terminal evaluations and will verify information gathered through the GEF tracking tools, as relevant. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see - section 2.5 and 5 of the project document). The project Steering Committee will participate in the mid-term review and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented.
171. An independent terminal evaluation will take place at the end of project implementation. The Evaluation and Oversight Unit (EOU) of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation. The standard terms of reference for the terminal evaluation are included in Appendix 9. These will be adjusted to the special needs of the project.
172. The GEF tracking tools are attached as Appendix 15. These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1. Overall project budget

The total request to the GEF fund is \$3.885m, which represents the Maldives' allocation for climate change, plus a share of the other focal areas, in accordance with the flexible funding arrangements. As climate change is an existential threat to the Maldives, it has been agreed to prioritise activities under this focal area.

The project comprises GEF financing, and in-kind financing from a range of partners. It is expected further co-financing and leveraged financing will become available during the course of the project. The co-financing ratio of 1:15 reflects the high cost and high returns of involvement in the building sector. The Table below summarises the project budget, which is detailed in Appendices 1 and 2. The budget includes an allocation of \$226,829 for project management. An allowance of 50,000 has also been made for mid-term and final evaluations of the project.

Project component	GEF financing		Co-financing		Total (\$)
	\$	%	\$	%	
1. Establish a monitoring and assessment system to create an energy use baseline and to track changes in energy use in buildings	245,889	6.33	450,000	1.31	695,889
2. Development of programmes through existing financial institutions focused on financing energy efficiency measures in new and existing buildings and establish a financing programme that provides access to longer term finance to be provided only for energy efficiency appliances.	964,208	24.82	1,000,000	2.90	1,964,208
3. Implement public demonstrations of good energy efficient design and technology in selected public buildings	980,815	25.25	29,475,000	85.62	30,480,815
4. Through high level energy audits and their cost analysis, determine cost effective measures for resorts and tourist facilities to improve energy efficiency and to access financing for implementing those measures.	257,975	6.64	700,000	2.03	957,975
5. Capacity building for the technical, business, public and financial sectors. Provision of public information to assist the general public and building owners in making the decision to invest in energy efficient technology and measures.	523,375	13.47	500,000	1.45	1,023,375
6. Development and deployment of effective energy management systems for government facilities.	214,309	5.52	550,000	1.60	764,309
7. Development of and adoption of a phased implementation for an Energy Efficiency Law.	279,275	7.19	648,351	1.88	927,626

8. Energy labels and standards for appliances and development of processes to reduce the purchasing of low efficiency appliances.	192,325	4.95	574,000	1.67	766,325
Project management	226,829	5.84	533,484	1.55	760,313
TOTAL	3,885,000	100.00	34,455,835	100.00	38,340,835

7.2. Project co-financing

The project targets building material and design, construction, appliances and energy management within this sector – all areas where collaboration with partners is essential to achieve the ultimate goal of reducing greenhouse gas emission from electricity use. Due to the high value of construction, the co-financing is 15:1. The project is a collaborative one, and it is expected that further leveraging will occur, as success inspires further involvement, particularly for the private market who may wish to see results before commitment. As a number of public buildings will be included for demonstration, more leveraged funding will then arise. Co-financing projects which contribute both in cash and in-kind include Clean Energy for Climate Mitigation Project, Support for Carbon Neutrality Strategy of Maldives, HCFC Phase-out and Management Project, Energy Sector Regulatory and LED Lighting for Public Building Program. Green Harbour Project, IGMH Extension Facility, and S. Hithadhoo 100 Bed Hospital project contribute in-kind, as there will be the inclusion of specific targeted co-financing related components into these projects, such as the adoption of designs through effective guidelines, inclusion of insulation in new buildings, the incorporation of energy efficiency appliances into these projects, and lastly supporting and developing the energy management for these premises.

The table below provides; a description of the baseline for these various projects, the project cost that provides the co-financing, and the EE measures to be integrated and/or added by the GEF project in them. The estimated contribution for the co-financing for these projects are given in Appendix 2.

Name/Title of Co-financing Project	Project Baseline (Brief Description of Co-Financing Projects and their cost)	EE measures to be integrated/ added by the GEF project
Clean Energy for Climate Mitigation (CECM) Project	Project focuses on reducing carbon emissions in an island of the Maldives via EE and RE measures. The project focus on installation of 300kW solar PV diesel hybrid grid connected system, conduct energy audits, awareness programs together with some pilot installation of energy efficient equipments. This project aims to contribute to achieving the transformation of markets for energy efficiency technologies in buildings. Cost: USD 2.5 million	Producing a case study of energy conservation behavior change pattern. Introduction of energy efficient home appliances (light, fridge and ACs) for the island. Contribution to the GEF Project: USD 500,000.00
GIZ/ Support to Carbon- Neutrality Strategy	The aim of the project is to contribute to climate protection and to sustainable development by promoting a low carbon economy and reducing greenhouse gas emissions. Solar PV system of size 285kW will be installed in two islands. Cost: USD 4,000,000	Capacity building for EE through workshops, seminars, exchange with on-going local and regional projects and intense networking activities. Conducting various learning and reference projects to show reliability and commercial maturity of EE measures. Audit the consumption of energy in the islands for the efficient use of RE Contribution to GEF Project: USD 4,000,000 (full amount)
Energy Sector	This ADB and WB assisted project looks	Introduction of regulations on best practice

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Regulatory Technical Assistance (TA) Project	into upgrading the current set of regulations in MEA to the current situation of Maldives. This project targets the adoption of policy measures adopted/ promulgated by legislature by end of project Cost: USD 400,000	methods to reduce losses at SSM, and regulations on introduction of ESCOs and energy auditing and energy efficiency standards for house hold appliances. Contribution to GEF Project: USD 400,000 (full amount)
Provision of goods for addressing Climate Change “LED Lighting for public buildings”	The 267,750 LED tube lights donated to Maldives from Govt of China are being distributed to government agencies in order to replace existing inefficient lights and refurbishment. This project will support on achieving the reduction of energy intensity consumption in buildings. Cost: USD 4,000,000	The conversion and distribution of LED tube lights will be done through this GEF project. All public (including office buildings) lighting will be converted to LED lights. The remaining will be distributed to public for household use and also, to replace inefficient street lighting. Contribution to GEF Project: USD 4,000,000 (full amount)
S. Hithadhoo 100 bed Hospital Project	The project will cover the design consultancy and construction of a 100 bed tertiary hospital. The hospital will follow JSCI hospital construction guidelines. This project will contribute by adopting energy Efficiency approaches and made them available to the public with information provided Cost: USD 20,800,000	Similar to the co-financing project above, this GEF project will also assist in adopting energy efficiency measures and approaches for this 100-bed Hospital. As in the co-financing project above, the EE measures to be adopted will include incorporation of building insulation and EE building appliances, and supporting the establishment of energy management for the newly constructed premise Contribution to GEF Project: USD 20,800,00.00 (full amount)
National Budget, Government of Maldives	No funding is currently allocated for EE improvements	This will fund the cost of EE improvements in all government and other public buildings and facilities resulting from the recommendations done by the project. USD 4,505,835.00

Other sources of in-kind support and finance may arise through contributions of training institutions and financing institutions. Discussions with the government have indicated the subsidy is likely to decline over the next few years, and should the program demonstrate the effectiveness of the financial mechanisms, it may be possible to seek for some of these electricity subsidy funds to be redirected towards electricity savings program which provide benefit to both householders and the broader economy.

7.3. Project cost-effectiveness

The *Strengthening Low Carbon Energy Islands Strategy* project is designed to build on opportunities through partnerships, maximising the benefits of the available funding, and taking into consideration economic and social factors in energy use. By taking a holistic perspective, the project's sustainability and motivational value is increased, as well as the likelihood of success. Compared to traditional projects which undertake a particular activity, this project is able to achieve expanded outcomes with the available funding, as well as the potential for leveraging replication. Cost-effectiveness is therefore achieved by targeting the project at a sector which can have a widespread and long-term impact; from the structure, which provides flexibility to expand the project, as success generates further interest; and from the partnership with multiple organisations who are willing to participate but individually were not able to lead such a project.

The first element of cost-effectiveness arises from targeting building stock, which has a long-term impact on energy use. The Maldives is experiencing rapid growth in the housing and resort sectors, including a number of notable projects coming online in an effort to provide geographic diversity of housing and employment opportunities, and thereby divert the internal migration patterns that are currently creating pressure in Malé. It is

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important to address new buildings to avoid lock-in of energy consumption such as through high demand for space cooling, which can be most efficiently achieved at the design and construction stage.

Secondly, the project builds on this foundation to multiply the results achieved. Through both financial and non-financial motivation (e.g. promotional activities), the project will replicate this throughout the country, shifting the culture from the current perception of energy as a low-value resource. Consideration is given to setting up a revolving fund, to address the perception of risk associated with achieving the energy savings, and this investment will extend the timeframe in which outcomes are achieved, at very little cost to the project.

Consideration is also given to non-financial motivation, which will also enable the project to have broader and longer-lasting impacts. For example, the project aims to achieve lower greenhouse gas emissions and reduced fossil fuel dependency, goals of the national government. However, in speaking to the target market - individuals and organisations who are being encouraged to implement energy efficiency - the project talks of lower energy use, and lower costs, which are relevant to individuals. By engaging different parts of society, the project increases its cost-effectiveness.

Lastly, the project takes advantage of existing efforts and activities by the national government, partners, and the global building industry. Through this cooperation, the project will empower the building industry to make changes, and eventually this may become enforceable. The project therefore achieves greater outcomes than a standalone project of equivalent cost.

While the Maldives is itself small in absolute terms, it is part of a group of projects building momentum for change, and contributing to global activities in the green building movement, while at the same time adapting these ideas in ways that are suitable for small, capacity-constrained circumstances. These constraints force the Maldives to create innovative and responsive approaches, which can be modified for other communities, particularly remote locations within countries such as islands and mountains which also suffer from isolation, expensive transport, small markets, limitations in workforce, and similar constraints. UNEP's ability to make the connections that enable these partnerships are one of the reasons why they have been selected as the Implementing Agency.

APPENDICES

- Appendix 1: Budget by project components and UNEP budget lines**
- Appendix 2: Co-financing by source and UNEP budget lines**
- Appendix 3: Incremental cost analysis**
- Appendix 4: Results Framework**
- Appendix 5: Workplan and timetable**
- Appendix 6: Key deliverables and benchmarks**
- Appendix 7: Costed M&E plan**
- Appendix 8: Summary of reporting requirements and responsibilities**
- Appendix 9: Standard Terminal Evaluation TOR**
- Appendix 10: Decision-making flowchart and organizational chart**
- Appendix 11: Terms of Reference**
- Appendix 12: Co-financing commitment letters from project partners**
- Appendix 13: Endorsement letters of GEF National Focal Points**
- Appendix 14: Draft procurement plan**
- Appendix 15: Tracking Tools**
- Appendix 16: Social and environmental checklist**
- Appendix 17: Monitoring and evaluation budget and workplan**
- Appendix 18: Consultants to be hired**
- Appendix 19: Supervision plan**

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UNEP Budget Line	1: Monitoring & assessment	2: EE financing programs	3: EE in public bldg	4: EE in tourism	5: Capacity building	6: Govt Energy Mgmt Sys	7: Bdp EE guidelines	8: Standards & labelling	PM	Total	Expenditure by calendar year					Total	
											July-Dec 2014	2015	2016	2017	Jan-Jun 2018		
10 PERSONNEL COMPONENT																	
1100 Project personnel																	
1101 Project manager	2,250.00	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	72,000	80,000.00	11,250	22,500	22,500	22,500	11,250	90,000.00
1102 M&E officer	25,204.00									28,816	54,000.00	6,753	13,505	13,505	13,505	6,753	54,000.00
1103 Knowledge management administrator	6,334.00	6,333.00	6,333.33	6,333.33	6,332.01	6,334.00	6,333.33	6,334.00	6,333.00	6,333.00	57,000.00	7,125	14,250	14,250	14,250	7,125	57,000.00
1104 Technical assurance	3,800.00	3,800	3,800	3,800	3,800	3,800	3,800	3,800	3,800	19,500	50,100.00	6,263	12,525	12,525	12,525	6,263	50,100.00
1199 Sub-total	37,588.00	12,383	12,383	12,383	12,382	12,384	12,383	12,384	12,384	128,649	251,120.00	31,590	62,780	62,780	62,780	31,590	251,120.00
1200 Consultants																	
1201 Energy auditors	90,000.00				50,000						140,000.00	90,000	50,000				140,000.00
1202 Financial expert - develop structure for loan-guarantee fund		96,000									96,000.00		96,000				96,000.00
1203 Business and markets adviser					50,000						130,000.00	55,000	75,000				130,000.00
1204 EE compliance specialist				46,667	46,667				46,667		140,000.00		20,000	35,000	40,000	45,000	140,000.00
1205 EE/buildings educator					55,000						55,000.00	55,000					55,000.00
1206 Business educator					55,000						55,000.00	55,000					55,000.00
1207 Banking systems adviser					55,000						55,000.00	55,000					55,000.00
1299 Sub-total	90,000.00	96,000	96,667	96,667	165,000	30,000	46,667	50,000	-	671,000.00	310,000	241,000	35,000	40,000	45,000	45,000	671,000.00
1300 Administrative Support																	
1301 Project assistant	7,744.00	400	400	400	400	400	400	400	416	42,240	52,800.00	6,600	13,200	13,200	13,200	6,600	52,800.00
1302 Project accountant	7,232.00	500	400	400	428	400	400	400	600	42,240	52,800.00	6,600	13,200	13,200	13,200	6,600	52,800.00
1399 Sub-total	14,976.00	900	800	800	828	800	1,000	1,016	84,480	105,600.00	13,200	26,400	26,400	26,400	13,200	105,600.00	
1600 Travel on official business																	
1601 Site visits and meetings	20,000.00	200	5,000	1,000					4,000		30,200.00	30,200					30,200.00
1602 Overseas travel and coordination	5,000.00	7,000	10,000		5,000	5,000	5,000	5,000	5,000		42,000.00	21,000					42,000.00
1699 Sub-total	25,000.00	7,200	15,000	1,000	5,000	5,000	5,000	5,000	4,000	72,200.00	51,200	21,000	-	-	-	-	72,200.00
1999 Component total	167,564.00	116,483	124,850	110,850	183,210	48,184	65,059	68,680	215,129	1,099,920.00	405,750	351,180	124,180	128,180	88,590	1,099,920.00	
20 SUB-CONTRACT COMPONENT																	
2100 Sub-contracts (MOUs/LOAs for cooperating agencies)																	
2101 Waste disposal for ODS-containing items		3,000	3,000	3,000		5,000	10,000				24,000.00	3,000	6,000	6,000	6,000	3,000	24,000.00
2199 Sub-total	-	3,000	3,000	3,000	-	5,000	10,000	-	-	24,000.00	3,000	6,000	6,000	6,000	3,000	24,000.00	
2200 Sub-contracts (MOUs/LOAs for supporting organizations)																	
2201 Provide EE advice on bills - STELCO, Feraka					5,000						5,000.00	5,000					5,000.00
2202 Hosting and administration of loan-guarantee fund	800,000										800,000.00	80,000	160,000	250,000	310,000	800,000	800,000.00
2203 Ministry of Education (M&E) to develop energy-related curriculum, support clubs					100,000						100,000.00	12,500	25,000	25,000	25,000	12,500	100,000.00
2204 EE compliant certification & incentives			30,000	20,000				30,000			80,000.00	10,000	20,000	20,000	20,000	10,000	80,000.00
2205 EE working group implementation of actions							10,000				10,000.00	10,000					10,000.00
2299 Sub-total	-	800,000	30,000	20,000	105,000	40,000	-	-	-	995,000.00	37,500	125,000	205,000	295,000	332,500	995,000.00	
2300 Sub-contracts (for commercial purposes)																	
2301 Database design and setup	50,000.00										50,000.00	50,000					50,000.00
2302 Capacity building programs		20,000			30,000						50,000.00	21,000	16,000	2,000	8,000	3,000	50,000.00
2303 EE construction			648,840								648,840.00	324,420	194,652	64,884	64,884	32,442	648,840.00
2304 EMS development and training materials		20,000		19,940							39,940.00	7,976	25,962	5,962			39,940.00
2305 Public information development			10,000		10,000						30,000.00	18,000	12,000				30,000.00
2306 Design EE upgrades			100,000		100,000			50,000			250,000.00	105,000	145,000				250,000.00
2307 Advertising costs - TV, radio, sponsorship, materials					40,000						40,000.00	5,000	10,000	10,000	5,000		40,000.00
2308 Policy review - EE & Energy mgmt						90,000					90,000.00	90,000					90,000.00
2309 EE in buildings guidelines								90,000			90,000.00	45,000	45,000				90,000.00
2310 Appliance labelling development								75,000			75,000.00	75,000					75,000.00
2311 Capacity building program delivery					50,000						50,000.00		12,500	12,500	12,500	12,500	50,000.00
2312 Advertising and marketing (print/broad)		10,000	10,000	10,000	10,000						40,000.00	5,000	10,000	10,000	10,000	5,000	40,000.00
2399 Sub-total	50,000.00	30,000	788,840	110,000	199,940	90,000	140,000	85,000	-	1,453,780.00	421,976	600,902	235,134	105,384	90,384	1,453,780.00	
2999 Component total	50,000.00	833,000	821,840	133,000	264,940	135,000	150,000	85,000	-	2,472,780.00	462,476	731,902	446,134	405,384	425,884	2,472,780.00	
30 TRAINING COMPONENT																	
3200 Group training																	
3201 Energy management training for Facility Managers			19,500		19,500		19,500				58,500.00	19,500	25,500	13,650			58,500.00
3202 Energy auditing and management (short courses)	10,000.00				20,000						30,000.00	18,000			12,000		30,000.00
3203 Financial institutions - EE marketing and loans					20,000						20,000.00	20,000					20,000.00
3204 Training on guidelines							50,000				50,000.00	25,000	25,000				50,000.00
3205 Appliance labels - customs and retail staff								25,000			25,000.00	6,250	6,250	6,250	6,250		25,000.00
3299 Sub-total	10,000.00	-	19,500	-	59,500	19,500	50,000	25,000	-	183,500.00	82,500	56,600	19,900	6,250	18,250	183,500.00	
3300 Meetings/Conferences																	
3301 Inception workshop	375.00	375	375	375	375	375	375	375	375		3,000.00	3,000					3,000.00
3302 Mid-term review workshop	375.00	375	375	375	375	375	375	375	375		3,000.00	3,000					3,000.00
3303 Terminal workshop	375.00	375	375	375	375	375	375	375	375		3,000.00	3,000					3,000.00
3304 Steering committee meetings					500					1,500	1,500.00	168	375	375	375	168	1,500.00
3305 Stakeholder consultations					500					1,500	1,500.00	125	125	125	125		1,500.00
3399 Sub-total	1,125.00	1,125	1,625	1,125	1,125	1,625	1,625	1,125	1,500	12,000.00	3,813	875	3,500	500	3,313	12,000.00	
3999 Component total	11,125.00	1,125	21,125	1,125	60,625	21,125	51,625	26,125	1,500	195,500.00	86,313	57,475	23,400	6,750	21,563	195,500.00	
40 EQUIPMENT AND PREMISES COMPONENT																	
4100 Expendable equipment																	

Appendix 3: Incremental cost analysis

Business as usual

The project aims to reduce greenhouse gas emissions through improving the efficiency of energy use. Currently electricity use is highest in the capital Malé, but is growing throughout the Maldives. While a number of projects are looking to increase the proportion of RE, the severe land constraints limit this to rooftop solar PV. Subsidies on household energy use, and lack of visible leadership, combined with high upfront costs for efficiency appliances, will lead to continuing growth in electricity demand.

In a worst-case scenario, growth in demand, especially peak could outstrip infrastructure capacity. Funds could be diverted from other productive uses, and should power outages arise, this would incentivise capital expenditure on new generation, which would further encourage electricity consumption to pay back the purchase cost.

Some energy efficiency work, such as audits, does occur on an ad hoc basis. However, these are often donor funded and not locally motivated, and as such, they rarely lead to implementation and investment. This creates a feedback loop, where audits are not valued because there are no ‘success stories’, benefits are not highlighted, and there is no prestige associated with such actions.

GEF Alternative

The value add of the GEF funding is to change consumer perception of energy efficiency in both new and existing buildings/equipment, catalysing demand to achieve a sustained shift in the market. This is supported by strategic provision of capacity, not only technical, but commercial skills in technical experts, and energy literacy in financing institutions. Further, guidance on energy efficiency measures, issued by the government, will provide credibility for the benefits of energy efficiency. This will be combined with actions by the government to show leadership and to make energy efficiency a tangible, practical reality.

The project, however, is not an isolated action. It will cooperate with government, training institutions, financing institutions, tourist resorts, retailers and the building industry, to build cooperation amongst the energy and building sectors. This enables it to create both behaviour change and catalyse investment, influencing both supply and demand factors in the market, to increase the long-term outcomes of this action.

Incremental cost matrix

The incremental costs and benefits of the proposed project are summarised in the following incremental cost matrix. The incremental cost of the project is estimated to be \$US 34,455,835, of which \$US 3,885,000 is requested from GEF for a mix of investment and supporting TA to ensure the investment is appropriately targeted and uptake is maximised.

Project component	Baseline	Alternative	Increment
1. Establish a monitoring and assessment system to create an energy use baseline and to track changes in energy use in buildings	Energy use is not monitored and therefore improvement is not valued and excess use is not identified. In government and some businesses, energy use is considered a budget issue and not an operational issue. Cost: USD 450,000	A functioning monitoring and assessment system is in place to measure effectiveness of project interventions. Energy sector is aware of where energy is used and has credible data on savings achieved.	GEF Increment: Identify appropriate indicators and collect monitoring data. Identify the effectiveness of the project and enable ongoing refinement. Data enables additional resource needs to be identified and accessed. GEF Costs: USD 245,000

Project component	Baseline	Alternative	Increment
			<p>Global Environmental Benefit: Any claims made by the project will be objectively verifiable, also data management will help to assess and refine project activities so that best use is made of GEF funds.</p>
<p>2. Development of programmes through existing financial institutions focused on financing energy efficiency measures in new and existing buildings and establish a financing programme that provides access to longer term finance to be provided only for energy efficiency appliances</p>	<p>Funds are not readily available for energy efficiency at the local level, creating a barrier to investment. Typical non-energy funds are not suited/accessible for energy efficiency needs. Cost: USD1,000,000</p>	<p>Financing institutions are extending loans and financing for investments in energy efficiency actions in buildings. Financial institutions understand appropriate loans for energy efficiency, and have packages available, in conjunction with guidelines and standards (from component 7) to enable implementation. Suitable funds are set up.</p>	<p>GEF Increment: Financing is now available and accessible for EE activities, with financing institutions able to identify Set up and implement appropriate structures for investments in EE financing, such that financing is available and accessible. GEF Costs: USD 964,208 Global Environmental Benefit: Showcase of an EE program financing scheme in the context of a SIDS economy.</p>
<p>3. Implement public demonstrations of good energy efficient design and technology in selected public buildings</p>	<p>Energy efficiency is accepted in principle, but not widely understood in practice, and therefore not widely implemented. Government facilities are typical of energy management practices, reinforcing the impression that inefficiency is not a concern. Information on energy performance is not widely available or considered. Cost:USD29,475,000</p>	<p>Feasibility of investing in energy efficient design and technologies in existing building structures demonstrated in public buildings. Government shows visible leadership in their energy usage, with organised and systematic approach to managing energy throughout the portfolio. Facilities managers are trained and resourced to implement and</p>	<p>GEF Increment: Technical assistance in supporting the public buildings for adopting EE measures and acquire EE compliant certifications GEF Costs: USD 980, 815 Global Environmental Benefit: Leadership starts at home, and so it is with the Maldives. Efficient buildings will validate the government’s mandate to speak</p>

Project component	Baseline	Alternative	Increment
		<p>energy management system across departments.</p> <p>Where appropriate or aligned with other activities (e.g. building works), retrofit and new build applies the new guidelines or standards, and PMU is advised.</p> <p>Knowledge is also shared through that report and other materials.</p>	<p>internationally. Further, greenhouse gas emission reductions of 86,122 t CO_{2-e} are estimated by the GEF direct savings approach.</p>
<p>4. Through high level energy audits and their cost analysis, determine cost effective measures for resorts and tourist facilities to improve energy efficiency and to access financing for implementing those measures.</p>	<p>Planned works by hotels and resorts do not include EE in upgrades and new construction.</p> <p>Tourism sector is not participating in certification opportunities (e.g. Green Globes).</p> <p>The current energy use for electricity is: given in the BeCitizen carbon audit as 4,460 kg diesel/bed, and in the UNDP/GEF-funded report on energy supply & demand as 4.59 toe/bed</p> <p>Cost: 700,000</p>	<p>Initiatives of hotels and resorts to adopt and invest in energy efficiency actions and to promote public awareness of these actions strengthened and expanded.</p> <p>Individual audit reports for hotels and resorts included in the project including the technical details of any practical use of waste heat for hot water generation.</p> <p>Project documents for EE interventions that are prepared in association with the audited hotels/resorts.</p> <p>Report of actions needed at the participating hotels/resorts to qualify for the desired EE compliant certification</p>	<p>GEF Increment: Technical assistance in supporting hotel and resorts for adopting EE measures, accessing finance, and acquiring EE compliant certifications</p> <p>GEF Costs: USD 257,975</p> <p>Global Environmental Benefit: As the Maldives' resorts are high-end, luxury resorts, it will indeed be an internationally recognisable achievement if the Maldives' tourism industry can shift its approach and compete on environmental credentials. Greenhouse gas emission reductions of 39,059 t CO_{2-e} are estimated by the GEF direct savings approach.</p>
<p>5. Capacity building for the technical, business, public and financial sectors. Provision of public information to</p>	<p>Energy is not only a low priority for people, but they also do not know what to do, or where. No training</p>	<p>Capacity of key stakeholders in promoting, facilitating and pursuing EE investments developed</p>	<p>GEF Increment: School children and their wider network start to value energy and are aware of how</p>

Project component	Baseline	Alternative	Increment
<p>assist the general public and building owners in making the decision to invest in energy efficient technology and measures.</p>	<p>(such as week courses) is publically available to build these skills. Cost: USD500,000</p>	<p>or strengthened. Energy efficiency is taught in schools, through to courses/modules for specific EE skills, and is available as technical and business training. Government energy managers will be a specific target under this project.</p>	<p>to save it. Skills for EE are widely available, and able to build capacity. GEF Costs: USD 523, 376</p>
<p>6. Development and deployment of effective energy management systems for government facilities.</p>	<p>Government energy efficiency and energy management practices are similar to other parts of Maldives' society. They are often inefficient, and responsibility is disjointed. Government does not show leadership, and in this way sends a negative message about the value of energy, that it is not 'worth' saving. Cost: USD550,000</p>	<p>Energy Management strategies, with incentives for departments to reduce energy consumption and use energy efficiently, implemented. Government has a coherent internal policy on energy management, and specifically on procurement. Energy efficiency is driven through a bottom-up approach of department level (and smaller) energy management teams, with facility managers supported through training. A top-down approach also applies, providing resource, political will and other support to implement necessary changes. Efficiency is valued, rewarded, and promoted, with government clearly showing leadership and saving money.</p>	<p>GEF Increment: Government has a coherent approach to energy efficiency that is implemented in selected government departments. This results in energy savings, cost savings, and leadership that is visible to the people of the Maldives. Participation in energy management processes by a broad cross-section of staff, creates a learn-by-doing approach that reinforces energy efficiency promotions. GEF Costs: USD 214, 309</p>
<p>7. Development and adoption of a phased implementation for</p>	<p>Building material and design and construction does not consider</p>	<p>Building owners and contractors are complying with the</p>	<p>GEF Increment: The guidelines lead to a change in the</p>

Project component	Baseline	Alternative	Increment
<p>legislation on building energy efficiency.</p>	<p>energy use in operation. There is no clear/simple guidance or information on how this could be achieved. Building code (generally) is not enforced. Cost:USD648,351</p>	<p>new legislation on building EE that include a certification scheme that assures the adoption of EE guidelines and standards, and the certification scheme can be used to support financing applications. Legislation have been adopted, in which guidelines and/or standards are developed that are locally relevant and enable buildings to have lower lifetime energy use, for new and renovated buildings. Primary focus is on residential and other common building types. The guidelines have been implemented on local building projects, and their costs and benefits can be clearly identified. The guidelines support others, such as councils or loans officers in financial institutions, who can use them to assess building applications, bringing them into wider use.</p>	<p>development of new building stock, avoiding ‘lock in’ of inefficient approaches, and reducing lifetime building energy uses. The influencing role of the project sees this taken up by financial institutions and others outside the project, who also apply the guidelines, in the medium-term leading to a broad shift in construction methods. Ultimately, the guidelines may become enforceable standards. GEF Costs: USD 279,275 Global Environmental Benefit: The guidelines underpin the ability to achieve the energy savings identified in Components 2-4, and contribute to indirect GHG savings. Discussions with networks in developing the guidelines also influence those beyond the Maldives.</p>
<p>8. Energy labels and standards for appliances and development of processes to reduce the purchasing of low efficiency appliances.</p>	<p>Labelling of appliances at point of sale is ad hoc, using a variety of stickers in various languages, dependant on the exporter and retailer, and is not verified or made locally relevant. Retailers have limited ability to explain the labels, especially when comparing for different</p>	<p>Consumers purchase energy efficient appliances, encouraged by reliable information on energy consumption available at point of purchase; and prohibition of sale of inefficient appliances are successful in areas where prohibition can be cost effective. A consistent system of</p>	<p>GEF Increment: Technical assistance in the adoption, implementation and enforcement of energy usage labels for appliances GEF Costs: USD 192, 325 Global Environmental Benefit:</p>

Project component	Baseline	Alternative	Increment
	<p>countries and conditions, and may not be able to explain the cost implications of purchases.</p> <p>Consumers' use of such labels is therefore sporadic at best.</p> <p>Ultimately, even should consumers wish to purchase energy efficient equipment, information barriers exist to supplying this market effectively.</p> <p>Cost: USD574,000</p>	<p>labelling is determined for appliances sold in the Maldives, and the enforcement of this system generates consumer confidence.</p> <p>The labelling system facilitates changes to consumer purchasing that consider energy consumption and cost. Consumers may even be willing to replace inefficient equipment earlier in its lifespan where it can be seen this would provide positive payback on the cost.</p> <p>In the medium term, the increasing demand for efficient models precipitates a baseline shift which reduces the price of these appliances. Further, if the Maldives do not participate, they are at risk of being a 'dumping ground' for cheap but inefficient goods that can no longer be sold in nearby markets.</p>	<p>Greenhouse gas emission reductions of 29,363 t CO_{2-e} are estimated by the GEF direct savings approach.</p>

Appendix 4: Results framework

Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
Goal: Transform the market in the Maldives towards energy efficient low-carbon buildings and built environment thereby reducing GHG emissions in the country.							
Project Objective: Mainstream energy efficiency measures into policies and standards for buildings to leverage investments in efficient and low-carbon technologies and management practices thereby reducing GHG emissions from the sector.							
	Number of building construction permits that include EE provisions, submitted and approved, compared to total building construction applications. Energy use intensity by types of buildings	% of buildings that has received assistance & adopted EE interventions: (a) by types of buildings (residential, commercial, government, tourist-oriented) (b) by locations (Male' and outer islands) Electricity use per unit area - by total energy use and by type of end uses (e.g.; lighting, space cooling)	No existing energy policies Building code does not include EE provisions. Insignificant number of residential, commercial & government buildings have adopted EE measures A few tourist-oriented buildings have adopted some EE measures for lighting, space cooling Potential for reduction of energy intensity is high (e.g.; above 50%).	Final draft of EE policy measures and building code reviewed and approved by recommending bodies Guidelines for including EE provisions in buildings for permit approvals adopted and enforced About 50% of public building owners/managers in Male' and 25% of tourist buildings have been made aware of EE opportunities and have initiated actions	EE policy measures adopted & implementation plan promulgated by legislature EE provisions incorporated in building code. Over 90% of building construction permits, submitted and approved, include EE provisions 20-30 % in reduction in energy use of buildings by end of project (by types and locations) 20-30 % reduction in GHG emissions from building energy use achieved	Legislation on building energy efficiency STELCO and FENAKA energy usage records adjusted for population increase and other factors as necessary Project implementation on records	The economy will continue to be strong enough to support the investments. Government accepts EE energy policy recommendation from the project and implements them. Willingness and ability of local financial institutions to participate in finance of investments.
Outcome 1: A functioning monitoring and assessment system is in place to measure effectiveness of project interventions.							
	Number of energy audit and surveys conducted Data collection and management system	Number of published survey and audit reports. % of potential survey respondents covered Volume of data collected, disaggregated by type of	Only one pilot survey has been conducted. No surveys have been undertaken. Data on energy use in buildings is not available.	Database developed, together with data collection methodology (e.g. relevant indicators for normalizing use). Baseline data collected by end of first year.	Baseline data available for assessing energy end-use consumption, especially for assessing project intervention. Database, that includes regular monitoring/reporting	Energy usage breakdown records from the monitored buildings. Project annual and final reports analysing building energy use patterns and trends.	Suitable data can be identified at the building level. Stakeholders are willing to share data

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Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
	established and operational by end of project.	respondent & data A national data base system managed by MEE.	Data collection & management system does not exist.		activities & protocols established. 90 % of buildings covered by monitoring activities (disaggregated by types and locations) A functioning national database system.		
Outcome 2: Financing institutions are extending loans and financing for investments in energy efficiency actions in buildings.							
	Funds are available for EE buildings at FIs. Increase applications and approvals of loans for EE actions (by types EE actions, and location of buildings) Volume of EE building investments achieved (disaggregated by types of buildings, types of technology and location).	Amount of funding available in US\$ value. % of applications & approvals for EE investments in new buildings vis-à-vis total building applications Number of applications and approvals for building retrofits. Amount of EE building investments in US\$ value.	Funds are not available for EE creating a barrier to investment. No applications for financing received by FIs for EE projects, neither for new nor for building retrofits. No loans or financing by FIs on EE actions in buildings being made.	Guidelines for financing mechanisms established. Financial packages for EE action established in the market and \$30 million of investment is made.	Guidelines for financing mechanisms fully operational. \$63 million of investment committed by end of project.	Loan guarantee fund portfolio Energy efficient appliance approvals Development approvals that reference guidelines	The economy remains robust & there continues to be a willingness to accept debt for improved long term gains Local financing institutions accept the concept and provide loans at reasonable terms
Outcome 3: Feasibility of investing in energy efficient design and technologies in existing building structures demonstrated in public buildings.							
	Public buildings involved in EE technology demonstration.	Number of public buildings included for EE technology demonstration. Number of visitors in the	Only the MEE has adopted EE measures (mostly house-keeping measures), but has not been monitored	Energy efficiency upgrade designs are ready and 5 public buildings undertake energy efficiency approaches	About 10 public buildings undertake energy efficiency approaches, and these are accessible to the public, with	Construction documentation; visible installations; feedback received Monitoring reports by agencies owning the	Government remains willing to participate in the demonstration

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Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
	Reduction of energy use intensity of public buildings.	demonstration public buildings % decrease in energy use in demonstration public buildings by end uses (e.g.; lighting, air-conditioning)	and evaluated. Energy efficiency is accepted in principle, but not widely understood in practice, and not widely implemented; there is no or minimal decrease in energy use.		information provided (e.g. signs) on the EE actions taken, six months before the project ends	buildings.	
Outcome 4: Initiatives of hotels and resorts to adopt and invest in energy efficiency actions and to promote public awareness of these actions strengthened and expanded.							
	Hotels undertake energy audits. Hotels adopt EE “house-keeping measures (e.g.; waste heat recovery”). Investment by hotels and resorts in energy conservation & efficiency. Energy use in tourist-oriented buildings. Energy use intensity in hotel industry	Percentage of target hotels that have undertaken energy audits. Number of hotels that have adopted EE “house-keeping measures”. Value of investment by hotels and resorts in energy efficiency. % reduction in energy use in tourist-oriented buildings. Reduction on energy use intensity in hotel industry	Few hotels and resorts have plans for or have undertaken EE actions. Tourism sector is participation is on voluntary basis only (e.g. “Green Globes”). Investments in EE actions have been minimal, mostly on EE lightings. No reduction of energy use has been done nor targeted. No reduction of energy use intensity has been targeted.	Pilot energy audit has been undertaken in at least one hotel or resort. Draft EE action program, for the tourism-building sector has been drafted.	Audits and support for accessing finance, lead to 15 hotels and resorts using EE guidelines by last year of the project. 15 hotels achieving and promoting relevant certification by last year of project.	Recorded EOI to Ministry of Tourism, Arts and Culture; Number of audits resulting in EE expenditure Loans data from financing institutions STELCO and FENAKA records and occupancy records	The level of tourism remains high and hotels/resorts are willing to make the investments to obtain long term cost benefits.
Outcome 5: Capacity of key stakeholders in promoting, facilitating and pursuing EE investments developed or strengthened.							
	A range of training opportunities for building awareness & capacity building for key stakeholders;	Number of training courses/ modules and number of participants in them, disaggregated by levels	No local training activities conducted regularly. Foreign training are available but these are	Programs/ syllabi for training courses/ modules developed; lecturers/ resource persons	One-to-two courses/ modules for each level/ subject area targeted by this project conducted	Reports from educational institutions	There is continued political support for EE activities and the economy remains robust

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Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
	from short courses to integrated modules	&types (e.g.; EE building technologies & design, financial analysis, business skills development)	limited.	selected; and course programs defined			enough to support investment in EE interventions
	Local businesses & companies providing energy services for EE projects have improved technical capacity and business skills	Number of local energy service providers doing energy auditing, building design & construction, building renovation, building energy management & supplying the market for EE products.	There is only one energy service company, and it is focused more on renewable energy projects. EE lightings, refrigerators and appliances are being sold now, but now quality standards for such products are in place.	First batch of technicians' training conducted EE modules, for integration in engineering curriculum, approved	Energy service providers provides local expertise in for on-going EE projects generated under this project. Standards for EE products are in place.	Reports from educational institution Project progress report	EE modules are accepted for inclusion by the educational institutions
	Financial institutions (FIs) are successfully providing finance for investments in energy efficiency buildings and equipment	Percentage and volume of new building loans that include energy efficiency components as designated by government guidelines and standards	Building loans do not provide energy efficiency guidance, nor take into consideration the improved financial results available from improved energy performance.	Module for internal capacity building of FIs to assess and provide EE loans and financing developed and initiated.	At least two financial institutions are able to show a dedicated portfolio or identify loans that have applied the energy efficiency guidelines	Financial institution EE loan records.	FI are see the viability and are interested in providing financing for EE building technologies.

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Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
	Increase awareness of energy end-users, the general public, including the youth sector	Number of public information activities conducted and number of participants in them, disaggregated by type of information activities	EE promotional activities have been few and far between. There impacts have never been measured.	Awareness raising materials for EE are available for the energy-end-users, the general public, students and youth groups At least one public information activity (e.g.; seminar) conducted per year.	Promotional materials are distributed to the public at least twice a year. At least 60% increase sales of energy efficiency products relative to before the project started.	Media delivery service records STELCO and FENAKA records of energy use in each sector	
Outcome 6: Energy Management strategies, with incentives for departments to reduce energy consumption and use energy efficiently, implemented.							
	Energy managers at the department level are trained & assigned to enforce government energy policies Efficiency measures defined and implemented in government agencies	Number&percentage of public facility managers trained, and are establishing&implementing activities promoting & supporting EE. Number of government EE measures defined & proposed, disaggregated by types of measures (including expected reduction of energy use) Percentage of agencies using “Life-cycle costing analysis” (rather than “first cost analysis”) in purchasing decisions for energy	No capacity is available within government agencies. Except in the MEE, no departments are establishing nor implementing EE actions. This is practically non-existent. Only MEE has some form EE housekeeping measures in place, and these have not been monitored. No government agency is applying the method in purchasing decisions	Modules for training government Energy Managers developed and first courses initiated. All relevant government officials and institutions are trained and informed about energy management and procurement regulations. First training on “life-cycle costing analysis” undertaken	At least 5 of the 10 largest government facilities have energy focal points to enforce government energy regulations and policies, and there is a plan to extend this. At least three government departments have: - undertaken energy audits and have adopted and initiated EE plans/ measures In participating government departments; purchases of energy using equipment over a USD 500 threshold,	Attendance records of workshops and training sessions. Records of periodic operational meetings of government energy managers. Departmental energy records. Training records and logs by departmental energy managers Reports of periodic meetings of government energy managers	Lack of will by government to enforce internal energy regulations Budgetary constraints interfere with using life-cycle costs as a purchase determinant. Government enforces energy efficiency regulations and policies in government departments.

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Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
	<p>Trends in energy use in public buildings</p> <p>Government EE Working group responsible for government energy usage policies and systems</p>	<p>equipment</p> <p>Percentage decrease in energy use; disaggregated by type of energy use (lighting, space cooling, office equipment).</p> <p>Number and frequency of meetings of EE working groups</p> <p>Records of working group on government energy efficiency meetings</p>	<p>As there are no EE measures in place yet; no decrease in energy use in buildings can yet be achieved.</p> <p>No any form of grouping discussing EE actions within government sector exist</p>	<p>At least 5 government agencies have formulated their EE action plans.</p> <p>Working group on government EE is established and given adequate resources and responsibility</p>	<p>include consideration of life-cycle costs as well as first costs</p> <p>All government departments actively promote EE measures and have appointed energy focal points, and have adopted initial EE plans/ measures to be rolled out further.</p>		
<p>Outcome 7: Legislation on building EE is developed and its implementation is initiated on a phased basis, in which locally appropriate energy efficiency guidelines and standards are developed, together with a certification scheme, and these are adopted by financing institutions in assessing approval for beneficial conditions applicable to energy efficiency loans.</p>							
	<p>Building energy guidelines and standards developed by the project</p> <p>Buildings that have included EE components as designated under the guidelines and standards</p> <p>Financial institutions providing building loans.</p>	<p>Government accepts the building energy guidelines and standards developed by the project</p> <p>Number & percentage of buildings that have included EE components</p> <p>Financial institutions include the energy guidelines and standards in providing building loans.</p>	<p>No EE related legislation existing and no guidelines and standards are in use.</p> <p>This has not been done in any building in Maldives</p> <p>Providing such loans has not been done in any building in Maldives</p>	<p>Energy efficiency guidelines are ready to be implemented together with a certification scheme</p>	<p>95% of new buildings in Malé include energy efficiency components by the end of the project.</p> <p>All financing institutions have adopted energy efficiency guidelines and standards in assessing approval loan applications.</p>	<p>New building application records</p>	<p>Guidelines and standards are not enforced for buildings</p> <p>Financial institutions do not require implementation of the guidelines and standards for the provision of new construction loans.</p>

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Strategy Narrative	Indicator	Units	Baseline	Mid-Term Target	End of Project Target	Sources of Verification	Risks and Assumptions
Outcome 8: Consumers are encouraged to purchase energy efficient appliances through reliable information on energy consumption, available at point of purchase, and where it is cost effective, inefficient appliances are prohibited.							
	Labelling of high energy use appliances	High energy use appliances include point of sale labels that inform the public of the estimated energy use and annual cost of operation of the appliances	Even if such EE appliances can be found being sold in Male', no related activities have been undertaken in Maldives so far.	Energy efficiency labels scheme is ready to be implemented	95% refrigerators, air-conditioners and freezers have energy usage labels at the point of sale.	Customs import records. Point of sale records. Records of the agency charged with enforcement	Enforcement of labelling regulations is weak. Forged labels that exaggerate the efficiency of the units are applied at the point of purchase by the importer.

Appendix 5: Workplan and timetable

Components/Outcomes	Year 1												Year 2												Year 3		Year 4		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11	12	1-11	12	
Component 1 - Implement a monitoring and assessment system																													
1.1 Survey a statistically relevant random sample of buildings in each target sector to establish their baseline energy usage characteristics and to help prioritise the types of interventions employed by the project																													
1.2 Establish and maintain a database of building energy use in buildings that have project interventions for comparison with baseline data																													
1.3 Assess the effectiveness of project interventions through analysis of ongoing energy usage in comparison with baseline usage																													

Components/Outcomes	Year 1												Year 2												Year 3		Year 4		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11	12	1-11	12	
Component 2 - Support for Finance of Building Related Energy Efficiency through existing Financial Institutions																													
2.1 Develop and implement a loan-guarantee programme based on a fund established under the project to reduce the risk perceived by local financial institutions in providing three to five year finance for government qualified, high-efficiency appliances (based on appliance labeling as developed under Component 8)																													
2.2 Provide financial incentives for building owners and developers to integrate energy efficiency components (based on guidelines and standards from Component 7)																													
2.3 Work with the Maldives Housing Development Financing Corporation to assist in their access to low cost funds for special energy efficient housing loans (based on standards and guidelines as developed under Component 7)																													

Components/Outcomes	Year 1												Year 2												Year 3		Year 4					
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11	12	1-11	12				
Component 3 - Demonstrations of energy efficiency design and technology in selected public buildings																																
3.1 Select a public building to become a public model of cost effective energy efficiency renovation and energy management																																
3.1.1 Based on the energy efficiency guidelines and standards prepared under 7.2, determine the cost effective energy efficiency interventions to be included in the selected building																																
3.1.2 Perform the energy efficiency improvements on the selected building																																
3.1.3 Based on the energy usage patterns of the building, design an energy management system for implementation by the government department occupying the building and provide training for the designated energy management team																																
3.2 Select a public housing project to be constructed within the project period.																																

Components/Outcomes	Year 1												Year 2												Year 3			Year 4		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11		12	1-11		12
3.2.1 Based on the energy efficiency guidelines and standards prepared under 7.2, determine the cost effective building material and design improvements that will increase energy efficiency																														
3.2.2 Construct the energy efficient residences as a public demonstration with add on cost for the energy efficiency improvements partially funded under the project																														
3.3 Support public buildings/housing in acquiring EE compliant certifications																														
Component 4 - Hotel and Resort Energy Efficiency Support																														
4.1 Contract with external experts to provide high quality energy audits and technical assistance in the economic use of waste heat from diesel generators and central air conditioners in the hotel/resort sector																														

Components/Outcomes	Year 1												Year 2												Year 3			Year 4												
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11			12	1-11			12								
4.2 Assist hotels/resort that complete the energy audit process to develop cost effective energy efficiency improvement projects and assist in obtaining finance for their implementation																																								
4.3 Support hotels/resorts in acquiring EE compliant certifications																																								
Component 5 - Capacity building for the technical, business, government, financial sectors, and educational institutes																																								
5.1 Develop ongoing training programmes for EE technical capacity development in existing educational institutions through the preparation of energy efficiency curriculum modules to be integrated into existing electrical and mechanical technology and trades programmes																																								
5.2.1 To provide for long term support of businesses providing energy efficiency services, introduce energy efficiency and energy management curriculum modules in business training programmes at existing educational institutions.																																								

Components/Outcomes	Year 1												Year 2												Year 3		Year 4											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11		12	1-11		12								
5.2.2 Using external expertise, provide short term courses/workshops in energy auditing and energy management to allow local energy service businesses to carry out energy audits and create investment projects for implementation of energy efficiency measures in residences, small businesses and public facilities. Repeat in year 3																																						
5.3 Using local expertise and media services, develop public information and educational programmes focusing on energy efficiency and energy usage management to be delivered through utilities, local media and educational institutions at all levels.																																						
5.3.1 Implement public information delivery through local media and public events to coincide with opening of public demonstration buildings (3.1/3.2).																																						
5.3.2 Include energy efficiency tips with all STELCO and FENAKA																																						

Components/Outcomes	Year 1												Year 2												Year 3			Year 4												
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11			12	1-11			12								
billings and on their websites																																								
5.3.3 Develop energy efficiency components in the science curriculum of public educational institutions for students age 10 through 17.																																								
5.3.4 Integrate the energy efficiency public school curriculum modules into existing science curricula																																								
5.4 Provide capacity building to local financial institutions to support their marketing of financing of energy efficiency options for new and existing buildings and their finance of energy efficiency equipment for homes and businesses.																																								
5.5 Provide capacity building to government facility managers for improved management of energy within their specific facilities (includes STELCO, FENAKA and water supply facilities as well as government offices). Refresh annually																																								

Components/Outcomes	Year 1												Year 2												Year 3		Year 4		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11	12	1-11	12	
Component 6 - Improvement of Energy Policies and Energy Management within government																													
6.1 Procure external services to review and modify (if needed) existing policies relating to energy efficiency and energy management.																													
6.1.1 Assess the cost effectiveness introduction of incentives for EE compliant certification noted in 7.3																													
6.1.2 Introduce such incentives if the assessment shows they are cost effective																													
6.2 Procure external services to review and modify existing policies relating to energy efficiency and energy management within government where needed																													
6.2.1 Create a high level energy management working group with representatives from all ministries that is tasked with creating an atmosphere within government operations that encourages energy efficiency improvements.																													

Components/Outcomes	Year 1												Year 2												Year 3		Year 4											
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11		12	1-11		12								
6.1.2 Review government procurement processes for energy using equipment and modify where needed to ensure that the focus of that procurement is on life-cycle cost not just on first cost.																																						
6.1.3 Using external expertise, work with the energy management working group to design and implement an energy management system that focuses on improved energy efficiency and provides clear incentives for government departments to increase the efficiency of energy usage.																																						
6.1.4 Through individual training workshops at the Department level, train departmental staff in the proper management of energy within the facilities under their jurisdiction. Repeat bi-annually																																						

Components/Outcomes	Year 1												Year 2												Year 3		Year 4		
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11	12	1-11	12	
Component 7 - Development and adoption of a phased implementation for legislation on building energy efficiency.																													
7.1 Contract with external experts to analyse the local conditions and building systems and propose cost effective and practical energy efficiency improvements for new construction and for energy efficiency improvement of existing buildings that can be developed into guidelines and standards, These will be inputs to formulation of the legislation.																													
7.2 Using a workshop guided by the external experts that include local architects, government energy officers and local builders to establish the guidelines and standards that are acceptable under the local conditions. These will be inputs to developing the legislation.																													
7.3 Develop energy efficiency compliant certification for government, residential, commercial and tourism sectors, leading to the																													

Components/Outcomes	Year 1												Year 2												Year 3			Year 4										
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11		12	1-11		12								
formulation of the legislation. Provide a workshop for its introduction to the tourism sector.																																						
7.4 Provide workshops for financial institutions to introduce the energy efficiency guidelines and standards that will form the basis for special energy efficiency based financing of new buildings and for building renovations.																																						
Component 8 - Energy Usage Labels for Appliances																																						
8.1 Using local and external expertise, determine the most appropriate process for providing consumers with appliance energy use information considering the range of appliance import sources, the variety of appliances imported and the cost effectiveness of a national labeling system.																																						
8.2 Implement an appliance energy labeling process to allow purchasers to compare the cost of energy usage for high-energy usage appliances and to																																						

Components/Outcomes	Year 1												Year 2												Year 3			Year 4										
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1-11		12	1-11		12								
support government in the selection of high efficiency appliances that qualify for extended term financing using the loan guarantee fund.																																						
8.3 Using local and external expertise, determine the cost effectiveness and practicality of restricting imports of appliances having low energy efficiency. If considered practical and appropriate, work with government to establish procedures to restrict the import of appliances below a government mandated efficiency standard.																																						

Appendix 6: Key deliverables and benchmarks

The main deliverables of the Project are related to outputs:

Components/Outputs	Deliverables
Component 1 - Implement a monitoring and assessment system	
1.1 Survey a statistically relevant random sample of buildings in each target sector to establish their baseline energy usage characteristics and to help prioritise the types of interventions employed by the project	Survey report showing the results of each question and the collective results that establish the baseline energy usage characteristics for each building type
1.2 Establish and maintain a database of building energy use in buildings that have project interventions for comparison with baseline data	Database of building energy use in buildings that have project interventions
1.3 Assess the effectiveness of project interventions through analysis of ongoing energy usage in comparison with baseline usage	Annual and Final Report of the analysis of ongoing building energy usage in comparison with the baseline data for buildings of the same type
Component 2 - Support for Finance of Building Related Energy Efficiency through existing Financial Institutions	
2.1 Develop and implement a loan-guarantee programme based on a fund established under the project to reduce the risk perceived by local financial institutions in providing three to five year finance for government qualified, high-efficiency appliances (based on appliance labeling as developed under Component 8)	(i) Guidelines for the term finance of high-efficiency appliances. (ii) Guidelines for the distribution of loan guarantee funds for high-efficiency appliance loans
2.2 Provide financial incentives for building owners and developers to integrate energy efficiency components (based on guidelines and standards from Component 7)	Based on the guidelines and standards delivered under Component 7, deliver guidelines for specific financial incentives to be provided for the integration of each type of energy efficiency component.
2.3 Work with the Maldives Housing Development Financing Corporation to assist in their access to low cost funds for special energy efficient housing loans (based on standards and guidelines as developed under Component 7)	Report showing sources of low cost funds and mechanism available for the financing of high energy efficiency housing.
Component 3 - Demonstrations of energy efficiency design and technology in selected public buildings	
3.1 Select a public building to become a public model of cost effective energy efficiency renovation and energy management	Report noting the building that is selected, the selection process and the justification for selecting that building

Components/Outputs	Deliverables
3.1.1 Based on the energy efficiency guidelines and standards prepared under 7.2, determine the cost effective energy efficiency interventions to be included in the selected building	Report of a study of the building selected in 3.1 that determines the specific interventions to be applied and their cost effectiveness.
3.1.2 Perform the energy efficiency improvements on the selected building	Commissioning report for the building energy system interventions
3.1.3 Based on the energy usage patterns of the building, design an energy management system for implementation by the government department occupying the building and provide training for the designated energy management team	Report defining the energy management system with specific responsibilities and activities clearly defined. Includes all training documents and a report of the training activity carried out.
3.2 Select a public housing project to be constructed within the project period.	Report noting the project that is selected, the selection process and the justification for selecting that project
3.2.1 Based on the energy efficiency guidelines and standards prepared under 7.2, determine the cost effective building material and design improvements that will increase energy efficiency	Report of a study of the buildings in the project selected in 3.1 that determines the specific interventions to be applied and their cost effectiveness.
3.2.2 Construct the energy efficient residences as a public demonstration with add on cost for the energy efficiency improvements partially funded under the project	Project commissioning report noting specific EE interventions, their cost, their expected savings and their payback period.
3.3 Support public buildings / housing in acquiring EE compliant certifications	Project commissioning report noting specific EE interventions, their cost, their expected savings and their payback period.
Component 4 - Hotel and Resort Energy Efficiency Support	
4.1 Contract with external experts to provide high quality energy audits and technical assistance in the economic use of waste heat from diesel generators and central air conditioners in the hotel/resort sector	Individual audit reports for hotels and resorts included in the project including the technical details of any practical use of waste heat for hot water generation.
4.2 Assist hotels/resort that complete the energy audit process to develop cost effective energy efficiency improvement projects and assist in obtaining finance for their implementation	Project documents for EE interventions that are prepared in association with the audited hotels/resorts.
4.3 Support hotels/resorts in acquiring EE compliant certifications	Report of actions needed at the participating hotels/resorts to qualify for the desired EE compliant certification

Components/outputs	Deliverables
Component 5 - Capacity building for the technical, business, government, financial sectors, and educational institutes	
5.1 Develop ongoing training programmes for EE technical capacity development in existing educational institutions through the preparation of energy efficiency curriculum modules to be integrated into existing electrical and mechanical technology and trades programmes	Energy Efficiency curriculum modules developed in association with and to be used by electrical trades and mechanical trades institutions.
5.2.1 To provide for long term support of businesses providing energy efficiency services, use external expertise introduce energy efficiency and energy management curriculum modules in business training programmes at existing educational institutions.	Energy Efficiency curriculum modules developed in association with and to be used by existing business educational institutions.
5.2.2 Using external expertise, provide short term courses/workshops in energy auditing and energy management to allow local energy service businesses to carry out energy audits and create investment projects for implementation of energy efficiency measures in residences, small businesses and public facilities. Repeat in year 3	Individual reports of all workshops and short courses carried out under the project including all workshop/course materials used.
5.3 Using local expertise and media services, develop public information and educational programmes focusing on energy efficiency and energy usage management to be delivered through utilities, local media and educational institutions at all levels.	Television spots explaining tips for energy efficiency Publications handed out by STELCO and FENAKA on energy efficiency for residences and businesses Energy tips to be included on STELCO and FENAKA bills and publications Radio spots explaining tips for energy efficiency Website for STELCO and FENAKA include energy efficiency tips and information
5.3.1 Implement public information delivery through local media and public events to coincide with opening of public demonstration buildings (3.1/3.2).	Delivery of multiple media spots and press releases relating to opening of demonstration buildings constructed under 3.1 and 3.2
5.3.2 Include energy efficiency tips with all STELCO and FENAKA billings and on their websites	All energy bills from STELCO and FENAKA include energy tips and their websites include information on energy efficiency for homes and businesses
5.3.3 Develop energy efficiency components in the science curriculum of public educational institutions for	Energy efficiency modules developed in association with the public school system for inclusion in science

Components/outputs	Deliverables
students age 10 through 17.	programmesdelivered to ages 10 through 17
5.3.4 Integrate the energy efficiency public school curriculum modules into existing science curricula	EE modules included in science curriculum for 10 to 17 year old students.
5.4 Provide capacity building to local financial institutions to support their marketing of financing of energy efficiency options for new and existing buildings and their finance of energy efficiency equipment for homes and businesses.	Report on guidelines, procedures and marketing of finance for energy efficient buildings and appliances.
5.5 Provide capacity building to government facility managers for improved management of energy within their specific facilities (includes STELCO, FENAKA and water supply facilities as well as government offices). Refresh annually	Training report including all materials used for the training.
Component 6 - Improvement of Energy Policies and Energy Management within government	
6.1 Procure external services to review and modify (if needed) existing policies relating to energy efficiency and energy management.	Report of the policy review noting proposed changes and additions
6.1.1 Assess the cost effectiveness of introduction of incentives for EE compliant certification	Report of the assessment of public interest and cost effectiveness for the introduction of incentives of EE compliant certification
6.1.2 Introduce such incentives if the assessment shows they are cost effective	Annual report of incentives provided for EE compliant certification
6.2 Procure external services to review and modify existing policies relating to energy efficiency and energy management within government where needed.	Report of the review and proposed modification of internal policies for EE and energy management in government
6.2.1 Create a high-level energy management working group with representatives from all ministries that is tasked with creating an atmosphere within government operations that encourages energy efficiency improvements.	Report of the working group
6.1.2 Review government procurement processes for energy using equipment and modify where needed to ensure that the focus of that procurement is on life-cycle	Report of the review and proposed modifications

Components/outputs	Deliverables
cost not just on first cost.	
6.1.3 Using external expertise, work with the energy management working group to design and implement an energy management system that focuses on improved energy efficiency and provides clear incentives for government departments to increase the efficiency of energy usage.	Proposed guidelines, standards and procedures for government energy management at the department and ministry level and proposals for the application of incentives for increased energy efficiency
6.1.4 Through individual training workshops at the Department level, train departmental staff in the proper management of energy within the facilities under their jurisdiction. Repeat bi-annually	Report of training including all training materials used
Component 7 - Development and adoption of a phased implementation for legislation on building energy efficiency.	
7.1 Contract with external experts to analyse the local conditions and building systems and propose cost effective and practical energy efficiency improvements for new construction and for energy efficiency improvement of existing buildings that can be developed into guidelines and standards, These will be inputs to formulation of the legislation.	Expert report of local conditions and building systems with proposals for cost effective and practical energy efficiency improvements that can be developed into guidelines and standards
7.2 Using a workshop guided by the external experts that include local architects, government energy officers and local builders to establish the guidelines and standards that are acceptable under the local conditions. These will be inputs to developing the legislation.	Workshop report including all materials provided to participants
7.3 Develop energy efficiency compliant certification for government, residential, commercial and tourism sectors, leading to the formulation of the legislation. Provide a workshop for its introduction to the tourism sector.	Report proposing, with justification, requirements for certification of government, residential, commercial and tourism sector buildings. Report of the workshop including all materials provided Legislation on building energy efficiency.
7.4 Provide workshops for financial institutions to introduce the energy efficiency guidelines and standards that will form the basis for special energy efficiency based financing of new buildings and for building renovations.	Report of the workshops including all materials provided

Components/outputs	Deliverables
Component 8 - Energy Usage Labels for Appliances	
<p>8.1 Determine the most appropriate process for providing consumers with appliance energy use information considering the range of appliance import sources, the variety of appliances imported and the cost effectiveness of a national labeling system.</p>	<p>Report of consumer, retailer, government and other relevant stakeholder surveys regarding the type of information needed by consumers to make a well informed decision relating to appliance energy efficiency and energy usage. Report on the cost effectiveness of an appliance labeling system for the Maldives</p>
<p>8.2 Implement an appliance energy labeling process to allow purchasers to compare the cost of energy usage for high-energy usage appliances and to support government in the selection of high efficiency appliances that qualify for extended term financing using the loan guarantee fund.</p>	<p>Detailed report showing the procedures and processes used in the implementation of appliance labeling, the types of appliances affected and their import statistics Report of the appliances available from existing appliance sources used by retailers that can be considered high efficiency models and acceptable for special financing under the project</p>
<p>8.3 Using local and external expertise, determine the cost effectiveness and practicality of restricting imports of appliances having low energy efficiency. If considered practical and appropriate, work with government to establish procedures to restrict the import of appliances below a government mandated efficiency standard.</p>	<p>Report of the practicality and cost effectiveness of government creating a standard for energy efficiency below which appliances would be banned from import. Procedures and guidelines for the banning of low-efficiency appliances from import.</p>

Appendix 7: Costed M&E plan

1. Monitoring Framework and Budget ²

Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
Outcome 1 The effectiveness of project interventions can be assessed through a functioning monitoring and assessment system	Project team can provide typical energy usage for various building types. Project team can identify energy savings expected and achieved through the	Energy data is not available in a way that allows different uses or building type to be separated out. Information is stored by various organisations in an ad hoc	Database developed, together with data collection methodology (e.g. relevant indicators for normalizing use). Baseline data collected by	Baseline data available for assessing energy end-use consumption, especially for assessing project intervention. Database, that includes regular monitoring/	Energy usage breakdown records from the monitored buildings. Annual and final reports analysing building energy use.	Data should be collected and entered quarterly to allow for seasonal variations. Monitoring should confirm this yearly. Analysis reports will be available annually.	All buildings that participate are audited, plus sufficient data to enable baseline to be determined.	PMU with inputs from relevant stakeholders	2014-2018	\$ 245,888 (the whole of Component 1 is a monitoring component). This includes contributions for staff, the mid-term and final evaluation.

² Detailed monitoring plan should be included in the M&E project section. This table is primarily intended to reflect how the outcome level indicators will be tracked to facilitate monitoring of **results** (as opposed to monitoring of project implementation progress). The implementation of the Results-based Monitoring Framework will be assessed at mid point and at end of project (through the Mid-Term review and Terminal Evaluation processes). The quality of M&E implementation will be rated with the Project Implementation Review (PIR). The contents of this table should be validated and agreed upon at the project inception meeting.

³ All project outcomes should be included in this column. The objective here is to provide the means to monitor progress in achieving the results set for the life of the project. Goals and long term impact indicators should not be included in this section, but may be discussed in other sections of the project document and M&E plan.

⁴ Only key indicators should be included (not more than 2 or 3 per outcome). Appropriate selection of outcome indicators is essential to assess progress in achieving project results.

⁵ Please note that if no baseline information for a particular indicator exists it is difficult to justify the targets. Also, please note that baseline data should be collected during the project preparation phase (PPG). If essential baseline data is not complete at the time of Work Program entry (for FSP) or CEO approval (for MSPs) the end of the first year of project implementation is the deadline for collecting the necessary data. The plan for the collection of such baseline data should be added in the next section along with its associated cost.

⁶ The mid point target will be reviewed at the Mid-Term Review along with validation of other focal area Tracking Tools. It is acknowledged that mid-point targets may not be relevant to all projects or all project outcomes. Flexibility will be applied.

⁷ The means of verification is the source of data that the project team will use to track the indicator (e.g., if the indicator is “forest cover diversity”, the means of verification could be “field surveys data” and “satellite imagery). Reviewing of project reports alone is insufficient.

⁸ This column should describe for each indicator the size (e.g., whether entire protected area or only a fraction, or, for example, in the case of a survey, how many people would be covered). The frequency (e.g., once in the lifetime of the project, quarterly during the first year, yearly, etc.)

⁹ Expected date (month/year) in which the monitoring activity will take place

¹⁰ For example, 15 satellite images @ \$1,000 each = \$15,000, or 4 field sampling trips by 2 staff @ \$300 each= \$1,200

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Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
	project. Number of energy audit and surveys conducted Volume of data collected, disaggregated by type of data Data collection and management system established and operational by end of project.	fashion and is not collated	end of first year.	reporting activities & protocols established. 90 % of buildings covered by monitoring activities (disaggregated by types and locations of buildings)						
Outcome 2 Financing of energy efficiency actions in buildings is available through existing financing institutions	Approvals for energy efficiency loans Investment in energy efficiency Number of applications and approvals for energy efficiency loans (by types and location of buildings.) Amount of investments achieved by end of project (disaggregated by types of buildings, types	Funds are not readily available for energy efficiency, creating a barrier to investment.	Financial packages for EE exist in the market and \$30 million of investment is made	Guidelines for financing mechanisms established and operational by last year of the project. \$63 million of investment through the project, mechanisms, and application of guidelines	Loan guarantee fund portfolio; energy efficient appliance approvals; development approvals that reference guidelines	Annually Sampling size according to necessity	Participating financial institutions	PMU with inputs from relevant stakeholders	2015-2018	964,208

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Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
	of technology and location).									
Outcome 3 Selected public buildings demonstrate energy efficient design and technologies	Number of public buildings included for EE technology demonstration. % decrease in energy use in demonstration public buildings Number of visitors in the demonstration public buildings. Reduction of energy use intensity of public buildings	Existing usage of the selected buildings Energy efficiency is accepted in principle, but not widely understood in practice, and therefore not widely implemented.	Energy efficiency upgrade designs are ready and 5 public buildings undertake energy efficiency approaches	About 10 public buildings undertake energy efficiency approaches, and these are accessible to the public, with information provided (e.g. signs) on the EE actions taken.	Construction documentation; visible installations; feedback received	Annually Sampling size according to necessity	Selected public buildings.	PMU with inputs from relevant stakeholders	2014-2018	\$980,815
Outcome 4 Hotels and resorts improve their energy efficiency and are able to promote this to the public	Percentage of target hotels that have undertaken energy audits. Number of hotels that have adopted EE “housekeeping measures”. Value of investment by hotels and resorts in energy efficiency.	Planned works by hotels and resorts do not include EE in upgrades and new construction. Tourism sector is participating in certification opportunities on a voluntary basis (e.g. Green Globes). Past energy usage records and occupancy	10 hotels and resorts adopt EE guidelines and acquire EE compliant certifications	Audits and support for accessing finance, lead to 15 hotels and resorts using EE guidelines by last year of project. 15 hotels achieving and promoting relevant certification	Recorded EOI to Ministry of Tourism, Arts and Culture; Number of audits resulting in EE expenditure Loans data from financing institutions STELCO and FENAKA records and occupancy records	Annually Sampling size according to necessity	Hotels and resorts.	PMU with inputs from relevant stakeholders	2014-2018	\$257,975

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Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
	% reduction in energy use in tourist-oriented buildings. Reduction on energy use intensity in hotel industry	rates.								
Outcome 5 The general public, including youth, understands the benefits of energy efficiency and some basic methods to achieve improvements	Number of public information activities conducted and number of participants in them, disaggregated by type of information activities.	EE promotional activities have been few and far between. There impacts have never been measured.	Awareness raising materials for EE are available for the public EE training opportunities are available	At least one public information activity (e.g.; seminar) conducted per year. Promotional materials are distributed to the public at least twice a year. At least 60% increase sales of energy efficiency products relative to before the project started.	Media delivery service records STELCO and FENAKA records of energy use in each sector.	Annually Sampling size according to necessity	Maldives residents, educational and financial institutions, government facilities	PMU with inputs from relevant stakeholders	2014-2018	\$523,376
A range of training opportunities in energy efficiency and business skills are available, from short courses to integrated	Number of training courses/modules and number of participants in them, disaggregated by type/ levels of training activities	No local training activities conducted regularly. Foreign training are available but these are limited.		One-to-two courses/modules for each level/subject area targeted by this project conducted	Reports from educational institutions					

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Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
modules in larger courses. Financial institutions are successfully providing finance for energy efficiency in buildings and equipment.	Percentage and volume of new building loans that include energy efficiency components as designated by government guidelines and standards.	Building loans do not provide energy efficiency guidance, nor take into consideration the improved financial results available from improved energy performance		At least two financial institutions are able to show a dedicated portfolio or identify loans that have applied the energy efficiency guidelines.	Financial institutions' EE loan records.					
Government facilities improve their energy efficiency through developing the skills of facility managers	Number of energy managers trained Number and percentage of departmental executives establishing and implementing activities promoting & supporting EE.	No capacity is available within government agencies.		At least 5 of the 10 largest government facilities have energy focal points to enforce government energy regulations and policies and there is a plan to extend this	Attendance records of workshops and training sessions for energy efficiency Records of periodic operational meetings of government energy managers					
Outcome 6 Energy management at the department level is implemented with incentives for departments to reduce energy consumption	Number of government efficiency measures defined and proposed, described and disaggregated by types of measures (including	This is practically non-existent. As mentioned above (Outcome 3), only MEE has some form EE housekeeping measures in place, and these	All relevant government officials and institutions are trained and informed about energy management and procurement regulations	At least three government departments have participated in all of activities of the project and have: - undertaken energy audits and have	Departmental energy records. Training records and logs by departmental energy managers	Annually Sampling size according to necessity	Government officials.	PMU with inputs from relevant stakeholders	2014-2018	\$214,309

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Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
<p>Procurement regulations for energy using equipment are based on life-cycle cost rather than first cost</p> <p>Working group on government energy efficiency is established and given adequate</p>	<p>expected reduction of energy use)</p> <p>Number of public buildings adopting EE measures, disaggregated by types of measures</p> <p>Percentage decrease in total energy use in the public building sector, disaggregated by type of energy use (e.g.; lighting, space cooling, office equipment)</p> <p>Percentage of purchasing using Life-cycle costing analysis are included in purchasing decisions</p> <p>Records of working group on government energy</p>	<p>have not been monitored</p>	<p>Working group on government EE is established</p>	<p>adopted and initiated EE plans/measures - appointed energy focal points who reports on the accomplishments of EE measures/plans</p> <p>Purchases of participating government departments of energy using equipment (of over a USD 500 threshold) include consideration of life-cycle costs as well as first costs</p> <p>All participating government departments actively promote energy efficiency</p>						

Annex 1: Project Document-Final

Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
resources and responsibility to implement government energy usage policies and systems Energy managers at the department level are assigned and trained to enforce government energy policies	efficiency meetings Number and percentage of Departmental energy manager trained Number of energy audits conducted for public buildings			measures and incorporate energy focal point. At least 50% of government departments have energy managers At least 25% of energy departments have conducted energy audit						
Outcome 7 Legislation on building energy efficiency is developed and implementation is initiated on a phased basis.	Government accepts the building energy guidelines and standards developed by the project Number of buildings that have included energy efficiency components as designated under the guidelines and standards. Financial institutions include the energy guidelines and	No EE related legislation existing and no guidelines and standards are in use.	Energy efficiency guidelines are ready to be implemented together with a certification scheme	95% of new buildings in Malé include energy efficiency components as designated under the guidelines and standards. All financing institutions have adopted energy efficiency guidelines and standards in assessing approval loan applications.	New building application records	Annually Sampling size according to necessity	Government officials, financial institutions and private sectors.	PMU with inputs from relevant stakeholders	2014-2015	\$279,275

Annex 1: Project Document-Final

Objective / Outcome ³	Outcome / objective level indicator ⁴	Baseline Conditions ⁵	Mid point Target ⁶ (as relevant)	End of Project Target	Means of Verification ⁷	Monitoring / sampling (frequency / size) ⁸	Location / Group	Responsibility	Time frame ⁹	Budget (Object of expenditure & cost) ¹⁰
	standards in providing building loans.									
Outcome 8 Consumers are encouraged to purchase energy efficient appliances through reliable information on energy consumption, available at point of purchase, and where it is cost effective, inefficient appliances are prohibited.	High energy use appliances include point of sale labels that inform the public of the estimated energy use and annual cost of operation of the appliances	Even if such EE appliances can be found being sold in Male', no related activities have been undertaken in Maldives so far.	Energy efficiency labels scheme is ready to be implemented	95% refrigerators, air-conditioners and freezers have energy usage labels at the point of sale.	Customs import records. Point of sale records. Records of the agency charged with enforcement	Annually Sampling size according to necessity	Retail outlets, Malé.	PMU with inputs from relevant stakeholders	2015-2018	192,325

Appendix 8: Summary of reporting requirements and responsibilities

The PMU at MEE will report to UNEP, who will use this to fulfil their responsibility for all reporting to the GEF secretariat.

Reports, newsletters and publications will be cleared with UNEP and posted on the project’s webpage.

The table details the scheduled reports and publications.

	Due date	Format appended to legal instrument as	Responsibility of
Procurement plan (goods and services)	2 weeks before project inception meeting	N/A	Project Manager
Inception Report	1 month after project inception meeting	N/A	Project Manager
Expenditure report accompanied by explanatory notes	Quarterly on or before 30 April, 31 July, 31 October, 31 January	Annex 11	Project Manager
Cash Advance request and details of anticipated disbursements	Quarterly or when required	Annex 7B	Project Manager
Progress report	Half-yearly on or before 31 January	Annex 8	Project Manager
Audited report for expenditures for year ending 31 December	Yearly on or before 30 June	N/A	Executing partner to contract firm
Inventory of non-expendable equipment	Yearly on or before 31 January	Annex 6	Project Manager
Co-financing report	Yearly on or before 31 July	Annex 12	Project Manager
Project implementation review (PIR) report	Yearly on or before 31 August	Annex 9	Project Manager, TM, DGEF FMO
Minutes of steering committee meetings	Yearly (or as relevant)	N/A	Project Manager
Mission reports and “aide memoire” for executing agency	Within 2 weeks of return	N/A	TM, DGEF FMO
Final report	2 months of project completion date	Annex 10	Project Manager
Final inventory of non-expendable equipment		Annex 9	Project Manager
Equipment transfer letter		Annex 10	Project Manager
Final expenditure statement	3 months of project completion date	Annex 11	Project Manager
Mid-term review or Mid-term evaluation	Midway through project	N/A	TM or EOU (as relevant)
Final audited report for expenditures of project	6 months of project completion date	N/A	Executing partner to contract firm
Independent terminal evaluation report	6 months of project completion date	Appendix 9 to Annex 1	EOU

Appendix 9: Standard Terminal Evaluation Terms of Reference

Terminal Evaluation of the UNEP GEF project {Title}

1. PROJECT BACKGROUND AND OVERVIEW

Project rationale

The objective was stated as:

The indicators given in the project document for this stated objective were:

Relevance to GEF Programmes

The project is in line with:

Executing Arrangements

The implementing agency(ies) for this project was (were) UNEP and {}; and the executing agencies were:

The lead national agencies in the focal countries were:

Project Activities

The project comprised activities grouped in {number} components.

Budget

At project inception the following budget prepared:

GEF Co-funding

Project preparation funds:

GEF {Medium/Full} Size Grant

TOTAL (including project preparation funds)

Co-funding sources:

Anticipated:

1. Objective and Scope of the Evaluation

The objective of this terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

1. Did the project help to {} among key target audiences (international conventions and initiatives, national level policy-makers, regional and local policy-makers, resource managers and practitioners).
2. Did the outputs of the project articulate options and recommendations for {}? Were these options and recommendations used? If so by whom?
3. To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP/DGEF Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DGEF Task Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DGEF Task Manager, key representatives of the executing agencies and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary or suggested revisions.

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

1. A desk review of project documents including, but not limited to:

- (a) The project documents, outputs, monitoring reports (such as progress and financial reports to UNEP and GEF annual Project Implementation Review reports) and relevant correspondence.
 - (b) Notes from the Steering Group meetings.
 - (c) Other project-related material produced by the project staff or partners.
 - (d) Relevant material published on the project web-site: [1].
2. Interviews with project management and technical support including [NEED INPUT FROM TM HERE]
 3. Interviews and Telephone interviews with intended users for the project outputs and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organizations. As appropriate, these interviews could be combined with an email questionnaire.
 4. Interviews with the UNEP/DGEF project task manager and Fund Management Officer, and other relevant staff in UNEP dealing with [relevant GEF focal area(s)]-related activities as necessary. The Consultant shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.
 5. Field visits¹¹ to project staff

Key Evaluation principles.

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions "*what happened?*" and "*what would have happened anyway?*". These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

2. Project Ratings

The success of project implementation will be rated on a scale from 'highly unsatisfactory' to 'highly satisfactory'. In particular the evaluation shall **assess and rate** the project with respect to the eleven categories defined below:¹²

A. Attainment of objectives and planned results:

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness*: Evaluate how, and to what extent, the stated project objectives have been met, taking into account the "achievement indicators". The analysis of outcomes achieved should include, *inter alia*, an assessment of the extent to which the project has directly or indirectly assisted policy and decision-makers to apply information supplied by biodiversity indicators in their national planning and decision-making. In particular:
 - Evaluate the immediate impact of the project on [relevant focal area] monitoring and in national planning and decision-making and international understanding and use of biodiversity indicators.
 - As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame recommendations to enhance future project impact in this context. Which will be the major 'channels' for longer term impact from the project at the national and international scales?

¹¹ Evaluators should make a brief courtesy call to GEF Country Focal points during field visits if at all possible.

¹² However, the views and comments expressed by the evaluator need not be restricted to these items.

- *Relevance:* In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies? Ascertain the nature and significance of the contribution of the project outcomes to the {relevant Convention(s)} and the wider portfolio of the GEF.
- *Efficiency:* Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives, did it make effective use of available scientific and / or technical information. Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Sustainability:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time.

Five aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)? To what extent are the outcomes of the project dependent on continued financial support?
- *Socio-political:* Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance.* To what extent is the sustenance of the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes.

C. Achievement of outputs and activities:

- *Delivered outputs:* Assessment of the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness.
- Assess the soundness and effectiveness of the methodologies used for developing the technical documents and related management options in the participating countries

- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.

D. Catalytic Role

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

- Do the recommendations for management of {project} coming from the country studies have the potential for application in other countries and locations?

If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

E. Assessment monitoring and evaluation systems.

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for 'project design of M&E' and 'the application of the Project M&E plan' (see minimum requirements 1&2 in *Annex 4* to this Appendix). GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

M&E during project implementation

- *M&E design.* Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.
- *M&E plan implementation.* A Terminal Evaluation should verify that: an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a logframe or similar); annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings; that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs; and that projects had an M&E system in place with proper training for parties responsible for M&E activities.
- *Budgeting and Funding for M&E activities.* The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

F. Preparation and Readiness

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

G. Country ownership / drivenness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating biodiversity information that

catalyzed action in participating countries to improve decisions relating to the conservation and management of the focal ecosystem in each country.

- Assess the level of country commitment to the generation and use of biodiversity indicators for decision-making during and after the project, including in regional and international fora.

H. Stakeholder participation / public awareness:

This consists of three related and often overlapping processes: information dissemination, consultation, and “stakeholder” participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF- financed project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

I. Financial Planning

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project’s lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co- financing as well as leveraged and associated financing (in co-operation with the IA and EA).
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP/DGEF Fund Management Officer of the project (table attached in *Annex 1* to this Appendix Co-financing and leveraged resources).

J. Implementation approach:

This includes an analysis of the project’s management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and {lead executing agency}.

K. UNEP Supervision and Backstopping

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DGEF.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The **ratings will be presented in the form of a table**. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory
HU	= Highly Unsatisfactory

3. **Evaluation report format and review procedures**

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Section 1 of this TOR. The ratings will be presented in the format of a table with brief justifications based on the findings of the main analysis.

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

- i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology.
- iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- iv) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A – K above).
- v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see *Annex 1* to this Appendix);
- vi) **Lessons (to be) learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should 'stand alone' and should:
 - Briefly describe the context from which they are derived
 - State or imply some prescriptive action;
 - Specify the contexts in which they may be applied (if possible, who when and where)

- vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contains results-based language (i.e. a measurable performance target)
5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.

- viii) **Annexes** may include additional material deemed relevant by the evaluator but must include:
1. The Evaluation Terms of Reference,
 2. A list of interviewees, and evaluation timeline
 3. A list of documents reviewed / consulted
 4. Summary co-finance information and a statement of project expenditure by activity
 5. The expertise of the evaluation team. (brief CV).

TE reports will also include any response / comments from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP EOU.

Examples of UNEP GEF Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks feedback on the proposed recommendations. UNEP EOU collates all review comments and provides them to the evaluators for their consideration in preparing the final version of the report.

4. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

SegbedziNorgbey, Chief,
UNEP Evaluation and Oversight Unit
P.O. Box 30552-00100, Nairobi, Kenya
Tel.: +(254-20)762-4181
Email: Segbedzi.Norgbey@unep.org

With a copy to:

Maryam Niamir-Fuller, Director
UNEP GEF Coordination Office
P.O. Box 30552-00100, Nairobi, Kenya
Tel: +(254-20)762-4166
Email: Maryam.Niamir-Fuller@unep.org

[Conrado S Heruela, GEF CCM Task Manager](#)
[UNEP Regional Office for Asia & Pacific](#)
[Bangkok, Thailand](#)
[Tel: +662-2882102](#)
[Email: Conrado.heruela@unep.org](#)

The Final evaluation will also be copied to the following GEF National Focal Points.

Mr. Ahmed Saleem
Permanent Secretary
Ministry of Environment and Energy
Republic of the Maldives
Email: ahmed.saleem@environment.gov.mv

The final evaluation report will be published on the Evaluation and Oversight Unit's web-site www.unep.org/eou and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

5. Resources and schedule of the evaluation

This final evaluation will be undertaken by an international evaluator contracted by the Evaluation and Oversight Unit, UNEP. The contract for the evaluator will begin on ddmmyyy and end on ddmmyyyy (# days) spread over # weeks (# days of travel, to {country(ies)}, and # days desk study). The evaluator will submit a draft report on ddmmyyyy to UNEP/EOU, the UNEP/DGEF Task Manager, and key representatives of the executing agencies. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by ddmmyyyy after which, the consultant will submit the final report no later than ddmmyyyy.

The evaluator will after an initial telephone briefing with EOU and UNEP/GEF conduct initial desk review work and later travel to {country(ies)} and meet with project staff at the beginning of the evaluation. Furthermore, the evaluator is expected to travel to {country(ies)} and meet with representatives of the project executing agencies and the intended users of project's outputs.

In accordance with UNEP/GEF policy, all GEF projects are evaluated by independent evaluators contracted as consultants by the EOU. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the project in a paid capacity. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. The evaluator should be an international expert in {} with a sound understanding of {} issues. The consultant should have the following minimum qualifications: (i) experience in {} issues; (ii) experience with management and implementation of {} projects and in particular with {} targeted at policy-influence and decision-making; (iii) experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Knowledge of {specify language(s)} is an advantage. Fluency in oral and written English is a must.

6. Schedule Of Payment

The consultant shall select one of the following two contract options:

Lump-Sum Option

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon submission of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and is **inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Annex 1 to Appendix 9: Overall Ratings Table

Criterion	Evaluator's Summary Comments	Evaluator's Rating
A. Attainment of project objectives and results (overall rating) Sub criteria (below)		
A. 1. Effectiveness		
A. 2. Relevance		
A. 3. Efficiency		
B. Sustainability of Project outcomes (overall rating) Sub criteria (below)		
B. 1. Financial		
B. 2. Socio Political		
B. 3. Institutional framework and governance		
B. 4. Ecological		
C. Achievement of outputs and activities		
D. Monitoring and Evaluation (overall rating) Sub criteria (below)		
D. 1. M&E Design		
D. 2. M&E Plan Implementation (use for adaptive management)		
D. 3. Budgeting and Funding for M&E activities		
E. Catalytic Role		
F. Preparation and readiness		
G. Country ownership / drivenness		
H. Stakeholders involvement		
I. Financial planning		
J. Implementation approach		
K. UNEP Supervision and backstopping		

RATING OF PROJECT OBJECTIVES AND RESULTS

- Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.
- Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two

criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

A. Sustainability will be understood as the probability of continued long-term outcomes and impacts after the GEF project funding ends. The Terminal evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes.

Rating system for sustainability sub-criteria

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

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

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in any of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on ‘M&E Design’, ‘M&E Plan Implementation’ and ‘Budgeting and Funding for M&E activities’ as follows:

Highly Satisfactory (HS): There were no shortcomings in the project M&E system. Satisfactory(S): There were minor shortcomings in the project M&E system.

Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system.

Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system.

Unsatisfactory (U): There were major shortcomings in the project M&E system.

Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E plan implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on “M&E plan implementation.”

All other ratings will be on the GEF six point scale.

GEF Performance Description	Alternative description on the same scale
HS = Highly Satisfactory	Excellent
S = Satisfactory	Well above average
S = Moderately Satisfactory	Average
MU = Moderately Unsatisfactory	Below Average
U = Unsatisfactory	Poor
HU = Highly Unsatisfactory	Very poor (Appalling)

Annex 2 to Appendix 9: Co-financing and Leveraged Resources

Co financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other* (mill US\$)		Total (mill US\$)		Total Disbursement (mill US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
- Grants										
- Loans/Concessional (compared to market rate)										
- Credits										
- Equity investments										
- In-kind support										
- Other (*)										
-										
-										
-										
Total										

Co-financing (basic data to be supplied to the consultant for verification)

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

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

* Table showing final actual project expenditure by activity to be supplied by the UNEP Fund management Officer. (insert here)

Annex 3 to Appendix 9: Review of Draft Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

Quality Assessment of the Evaluation Report

All UNEP GEF Mid Term Reports are subject to quality assessments by UNEP EOU. These apply GEF Office of Evaluation quality assessment and are used as a tool for providing structured feedback to the evaluator.

The quality of the draft evaluation report is assessed and rated against the following criteria:

GEF Report Quality Criteria	UNEP EOU Assessment	Rating
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
UNEP EOU additional Report Quality Criteria	UNEP EOU Assessment	Rating
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written? (clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

GEF Quality of the MTE report = 0.3*(A + B) + 0.1*(C+D+E+F)

EOU assessment of MTE report = 0.3*(G + H) + 0.1*(I+J+K+L)

Combined quality Rating = (2* 'GEF EO' rating + EOU rating)/3

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of terminal evaluation reports

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, and unable to assess = 0.

Annex 4 to Appendix 9: GEF Minimum requirements for M&E

Minimum Requirement 1: Project Design of M&E¹³

All projects must include a concrete and fully budgeted monitoring and evaluation plan by the time of Work Program entry (full-sized projects) or CEO approval (medium-sized projects). This plan must contain at a minimum:

- SMART (see below) indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, corporate-level indicators
- A project baseline, with:
 - a description of the problem to address
 - indicator data
 - or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation
- An M&E Plan with identification of reviews and evaluations which will be undertaken, such as mid-term reviews or evaluations of activities
- An organizational setup and budgets for monitoring and evaluation.

Minimum Requirement 2: Application of Project M&E

- Project monitoring and supervision will include implementation of the M&E plan, comprising:
- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned
- Operational organizational setup for M&E and budgets spent as planned.

SMART INDICATORS GEF projects and programs should monitor using relevant performance indicators. The monitoring system should be “SMART”:

1. **Specific:** The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.
2. **Measurable:** The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.
3. **Achievable and Attributable:** The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
4. **Relevant and Realistic:** The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
5. **Time-bound, Timely, Trackable, and Targeted:** The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

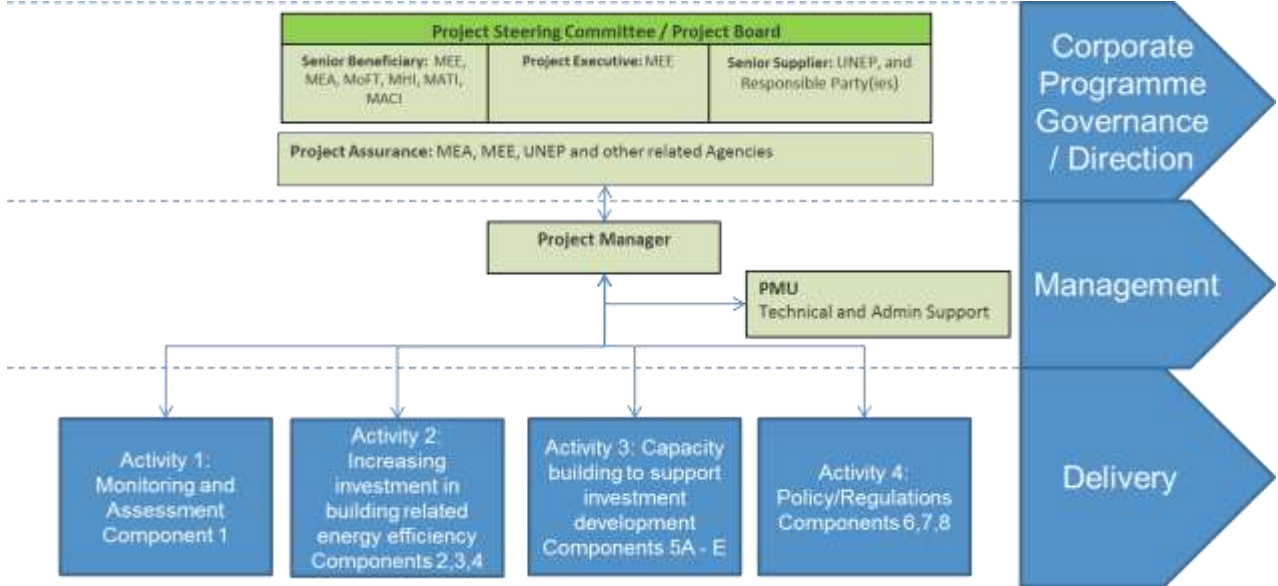
¹³<http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/meptstandards.html>

Annex 1: Project Document

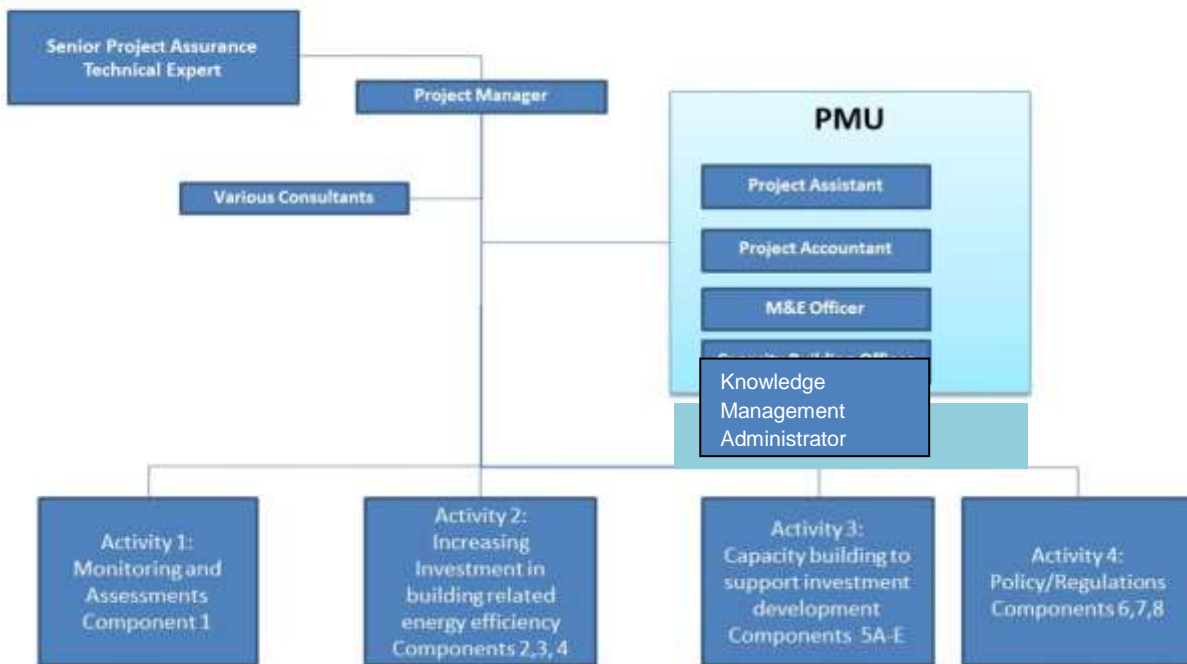
Annex 5 to Appendix 9: List of intended additional recipients for the Terminal Evaluation (to be completed by the IA Task Manager)

Name	Affiliation	Email
	GEF Evaluation Office	
Government Officials		
GEF Focal Point(s)		
Executing Agency		
Implementing Agency		

Appendix 10: Decision-making flowchart and organisational chart



Project Organogram



Appendix 11: Terms of Reference

Project Manager (Full time)

Oversees all aspects of the project, with specific knowledge on energy economics or law; supports the establishment of energy efficient building certifications and labelling schemes as well the establishment of green financial products and green policies; ensures the active follow-up and development of linkages with correspondent similar initiatives and requires a deep knowledge in Project Management to ensure all project activates and stakeholders are duly coordinated; ensures that the project produces the results specified in the project document to the required standard of quality and within the specified constraints of time and cost.

Senior Technical Project Assurance

A Senior Technical Project Assurance Expert will support the project executive board by carrying out objective and independent project oversight and monitoring functions and in reporting on the contribution of the project outputs.

M&E Officer (Full time)

Set up the monitoring system of energy data, efficiency, appliances, audits, consumption by energy end-use, ensures an effective management of the project budget and expenditure, monitoring & evaluation of activities and timely reporting; checks that the project remains viable in terms of costs and benefits; checks that the users' requirements are being met, and that the project is delivering a suitable solution; coordinates technical meeting schedules to bring all related collaborating agencies to ensure the linkages and contribution to the overall objective of this project.

Knowledge Management Administrator (Full time)

Responsible for liaising with the relevant financial institutions, MEE and MHI for the development of certification and labelling scheme, green financial products/incentives, public relations material, and project reports; should also have expertise on stakeholders' analysis, facilitation of stakeholders' involvement & consultation, assessment of institutional strengthening and capacity-building training.

Project Assistant (Full time)

Supports logistics, correspondence, recruitment of personnel, the management of the project movements, day-to-day operations of the project, and the overall operational and financial management and reporting.

Project Accountant (Full time)

Sets up accounting system, including reporting forms and filling system for the project, in accordance with the project document; prepares cheques and withdraws money from the bank; prepares project financial reports, statement and submit to Project Manager for clearance and furnishes to MEE as required.

Appendix 12: Co-financing commitment letters from project partners



Ministry of Environment and Energy
Male', Republic of Maldives.

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އިތުރު ފަލަދު ދެއްވާނެ ގޮތުގައި

Date: 12th June 2014

No: 438/PRIV/2014/681

Brennan Van Dyke
Director,
GEF Coordination and Contributions
United Nations Environment Programme
P.O. Box 30552
Nairobi 00100
Kenya

Subject: Co-financing of GEF Supported “Low Carbon Energy Island Strategies Project”

The government of Maldives is pleased to confirm its co-financing support to the project “Strengthening Low-Carbon Island Strategies.”

The government will provide in-kind co-financing contribution of US\$34,205,835 (United States Dollars Thirty Four Million, Two Hundred Five Thousand and Eight Hundred Thirty Five) for the entire project duration.

A breakdown of the amount and the corresponding purpose is provided in the attached table to this letter.

In addition, it will reflect ongoing financing of the Government for energy saving, emission reduction, renewable energy, energy efficiency of buildings, capacity building, promotion of energy efficient technologies and development of policy tools for the sector and other related activities through a range of ongoing programs and projects that are implemented by various departments of the Ministry and Ministry of Health. The contribution encompasses but not limited to salaries of professionals/staff devoted to implementation of these projects and to carry out activities that are essential for achieving the objectives of the projects.

Thank you

Yours Sincerely,

Ajwad Musthafa
Permanent Secretary



Annex 1: Project Document

Breakdown of the in-kind co-financing from the Government of Maldives				
Sources of Co-financing	Type of Cofinancing	Co-financing Amount (\$)	Purpose	Partners
MEE - National Agency	in-kind	4,000,000.00	Government funding for shifting to LED lighting systems across Maldives, with support from the Chinese government.	NDRC China
MEE - National Agency	in-kind	4,000,000.00	Government funds to support to EE projects/ activities and the formulation/ adoption of policies by MEE to be developed under the GEF project, in support of the development of a low-carbon economy strategy assisted by GIZ	GIZ Germany
MEE - National Agency	in-kind	400,000.00	Government funds to support EE activities to be implemented by Maldives Energy Authority, the country's main power generation agency, under a project to improve operations of MEA supported by ADB.	ADB
MEE - National Agency	in-kind	500,000.00	Funding for EE activities formulated thru this GEF project to be implemented by MEE to complement the operation of a new solar plant constructed under CCTF (Climate Change Trust Fund)	CECM/ CCTF
MEE & MOH - National Agencies	in-kind	20,800,000.00	Construction of modern Tertiary Hospital by Ministry of Health incorporating EE designs, equipment and fixtures that has been developed through this project	OFID/ Saudi Fund
MEE - National Agency	in-kind	4,505,835.00	MEE (national budget)	
Total		34,205,835.00		



United Nations Environment Programme

برنامج الأمم المتحدة للبيئة • 聯合國環境計畫
PROGRAMME DES NATIONS UNIES POUR L'ENVIRONNEMENT • PROGRAMA DE LAS NACIONES UNIDAS PARA EL MEDIO AMBIENTE
ПРОГРАММА ОРГАНИЗАЦИИ ОБЪЕДИНЕННЫХ НАЦИЙ ПО ОБОРУДОВАНИЮ СРЕДЫ

MEMORANDUM

To: Maryam Niamir-Fuller Date: 18 February 2014
UNEP GEF Executive Coordinator

cc: Kaveh Zahedi
Director, UNEP ROAP

Geordie Colville
GEF Climate Change

From: Mark Radka Ref:
Chief, Energy Branch


Subject: **GEF CC Maldives- Strengthening Low Carbon Energy Island Strategies: Request for a letter of co-financing (in-kind)**

I refer to the above mentioned request and wish to confirm that UNEP, through DTIE, will provide technical advisory services and support to the GEF Climate Change mitigation project for the Maldives entitled *Strengthening Low Carbon Energy Island Strategies*. This project has been developed in collaboration with the Maldives Ministry of Energy and Environment and UNEP ROAP.

To support this project, DTIE will make available staff involved in the Climate Change, Resource Efficiency, Harmful Substances, and Green Economy sub-programmes, from the Paris and Bangkok offices.

The in-kind contribution to the project is estimated to be US\$250,000 over its 48 month duration. We understand that direct costs of travel related to execution of the project will be covered through the project budget.

Appendix 13: Endorsement letters of GEF National Focal Points



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Ministry of Environment and Energy
Male', Republic of Maldives.

11th July 2013

To: Ms Maryam Niamir-Fuller
GEF Executive Coordinator, GEF Coordination Office
United Nations Environment Programme, Nairobi 00100, Kenya

Subject: Endorsement for Strengthening Low Carbon Energy Island Strategies

In my capacity as GEF Operational Focal Point for the Republic of Maldives, I confirm that the above project proposal (a) is in accordance with my government's national priorities including being carbon neutral by 2020 and improving building designs to increase resilience and our commitment to the relevant global environmental conventions; and (b) was discussed with relevant stakeholders, including the global environmental convention focal points.

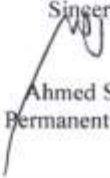
I am pleased to endorse the preparation of the above project proposal with the support of the GEF Agency(ies) listed below. If approved, the proposal will be prepared and implemented by the Ministry of Environment and Energy in the Republic of Maldives. I request the GEF Agency(ies) to provide a copy of the project document before it is submitted to the GEF Secretariat for CEO endorsement.

The total financing (from GEFTF, LDCF, SCCF and/or NPIF) being requested for this project is US\$3,999,560, inclusive of project preparation grant (PPG), if any, and Agency fees for project cycle management services associated with the total GEF grant. The financing requested for the Republic of Maldives is detailed in the table below.

Source of Funds	GEF Agency	Focal Area	Amount (in US\$)			
			Project Preparation	Project	Fee	Total
GEFTF	UNEP	CC	68,000	3,885,000	46,560	3,999,560
(select)	(select)	(select)				0
(select)	(select)	(select)				0
(select)	(select)	(select)				0
Total GEF Resources			68,000	3,885,000	46,560	3,999,560

[WHERE THE SOURCE OF FUNDING IS GEF TRUST FUND ONLY (I.E. EXCLUDING LDCF AND/OR SCCF) AND THE FOCAL AREA FALLS UNDER THE STAR MODEL, INCLUDE THE FOLLOWING:

I consent to the utilization of the Republic of Maldives's allocations in GEF-5 as defined in the System for Transparent Allocation of Resources (STAR).]

Sincerely,

 Ahmed Saleem
 Permanent Secretary

Appendix 14: Draft procurement plan

Project title: Strengthening LowCarbonEnergyIsland Strategies

Project number: 4629

UNEP Budget Line		List of Goods and Services required	Budget (USD)	Year {Note 1}	Brief description of anticipated procurement process {Note 2}
1200	Consultants				
1201	Energy Auditors	Conducting energy audits & capacity building	140,000	2014-2015	Public advertising and solicitation of applicants for consultants, followed by shortlisting of applicants for interview, and finally, selection of consultants (based on criteria developed by MEE)
1202	Financial expert	Developing structure for loan-guarantee fund	96,000	2015	same
1203	Business & markets adviser	Advising EE advocacy marketing plans	130,000	2014-2015	Same
1204	EE compliance specialist	Conducting EE compliance and capacity building	140,000	2014-2018	Same
1205	EE/buildings educator	Advocating EE buildings knowledge	55,000	2014	Same
1206	Business educator	Advocating EE application in business	55,000	2014	Same
1207	Banking system adviser	Advising banking system EE Reforms	55,000	2014	Same
	Sub Total		671,000		
2100	Sub-contracts (MOUs/LOAs for cooperating agencies)				
2101	ODS Waste Disposal	Establishment of Waste Disposal system for ODS-containing items	24,000	2014-2018	Preparation of MOU or contract with cooperating agencies
	Sub-Total		24,000		
2200	Sub-contracts (MOUs/LOAs for supporting organizations)				
2201	EE advice to STELCO & Fenaka	Provide EE advice on bills to STELCO, Fenaka	5,000	2014	Preparation of MOU or contract with cooperating agencies
2202	Loan-guarantee fund	Hosting & administration of loan-guarantee fund	800,000	2014-2018	Preparation of MOU or contract with cooperating agencies
2203	Energy-related curriculum	MOU with Ministry of develop energy-related curriculum, support clubs	100,000	2014-2018	Preparation of MOU or contract with cooperating agencies
2204	EE compliance	Formulation and implementation of EE compliant certification & incentives	80,000	2014-2018	Preparation of MOU or contract with cooperating agencies
2205	EE working group	Formulation & monitoring of EE working group implementation of actions	10,000	2014	Preparation of MOU or contract with cooperating agencies
	Sub-Total		995,000		

Annex 1: Project Document

2300	Sub-contracts (for commercial purposes)				
2301	EE Database	Database Design and setup	50,000	2014	Public advertising and solicitation of applicants for sub-contracts, followed by shortlisting of applicants for interview, and finally, selection of consultants (based on criteria developed by MEE)
2302	Capacity buildings programs	Capacity buildings programs	50,000	2014-2018	same
2303	EE construction	Construction of EE demo projects in public buildings	648,840	2015-2018	same
2304	EMS development and training materials	Capacity building for government EMS	39,940	2014-2018	same
2305	Public Information development	Public information campaigns on EE in public buildings & on EE Standards and labeling	30,000	2014-2015	same
2306	Design EE upgrades	Guidelines for EE upgrades for public buildings and tourism sector	250,000	2014-2015	same
2307	Advertising costs	Preparation and dissemination of advertising materials in public media	40,000	2014-2018	same
2308	Policy Review	Review and update of EE& Energy management policies	90,000	2014	same
2309	EE in buildings guidelines	Formulation and design of implementation of EE buildings guidelines	90,000	2014	same
2310	Appliance labeling	Development and roll out of Appliance labeling program	75,000	2014-2015	same
2311	Capacity building program	Training activities in cooperation with local institutions	50,000	2015-2018	same
2312	Advertising and marketing	Information and marketing campaigns	40,000	2014-2018	same
	Sub-Total		1,453,780		same
4200	Non-expendable equipment				
4201	Office equipment		12,400	2014-2018	Solicitation of offers, selection based on MEE criteria
4202	Monitoring & measurement equipment		8,000	2014-2018	
4203	Bulb crusher (lights disposal)		9,000	2014-2018	
	Sub Total		29,400		
	GRAND TOTAL		3,173,180		

Note 1 - Year when goods/services will be procured

Note 2 - Based on your organization's procurement procedures, and in compliance with UNEP rules and procedures, briefly explain how the service provider/consultant/vendor will be selected

Appendix 15: Tracking Tools

General Data			Target at CEO Endorsement	Notes
Special Notes: reporting on lifetime emissions avoided				
<p>Lifetime direct GHG emissions avoided: Lifetime direct GHG emissions avoided are the emissions reductions attributable to the investments made during the project's supervised implementation period, totaled over the respective lifetime of the investments.</p> <p>Lifetime direct post-project emissions avoided: Lifetime direct post-project emissions avoided are the emissions reductions attributable to the investments made outside the project's supervised implementation period, but supported by financial facilities put in place by the GEF project, totaled over the respective lifetime of the investments. These financial facilities will still be operational after the project ends, such as partial credit guarantee facilities, risk mitigation facilities, or revolving funds.</p> <p>Lifetime indirect GHG emissions avoided (top-down and bottom-up): indirect emissions reductions are those attributable to the long-term outcomes of the GEF activities that remove barriers, such as capacity building, innovation, catalytic action for replication.</p> <p>Please refer to the Manual for Calculating GHG Benefits of GEF Projects. Manual for Energy Efficiency and Renewable Energy Projects Manual for Transportation Projects</p> <p>For LULUCF projects, the definitions of "lifetime direct and indirect" apply. Lifetime length is defined to be 20 years, unless a different number of years is deemed appropriate. For emission or removal factors (tonnes of CO2eq per hectare per year), use IPCC defaults or country specific factors.</p>				
Project Title	Strengthening Low Carbon Energy Island Strategies			
GEF ID	4629			
Agency Project ID	788			
Country	Maldives			
Region	SAR			
GEF Agency	UNEP			
Date of Council/CEO Approval	Month DD, YYYY (e.g., May 12, 2010)			
GEF Grant (US\$)	3,885,000			
Date of submission of the tracking tool	Month DD, YYYY (e.g., May 12, 2010)			
Is the project consistent with the priorities identified in National Communications, Technology Needs Assessment, or other Enabling Activities under the UNFCCC?	1	Yes = 1, No = 0		
Is the project linked to carbon finance?	0	Yes = 1, No = 0		
Cofinancing expected (US\$)	60,775,835			
Objective 1: Transfer of Innovative Technologies				
Please specify the type of enabling environment created for technology transfer through this project				
National innovation and technology transfer policy	0	Yes = 1, No = 0		
Innovation and technology centre and network	0	Yes = 1, No = 0		
Applied R&D support	0	Yes = 1, No = 0		
South-South technology cooperation	0	Yes = 1, No = 0		
North-South technology cooperation	0	Yes = 1, No = 0		
Intellectual property rights (IPR)	0	Yes = 1, No = 0		
Information dissemination	1	Yes = 1, No = 0		
Institutional and technical capacity building	1	Yes = 1, No = 0		
Other (please specify)				
Number of innovative technologies demonstrated or deployed	-			
Please specify three key technologies for demonstration or deployment				
Area of technology 1		specify type of technology		
Type of technology 1				
Area of technology 2		specify type of technology		
Type of technology 2				
Area of technology 3		specify type of technology		
Type of technology 3				
Status of technology demonstration/deployment	0	0: no suitable technologies are in place 1: technologies have been identified and assessed 2: technologies have been demonstrated on a pilot basis 3: technologies have been deployed 4: technologies have been diffused widely with investments 5: technologies have reached market potential		
Lifetime direct GHG emissions avoided	-	tonnes CO2eq (see Special Notes above)		
Lifetime direct post-project GHG emissions avoided	-	tonnes CO2eq (see Special Notes above)		
Lifetime indirect GHG emissions avoided (bottom-up)	-	tonnes CO2eq (see Special Notes above)		
Lifetime indirect GHG emissions avoided (top-down)	-	tonnes CO2eq (see Special Notes above)		

Annex 1: Project Document

Objective 2: Energy Efficiency		
Please specify if the project targets any of the following areas		
Lighting	1	Yes = 1, No = 0
Appliances (white goods)	1	Yes = 1, No = 0
Equipment	1	Yes = 1, No = 0
Cook stoves	0	Yes = 1, No = 0
Existing building	1	Yes = 1, No = 0
New building	1	Yes = 1, No = 0
Industrial processes	0	Yes = 1, No = 0
Synergy with phase-out of ozone depleting substances	1	Yes = 1, No = 0
Other (please specify)		
Policy and regulatory framework	5	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	5	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	5	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Lifetime energy saved	9,888,664.006	MJ (Million Joule, IEA unit converter: http://www.iea.org/stats/unit.asp) Fuel savings should be converted to energy savings by using the net calorific value of the specific fuel. End-use electricity savings should be converted to energy savings by using the conversion factor for the specific supply and distribution system. These energy savings are then totaled over the respective lifetime of the investments.
Lifetime direct GHG emissions avoided	120,222	tonnes CO2eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided	-	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)	372,113	tonnes CO2eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)	240,085	tonnes CO2eq (see Special Notes above)

Annex 1: Project Document

Objective 3: Renewable Energy		
Please specify if the project includes any of the following areas		
Heat/thermal energy production	0	Yes = 1, No = 0
On-grid electricity production	0	Yes = 1, No = 0
Off-grid electricity production	0	Yes = 1, No = 0
Policy and regulatory framework	0	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	0	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Installed capacity per technology directly resulting from the project		
Wind	-	MW
Biomass	-	MW el (for electricity production)
Biomass	-	MW th (for thermal energy production)
Geothermal	-	MW el (for electricity production)
Geothermal	-	MW th (for thermal energy production)
Hydro	-	MW
Photovoltaic (solar lighting included)	-	MW
Solar thermal heat (heating, water, cooling, process)	-	MW th (for thermal energy production, 1m ² = 0.7kW)
Solar thermal power	-	MW el (for electricity production)
Marine power (wave, tidal, marine current, osmotic, ocean thermal)	-	MW
Lifetime energy production per technology directly resulting from the project (IEA unit converter: http://www.iea.org/stats/unit.asp)		
Wind	-	MWh
Biomass	-	MWh el (for electricity production)
Biomass	-	MWh th (for thermal energy production)
Geothermal	-	MWh el (for electricity production)
Geothermal	-	MWh th (for thermal energy production)
Hydro	-	MWh
Photovoltaic (solar lighting included)	-	MWh
Solar thermal heat (heating, water, cooling, process)	-	MWh th (for thermal energy production)
Solar thermal power	-	MWh el (for electricity production)
Marine energy (wave, tidal, marine current, osmotic, ocean thermal)	-	MWh
Lifetime direct GHG emissions avoided	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)	-	tonnes CO ₂ eq (see Special Notes above)

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Objective 4: Transport and Urban Systems		
Please specify if the project targets any of the following areas		
Bus rapid transit	0	Yes = 1, No = 0
Other mass transit (e.g., light rail, heavy rail, water or other mass transit; excluding regular bus or minibus)	0	Yes = 1, No = 0
Logistics management	0	Yes = 1, No = 0
Transport efficiency (e.g., vehicle, fuel, network efficiency)	0	Yes = 1, No = 0
Non-motorized transport (NMT)	0	Yes = 1, No = 0
Travel demand management	0	Yes = 1, No = 0
Comprehensive transport initiatives (Involving the coordination of multiple strategies from different transportation sub-sectors)	0	Yes = 1, No = 0
Sustainable urban initiatives	0	Yes = 1, No = 0
Policy and regulatory framework	0	0: not an objective/component 1: no policy/regulation/strategy in place 2: policy/regulation/strategy discussed and proposed 3: policy/regulation/strategy proposed but not adopted 4: policy/regulation/strategy adopted but not enforced 5: policy/regulation/strategy enforced
Establishment of financial facilities (e.g., credit lines, risk guarantees, revolving funds)	0	0: not an objective/component 1: no facility in place 2: facilities discussed and proposed 3: facilities proposed but not operationalized/funded 4: facilities operationalized/funded but have no demand 5: facilities operationalized/funded and have sufficient demand
Capacity building	0	0: not an objective/component 1: no capacity built 2: information disseminated/awareness raised 3: training delivered 4: institutional/human capacity strengthened 5: institutional/human capacity utilized and sustained
Length of public rapid transit (PRT)	-	km
Length of non-motorized transport (NMT)	-	km
Number of lower GHG emission vehicles	-	
Number of people benefiting from the improved transport and urban systems	-	
Lifetime direct GHG emissions avoided	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime direct post-project GHG emissions avoided	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (bottom-up)	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime indirect GHG emissions avoided (top-down)	-	tonnes CO ₂ eq (see Special Notes above)
Objective 5: LULUCF		
Area of activity directly resulting from the project		
Conservation and enhancement of carbon in forests, including agroforestry	-	ha
Conservation and enhancement of carbon in nonforest lands, including peat land	-	ha
Avoided deforestation and forest degradation	-	ha
Afforestation/reforestation	-	ha
Good management practices developed and adopted	0	0: not an objective/component 1: no action 2: developing prescriptions for sustainable management 3: development of national standards for certification 4: some of area in project certified 5: over 80% of area in project certified
Carbon stock monitoring system established	0	0: not an objective/component 1: no action 2: mapping of forests and other land areas 3: compilation and analysis of carbon stock information 4: implementation of science based inventory/monitoring system 5: monitoring information database publicly available
Lifetime direct GHG emission avoided	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime indirect GHG emission avoided	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime direct carbon sequestration	-	tonnes CO ₂ eq (see Special Notes above)
Lifetime indirect carbon sequestration	-	tonnes CO ₂ eq (see Special Notes above)
Objective 6: Enabling Activities		
Please specify the number of Enabling Activities for the project (for a multiple country project, please put the number of countries/assessments)		
National Communication	-	
Technology Needs Assessment	-	
Nationally Appropriate Mitigation Actions	-	
Other	-	
Does the project include Measurement, Reporting and Verification (MRV) activities?	0	Yes = 1, No = 0

Appendix 16: Social and Environmental checklist

Project Title:	Strengthening low carbon energy island strategies		
GEF project ID and UNEP ID/IMIS Number	GFL 4629 / PMS 788	Version of checklist	1
Project status (preparation, implementation, PIRFYXX)	Preparation	Date of this version:	16 April, 2013
Checklist prepared by (Name, Title, and Institution)	Larissa Brisbane, Senior Energy Programme Officer, IUCN (project preparation team)		

In completing the checklist both temporary, permanent, short- and long-term impact shall be considered.

Section A: Project location:

	Yes/ No/ N.A. ¹⁴	Description of the issue: Distance, direction, connection to project area and size of applicable category and other relevant criteria.	AT PIF stage: Outline of studies/ assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Is the project area in or close to -				
- densely populated area	Yes	Urban / building project: no conflict	Project to upgrade building material and design, equipment, etc. No mitigation required.	No mitigation required. Building guidelines to be developed by project.
- cultural heritage site	No			
- protected area	No			
- wetland	No			
- mangrove	No			
- estuarine	No			
- buffer zone of protected area	No			
- special area for protection of biodiversity	No			

¹⁴ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope.

In completing the checklist both temporary, permanent, short- and long-term impact shall be considered.

Section B: Environmental impacts, i.e.

	Yes/ No/ N.A. ¹⁵	Description of the issue:	AT PIF stage: Outline of studies/ assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Will project require temporary or permanent support facilities?	Yes	PM staff will be located in existing building	No studies required. PM costs identified and addressed in budget	No further action
- Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	No			
- Are ecosystems related to project fragile or degraded?	No			
- Will project cause impairment of ecological opportunities?	No			
- Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No			
- Will project cause air, soil or water pollution?	No			
- Will project cause soil erosion and siltation?	No			
- Will project cause increased waste production?	Yes	Accelerating uptake of energy efficient products may accelerate obsolescence of inefficient products	No studies required.	Project communications materials to include guidance on safe disposal. Confirm appropriate administrative procedures.
- Will project cause Hazardous Waste production?	Yes	If lighting upgrades are included, waste may		Confirm appropriate administrative procedures to separate potentially hazardous

¹⁵ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope. Careful consideration of the specific issue should be exercised to determine potential impact, both short- and long-term.

		contain mercury. Ozone depleting substances from refrigeration and air-conditioning.		products for safe disposal. Bulb crusher will be purchased for light disposal; coordination with ODS team for refrigerant gases.
- Will project cause threat to local ecosystems due to invasive species?	No			
- Will project cause Greenhouse Gas Emissions?	No			
- Does the project encourage the use of environmentally friendly technologies?	Yes			
- Other environmental issues, e.g. noise and traffic	No			

In completing the checklist both temporary, permanent, short- and long-term impact shall be considered.

Section C: Social impacts

	Yes/ No/ N.A. ¹⁶	Description of the issue:	AT PIF stage: Outline of studies/ assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measures, incl. timing, budget and responsibility.
- Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	Yes			
- Are property rights on resources such as land tenure recognized by the existing laws in affected countries?	Yes			
- Will the project cause social problems and conflicts related to land tenure and access to resources?	No			
- Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes			Information for stakeholders such as consumers will be provided under the project
- Will the project affect the state of the targeted country's (-ies') institutional context?	Yes	Positive effect		Government as EA will oversee
- Will the project cause change to beneficial uses of	No			

¹⁶ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope. Careful consideration of the specific issue should be exercised to determine potential impact, both short- and long-term.

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land or resources?(incl. loss of downstream beneficial uses (water supply or fisheries)?				
- Will the project cause technology or land use modification that may change present social and economic activities?	No			Typically these are more efficient approaches/ design but the same activities (e.g. insulation in new housing)
- Will the project cause dislocation or involuntary resettlement of people?	No			
- Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and/or possible overloading of social infrastructure?	No			
- Will the project cause increased local or regional unemployment?	No			
- Does the project include measures to avoid forced labour and/or child labour?	No	No construction		Government employees to follow local labour laws including minimum age. Similarly for local businesses.
- Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	No	Not specifically – workers will be government employees		
- Will the project cause impairment of recreational opportunities?	No			
- Will the project cause impairment of indigenous people's livelihoods or belief systems?	No			
- Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No			Detailed project activities, such as loans criteria and financial access, will consider different social groups.
- Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No			
- Does the project include measures to avoid corruption?	Yes	Market-based mechanisms may have risk.		Project will include periodic, random audits of financing mechanisms and other high-risk activities.

Section D: Other considerations

	Yes/ No/N .A. ¹⁷	Description of the issue:	AT PIF stage: Studies/ assessments to be conducted prior to PRC to determine scope of impact, including responsibility and budget implications for mitigation.	At PRC stage: Planned mitigation measure, incl. timing, budget and responsibility.
- Does national regulation in affected country (-ies) require Environmental Impact Assessment and/or Social Impact Assessment for this type of activity?	No			EIA/SIA not required for project (incremental) activity; if necessary for baseline activity (e.g. resort development) this will improve outcomes
- Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (-ies)?	Yes			Refer above
- Is the project addressing issues, which are already addressed by other alternative approaches and projects?	No			
- Will the project components generate or contribute to cumulative or long-term environmental or social impacts?	Yes	Positive impacts		
- Is it possible to isolate the impact from this project to monitor E&S impact?	Yes			Project design will include monitoring and measurement framework which will assist in measuring E&S impacts (positive and negative)

¹⁷ The N.A. category should be reserved for projects, which do not have a specific location identified, e.g. global or regional projects with a predominantly normative scope. Careful consideration of the specific issue should be exercised to determine potential impact, both short- and long-term.

Appendix 17: Monitoring and evaluation budget and workplan

Type of M&E activity	Responsible Parties	Budget from GEF	Budget co-finance		Time Frame
Inception Meeting	MEE	3,000	5,000		Within 2 months of project start-up
Inception Report	MEE	800			1 month after project inception meeting
Measurement of project indicators (outcome, progress and performance indicators, GEF tracking tools) at national & global level	MEE	54,020			Outcome indicators: start, mid and end of project Progress/perform. Indicators: annually
Semi-annual Progress/Operational Reports to UNEP	MEE	6,000			Within 1 month of the end of reporting period i.e. on or before 31 January and 31 July
Project Steering Committee meetings and National Steering Committee meetings	MEE	1,500	5,000		Once a year minimum
Reports of PSC meetings	MEE	6,000			Annually
PIR	MEE	3,000			Annually, part of reporting routine
Monitoring visits to field sites	MEE	30,200			As appropriate
Mid Term Review/Evaluation	MEE	25,000	70,000		At mid-point of project implementation
Terminal Evaluation	MEE	25,000	70,000		Within 6 months of end of project implementation
Audit	MEE	10,000			Annually
Project Final Report	MEE	1,000			Within 2 months of the project completion date
Co-financing report	MEE	2,500			Within 1 month of the PIR reporting period, i.e. on or before 31 July
Publication of Lessons Learnt and other project documents	MEE	2,500			Annually, part of Semi-annual reports & Project Final Report
Total M&E Plan Budget		170,520	150,000		

Appendix 18: Consultants to be hired

<i>Position Titles</i>	<i>\$/ Person Week*</i>	<i>Estimated Person Weeks**</i>	<i>Tasks To Be Performed</i>
For Project Management			
Local			
International			
Justification for travel, if any:			
For Technical Assistance			
Local			
EE/buildings educator	1,000	55	Advocating EE buildings knowledge
Business educator	1,000	55	Advocating EE application in business
Banking systems adviser	1,000	55	Advising banking systems EE reform
International			
Energy auditor(s)	2,500	56	Conducting EE auditing and capacity building
Financial expert	2,500	38	Developing structure for loan-guarantee fund
Business and markets adviser	2,500	56	Advising EE advocacy marketing plans
EE compliance specialist	2,500	52	Conducting EE compliance and capacity building
Justification for travel, if any:			

Appendix 19: Supervision plan

Project Supervision Plan			2014												2015												2016												2017												2018											
Activity/Task/Output	Responsibility	Fees	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J												
Project Management and Supervisory Tasks (see workplan for activities)																																																														
1. Inception Meeting and Report of Meeting, review of M&E plan		\$3,800	■	■	■																																																									
2. Preparation and Submission of Bi-Annual Progress Report - June 31 and Dec 31 + 30 days	PM	\$6,000						■																																																						
2.a Review by Knowledge Management Administrator	KMA	\$6,000						■																																																						
3. Preparation and Submission by EA of Quarterly Financial reports, March, June, Sep and Dec 31 +	PM	\$7,500			■																																																									
3.1 Review of Quarterly Financial Reports	PAC	\$4,400			■																																																									
3.2 Review of outputs and quarterly reports, substantive comments	KMA	\$4,750			■																																																									
4. Procurement of Equipment & Hiring of Consultants	PM	\$3,750	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■								
5. Project Implementation Review (PIR)	PM/KMA/PAC	\$3,000																																																												
6. UNEP project Supervisory Mission and Technical backstopping mission (Project budget)	KMA	\$21,000	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■							
7. UNEP Technical support (review of outputs, south south collaboration, etc) TBD	KMA	\$10,000	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■						
9. Prepare and Submit Terminal Reports	PM	\$1,000																																																												
9. 1 Review Terminal Reports	PAC/KMA	\$2,200																																																												
10. Final Evaluation	EO/KMA/PAC	\$25,000																																																												
11. Final Project Audit Report	PMPAC	\$1,250																																																												
12. Review Audit report	PAC	\$1,100																																																												
13. Project Closure Pink file	PAC	\$1,100																																																												
TOTAL		\$ 101,850																																																												
KMA - Knowledge Management Administrator																																																														
PM- Project Manager																																																														
PAC - Project Accountant																																																														
TO-CC: UNEP Technical Officers (Int'l Project Assurance)																																																														
PA - Project Assistant																																																														