

Environmental and Social Management Plan (ESMP)

Greening Hurghada Project

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1. Introduction

1.1. Purpose of the ESMP

The purpose of the Environmental and Social Management Plan (ESMP) is to ensure that social and environmental impacts, risks and liabilities identified are effectively managed during the implementation of the proposed project: *Greening Hurgada*. The ESMP identifies the risks and specifies the mitigation measures to which UNIDO and its Project Executing Entities (PEEs) are committed to conduct and includes the capacity and resource requirements to implement these measures. The ESMP also shows how the mitigation measures will be scheduled.

1.2 Key objectives

The key objectives of the ESMP are:

- To identify the environmental and social impacts, risks and liabilities relevant to the project;
- To outline mitigation measures against possible negative environmental or social impacts of the clean technologies supported;
- To enhance positive aspects brought by the project;
- To ensure that the project complies with the relevant environmental and social legislation of South Africa and international laws;
- To identify roles and responsibilities and the cost incurred;
- To propose mechanisms for monitoring the implementation of the mitigation measures during project implementation;
- To provide adequate communication channels for the different stakeholders to input their views throughout the project activity; and
- To establish proven mechanisms to correct/adjust the findings resulting from the monitoring activity and to include the inputs received throughout the project implementation.

The ESMP is intended as a living document for project activities that will be updated as and when required. The ESMP acts as a quick guide for project implementers and contractors and subcontractors to enhance positive impacts and avoid, reduce, minimize or mitigate the occurrence of negative impacts through proposed mitigation measures described in Chapter 4.

1.3 Environmental & Social Screening (E&S) risk outcomes

In accordance with UNIDO's Environmental and Social Safeguards Policies and Procedures (ESSPP), the project has been screened and categorized as **Category B as per the UNIDO ESSPP** (Environmental and Social Safeguards Policies and Procedures) based on an analysis of the environmental and social risks of the project. This means that it has been assessed to have few likely adverse impacts, which will be site-specific, and few if any will be irreversible. In most cases impacts can be readily avoided or mitigated with appropriate mitigation measures or incorporating internationally recognized design criteria and standards.

The ESS Operational Safeguards (OS) triggered include OS 8, 9, and 10. Moreover, UNIDO's information disclosure requirements and the accountability and grievance systems outlined under OS 11 and 12 will also apply to this project, in accordance with UNIDO ESSPP. As such, an Environmental and Social Management Plan (ESMP) will be developed during the project preparation phase to identify specific risks and impacts of the project, as well as to propose appropriate mitigation actions.

OS trigger at the E&S screening template	Reasoning for triggering the OS at the E&S screening template	Reasoning on whether OS remains relevant throughout project implementation	Confirmation on the applicability of the OS (yes/no)
OS 2: Protection of Natural Habitats and Biodiversity	The project will build capacities and increase awareness of diving boat operators and other tourism enterprises to mainstream biodiversity-friendly practices to protect the coral reefs and vulnerable ecosystems in coastal city of Hurghada. Under its technology demonstration component, the project will replace fossilfuel boats with electric boats. This will avoid fuel leakage and chronic anthropogenic noise pollution leading to degradation on habitat and biodiversity. The project will work closely with authorities managing the protected areas and NGOs working on the field such as HEPCA. The project team will consist of biodiversity expert.	Within the framework of the Integrated Safeguards Policy Statement (ISPS), UNIDO is committed to ensuring that its projects comply with the Organization’s safeguards by assessing environmental, climate change and social risks and impacts as early as possible in the project cycle, and providing effective monitoring and supervision of agreed environmental and social management measures during project implementation. If the Organization finds that the environmental or social impacts of any of its proposed projects are not likely to be adequately addressed, it may choose not to proceed with the project.	Yes
OS 8: Labour and Working Conditions	Low-carbon technologies will be implemented. When designing the working environment, safety of technical staff will be prioritized. National and international standards on worker safety will be carefully applied.	Please see above	Yes
OS 8: Labour and Working Conditions OS 9: Resource Efficiency and Pollution Prevention	The project activities cover OS 9 and OS 10. The technology applications on low-carbon transportation and sustainable energy are expected to reduce air pollution thus improve public health.	As above	Yes
OS 10: Community Health, Safety and Security	Low-carbon transportation and sustainable energy interventions are expected to reduce air pollution and improve public health. The trainings on operating and maintenance of electric boats will include health and safety measures (e.g. electrical safety). The project will procure equipment that have safety certification in line with UNIDO procurement policies.	As above	Yes

2. Project Description

2.1. Description of the project

The tourism industry is one of the most important and fastest growing components of Egypt's economy. Egypt faces considerable challenges with respect to management of its natural resources and meeting the economic needs of its tourism sector. Some of the top tourist destinations in Egypt such as the Red Sea coast rely on the marine ecosystems, most notably healthy coral reefs for their business. Hurghada, located on the Red Sea coast is facing increasing environmental and biodiversity challenges due to the intensifying pressure from the tourism activities.

The key barriers that need to be addressed for conservation of biodiversity and natural endowments and ensuring a sustainable tourism at Hurghada are lack of capacity to mainstream Natural Capital Assessment (NCA) into tourism sector long-term policies and practices; limited technical capacity, tools and incentives to promote robust planning in sustainable and integrated management of energy use, resource efficiency and green certification in the tourism sector; lack of effective mechanisms for reducing ecological impacts of tourism on the biodiversity of the Red Sea ecosystem; lack of institutional coordination across a multitude of agencies and interests that operate in the Red Sea area.

The objective of the project is to reduce environmental pressure from the tourism sector, to preserve biodiversity in the coastal city of Hurghada through mainstreaming climate smart technologies and sustainability practices in tourism, energy, and transportation infrastructure. The project will thus contribute to the sustainability of tourism in Egypt through the mainstreaming of BD conservation into CCM investments and with emphasis on vulnerable coastal-marine areas through the consolidation of effective urban development and planning with strengthened capacities and financial mechanisms.

"Greening Hurghada" will demonstrate the benefit of climate smart technologies (e-boats, sustainable energy use in hotels) and active integration of biodiversity aspects and sustainable natural resource use into planning policy, planning and guidelines on eliminating the drivers of biodiversity degradation and the pressure on the local environment besides reducing carbon emissions. The interventions will be up scaled to a broader level with policy frameworks and capacity building on sustainable tourism and biodiversity preservation, addressing the following interventions:

- Improve the management of key touristic destinations and sites to promote sustainable tourism practices and investments prioritized towards the three dimensions of sustainability (ecological-economical-social);
- Optimize the energy and resource use in hotels resulting in climate change and air/water pollution mitigation through a dedicated TA programme and pipeline for investments;
- Reduce emissions within the land and maritime transportation infrastructure and therefore their adverse impact on biodiversity incorporated into policy and strategy development, including a strategic environmental assessment;
- Mainstream biodiversity conservation and climate action into income generating activities (incl. those for local communities);
- Introduce long-term financing schemes supporting the COVID-19 recovery plan linked to financial support mechanisms that would drive climate resilient investments in the future.

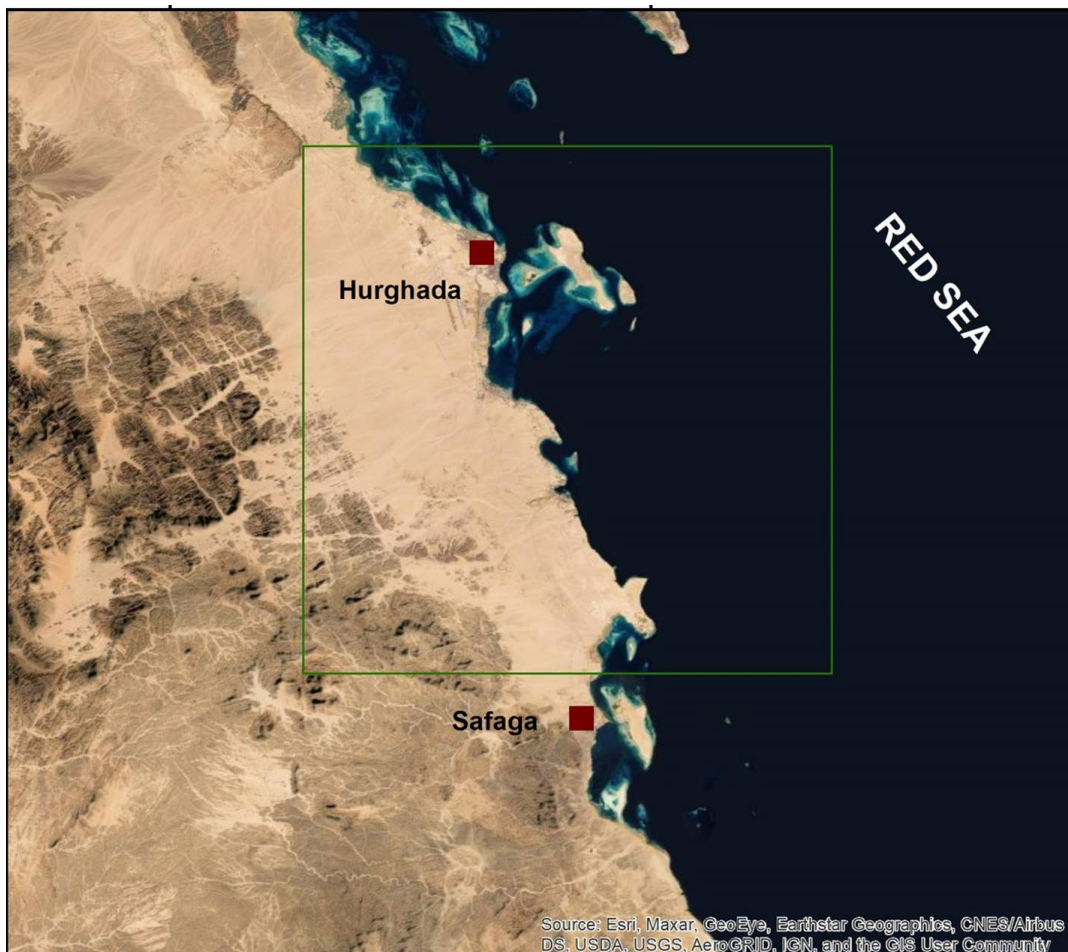
2.2 Project/site location

The Arab Republic of Egypt is located in the north-eastern corner of Africa. Egypt's northern border is the Mediterranean Sea, with Sudan to the south, the Red Sea, Palestine, and Israel to the east, and Libya to the west. The country has a total land area of 995,450 km² and a coastline of 3,500 km along the Mediterranean and the Red Sea.

The project interventions will be located in and around Hurghada, a city in the Red Sea region of Egypt.

Hurghada is the administrative capital of the Red Sea Governorate. The touristic city is located on the coast of the Red Sea South of Suez and 550 km from Cairo, spanning over 40 km of pristine. It is bordered from the north by El Gouna and Ras Gharib city, from the south by Safaga (approx. 60 km South), from the east by the coast of the Red Sea and from the west by the Red Sea mountains. Hurghada has a mild climate throughout the year; its dry desert climate leads to differences in temperature between day and night, which is hot in the day and cold at night especially during the winter months. Temperature can reach highs of 42°C and lows of 18°C throughout the year. The city has a population of approx. 280,000 and is divided into:

- El Ahia and El Helal – the northern part
- El Dahar (Downtown) – the old town
- Sakala – the city center
- El Kawsar – the modern part
- El Mamsha (Village Road) – a pedestrianized street (around 4 km)



The approximate geo-coordinates of the project site are between: 27°15'0"N and 33°45'0"E.

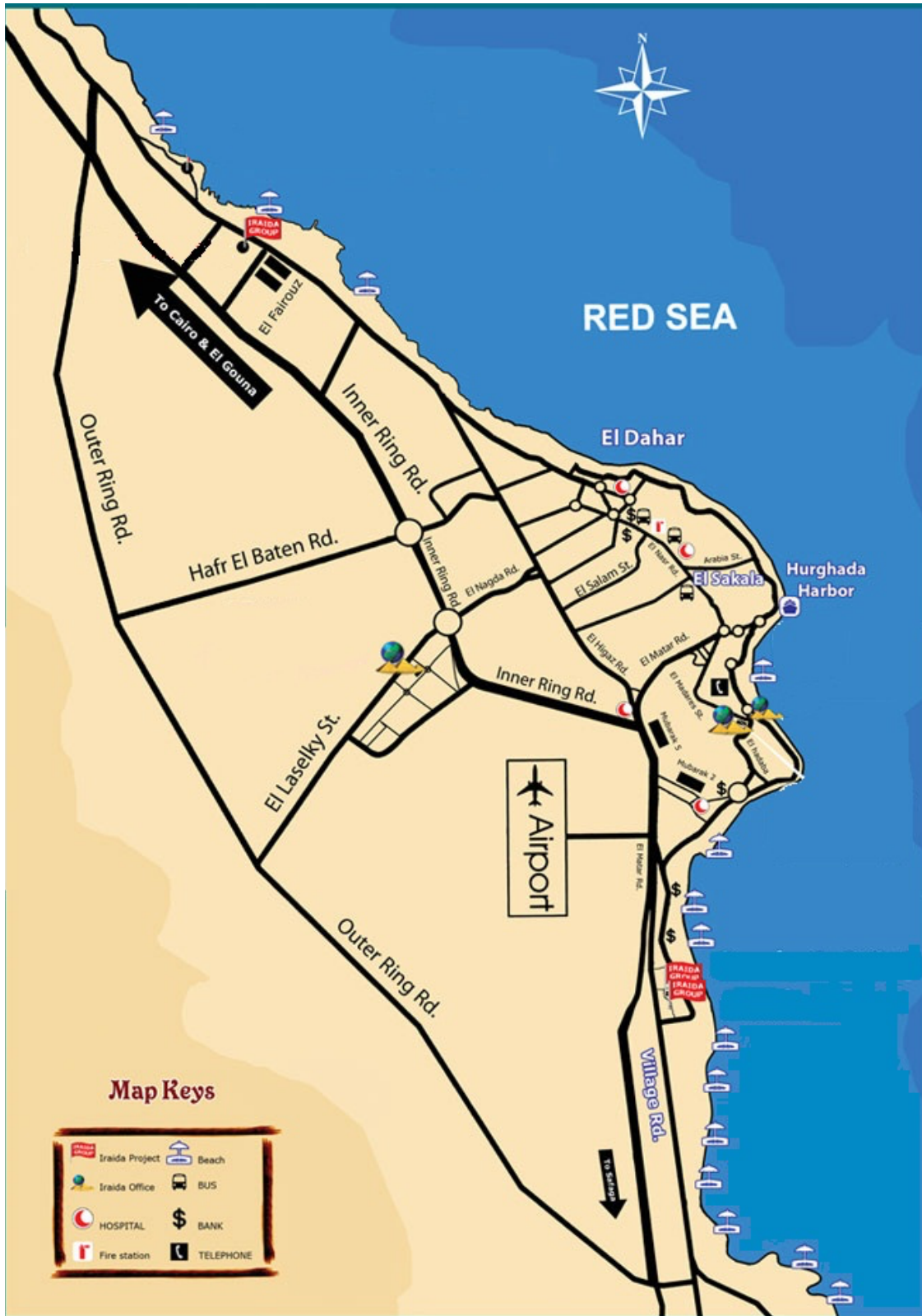
Many of Hurghada's hotels and touristic shops are located along Village Road towards to south to Safaga. Dahar is the old center where the traditional bazaar, the post office and the coach stations are located. The busiest part of the city is Sakala.

Hurghada International Airport is located only 5 km southwest of the downtown with scheduled passenger traffic connecting to Cairo and directly to several cities in Europe. A new terminal was opened in 2015 to accommodate increased air traffic. More than 40 airlines perform seasonable charter flights to the cities in Western and Eastern Europe to bring international tourists.

It is one of the country's main tourist centres and one of a few locations of the best developed coral reefs in the Red Sea that has been targeted for coastal development (infrastructures and tourism) that led to rapid tourism growth.

Hurghada is considered the most important Egyptian tourist center on the Red Sea coast and one of the most important tourist centers in the Middle East. In 2016, Hurghada was ranked the 2nd highest touristic destination in Egypt next to Sharm El-Sheikh with 46,672 rooms that represented 26% of the total number of hotel rooms in Egypt. It is estimated that around 4 million tourists visit Hurghada every year. The city has grown significantly in the last decades mostly thanks to the booming tourism activities. Hurghada is one of the most important diving areas in the world. It offers all possibilities for fishing, underwater fishing and snorkeling because of the clarity of its water and the worldwide fame of its coral reefs and rare marine life [vii]. Although it is rated one of the three best diving areas in the world, it is a popular destination also for non-divers. Leisure on the beach, water sports, clubbing and golfing are just a few of the options to choose from it in addition to Hurghada's health resorts. The Red Sea is also known for its cultural heritage and historical sites. Moreover, adequate world-class infrastructure and support facilities are available. Added to these are the warm and cordial accommodation of the local people, the active promotion of tourism, the government's liberal policy on tourism and land ownership and the Red Sea's strategic location, particularly for European tourists. As well as adventure tourism and marine sports, where many marine competitions and festivals are held every year, such as fishing and underwater photography, and there is also medical, historical and religious tourism, conference and seminar tourism. There is also safari tourism due to the presence of deserts, mountains, and the availability of many wild animals and birds.

Hurghada (Geo-coordinates: 27°15'0"N and 33°45'0"E) shares the common urban challenges with the other developing touristic, coastal cities, along with other best practices like Sharm El-Sheikh being developed under a UNDP-GEF project to become a Green City. There are a number synergies and lessons to be developed and shared with other coastal cities in Egypt, and in the region to showcase the environmental and economic benefits of integrating circular practices. The best replicable solutions will create a source of practical knowledge towards increasing sustainability and resilience of the cities as well as conservation of biodiversity in the MENA and Mediterranean region and around the globe.



City map of Hurghada

2.3 Expected project benefits and beneficiaries

The project will generate multiple global environmental benefits building on a substantial baseline but also a strong increment due to considerable investment and co-financing expected from public and private sources.

The project will create awareness for investing in cost-effective nature-based infrastructure solutions (that have potential to generate economic, environmental and social benefits, including climate change mitigation).

Moreover, the project's interventions will demonstrate and promote the biodiversity preservation benefits of sustainable energy technologies. For instance, reducing the impact of fossil energy sector on marine ecosystems by increasing the share of locally generated clean energy and energy efficiency and electric mobility to avoid fuel leakages and reduce the anthropogenic noise pollution.

The project is expected to mitigate a **total (direct + indirect) GHG emission mitigation of 911,500 tCO_{2eq}**. The indirect post-project mitigation of this total corresponds to 715,800 tCO_{2eq} assumed to be realized through replication in similar tourism enterprises in Hurghada or other cities. The remaining is the cumulative direct GHG emission mitigation of 195,700 tCO_{2eq}.

The economic benefits in the tourism industry will generate social and socio-economic benefits for local communities and other job seekers in the tourism industry, in particular from Upper Egypt. Sustainable tourism activities create jobs and generate income from environmentally friendly activities. These may also include income generation for local communities engaged in ecotourism activities, handicrafts and other service facilities. It also includes improvement of livelihoods and well-being for local communities through establishment of new facilities in the targeted protected areas. The CCM mitigation technologies for small scale renewable energy, energy/resource efficiency technologies and electric mobility will open new lines of small businesses in installation, operation and maintenance of these applications.

Thus, environmental protection, conservation and inclusiveness is essential for the success of sustainable tourism development and ensuring a high-quality tourism destination in Hurghada in the future. The Greening Hurghada project will improve the management and organizational capacities for a sustainable development and planning and launching its implementation with different stakeholders at the national and local levels.

The estimation of number of beneficiaries calculated as total of 14,900 beneficiaries of 6,500 being women.

The Beneficiary representatives are: Ministry of Environment, EEAA, Ministry of Foreign Affairs, Ministry of Tourism and Antiquities/Sustainable Tourism Unit, Ministry of Electricity and Renewable Energies, Ministry of Housing/GOPP and Governorate of Red Sea.

Should no intervention of GEF project take place, the pressure on the environment and the ecosystem will increase, and the Red Sea will lose its attractiveness as an international tourist destination.

2.4 Project Activities

The project structure and activities are outlined below.

Project Activities

Outcome 1.1. The principles of mainstreaming biodiversity and sustainable energy practices in tourism operations integrated in existing and future development policies, plans and programs aiming to reduce the anthropogenic pressure on the ecosystem around Hurghada.

This Outcome will provide incremental support through technical assistance, capacity building and tools to test and apply an SEA and complementary NCA approach to assess and gauge tourism investments, bringing together under a common analytical framework the environmental, social and economic dimensions that are involved in every development initiative. This approach is expected to integrate environmental, alongside economic and social concerns, into strategic decision-making, thereby combining the environmental, social and economic factors into a holistic sustainability assessment. The focus will be mainly on environmental integration with the priority goal of mainstreaming and up-

streaming environmental considerations into strategic decision-making. The outcome of the SEA (and complementary NCA exercise) will be to support national and local planning processes with relevant and strategic information to orientate their decisions. The SEA, in particular, will be of value for proposing possible integration of biodiversity conservation measures into existing EIA guidelines that the country currently applies to assess tourism investments as well as represent a framework to identify avoidance, mitigation and offsetting mechanisms that apply to the tourism sector in the south of the Red Sea.

Outputs under this outcome:

1.1.1. Strategic Environmental Assessment (SEA) principles established, including clear baselines to guide policy-making processes, and monitoring the condition of marine, coastal and terrestrial biodiversity in the Red Sea Governorate

1.1.2. Institutional capacity and tools for application of natural capital assessment (NCA) developed and strengthened for application in tourism and other impact sectors in the Hurghada region

1.1.3. Natural Capital Accounting (NCA) of marine (incl. coral reefs, fish), coastal (e.g., mangroves) and land biodiversity in the Red Sea Governorate to support improved policy needs for tourism sector

1.1.4. Development of policy and regulatory framework to promote green and circular investments, renewable energy integration and mainstreaming biodiversity conservation measures to limit impacts on biodiversity (e.g., Sustainable and Green Tourism Plan)

1.1.5. Protected areas, marine resources (incl. coral reefs, seagrass beds and associated species) and land resources (mangroves, desert ecosystems and associated species) effectively managed through future development plans and nature-based management that integrate mitigation and offsetting policies based on the outcome of the NCA and supported by completed SEA focusing on the tourism's (hotels, boats, diving centers) and fisheries impacts on the marine ecosystem and climate change

Outcome 2.1. Green economy investments are mainstreamed and de-risked to reduce biodiversity harmful practices and green-house gas emissions

Outcome 2.1 focuses on pilot investment activities and support concrete on the ground activities that promote low-carbon and resource efficiency technologies in public and private sectors. The component will build on TA-funded activities supported below and provide targeted cost-sharing GEF support for selected pilot investments in Hurghada.

This outcome will address the prevailing barriers (Lack of technical capacity and proper management of technical infrastructure in tourism industry, lack of proper financing instruments, and sufficient awareness on sustainable tourism activities) through a green economy investment programme that will be implemented through a range of demonstration activities, and provide the groundwork for replication of low carbon and resource efficiency technologies in hotel facilities and other touristic infrastructures that will also benefit the nature-based infrastructure, including e.g. energy supply and demand optimization, innovative forms of road and maritime mobility as well as biodiversity-friendly design principles. This Component will support sustainable financing mechanisms to be developed/extended and utilized in the tourism sector to greener the existing infrastructure and improve the economic competitiveness of the tourism sector.

Outputs under this outcome:

2.1.1. Climate-smart capital investment plan with a viable pipeline of investments across the energy and mobility sectors and nature-based solutions (NBS) including integrated climate-risk, and biodiversity conservation principles

2.1.2. Financial mechanism developed and submitted for government's approval to create incentives for the sector to invest in climate-smart technologies and nature-based solutions for the conservation of biodiversity

2.1.3. TA to develop green investment projects in renewable energy, energy efficiency and e-mobility facilitated

2.1.4. GHG emission inventory developed for the tourism sector, and capacity in place for continued tracking and MRV

2.1.5. Systematic integration of key biodiversity-friendly design principles, NBS and their effective management including cooperation with and support programs for hotels and dive centers

2.1.6. Green investments in renewable energy, energy efficiency and e-mobility implemented through risk mitigation instruments such as long-term incentives with linkages to green recovery stimulus packages

Outcome 3.1. Enhanced stakeholder capacities, awareness and partnerships influence behavioral change towards sustainable tourism

Outcome 3.1 will address the barriers of lack of capacity and awareness on enabling conditions such as integrated policies and their effective implementation, financial incentives. Capacity building in terms of embedding comprehensive monitoring and evaluation plans for activities will be critical to guide information capture and analysis in the development of knowledge and knowledge products – experience notes, lessons learned and best practices. At the same time, stakeholders' participation is crucial for achieving the project objectives. Consultations with the stakeholders during the project preparation reflected strong understanding and interest in supporting the project objectives. The consultations and engagement of stakeholders in converting Hurghada city into a greener city will be further strengthened during project implementation.

3.1.1. Strengthening institutional capacity, communication and awareness tailored for governmental stakeholder and tourism sector, including sustaining the climate MRV system contribute to improved practices

3.1.2. Participation and contribution in relevant global platforms: international and regional events, annual meetings, targeted training programs on the use of tools and methodologies (e.g., GHG emission calculation)

3.1.3. Provision of technical assistance and support to identify best practices and solutions to minimize the threats from tourism and economic harmful practices on biodiversity (e.g., sustainable fishing guideline, diving, and snorkeling guidelines)

3.1.4. Improved Protected Area management and community participation, and benefit sharing from conservation and biodiversity-friendly tourism practices

Outcome 4.1. Adequate monitoring and evaluation mechanisms are in place, facilitating successful project implementation and sound impact as per GEF and UNIDO guidelines

4.1.1. Mid-term Review

4.1.2. Terminal Evaluation

2.5 Potential adverse effects of the project

An environmental and social risk screening and assessment has been carried out to identify potential environmental and social issues and to categorise the project.

The main potential negative environmental impacts of the project are associated with the implementation of pilots of nature-based solutions under Component 2. The nature of the potential impact will depend entirely on the specific technologies that will be implemented.

In addition, there are likely to be minor environmental impacts associated with the provision of technical assistance, mentoring, training, and meetings (e.g., due to an increased carbon footprint), which will be accordingly mitigated.

There are also possible negative social impacts relating to the technologies supported. Risks include:

- Poor labour, health and safety conditions in the enterprises' operations

While these risks are expected to be limited (based on previous UNIDO experience with similar projects), the general risk level will be assessed during project implementation and appropriate measures taken where needed.

The economic benefits in the tourism industry will generate social and socio-economic benefits for local communities and other job seekers in the tourism industry, in particular from Upper Egypt. Sustainable tourism activities create jobs and generate income from environmentally friendly activities. These may also include income generation for local communities engaged in ecotourism activities, handicrafts and other service facilities.

There is also a risk that women and youth may be excluded. These issues will be addressed through gender mainstreaming actions.

The projected environmental and social risks and proposed mitigation measures for the various stages of the project are presented in Section 4. **Each one of the identified risks and impacts can be reasonably avoided, reduced, minimized or mitigated.**

2.6 Climate Change

Climate change is expected to alter many aspects of the natural and built environment, creating a range of indirect impacts for tourism, most of which are likely to be negative. Examples of indirect environmental impacts from climate change include biodiversity losses, loss of coral cover, reduced reef aesthetic, decreased fisheries production as well as a decline in ecosystem services such as coastal protection and beach replenishment.

Climate change is recognized as a serious threat to biodiversity and ecosystem services at the global scale. The transition away from fossil fuel-based energy sources is key to mitigating this threat.

Climate change is expected to be a source of pressure on the coastal zones, due to impact of the sea level rise (SLR) and the recurrence of severe storms and extreme events (IDSC, 2011). This would negatively impact ecosystems, human health, the reliability and operating costs of water and sanitation infrastructure, and the country's economic activities in general.

The tourism sector is highly vulnerable to climate change and at the same time contributes to the emission of greenhouse gases (GHG), which cause global warming. Accelerating climate action in tourism is therefore of utmost importance for the resilience of the sector. Transforming tourism for climate action requires embracing a low carbon pathway with awareness and optimization as key elements. Awareness: through measurement and disclosure of the emissions related to tourism activities in Hurgada (setting the example for other tourist destinations) and the setting of evidence-based targets. Optimization: through instruments and strategies to scale-up mitigation and adaptation in the tourism sector with all stakeholders having to play a role.

The project supports decarbonization of Egypt’s energy and transport sectors by promoting the adoption of low-carbon energy installations in hotels and touristic infrastructures, including energy efficiency measures. In addition, electric mobility and development of innovative electric mobility solutions in public and marine transportation will contribute to direct reductions in GHG emissions and indirect reductions via scale-up within the market and country.

3. Policy, legal and administrative framework

3.1 Institutional Context

The following table shows the partners responsible for the main thematic priorities to be covered by the Project.

Table 1: Key institutions involved in project components

Project components	Key institutions and organizations to be involved
Component 1: Strategic policy framework in place for a green recovery and sustainable growth of the tourism sector in Hurghada	<u>Responsible:</u> Ministry of Environment/EEAA <u>Relevant partners:</u> Ministry of Tourism and Antiques (MOTA), Red Sea Governorate (RSG), General Authority for fish resources development (GAFRD), Egyptian Tourism Federation (incl. EHA, CDWS), Marine Police and Coast Guards, HEPCA,
Component 2: Green technology investments mitigate GHG emissions, reduce waste and degradation on coastal and marine ecosystems, and improve economic competitiveness of tourism sector	<u>Responsible:</u> Municipality of Hurghada, ETF/EHA <u>Relevant partners:</u> NREA, EGYPTERA, hotel owners, financing sector, transport and mobility companies
Component 3: Long-term environmental and economic sustainability of low-carbon infrastructure and biodiversity investments are ensured	<u>Responsible:</u> EEAA, NCS, ETF (CDWS, EHA) <u>Relevant partners:</u> Hotel owners/operators, diving centers, travel agencies, NGOs
Component 4: Monitoring and Evaluation	<u>Responsible:</u> UNIDO

3.2 Policies and Legislation

Egypt submitted its Nationally-Determined Contribution (NDC) and Third National Communication (NC3) to the UNFCCC in 2016, in support of the its efforts to realize its development and economic goals and increase ist adaptive capacity to climate change.

The project is in line with following policies:

Egypt’s Sustainable Development Strategy: Egypt Vision 2030, responding to the SDGs. Environment is one of its 4 dimensions and entails an Urban Development Pillar and an Environment Pillar, who have as visions, respectively: A balanced spatial development management of land and resources to accommodate population and improve the quality of their lives and Environment is integrated in all economic sectors to preserve natural resources and support their efficient use and investment, while ensuring next generations’ rights. A clean, safe and healthy environment leading to diversified production resources and economic activities, supporting competitiveness, providing new jobs, eliminating poverty and achieving social justice.

Third National Communication Report (2016) to the UNFCCC, which identified tourism as one of the main sectors with large potential and benefit for climate change mitigation actions – including inter alia:

- Improve energy efficiency and load/energy management;
- Increase on-site energy production from renewable sources, in particular solar energy;
- Promote for sea water desalination-based concentrated solar power and using highly efficient desalination technologies;
- Set achievable specific energy, water consumption and waste generation

It is essential to develop a Low Carbon Strategy (LCS) as part of GHGs emissions mitigation scheme, for the Egyptian tourism sector which should include, but not limited to, the following policy lines:

- Improve energy efficiency and load/energy management;
- Increase on-site energy production from renewable sources, in particular solar energy;
- Promote for sea water desalination-based concentrated solar power and using highly efficient desalination technologies;
- Set achievable specific energy, water consumption and waste generation

Egypt 1st NDC report from 2016 included an initial estimate for the cost of implementing adaptation and mitigation measures in Egypt during the period 2020-2030: USD 73 billion.

Egypt as a Party to the CBD in 2016 prepared a revised NBSAP / **Egyptian Biodiversity Strategy and Action Plan 2015-2030** in line with the **CBD Strategic Plan 2011-2020** through a wide participatory process. The project is in line with the following national targets:

- 1 – By 2030, PAs network secured and expanded to cover 17% of total terrestrial and inland water and at least 5% of coastal and marine representative areas, especially priority sites of particular importance for biodiversity and key ecological processes, and effective management of PAs.
- 6 – By 2018, apply CBD tools to monitor and control the impact of tourism on biodiversity, in particular in protected areas and vulnerable ecosystems.
- 8a – By 2025, negative effects of different sectoral policies (land-use planning, transport, energy, uncontrolled urbanization, etc.) on priority elements of biodiversity are minimized, and measures to correct these effects are applied through developing and implementing land use management plans.
- 9 – By 2027, promote the implementation of good fishing practices in both Mediterranean Sea and Red Sea, favorable to fish protection and their habitats.
- 16 – By 2018, biodiversity values are promoted and integrated into national planning process and mechanisms to support their incorporation into national accounting and reporting systems to be developed.
- 18 – By 2017, proper NBSAP and associated resource mobilization are in place, in addition to establishment of the national biodiversity committee to ensure periodic evaluation of NBSAP

Egypt is committed to the **Montreal Protocol** and to implementing the relevant Programmes of the National Environmental Action Plan. The country is in the process of ratification Kigali amendment, currently the documents are under review from the Ministry of Foreign Affairs. National Ozone Unit and the Egyptian Organization for Standardization and Quality have a collaboration protocol for the development and update of 19 new standards for the safety of freons/refrigerants. An enforcement plan is needed for the existing and newly developed standards and codes.

The project is also line with the National Capacity Self-Assessment regarding the three **Rio Conventions**, given that it includes joint work towards Climate Change and Biodiversity. Because there are no pressing land degradation issues in the area of Sharm El Sheikh, LD was not considered a further work stream to be added. Instead work on Chemicals was added that now also fall under the global environmental conventions served by the GEF. The NCSA highlighted the need for enhanced cooperation and synergies across the conventions at national level, which the here-proposed project will contribute to.

The following table shows a summary of the relevant policies and regulatory framework.

Table 2 - Relevant Policies and Regulatory Framework

Framework	Description	Entity
Environment strategy under Egypt vision 2030	Egypt Vision 2030 is responding to the SDGs. Environment is one of its 4 dimensions and entails an Urban Development Pillar and an Environment Pillar, who have as visions, respectively: A balanced spatial development management of land and resources to accommodate population and improve the quality of their lives and Environment is integrated in all economic sectors to preserve natural resources and support their efficient use and investment, while ensuring next generations' rights. A clean, safe and healthy environment leading to diversified production resources and economic activities, supporting competitiveness, providing new jobs, eliminating poverty and achieving social justice.	Ministry of Planning and Economic Development, incl. other relevant ministries, municipalities and agencies
Egypt's Green Economy Strategy 2030	In September 2014, Green Economy (GE), as a planning tool to achieve SD in Egypt, was manifested by forming the Green Economy Committee at the Ministry of Planning, Administrative Reform and Monitoring (MoPMAR) to pursue a GE study. Green Economy Strategy 2025-2030, as part of the Egypt's Sustainable Development Strategy 2030. Between April 2014 and August 2015, the MoPMAR has assigned a GE Task Force to develop Egypt's Green Economy Strategy 2025-2030, as part of the Egypt's Sustainable Development Strategy 2030 The GES, which covers many sectors (sustainable cities, green transport, clean energy, waste management, recycling and wastewater), was completed in August 2015 for a ministerial decree.	Ministry of Planning, Administrative Reform and Monitoring (MoPMAR)
Urban Planning Strategy	It includes: a) Environmental competitiveness; b) Eco-friendly; and c) social equity. Also, development pillars for cities were outlined to address sustainable development, including <ul style="list-style-type: none"> • Better environmental sustainability, • Develop infrastructure for transportation and network, • Effective system of governance for management of development projects, • Develop new urban community and diverse attractive centres, • Create tourism environment, • Competitive environment for knowledge-based economy, • Achieve social justice and improve social conditions, and revival of central region. 	General Organization for Physical Planning (GOPP)
National Biodiversity Strategies and Action Plans	The NBSAP Mission is "Egypt takes effective and innovative actions to reduce the loss of biodiversity to ensure that by 2030 ecosystems continue to provide their services to all Egyptian and also ensure pressures on biodiversity are reduced; biological resources are sustainably used and benefits arising out of utilization of genetic resources are shared in a fair and equitable manner; biodiversity issues and values mainstreamed and appropriate policies are effectively implemented in a participatory approach." The NBSAP adopts a framework that places Egyptians and nature at the center of the government anxiety in the development process	United Nations Development Programme UNDP

Indication that the ESMP will follow legal regulations:

The project will be implemented in compliance with all national laws and relevant international environmental and social impact management and standards laws.

The key international environmental and social laws that the project will follow as below:

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) (Washington, 1973)
- Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (1989)
- United Nations Convention on Climate Change (New York 1992). – The Convention covers measures to control greenhouse gas emissions from various sources, including transportation.
- United Nations Framework Convention on Climate Change and the Kyoto Protocol (Kyoto, 1997)
- Convention on the Protection of Workers from Occupational Hazards in the Work Environment due to Air Pollution, Noise and Vibration (Geneva 1977)

The national legal regulations that ESMP will follow are described below.

Environmental Laws and regulations

Law 4/1994 will be the main legal regulation on environmental impact including air pollution, control of hazardous substances, management of hazardous waste and control of discharges to marine waters. The Law defines the roles and responsibilities for EEAA which is the project executing entity of Greening Hurghada Project.

- **Environmental assessment (Law 4/1994):** the Environmental Impact Assessment (EIA) is a licensing requirement for development projects that are likely to cause ES impacts. The Ministry of State enforces the law for Environmental Affairs (MSEA) and the Egyptian Environmental Affairs Agency (EEAA), its executive agency. The 2009 Egyptian EIA Guidelines include EIA requirements, including social assessment and consultation.
- **Natural habitats (Law 102/1984):** It regulates natural protected areas (PA) (including more than 140 islands in the Nile) and the project's target area of the Red Sea Islands PA. Usually development of the protected areas is monitored by EEAA, the execution entity of the project.
- **Hazardous substances and wastes (Law 4/1994):** It includes procedures for handling hazardous substances and wastes, which are to a great extent conforming to international standards and best practices.
- **Air quality (Law 4/1994):** The project will comply with ambient air quality and emission standards provided under this regulation particularly during the technology implementation period if it involves the use of construction equipment with emission.
- **Water Quality (Law 40/1982):** It regulates the quality of freshwater resources. It includes standards for ambient water quality as well as limits for discharging wastewaters in different water bodies. Industrial facilities and workshops discharging to sewers are required to comply with Law 93/1962 and its modified executive regulations (Decree 44/2000).
- **Noise (Law 4/1994):** The project will comply with the standards for ambient and occupational noise with correspondent exposure periods that are governed under this law. The maximum occupational noise allowed by Law 4/1994 for establishments that have been licensed before 2011 is 90 dBA for eight hours.
- **Solid Waste Management (Law 38/1967):** General cleanliness and solid waste management and disposal services are regulated by this law.

Egyptian Labor Law

The Labor Law is the main legislation for health and safety issues. It establishes comprehensive guidelines on labor relations, including hiring, working hours, and termination of employees, training, health, and safety. Moreover, the law also provides rules and guidelines governing mediation, arbitration, and collective bargaining between employees and employers. The law includes non-discrimination clauses and complies with the International Labor Organization (ILO) conventions

regulating the employment and training of women and eligible children (Egypt ratified ILO Convention 182 on combating the Worst Forms of Child Labor in April 2002). Under the law, a national committee to formulate general labor policies and the National Council of Wages, whose mandate is to discuss wage-related issues and national minimum-wage policy is established.

4. Environmental and social risks and mitigation measures

This section describes relevant environmental and social risks identified during the project preparation period. Since ESMP should serve as an active tool, additional risks that are identified during the project implementation will be included as they are identified.

The specific activities of the project, described above, are summarized in the table below with the possible adverse effects identified related to each.

Table 3: Overview of project activities and possible adverse environmental and social effects

Project Component /Outcome	Outputs / Activities	Possible adverse E & S effects identified
1.Strategic policy framework in place for a green recovery and sustainable growth of the tourism sector in Hurghada	1.1.1 Institutional capacity and tools for application of natural capital assessment developed and strengthened for application in tourism and other impact sectors in the Hurghada region 1.1.2. Policy scenario analysis on natural capital assessment of tourism and other key development sectors in the Hurghada region, based on biophysical modelling and valuation of ecosystem services 1.1.3. Policy, plans and zoning developed using the NCA results to promote green and circular investments and mainstreaming biodiversity conservation measures in tourism and other sectoral development operations considering the mitigation hierarchy to limit impacts on biodiversity (e.g. Sustainable and Green Tourism Plan) 1.1.4. Protected areas, marine resources (incl. coral reefs, seagrass beds and associated species) and land resources (mangroves, desert ecosystems and associated species) effectively managed through future development plans and nature-based management that integrate mitigation and offsetting policies based on the outcome of the NCA and supported by completed Strategic Environmental Assessment (SEA) focusing on the tourism’s impacts (hotels, boats, diving centers) and fisheries impacts on the marine ecosystem and climate change	Possible low participation of women, marginalized groups and youth in project Possible COVID-19 outbreak and clusters through physical contacts causing health risks among participants

<p>2.Green technology investments mitigate GHG emissions, reduce waste and degradation on coastal and marine ecosystems, and improve economic competitiveness of tourism sector</p>	<p>2.1.1 Climate-smart capital investment plan with a viable pipeline of investments across the energy and mobility sectors and nature-based solutions (NBS) for sustainable use of PAs including integrated climate-risk, and biodiversity conservation principles</p> <p>2.1.2 Financial mechanism developed and proposed for approval to create incentives for the sector to invest in climate-smart technologies and nature-based solutions for the conservation of biodiversity;</p> <p>2.1.3 Green investments in renewable energy, energy efficiency and e-mobility facilitated through risk mitigation instruments such as long-term incentives with linkages to green recovery stimulus packages (TA / INV)</p> <p>2.1.4 GHG emission inventory developed for the tourism sector, and capacity in place for continued tracking and MRV (TA)</p> <p>2.1.5 Systematic integration of key biodiversity-friendly design principles, NBS and their effective management including cooperation with and support programs for hotels and dive centers</p>	<p>Possible low participation of women, marginalized groups and youth in project</p> <p>Possible adverse effects associated with the development, manufacture or use of the technology supported under the project (e.g., unintended increased GHG emissions or other environmental impacts, poor labour conditions)</p>
<p>3.Long-term environmental and economic sustainability of low-carbon infrastructure and biodiversity investments are ensured</p>	<p>3.1.1 Strengthening institutional capacity, communication and awareness tailored for governmental stakeholder and tourism sector, including sustaining the climate MRV system contribute to improved practices</p> <p>3.1.2 Participation and contribution in relevant global platforms: global events, annual meetings, targeted training programs on the use of tools and methodologies (e.g., GHG emission calculation)</p> <p>3.1.3 Provision of technical assistance and support to identify best practices and solutions to minimize the threats from tourism and economic harmful practices on biodiversity (e.g., sustainable fishing guideline, diving and snorkelling guidelines)</p> <p>3.1.4: Improved Protected Area management and community participation and benefit sharing from conservation and biodiversity-friendly tourism practices</p>	<p>Possible low participation of women, marginalized groups and youth in project</p> <p>Possible COVID-19 outbreak and clusters through physical contacts causing health risks among participants</p> <p>Minimal impact related to printing of material and travel associated with meetings</p>
<p>4.Monitoring and Evaluation</p> <p>Outcome 4.1 Adequate monitoring and evaluation mechanisms are in place, facilitating successful project implementation and sound impact</p>	<p>4.1.1 Periodic monitoring and evaluation of project implementation as per GEF and UNIDO guidelines</p> <p>4.1.2 Monitoring and evaluation of gender impact and gender mainstreaming strategy</p>	<p>Lack of coordination capacity</p>

As outlined, the main environmental and social risks and impacts relate to the pilots supported under the project. These will be determined by the technologies and so are not known at the Project outset. Only generic risks can be identified at this time. However, the Project’s environmental and social safeguarding set out here includes procedures to identify any possible risk and to mitigate against those risks. Where mitigation measures are not sufficient then the technology will not be supported by the project.

Environmental and Social Safeguarding in Practice (Operationalisation)

Generic E&S risks and associated mitigation measures are described in the Table 2, below.

Table 4: Environmental and social risks identified and associated mitigation measures

E&S risks	Mitigating Measure	Location	Timeline, including frequency, start and end date	Responsibility	Technical details	Cost of Mitigation (USD)
Risks identified during design phase						
<p>Environmental and health impacts and safety risks resulted from project interventions in particular from technology implementation/construction (e.g., air, noise, water pollution, natural habitat, hazardous waste etc.....)</p>	<p>The project team will comply with national law and regulations related to environmental protection (e.g., laws 4/1994, 40/1982, 4/1994, 38/1967). This will be included in the subcontracts with the installation/construction companies. The pilot projects will be screened based on the E&S criteria. If negative impacts assessed to be more than the positive impacts, the technology will not be supported by the project. Please see section 3.2.</p>	<p>Hurghada and marine PAs</p>	<p>Every three months Weekly during the on-site technology implementation period</p>	<p>EEAA/OUDA and UNIDO as well as national stakeholders</p>	<p>The project team will monitor on the ground the technology installation to assess the impact on environment, air and water, biodiversity, wildlife habitat deterioration, flora and fauna. The project will conduct an assessment and will develop a mitigation plan if necessary.</p>	<p>As included in the project execution agreement between UNIDO and PEE. The mitigation measure will not have a substantial cost and will be covered by the project component budget.</p>
<p>Unintended increase in GHG emissions including increase in emissions due to travel, meetings, training and events related to the project</p>	<p>Scope of technologies will prioritize low-carbon technologies (e.g., RE and EE). Every application will need to meet strict criteria including environmental and social impacts. Where necessary, expertise will be used to minimise the negative impacts. If the mitigation measures are not sufficient then that technology will not be supported.</p>	<p>Hurghada and marine PAs</p>	<p>During project implementation</p>	<p>EEAA/OUDA and UNIDO as well as national stakeholders</p>	<p>The project will monitor the risk of unintended increase in GHG emissions per output. Advice will be provided to all stakeholders involved in the project on how to minimize their carbon footprints. Where possible, physical meetings will be replaced with webinars. In any case, the unintended GHG emissions are expected to very low compared to the GHG savings that will be resulted from project's interventions.</p>	<p>As included in the project execution agreement between UNIDO and PEE. The mitigation measure will not have a substantial cost and will be covered by the project component budgets.</p>

<p>The project partners lack the capacity/awareness to properly identify and mitigate the E&S risks related to their technology</p>	<p>Workshops/trainings will include a module to raise awareness for enterprises to comply with national regulation requirements</p>	<p>Hurghada</p>	<p>In the first 3 months of the project</p>	<p>EEAA/OUA and UNIDO as well as national stakeholders</p>	<p>All investment projects will include capacity development activities for the staff in order to comply with national regulations requirements.</p> <p>General and specific trainings through presentations, materials are offered to stakeholders to build capacity in existing regulation.</p>	<p>As included in the project execution agreement between UNIDO and PEE.</p> <p>The mitigation measure will not have a substantial cost and will be covered by the project component budgets.</p>
<p>Women do not benefit equally from the project activities</p>	<p>Social safeguarding to ensure gender is mainstreamed throughout the project design.</p> <p>The project team implement gender mainstreaming measures (see Gender Analysis and Action Plan annex) thorough gender responsive communication and ensure stakeholder involvement at all levels, with special regard to engage with women and men, as well as civil society and non-governmental organizations promoting gender equality. This shall mitigate social and gender related risks, promote gender equality, and maximize the potential contribution of the project to improving gender equality.</p>	<p>Hurghada</p>	<p>Bi-annual</p>	<p>EEAA/OUA and UNIDO as well as national stakeholders</p>	<p>The project is supported by a gender action plan based on a detailed and context specific gender analysis.</p> <p>The Action Plan ensures that stakeholders engaged in the Project at all levels, will improve awareness and understanding of gender equality.</p>	<p>As included in the project execution agreement between UNIDO and PEE.</p> <p>The mitigation measure will not have a substantial cost and will be covered by the project components' budget.</p>
<p>Low participation rates of youth in project</p>	<p>Social safeguarding to ensure that youth inclusion is a target for the entrepreneur support</p> <p>Youth will be mainstreamed in the project through responsive</p>	<p>Hurghada</p>	<p>Bi-annual</p>	<p>EEAA/OUA and UNIDO as well as national stakeholders</p>	<p>Surveys</p>	<p>As included in the project execution agreement between UNIDO and PEE.</p> <p>The mitigation measure will</p>

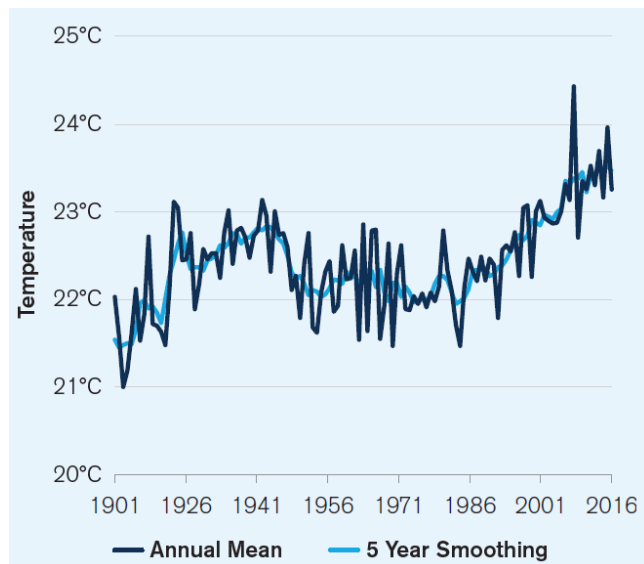
	communication and ensure stakeholder involvement at all levels, with special regard to involving youth, as well as civil society and non-governmental organizations promoting youth.					not have a substantial cost and will be covered by the project component budget.
COVID-19 related health risks	Necessary prevention and mitigation measures are taken to minimize risks due to COVID-19 including using personal protective equipment, physical distancing, hygiene, cleaning and disinfection, ventilation and other administrative and engineering controls while following local and international guidelines.	Hurghada and marine PAs	Bi-annual (depending on the development of the pandemic)	EAAA/OUA and UNIDO as well as national stakeholders	The project will conduct an assessment	As included in the project execution agreement between UNIDO and PEE. The mitigation measure will not have a substantial cost and will be covered by the PMU budget.
Climate change risks that may affect the project activities See below separate section on Climate Change Risk	Where necessary, expertise will be used to develop and integrate appropriate management and technology solutions to mitigate the climate change risks.	Hurghada and marine PAs	Bi-annual	EAAA/OUA and UNIDO as well as national stakeholders		As included in the project execution agreement between UNIDO and PEE. The cost of mitigation measures included in the component budget (e.g., technology demonstrations) as well as in the PMU budget and monitoring budget.
Risks identified during implementation phase (to be filled by the EAAA)						

Climate Change Induced Risks

Egypt has a high degree of risk to natural hazards and is highly vulnerable to climate change impacts. Egypt's Nile Delta is recognized as one of the world's three 'extreme' vulnerability hotspots. Future projections indicate Egypt will suffer from sea level rise, water scarcities and deficits, as well as an increase in the frequency and intensity of extreme weather events such as heat waves, sand and dust storms, flash floods, rock slides and heavy rains. Egypt is already severely impacted by and susceptible to droughts, which are expected to be more frequent and pronounced. Additionally, sea level rise is projected to lead to the loss of a sizable proportion of the northern part of the Nile Delta due to a combination of inundation and erosion, with consequential loss of agricultural land, infrastructure and urban areas. Key sectors impacted include water resources, agriculture, fisheries, health, housing, biodiversity, telecommunications, energy, tourism, and coastal economic zones.

The country is expected to become generally hotter and drier under a projected future climate. Substantially warming was observed in Egypt over the past 30 years¹.

Table Observed temperature for Egypt (1901-2019)²



The main vulnerabilities to climate change in Egypt are **are** rise of the Mediterranean Sea level leading to inundation of coastal areas in an around the Nile Delta, change of precipitation patterns leading to heavy rains causing urban flooding along coastal areas and flash floods (in Upper Egypt and Sinai), rise in average temperature and more frequent heat waves and dust storms³.

Long-term changes in climate can reduce efficiency of solar PV due to higher temperatures and dust. Increased air temperatures lower solar PV efficiency and energy output. Dry conditions increase dust events.

Among these heat waves, flooding and water scarcity are further examined for Hurghada.

The key potential climate change risks specific to Hurghada's case are identified below:

Floods, storm surge and sea level rise

¹ The World Bank Group: Climate Risk Profile: Egypt (2021)

² WB Climate Change Knowledge Portal (CCKP, 2020). Egypt URL: <https://climateknowledgeportal.worldbank.org/country/egypt/climate-data-historical>

³ Source World Bank – ESMF: <http://www.msmeda.org.eg/Files/Reports/CATALYZING%20.pdf>

The coastal flood hazard is classified as high in the Red Sea area[1]. The area has a risk of flash floods which occur once every 5–10 years caused by differences in pressures coming from cool Europe and warm Asia[2]. Hurghada is susceptible to sea level surge due to the geographical characteristic of its location. Flat, long and wide coastal plain where Hurghada is located on, has a very low resistance to waves on the land. The continuous coral reef system and mangroves parallel to the coastal strip provides some level of crucial natural protection against sea surge and storm waves. The degradation of coral reefs and mangroves due to climate change impacts on sea temperature and acidification will further increase the vulnerability of Hurghada against climate hazards.

Rapid climate change accelerates the biodiversity loss (e.g., coral reef bleaching, impact on mangroves) due to increasing sea temperatures and changing currents. The studies have already shown the slowing of coral reef growth in the Red Sea due to warming of the sea (Cantin et al., 2010). Their deterioration of coral reefs has a risk of not only exacerbating marine biodiversity but also reducing coastal resistance to storm waves (Hereher, 2015).

Furthermore due to the climate change, the model projections are inconsistent in their estimates of changes in rainfall. The present hazard level of floods in Hurghada may increase in the future due to the changing precipitation patterns as well as flaws in local water management systems (e.g., poorly dimensioned or maintained sewerage or drainage channels).

Drought and Water Scarcity

Egypt is a highly arid country and receives very little annual precipitation. Hurghada receives less than 100mm/year². The frequency, severity and intensity of these climate-induced hazards is expected to increase in Hurghada subtropical-desert climate due to increasing precipitation anomalies in Egypt.

In Hurghada water scarcity is classified as high by thinkhazard tool which means that droughts are expected to occur on average every 5 years. In southern Egypt where Hurghada located, model projections are inconsistent in changes in drought. The present hazard level may increase in the future due to the effects of climate change.

Egypt has observed a statistically significant reduction of annual total precipitation amounts over the past 30 years, a reduction by approximately 22%. This has resulted in reduced water availability in some areas and increased periods of drought and dry spells.⁴ Decreases in precipitation occurred in the winter and early spring months.

Extreme heat

According to the most recent assessment report of the Intergovernmental panel on Climate Change (IPCC, 2013), continued emissions of greenhouse gases will cause further warming, and it is virtually certain that there will be more frequent hot temperature extremes over most land areas during the next fifty years. Warming will not be regionally uniform. In Egypt the temperature increase in the next fifty years will be slightly higher than the worldwide average. It would be prudent to design projects in this area to be robust to global warming in the long-term.

The table below⁵ points out the trends of increasing anomalies in temperature and precipitation in the future scenarios in Egypt.

⁴ GERICS (2019). Climate Fact Sheet – Egypt. URL: https://www.climate-service-center.de/products_and_publications/fact_sheets/climate_fact_sheets/index.php.en

⁵ The World Bank Group: Climate Risk Profile: Egypt (2021)

CMIP5 Ensemble Projection	2020–2039	2040–2059	2060–2079	2080–2099
Annual Temperature Anomaly (°C)	+0.6°C to +1.7°C (+1.6°C)	+1.5°C to +3.0°C (+2.1°C)	+2.4°C to +4.5°C (+3.3°C)	+3.4°C to +6.2°C (+4.4°C)
Annual Precipitation Anomaly (mm)	-21.6 to +20.1 (-0.5 mm)	-27.3 to +21.0 (-1.9 mm)	-26.5 to +26.7 (-1.6 mm)	-30.2 to +28.2 (-2.9 mm)

Note: The table shows CMIP5 ensemble projection under RCP8.5. Bold value is the range (10th–90th Percentile) and values in parentheses show the median (or 50th Percentile).

The extreme heat hazard can cause vulnerability for the employees, project staff, biodiversity and sensitive project equipment in Hurghada. Large built-up areas such as Hurghada city center and port area are more likely to experience excess heat than rural areas, because of the urban heat island phenomenon.

Recent studies show that thermal refugia against coral bleaching exist throughout the entire northern Red Sea where Hurghada is located (Fine et al., 2019). Thermal refuges are crucial to help mitigate the effects of increasing sea temperatures. The northern Red Sea harbors reef-building corals that live well below their bleaching thresholds and thus it is proposed by (Osman et al., 2018) that the region represents a thermal refuge of global importance.

Mitigation Measures

Project planning, design, and construction practices will account for coastal flood and storm surge from cyclones. Egypt’s national and Red Sea Governorates local emergency response policy and protocols to coastal flooding will be incorporated into technology demonstration project design. The project will consult with an expert familiar with coastal flooding risk that has experience with natural hazards and/or construction practices in Hurghada. Such consulting professionals include structural engineers, civil engineers, and electric engineers.

During site selection for the demonstration projects, relevant climate change risks such as sea level rise will be taken into consideration.

The relevant project activities (e.g., natural capital assessment and SEA) will consider the linkage between climate change and biodiversity with a focus on the impacts of increasing sea temperatures on coral reefs, mangroves and marine ecosystem and the secondary risks of livelihood loss of fishing communities.

The trainings targeting governmental stakeholders, decision makers and urban developers will include climate risks and corresponding mitigation measures for Hurghada. For instance, the project will promote the use of coastal climate sensitivity tools and maps. The project will enhance the awareness of tourism industry and fisheries on the increased frequency and severity of climate hazards and the vulnerability of these sectors due to its dependence on natural assets (coral reefs, marine biodiversity).

The project team will develop checklists to limit or avoid damage from flooding, hazardous objects, loose connections, etc. and checklists to check for damage or increased vulnerabilities

The technical design of the technology project will consider precautionary, safety and protected equipment and measures such as enhanced PV panel cleaning and maintenance of all equipment vulnerable to dust.

The following is a list of mitigation measures will be implemented throughout the project implementation to reduce the climate change induced risk of the project.

Floods, storm surge and sea level rise mitigation measures

The PMU will identify early warning systems (EWS) in the project area. EWS aim to provide communities with advanced warning of an imminent flood event, based on weather forecasts, recorded rainfall or rising water levels upstream. They can be used to trigger protocols (such as the deployment of portable flood defenses or evacuation) to mitigate impacts of a flood event.

The project location selection is critical to mitigate the risk of flooding. The project team will consult with professionals who can provide a more detailed understanding of the risk posed to your project by flooding. The project technical experts together with project stakeholders (e.g., Municipality of Hurghada, Red Sea Governorate) will determine whether the site selected (e.g., Hurghada port area) for EV charging stations is located in a flood-prone area⁶.

The project will consider relocation of the technology demonstration project if the area is in high level of flood hazard, where viable. This decision will be undertaken with the consideration of other hazards.

For EV charging point components, the project will apply elevation and component protection as the two primary methods for minimizing flood damage, preventing water from entering or accumulating, and resisting flood damages.

1. The primary protection for EVSE is ensuring elevation. Elevation refers to the location of a component above the Design Flood Elevation (DFE). The installation location will be above the DFE as well as potential DFE that can result from sea level rise and flooding.
2. Wet flood proofing will be included in the technical design and procurement. Wet flood proofing refers to the elimination or minimization of the potential for flood damage by implementing waterproofing techniques designed to keep floodwaters away from utility equipment. In this case, the rest of the structure may receive damage, but the EV charging infrastructure is protected by barriers or other methods.
3. Dry flood proofing refers to the elimination or minimization of the potential for flood damage by implementing a combination of waterproofing features designed to keep floodwaters completely outside of a structure. If the entire building is protected from floodwater, the EV charging equipment is also protected.

The technical design of the technology projects will consider that constructing a piece of infrastructure can significantly alter the landscape and potentially influence how an area responds during a flood. Any alteration of the landscape will be undertaken with consideration as to how this will influence the local hydrology in consultation with the relevant city authorities.

Extreme Heat Mitigation measures⁷: The project team will identify local extreme heat monitoring and forecasting systems that provide communities with advanced warning of extreme heat weather forecasts and temperature monitoring. The PEE will monitor the vulnerability to extreme heat and whether a more detailed assessment and/or intervention should be considered. The project team will monitor the local extreme heat hazard information to check whether the project is indeed will be impacted from the extreme heat. The project will immediately apply protocols suggested by the local authorities (e.g., the deployment of heat-health action and emergency response) to mitigate against the effects of extreme heat. Consultation with engineering and climate impact assessment professionals can

⁶ Electric Vehicle Charging Infrastructure Deployment Guidelines for the Greater Tucson Area: <https://avt.inl.gov/sites/default/files/pdf/EVProj/EVChrgInfraDeployGuidelinesTucsonVer3.2.pdf>

⁷ GFDRR *thinkhazard!*: <https://thinkhazard.org/en/report/65985-arab-republic-of-egypt-red-sea-hurghada-1>

provide a more detailed understanding of the risks by the extreme heat. The level of guidance required will depend upon the level of hazard present, the vulnerability of the natural habitats and local legislation that might apply. The technology demonstration projects will consider heat management measures appropriate to tourism sector, for example, technological adaptation, technical design, or changing working practices.

The technology demonstration project will take precautionary measures to avoid increasing the hazard. Built infrastructure may alter heat hazard. Constructing a significant piece of infrastructure can significantly alter the thermal properties of a hotel, generally inducing higher temperatures. Any newly built infrastructure covering large enough areas (e.g., in Hurghada port) will look at if there would be impact to the local microclimate.

Drought and Water Scarcity Mitigation measures⁸: During the project implementation, the impact of drought to the personnel and stakeholders, and during the construction/ implementation of infrastructure. Project planning decisions, and construction methods will be taken into account the level of water scarcity.

The project team will monitor the risk and vulnerability to water scarcity/drought and whether a more detailed assessment and/or intervention should be considered and consult with the experts where required. The project will apply any existing local legislation related to water saving.

The PMU will inform project stakeholders on evolving drought conditions using information on local climate and water availability, and trigger drought management plans (e.g., water storage, allocate budget) to mitigate the effects of a potential drought even.

⁸ GFDRR *thinkazard!*: <https://thinkazard.org/en/report/65985-arab-republic-of-egypt-red-sea-hurghada-1>

Environmental and social sustainability monitoring

The overall objective of environmental and social monitoring is to ensure that mitigation measures are implemented and that they are effective. Environmental and social monitoring will also enable response to new and developing issues of concern. The activities and indicators that have been recommended for monitoring are presented in the ESMP.

Environmental monitoring will be carried out to ensure that all project activities comply and adhere to environmental provisions and standards, and that all mitigation measures are implemented. The E&S monitoring will be undertaken at a number of levels, i.e., by enterprises, and by external evaluators. Monitoring will be undertaken at several levels:

- 1) Monitoring of the pilot demonstration supported and the impact of the development, technologies and use of the investments; and
- 2) Internal Monitoring: Regular internal monitoring of the project to audit direct implementation of environmental and social mitigation measures contained in the ESMP. The responsibility for mitigation monitoring during the operation phase will be the responsibility of UNIDO and the respective partner organizations.
- 3) External Monitoring and Evaluation: Monitoring, reporting and evaluation of the project will be carried out in accordance with established UNIDO Technical Cooperation (TC) guidelines and procedures. Final evaluation will take place to evaluate the project – including its compliance with the ESMP. Annual reporting can be carried out directly by UNIDO. Environmental compliance during implementation will be part of annual progress reports.

That M & E of activities and results constitutes a specific outcome of the project. The activities planned under Outcome 4 will focus on:

- i) Monitoring of the project's impact, including environmental and social benefits and risks;
- ii) Monitoring the results and activities of the project.

The planned activities relating to the ESMP under Outcome 4 include:

- 1) Regular tracking and monitoring of all identified E&S risks will be organized through stakeholder consultations, meetings, site visits and adoption accordingly of mitigation measures
- 2) Annual review of identified risks and mitigation measures
- 3) Regular tracking and monitoring of impact
- 4) Regulator monitoring of project activities, outputs and outcomes

Costs

The cost of implementing the ESMP is embedded in the overall costs of the project as it is an integral part of the project.

	E&S risks	Parameters to be measured	Monitoring methods and procedures used (e.g. sampling)	Timing/ Frequency of measurement	Detection limit	Definition of thresholds	Sampling/monitoring location	Responsibility
	Environmental and health impacts and safety risks resulted from project	Noise, air pollution, water	On site monitoring by the project experts	Weekly during the on-site technology demonstration	Any increase in emissions, pollution, work safety risk increase from	n/a	Project technology demonstration areas	PEE/PMU

Risks identified during the project screening and verified during the project preparation or inception	interventions in particular from technology implementation/construction (e.g., air, noise, water pollution, natural habitat, hazardous waste etc.)	sample		ion	baseline			
	Unintended increase in GHG emissions including increase in emissions due to travel, meetings, training and events related to the project	GHG Emissions	GHG Calculations	First 3 months of the projects	Comparing increase in GHG emissions with expected mitigation	tbd	Project in general	PEE/PMU
	The project partners lack the capacity/awareness to properly identify and mitigate the E&S risks related to their technology	qualitative data	Stakeholder consultations (e.g., interviews)	First 3 months of the projects	n/a	tbd	Project in general	PEE/PMU
	Women do not benefit equally from the project activities	%40 of women participation	Survey and the rate of women participants	Bi-Annual	n/a	n/a	Project in general	PEE/PMU
	Low participation rates of youth in project	To be defined	Survey and the rate of youth participants	Bi-Annual	n/a	n/a	Project in general	PEE/PMU
	COVID-19 related health risks	To be defined, recommendations of the local authorities and	Monitoring by the project expert	Bi-Annual	Any increase in emissions from baseline	n/a	Project in general	PEE/PMU

		WHO						
	Climate change risks that may affect the project activities	Qualitative and quantitative data (extreme heat temperature, precipitation)	Monitoring by the project expert	Bi-annual	Any increase of climate risk from baseline	n/a	Project in general	PEE/PMU
Additional risks identified during the project implementation								

5. Capacity development

6.1 Management structure

Project Execution

The project will be implemented under the National Execution Modality. The EEAA together with the Operational Unit for Development Assistance (OUDA) will act as the executing entity of the proposed project.

OUDA was established in partnership between the Ministry of Foreign Affairs (MOFA) and UNDP. Upon the Prime Minister decree in 2003, the unit became operational under the Ministry of International Cooperation. OUDA is formulated to provide operational assistance to national development entities particularly under UN Development System Support (governmental, non-governmental, public or private sector) to enhance their programs and projects design capabilities for external funding purposes as well as to optimize their national execution capabilities for qualitative delivery. The development objective of OUDA is to foster national self-reliance in the administration of externally-assisted development projects, and maximize the use of foreign funds inputs.

EEAA as an executing entity is responsible for the following tasks:

- Day-to-day execution of all the project activities under Component 1, 2 and 3, coordinating stakeholder engagement, forming up, hosting and management of PMU, continuous monitoring of project activities and achievements, engagement with the Global Programme, data collection and reporting,
- implementation of this ESMP, Gender Action Plan and risk mitigation measures. This includes providing all required information and data necessary for timely, comprehensive and evidence-based project reporting, including results and financial data, as necessary.
- Risk management and implementing mitigation measures as outlined in the Project Document;
- Approving and signing the multiyear workplan
- Approving and signing the combined delivery report at the end of the year; and,

- Signing the financial report or the funding authorization and certificate of expenditures.

The Operational Unit for Development Assistance (**OU DA**) as a co-executing partner is responsible for the following tasks:

- Procurement of goods and services, including human resources;
- Financial management, including overseeing financial expenditures against project budgets;

UNIDO is accountable to the GEF for the overall implementation of this project. This includes general oversight of project execution to ensure that the project is being carried out in accordance with the GEF standards and provisions. UNIDO is responsible for delivering GEF project cycle management services comprising project approval and start-up, MTR and project closure and terminal evaluation. UNIDO will be responsible of executing project evaluation activities (MTR and TE) under Component 4. UNIDO will be a member of the Project Steering Committee (PSC).

The funds will be channelled from GEF to UNIDO then to the Operational Unit for Development Assistance (OU DA).

Project Steering Committee

The Project Steering Committee is responsible for taking corrective action as needed to ensure the project achieves the desired results. The PSC will be chaired by the MOE. The PSC will consist of representatives from MOE, EEAA, NCS, MOTA, MoT, MoERE, Governorate of Red Sea and UNIDO.

In order to ensure UNIDO's ultimate accountability, PSC decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the PSC, the UNIDO Representative will mediate to find consensus and, if this cannot be found, will take the final decision to ensure project implementation is not unduly delayed.

Specific responsibilities of the PSC include:

- Provide overall guidance and direction to the project, ensuring it remains within any specified constraints;
- Address project issues as raised by the project coordinator;
- Provide guidance on new project risks, and agree on possible mitigation and management actions to address specific risks;
- Advise on major and minor amendments to the project's direction and interventions
- Ensure coordination between various donor and government-funded projects and programs;
- Ensure coordination with various government agencies and non-government entities and their participation in project activities;
- Track and monitor co-financing for this project;
- Review the project progress, assess performance, and appraise the Annual Work Plan for the following year;
- Appraise the annual project implementation report, including the quality assessment rating report;
- Ensure commitment of human resources to support project implementation, arbitrating any issues within the project;
- Review combined delivery reports prior to certification by the implementing partner;
- Provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans;
- Address project-level grievances;

- Provide input to Mid-term Review and Terminal Evaluation reports and corresponding management responses;
- Review the final project report package during an end-of-project review meeting to discuss lesson learned and opportunities for scaling up;
- Ensure highest levels of transparency and take all measures to avoid any real or perceived conflicts of interest.

The Project Management Unit (PMU) will be formulated by the national executing entity. The PMU will be responsible for day-to-day management of project activities and ensure regular project monitoring. The PMU will ensure that the activities are coordinated with the ongoing government programs and baseline projects through consultations with project stakeholders. The PMU will report to Project Steering Committee (PSC).

The composition of the PSC must include the following roles:

- **PSC Chair:** Is an individual who represents ownership of the project and chairs the PSC. The Executive is normally the national counterpart for nationally implemented projects. The PSC Chair will be the National Project Director at MOE.
- **Beneficiary Representatives:** Individuals or groups representing the interests of those who will ultimately benefit from the project. Their primary function within the board is to ensure the realization of project results from the perspective of project beneficiaries. The Beneficiary representatives are: Ministry of Environment, EEAA, Ministry of Foreign Affairs, Ministry of Tourism and Antiquities/Sustainable Tourism Unit, Ministry of Electricity and Renewable Energies, Ministry of Housing/GOPP and Governorate of Red Sea.
- **UNIDO:** UNIDO will oversight the project implementation and support the quality assurance role of the PSC as a member of the PSC. This role ensures appropriate project management milestones are managed and completed, and conflict of interest issues are addressed if any. The PSC cannot delegate any of its quality assurance responsibilities to the Project Coordinator.

Project stakeholders and target groups

Stakeholder participation at all project levels will contribute to the cost-effectiveness of the project. The governance (PSC, Technical Coordination Groups) as well as the dialogue platforms will ensure adequate planning and implementation of activities in line with the project objectives, urban sustainability priorities, as well as complementarity with ongoing and planned programs and projects. Coordination mechanisms will be closely linked, ensuring in this manner that stakeholder concerns are up-streamed into higher project management levels and likewise project management decisions are down-streamed to keep stakeholders duly informed. The dialogue platforms will have a key role in this process. The project will benefit from the experiences and knowledge of civil society and private sector participating in the platforms. Systematization of project experiences and lessons learned will contribute to cost-effective upscaling and replication of project results throughout the region and other cities of the country.

Technical Coordination Groups

Technical Coordination Groups will be installed and shall be composed of representatives from institutions and organizations involved in the achievement of Project outcomes, as generally identified below. The working groups will represent thematic priorities of the project and ensure a formal inter-governmental and inter-institutional dialogue throughout the Project duration. Within the first six months of project start-up, it is expected that this initial listing be complemented with other institutions, organizations and private sector companies preliminarily contacted during project design.

6.2 ESMP Roles and responsibilities

National Project Manager/Lead

The Project Manager has overall responsibility for the execution of the project and compliance with UNIDO policies and the ESMP. The Project Manager is supported by an administrative assistant and technical advisors. The Project Manager reports to the Project Steering Committee.

The project manager and his/her team are responsible for:

- Conducting and providing evidence of meaningful consultation⁹, where relevant, with stakeholders and ensuring broad support.
- Overseeing any environmental and social assessments that need to be undertaken prior to project support. These assessments will identify and assess the potential opportunities for, risks to, and impacts on biological diversity and ecosystem services, including direct, indirect, cumulative and pre-mitigation impacts.
- Applying the E&S mitigation hierarchy: to avoid potentially adverse impacts; if avoidance is not possible, to reduce and minimize potential adverse impacts; if reduction or minimization is not sufficient, to mitigate, and for this project, if not possible then support will not be provided

Gender Consultant

- Assist with definition and integration of relevant gender indicators into the M&E results framework
- Provide training on gender issues
- Develop guidelines for mainstreaming gender issues into strategy development to enable planning and policy formulation
- Facilitate the involvement of women in project activities
- Prepare surveys and reports addressing gender issues within the project
- Design and implement gender responsive communication for project implementation
- Contribute to creation of awareness raising materials that reflect gender issues.

6.3 Institutional strengthening

The implementation of the ESMP is a responsibility of every project team member. National E&S consultants will be contracted to provide relevant training on the E&S impact assessment, as to ensure that all project team members have the technical, management and other skills needed to fulfil their roles. Based on the capacity assessment of the team and key stakeholders, additional trainings could be provided to include an intensive one-day orientation on the ESMP implementation and reporting (and a follow-up annual refresher training).

6. Communication

UNIDO will annually communicate implementation progress on issues that involve ongoing risk to or impacts on the project stakeholders, and on issues that the consultation process or grievance mechanism has identified as of concern to those stakeholders. The ESMP will be disclosed on the UNIDO public website, under the following link: <https://open.unido.org/index.html>

Detailed communication and consultation strategy related to environmental and social impacts will be developed during the project inception phase, this will also involve discussion on the role of the GEF OFP and other stakeholders in the ESMP implementation and monitoring.

Further details on Stakeholder Engagement will be reflected in the Stakeholder Engagement Plan (SEP) and will be regularly updated.

Annex I: Map of the Marine Protected Area that projects target

Map 1: Northern Island Red Sea Islands Protected Area (NIRSPA)

WDPA ID: 555543022

Source: <https://www.protectedplanet.net/555543022>

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Map 2: Detailed map of the NIRSPA

