Recommended National Sustainable Urban and Energy Savings Actions for Egypt

Donors and Financial Initiatives for Egypt
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REPORT

Recommended National Sustainable Urban and Energy Savings Actions for Egypt

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Donors and Financial Initiatives - Egypt

Prof Dr Mohsen Aboulnaga
Issued on November 25, 2016

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Hulla & co Human Dynamics - KG

in Consortium with

PESCARES Italy, HCL Group

Centre for European Policy Studies (CEPS)

Associated Consulting Engineers (ACE)

Institute of Communications and Computer Systems of the National Technical University of Athens

The Assembly of European Regions (AER)

The Euromed Cities Network
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<td>Tourism Development – Museums</td>
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<td>Tourism and Energy Use and Conservation</td>
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<td>TOE</td>
<td>Tonne of Oil Equivalent</td>
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<td>TQM</td>
<td>Total Quality Management</td>
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Notes:

a. In this report, the word ‘Municipality’ or ‘Municipalities’ are referred to as ‘Governorate’ and ‘Governorates’ according to the legal name for such entities in Egypt.

b. All legislations (laws and regulations) and policies stated are those published until August 30, 2016.

c. Exchange rate is calculated according to the officially published rate by the Egyptian Central Bank in August 2016.

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I. LEGISLATIONS: LAWS, REGULATIONS AND POLICIES

Local Development Sector

Laws
- New Local Development (governorates) Law – prepared and awaiting endorsement (2016)
- Local Government Law (1979)

Building Sector

Laws & Regulations
- National Environmental Action Plan (NEAP)
- Unified Building Laws (2008)
- National Building Law (1997)

National Codes

Institutions and rating systems
- Central Unit for Sustainable Cities and Renewable Energy – CUSCRE (2014)
- The Egyptian Green Building Council Ministerial Decree (2009)

Electricity Sector

Laws and Regulations
- New Electricity (2015)
- Incentives for Generating Electricity from Renewable Energy Sources (2014)
- Public Private Partnership – PPP (2010)

Decrees
- The new electricity tariff Ministerial decree (2016)
- Stimulation of Producing Electricity from Renewable Energy Source (2015)
- Feed-in-Tariff (2014) and 2nd Feed-in-Tariff (2016)
- Net Metering (2013)
- Executing Electricity Generation from different Clean Energy Sources (2012)

Transportation Sector

Laws
- Investment Law (2015)
- Investment Law (1997)
- Public Partnership with Private sectors – PPP (2010)

Decrees
- Baselines of the Maritime Areas (1990)
• Public Authority for Rivers’ Transportation (1979)

**Energy Sector**

*Policy*

• Energy Sector Policy Support Programme (ESPSP) for supporting execution of energy reforms, EU-TAERS Project (2012-2016)

**Laws and Regulations - Energy Efficiency**

• Energy Efficient Building Codes – EEBC (2013)

**Funds - Energy Efficiency**

• Renewable Energy Fund – REF (2012)
• Energy Efficiency Budget Finance (2012)

**Environment Sector**

*Laws*

• Environmental Protection (2015)
• Regulations of the Use of Clean Coal (2015)
• Environmental Impact Assessment (2009)
• Environmental Protection (1994)
• Environmental Protection Fund and Incentives – Environmental Protection (1994)
• Integrated Coastal Zone Management – ICZM (1994)
• Natural Protectorates (1983)
• Clean Development Mechanism – CDM (2010)

*Legislation*

• Climate Change Legislations (2015)

**Laws – Solid Waste and Waste Management**

• National Solid Waste Management Policy (2015)
• National Strategic Directives for Waste Management – NSDWM (2015)
• Solid Waste Law (2009)
• Environmental Protection Law (2006)
• Public Health Law (2002)
• Environment Law (1994)
• Waste Output on Public Roads (1968)
• Legislative Framework for the Management of Solid Waste – LFMSW
• Public Roads Occupancy (1956)

**Plan and programmes**

• Climate Change Adaptation and Mitigation Measures – CCAMM
• Climate Change Action Plan – CCAP
• Climate Change Risk Management Programme – CCRMP
• National Environmental, Economic and Development Study – NEEDS (2010)
• National Action Plan for Adaptation – NAPA
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II. STRATEGIES, PROGRAMMES AND PLANNING TOOLS

Vision and Strategy

- Egypt’s Vision 2030
- Egypt’s Sustainable Development Strategy 2030
- Egypt’s Green Economy Strategy 2030

Urban and Building sectors

Urban Planning Strategy

- Strategy to Promote Green Building – MoEnv (2012)
- Strategic Development Plan (SDP) of Southern Egypt – UNDP (2007)
- Sustainable Environmental Compatible Building – SECB

Building Policy and Plans

- National Energy Efficiency Action Plans (NEEAPs)
- Policy Framework of Energy Efficient Practices (PFEEPs)

Action Plans


Programmes

- Green Building Programme – UNDP (2014)
- Calculate Your Carbon Footprint (2012)
- Renewable Energy and Energy Rationalisation in New and Urban Communities
- Green Cities and Sustainable Development (2015)

Initiatives

- Resilient Cities Acceleration Initiative - RCAI (2015)

Transport Sector

Strategy and policy

- Transport Strategy and Action Plan
- National Sustainable Transport Policy
- Transport Policy and Planning

Programmes and Study

- Model Freight Transport (MFT) strategy MoTr and JICA
- Transport Master Plan 2012-2027 – MiNTS
- New Cairo Air Quality Programme – CAQP (1997)

Initiatives

- Transportation Road and Safety Initiatives, Part of Strategy of 2020 – MoTr and MoTm (2013)

Electricity Sector

Policy and Plans

• Energy Efficiency Plans and Capacity Building Schemes (2012)

Plans - Energy Efficiency
• Energy Efficiency Plans in Electricity Sector (2012 – 2015)
• Mediterranean Electricity Regulatory – MEDREG (2013)
• Energy Efficiency in the Construction Sector in the Mediterranean – MEDENEC (2012)

Programmes
• The Fifteen programmes on Energy Efficiency (2014-2015)

Energy Strategy
• Egypt’s Strategy 2030 – MoPMRs (2015)
• Strategic Energy Efficiency Roadmap and Energy Prices (2014)
• Arabic Energy Efficiency Guidelines – Egypt (2012)

Strategy for Renewable Energy 2027 (20 per cent RE 2020)
• National Strategy on Market for Electricity Generated from Renewable Sources (2014)

Plans

Renewable Energy and Energy Efficiency
Programmes
• The Egyptian-German Joint Committee Programme on Renewable Energy and Energy Efficiency JCEE (2015 – 2018)

Initiatives
• Power Purchase Agreement – Egypt – ERA (2014)
• ‘Egypt Sun’ (2014)
• “Design of Feed-in Tariffs” (2012)

Environment Sector

Strategy and Policies
• National Air Quality Policy – NAQP, UNEP (2015)

Climate Change
• Third National Communication on Climate Change – EEAA and UNDP (2014)
• National Strategy for Adaptation to Climate Change and Disaster Risk Reduction – NSACCDRR (2011)
• Second National Communication on Climate Change – EEAA and UNDP (2010)
• Initial National Communication on Climate Change – MoEnv and EEAA (1999)
• Egypt’s Indicators Development (2010)
• National Strategy for Integrated Coastal Management – NSICM, MoEnv

Policies
• Environmental Air Quality Policy – UNDP (2015)

Plans
• Climate Change Mitigation and Adaptation Plan – UNDP and MoEnv (2015)

Programmes
• Green Industrial Development (2015)
• Climate Change Risk Management Programme – CCRMP, MoEnv (2013)
• Egyptian Pollution Abatement Programme – EPAP, EEAA (2007 – 2012)
• Egyptian Pollution Abatement Programme 2 (2007)
• Protection of Natural Environmental Resources and Nature Conservation – PNERNC, EEAA
• Sustainable Consumption and Production Programme for Cairo City – UNDP and MoEnv (2008)
• Environmental Awareness – Training and Capacity Building
• Total Quality Management – TQM, EEAA
• Clean Production Mechanism CPM (2010)

Initiatives
• Low Emission Capacity Building – UNDP, MoEnv and EEAA (2013 – 2016)
• Environment - Air and Water Quality, JICA and MoEnv (2006 – 2016)
• Hurghada Environmental Protection and Conservation Association – HEPCA, GoRS (1992)

Tourism sector

Strategy
• National Tourism Strategy 2020 (2013)

Strategy Actions
• Sustainability - Tourism, Energy Use and Conservation (2014)
• Tourism, Energy Use and Conservation – TEUC (2014)

Programme and Plans
• National Greenhouse Gas Mitigation Portfolio (2009)

Initiatives
• Green Tourism Unit – GTU (2014)
• Red Sea Sustainable Tourism Initiative – RESTI
• Green Star Hotel – MoTrm
• Eco-label Initiative (voluntary) hotels’ Green Stars Award – MoTrm

Waste sector

Policy and strategy
• National Solid Waste Management Policy (2014)
• National Strategic Directives for Waste Management – MoEnv (2014)

Institution
• National Solid Waste Management Regulatory Agency – NSWMRA, MoEnv (2015)

Programmes
• National Solid Waste Management Programme – NSWMP (2015)

Legislation - Waste Management
• Capacity Development for the Clean Development Mechanism – CD4CDM, UNEP (2011)
• Solid Waste Stock Exchange – SWSE (2011)
• Cleaner Production Centre for SMEs Solid Waste Stock Exchange – SWSE (2010)
• Clean Development Mechanism – CDM (2006)
• Rehabilitation of Tenth of Ramadan City as a Green, Sustainable and Eco-friendly City

Wastewater
Policies
• National Studies of Water Efficiency in the Mediterranean

Programmes
• Improve Water and Waste Water Services’ Programmes – IWSP, AFD
• Wastewater Expansion Programme – WB
1. EXECUTIVE SUMMARY

1.1 Project Description

Governorates (Municipalities) can play a key role and implement crucial actions in the reduction of GHG emissions, mainly Carbon Dioxide (CO₂). The European Union (EU), therefore, initiated in 2013 the Cleaner Energy Saving Mediterranean Cities Project (CES-MED) to support the efforts of local authorities in nine European Neighbourhood and Partnership Instrument (ENPI) South Mediterranean Partner Countries including Egypt.

The CES-MED project aims at:

- Developing the local authorities’ capacities to formulate and implement a sustainable energy action plan, SEAP (SECAP - sustainable energy and climate action plan) and policies.
- Expanding the use of sustainable energy policies (SEP), mainly solutions in renewable energy (RE) and energy efficiency (EE), efficient water and waste management, and environment-friendly public transport measures to reduce CO₂ emissions.
- Increasing the awareness and responsiveness of national authorities towards the need for a strong involvement of cities and governorates concerning local sustainable energy policies.

Figure 1 Objectives of the CES-MED Project

This report provides national recommendations and a set of actions specific for Egypt. It also addresses the challenges and the best accompanying measures needed at the national level to assist local authorities in the two selected governorates: Governorate of Luxor and Governorate of Read Sea, in the formulation and implementation of sustainable energy policies and actions, such as those formulated in SEAPs (SECAPs). In addition, institutions that meet the definition of Covenant of Coordinators or Supporters are identified, including institutions that can host the future regional Covenant of Mayors’ (COM) activities, which is not mandatory.

1.2 Agreement with the NFP and Governorates for Co-Preparation of NRR and SEAP

CES-MED in Egypt is supervised and coordinated by the Ministry of Foreign Affairs (MoFA) - The Project’s National Focal Point (NFP). Several meetings were held at the MoFA between February and October 2015 during the inception, discussion, approval and kick-off of the project in Egypt. These meetings also continued during 2016. The members of the MoFA consist of distinguished officials, namely: H.E. Ambassador Adel Ibrahim (Deputy Assistant Minister for EU Affairs) and Mr Ahmed Yousry (Third Secretary). Meetings were previously held under the direct leadership of H. E.
Ambassador Abu Baker Hefny (Deputy Assistant Minister for EU Affairs) and H. E. Ambassador Yasser Atef (Deputy Assistant Minister for EU Member States), Dr Ahmed Azzam (First Secretary), Mr Tamer Hammad (First Secretary, Dept. of Environment and Sustainable Development - MoFA); and Ms Mirande Gebra (First Secretary, Dept. of Energy – MoFA). Additional meetings were conducted at MoFA in the presence of representatives from the Ministry of Local Development (MoLD) and governorates, Mr Abdelfattah Hamdy Attia (Deputy Governor, Governorate of Red Sea) and Mr Rameh Mohamed (Municipal Council of Hurghada - Red Sea Governorate). All meetings were held in the presence of Dr Naguib Amin (CES-MED Team Leader), and Dr Mohsen Aboulnaga (CES-MED Project’s Senior Advisor and Approved National Expert).

In executing this vital project, CES-MED partners with two selected Governorates of Luxor and Red Sea (City of Luxor and City of Hurghada) for the development and implementation of Sustainable Energy Action Plan (SEAP), currently known as the Sustainable Energy and Climate Action Plan (SECAP).

The MoFA agreed to support the CES-MED project in the following means:

a) Assisting Governorates in terms of guidance in regards to SEAP (SECAP) that can be replicated on a National level.

b) Ensuring logistic support to CES-MED actions during all its phases.

c) Providing regional helpdesks for Governorates.

d) Offering assistance to Governorates if needed.

Earlier meetings were held between February and April 2015 at MoFA and stakeholders from the two governorates to discuss the CES-MED project’s main points:

i) Objectives and importance of CES-MED project to Egypt.

ii) Applied implementation steps, including the preparation of the National Recommendation Report and SEAP (SECAP) implementation.


iv) Project progress to date and examples of actions identified in the SEAPs of other countries.

Four workshops were conducted in full coordination and supervision of the MoFA at both governorates during June and August 2015 in the presence of Dr Azzam representing MoFA and were attended by H.E. Dr Mohamed Badr, Governor of Luxor and Mr Abdelfattah Tamam Attia representing H.E. Ahmed Abdullah, Governor of Red Sea.

At the recent NFP meeting, the potential of CoM was discussed, but it is not mandatory. However, the CoM issue could be proposed, knowing that it has to gain the full support of the NFP, local authorities and higher levels.

Existing donor projects and funding opportunities that can be used by both governorates to support the implementation of the SEAP projects will be published in a separate report. Donors and Funding Initiatives in the Sustainable Energy Saving Development at the Local Level was included at the end of the report, mainly in the projects (Pages 82-106), and the funding institutions’ listing (Page 167).

Egypt’s Vision and Sustainable Development Strategy 2030

In a bold move, H.E. Abdelfattah El Sissi, President of Egypt launched and endorsed Egypt’s Vision 2030 and approved Egypt’s Sustainable Development Strategy 2030 in February 2016. Also, the Egyptian Constitution which was endorsed in 2014 indicates the importance of Sustainable Development
Governorate’s gy’s - 's, t m-tm

In support of CES Solid Waste Management (SWM) in Egypt Management Programme (NSWMP) Management Regulatory Agency (WMRA) Egypt issued W of enhancing but most of these Supreme Energy Council buildings updating The coordination with well as Energy, Environment and Tourism framework in Egypt is well developed in range of laws, regulations and plans in place of Sustainable Urban and Energy Savings Actions (SUESA), hence reducing greenhouse gases (GHG) emissions, mainly CO2 yet support the Egyptian government’s efforts towards Sustainable Energy and Climate Action Plans (SEAP) at the local authority level. Also in line with Egypt vision and SDS 2030, the CES-MED project and its SEAPs (SECAPs) can contribute to four key performance indicators (KPIs): Energy, Urban development, Environment, and Domestic Related Energy Policy.

Legal Framework

In support of CES-MED Project execution in the governorates of Luxor and Red Sea, there is a wide range of laws, regulations and plans in place, and more are under the preparation process in the area of Sustainable Energy – SE (Energy Saving – ES and Energy Efficiency - EE). It is clear that the institution framework in Egypt is well developed in many related sectors, such as: Electricity, Renewable Energy, Energy, Environment and Tourism; yet more efforts and technical support are needed to enhance the area of sustainable energy (ES and EE) in cities, e.g., transport, solid waste and wastewater at the governorate level to make these cities consume less energy, and consequently meeting Sustainable Development Goals (SDGs), notably: Affordable and Clean Energy (SDG 7); Sustainable Cities (SDG 11); Sustainable Consumption and Production (SDG 12); and Climate Action (SDG 13).

Furthermore, the current legal framework, gives governorates (municipalities) the opportunity to develop SEAPs (SECAPs), where the by-laws in many sectors can influence the energy consumption and savings measures, such as in transport (governorate’s vehicle fleet, buses and promoting the use of public transport), Buildings’ energy consumption (Governorate’s own buildings and enforcement of Building Energy Efficiency Codes - BEECs), Electricity (Street lighting and water pumping), Waste (Solid and wastewater Management) and Renewable Energy (Solar PV or Wind farms) as well as Waste to Energy (Agriculture-Biogas) and Thermal energy (Solar Water Heating - SHW).

However, all actions need timely planning, including financial provision and the support of donors, as well as public and private sector engagement. This requires approval from the concerned Ministers in coordination with stakeholders.

The Building Energy Efficiency Codes (BEECs) for Residential buildings and Commercial buildings were developed and endorsed in 2005 and 2009 respectively. However, these codes need revisiting and updating to meet the 2016 standards and beyond. The BEECs for Government buildings and Industrial buildings have not been issued yet or are in the process of development. Nevertheless, the National Supreme Energy Council (SEC) issued decrees concerning Energy Efficiency in government buildings, but most of these decrees are of a programme-like nature; not laws or codes.

A roadmap plan for developing the BEECs is on-going, but needs enforcement at the governorates’ level. Thus, CES-MED project and its SEAP (SECAP) implementation can support Governorates in terms of enhancing capacity building in the area of ES and EE, and developing a mechanism of enforcing the BEECs through proposing related projects for funding by international donors.

Waste Management (WM) falls under the Ministry of Environment (MoEnv). The Prime Minister of Egypt issued the Decree No. 3005 in November 2015, which established the Egyptian Waste Management Regulatory Agency (WMRA). This new authority is a spin-off of the National Solid Waste Management Programme (NSWMP); and with an authoritative role in overseeing and regulating the Solid Waste Management (SWM) in Egypt.
The Governorate of Red Sea (City of Hurghada) launched initiatives and licensed a company to manage waste collection, nevertheless more plans are needed to administrate and handle solid waste, especially in summer. This is a prime target in the SEAP (SECAP) execution that can support resorts and waste dump sites at both governorates and also create sanitary landfills to lower GHG, mainly CO₂ and Methane.

In addition, Environmental degradation is one of the issues that need attention amid the urban sprawl near coastal areas, hence the SEAP (SECAP) implementation can also support in this particular area for both governorates, and to depict an exemplary model for others to follow.

The National Energy Efficiency Action Plan (NEEAP) for Egypt and the National Renewable Energy Action Plan (NREAP) are considered so far, the main umbrella that combines Energy Efficiency and Renewable Energy at the national level with a set target to lower the primary energy consumption by almost 5 per cent to reach the exemplary role in public sector, however, NEEAP is a programme that was implemented between 2012 and 2015, and has ended by end of 2015.

Nonetheless, the SEAP (SECAP) implementation can support the enhancement and continuation process of the NEEAP. The NEEAP followed the energy saving targets as set in the Energy Strategy 2007-2030, to reduce the electricity consumption based on the Egyptian Supreme Energy Council (SEC) decrees (No. 9/11/05/12) issued in 2014. The first NEEAP was adopted by the cabinet and was appraised as part of the bi-annual updates. The NEEAP also has detailed measures and savings undertaken in the public sector. The NEEAP total savings achieved were 222.62GWh and 5,565.69GWh by 2012 and 2015 respectively based on a 5-year average energy consumption of 112,162.8GWh¹.

Hence, the SEAP (SECAP) implementation can cement this approach and further contribute to its development and increasing such target¹. The National Renewable Energy and Energy Efficiency Law (REEEL) was endorsed in 2014 and Egyptian Renewable Energy and Energy Efficiency Fund (EG-REEEF) was established in 2012. Nonetheless, the SEC issued a decree (5/11/5/12) to establish a support fund for Renewable Energy, but it has no funds until the date of issuing this report.

Generally, the institutional structure at the governorate level needs to be supported and enhanced in terms of Sustainable Energy Planning and Actions to enable a better governance and management of plans, programmes, initiatives and projects, yet execute them in a sustainable way.

For the sectors of transportation and antiquities’ facilities in terms of Sustainable Energy (RE and EE) measures, actions, and energy saving plans at the governorate and local authority levels have not been developed yet to protect these heritage sites, especially in the City of Luxor, and create a cleaner environment in the City of Hurghada to promote tourism. The lack of public transportation in both governorates is an issue that needs urgent attention, and refraining tourist buses (running on fossil fuel) from being near heritage sites. The SEAP (SECAP) will help in developing such actions.

For the electricity and environment sectors, there is a solid and well developed legal framework in place and it is undergoing continuous improvement, indicating a strong government commitment to RE and EE actions.

The diversification of resources in the Egypt’s energy mix - which has been progressively implemented between 2014 and 2016 - would lead to substantial economic growth. Moreover, national policy and action plans are being implemented to promote Sustainable Energy (RE and EE) in all sectors.
Nevertheless, the new law of Local Development would give governorates a more decentralised role to support the legal institutions and economic growth, and to contribute in achieving Egypt’s Vision 2030, SD Strategy 2030 and SD Goals (SDGs), namely: SDG 7, SDG 11, SDG 12, and SDG 13.

1.3 Recommendations

- The CES-MED project implementation in Egypt is an excellent project including its tools to support local authority (governorates) in achieving urban sustainable energy savings in cities through the smooth execution of SEAPs (SECAPs).
- The SEAPs (SECAPs) also contributes towards achieving Egypt’s Vision 2030 and Sustainable Development Strategy (SDS) 2030 that were boldly launched in February 2016.
- The CES-MED project can contribute to the most relevant sectoral pillars of Egypt SDS 2030, mainly: a) Energy; b) Environment; c) Urban development; and d) Policies.
- Governorates need support, budget, knowledge management, enhancing skills and know-how as well as capacity building and training to reduce emissions using the Baseline Emissions Inventory (BEI).

Short Term Recommendations

**Governorates that will initiate SEAP (SECAP) need to assign a responsible Strategic Unit to promote Sustainable Energy** (Renewable Energy - RE and Energy Efficiency - EE). This recommended Strategic Unit is intended to have a specialised Energy Efficiency Manager (EEM) for the development and implementation of related plans and projects, and to assist in meeting the current and future challenges at the governorate level. At the national level, this may be regulated through the update of the Local Development Law, currently under approval. A suggestion is to include this in the framework of the governorate. For the smaller municipalities (cities), this function could be hosted at the proposed Governorate’s Joint Services Council (JSC) for Sustainable Energy (SE). Figure 2 depicts the proposed suggestion where both scenarios, knowledge and experience in initiating, developing and managing SEAPs (SECAPs), and executing and monitoring results could be supported by NREA in an initial phase. Also, a database Unit on Sustainable Development (SD) and Sustainable Energy (RE and EE) could be established in the two governorates’ structures to assist in future planning and decision making processes based on Strategic Environmental Assessment (SEA) and foresight approaches and scenarios supported by the BEIs.

The SEAP (SECAP) would assist in developing and implementing the above aiming at saving energy in small cities like that of Luxor and Hurghada.

To ensure access to relevant information for the governorates to lower CO2 emissions, information using the BEI is vital to be recognised and developed on the short term (Figure 2), including:

a) Establish robust and effective planning tools to encourage the private sector to develop RE and EE projects and building factories for producing PV cells, and providing them low-interest rate loans and other benefits to promote green and clean energy in the two governorates.

b) The **Strategic SD and SE Unit** in the governorate structure and framework is shown in Figure 3 (below), where an Energy Efficiency Manager (EEM) will be in direct contact with the Governorate’s General Secretary and Assistant General Secretary, and perhaps the Governorate’s Executive Council in order to ensure compliance, and to accelerate the implementation of the planning tools and relevant updates as well as executing RE and EE projects to achieve sustainable measures and Climate Change Adaptation (CCA) action plans in a wider scope, contributing to achieving Egypt’s Vision and SD Strategy 2030.

The proposed strategic approach and recommendations of institutional framework for the Government and local authorities is illustrated in Figure 2. It shows that the E-database needs to be accessible for the two Governorates for data relevant to the development of SEAP (SECAP) in order to...
For matching legal framework development, EE laws are in the process of endorsement, but need to provide the opportunity to pave the way for SEAP (SECAP) development at the Governorate level:

1) The recommendations to update the Governorate Law No. 43 (1979) may include:

- Sustainable Energy and Climate Change Adaptation measures and guidelines (mandatory) to support governorates’ in accomplishing the national CCA measures, environmental and sustainable energy action plans, like NEEAPs and future developing of REEEAPs, and by developing, executing and monitoring of planning tools, like SEAPs (SECAPs).

- Governorates to contribute in accomplishing Egypt’s Vision 2030 and SD Strategy 2030.

- Additional income generating opportunities for the two Governorates to charge energy taxes or generate income from EE measures, recycling of wastewater and solid waste, energy audits for retrofitting of existing buildings.

- Regulate the possibilities for Governorates to engage in Public and Private Partnership (PPP) agreements through the Existing Governorate’s Special Funds for more flexibility or/and conditions to start a company, for RE and EE. Hence, endorsement of the updated law should be given a priority.

- Establish a Strategy and Sustainable Energy Unit (SSEU) at the two governorates to enable the Investment Department/ Unit at the Governorate, through E-database and monitored results, to offer and allocate lands to build green projects such as: LED Factory, RE power plants (solar
and wind farms), recycling factories, electrical vehicles/boats, e.g., solar powered Hop-on Hop-off dock station for boats at Luxor governorate to lower CO₂ emissions in the air near Heritage Sites.

2) **Include energy performance criteria in the national procurement regulations** (under the MoLD, MoERE, MoEnv, MoHUUD, and MoIFT).

3) **Clarify the legal lending options for Governorates** that could support sustainable energy (EE, RE, and SWM) projects and promote sustainable development.

4) Develop **Green Transport and EE Strategies and Laws that include energy conservation**.

5) Establish **Street lighting (SL) Strategies** (if not existing) and **Laws to include EE**.

6) Initiate and develop **Green Building strategies, policies and laws for ES and EE in urban areas**.

7) **Update the procurement regulations of the MoHUUD** to address sustainability issues and to align with the MoERE laws, by-laws and regulations and to allow green procurement and tendering processes of governmental buildings’ energy performance criteria or mandate it.

8) Establish an **E-database and coordinate the exchange of electricity consumption rates** with Governorates, especially through the newly established SSE Unit which would assist in understanding the level of **savings resulting from EE and RES measures implemented in all sectors** including buildings and street lighting – the SEAPs (SECAPs) and help in this direction.

9) An EE policy design, supported by law must be in place to regulate energy savings and promote EE in **sports and leisure facilities** since these buildings use an enormous amount of electricity at night lighting – the SEAPs (SECAPs) would assist in this area.

10) **Set a SSE Unit** to encourage plans for **Smart Meters**, firstly in governmental buildings to save energy since the BEECs for Governmental buildings and Industrial buildings are not yet issued.

11) Use of **axial small rooftop wind turbines** to generate electricity and connect to water heaters to save energy in hotels, residential, sport, commercial, and government buildings in the City of Hurghada (Governorate of Red Sea) and the City of Luxor (Governorate of Luxor).

12) Since the city of Hurghada generates on average between 300 tons and 450 tons (high seasons) of waste per day, the **new Waste Management policy and the establishment of the National Solid Waste Management Regulatory Agency** (NSWMRA) would assist in updating the waste laws and regulations, and also the spin-off local agent in both governorates to manage waste through updating their **policies and laws**, and the coordination of all laws and regulations related to waste (management), and **waste-to-energy policies and laws to be included**, in line with the regulations of ministries such as MoERE and MoEnv, by-laws of waste-to-energy projects under the new **Decree No. 3005/11/2015**.

**Long Term Recommendations**

13) In the **update of the By-laws**, the following issues should be tackled:

- Update the customs law to allow for **importing electrical vehicles** in both governorates to promote clean mobility, especially near Heritage sites (monuments, temples and tombs),
- Add an article on Solar Energy Code, in the new law indicating the role NREA and MoHUUD,
- Exhibit procedures and obligations for utilities’ savings and to give clear insight to Governorates on electricity consumption and bills, and
- Access for governorates to **energy consumption data through local officials of MoERE** for the Baseline Emissions Inventory (BEI) sectors for the purpose of SEAP (SECAP) development.

14) In support of implementation of the By-law, regulations need to be developed to clarify procedures for mandatory energy audits in buildings and EE compliance certification for governmental entities
with related penalties in case of non-compliance, as well as a clarification of the use and the functionality of the Energy database. Also, issuing an EE Label Certificate on the building’s main façade.

15) Develop a regulation under the Environmental Protection Law No. 9 of year 2006 (refer to Environment section – page 58), which emphasises the establishment of an Environmental Protection Fund and Incentives. The created incentives, in collaboration with the MoF, would support environmental protection activities and projects that can be offered to agencies, establishments and individuals, and also support the execution of SEAPs (SECAPS).

16) Ensure educational and higher educational buildings show exemplary models of energy saving.

17) Include a module in the curricula about Sustainable Energy (EE and RE) in schools and colleges to raise awareness of pupils and students regarding SD to counterbalance CC risks.

18) Conduct a capacity building and establish Human Capital Unit (HCU) in the governorates related to sustainable energy (EE and RE) to ensure continuity.

19) The New and Renewable Energy Authority (NREA) has the technical knowledge and experience needed to provide support for SEAP (SECAP) development and implementation. NREA is actively cooperating with RE projects at the National level and could help in SEAP (SECAP) developments.

Support at the National level for the SEAPs (SECAPs) preparation and execution
Governorates need to be able to have the relevant budget line items to carry out their energy savings responsibilities; only then will the commitments to achieve SE plans be in force. Budget would need to be created for SEAP (SECAP) implementation (measures, actions and monitoring), in the form of a revolving fund (under the anticipated REEEF).

**Figure 3 Enhanced Governorate’s framework with SE (RE & EE) Unit to implement SEAP (SECAP)**

Based on the above, the two main recommendations are:
• **Set a Strategy and Energy Efficiency Unit (SEEU)** to be established in both Governorates to manage the SEAP (SECAP) development and outcomes. However, in-depth knowledge and/or experience of RE and EE need support. It could be considered that the EE unit, to be established, takes this role as shown in Figure 3 (Above), and

• **Establish a proposed Joint Services Council (JSC)** at the Governorate level to support implementing the SEAP (SECAP) in coordination with all stakeholders.

At smaller governorates, a **Strategy and EE Unit (SEEU)** could be considered at the level of coordinator. It is important to notice that the team from both governorates were selected at the 2nd CES-MED workshops conducted in August 2015 at both Cities (City of Luxor and City of Hurghada) in the presence of MoFA – NFP, Dr Ahmed Azzam. The workshop was headed by H.E. Governor of Luxor. In Hurghada, it was headed by Gen. Abdelfattah Tamam Attia, General Secretary of the Governorate of Red Sea. Considering the current good financial health of governorates, the outcomes the SEAP (SECAP) could only take place in those governorates. The pilot SEAPs (SECAPs) can set successful examples to follow once other governorates are ready, in terms of internal set-up (SEEU) and supported by EE Manager/Officer, and related budgets in place.

However, the Donors and Funding Initiatives in the areas of Sustainable Development at the National and local level are included at the projects’ section in this report. Actions that are additional to the recommendations for the institutional set up and legal framework are provided in the report. Actions for the short term are indicated in Table 1.

**Table 1** Short term actions at national level to support SEAPs (SECAPs)

<table>
<thead>
<tr>
<th>WHAT</th>
<th>WHO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assign Strategy and a Sustainable Energy Manager/Officer/Unit for</td>
<td>Governorates (Municipalities) General</td>
</tr>
<tr>
<td>SEAP (SECAP) development for Governorate of Luxor and Governorate of</td>
<td>Secretary</td>
</tr>
<tr>
<td>Red Sea (a team has been officially selected in for each Governorate</td>
<td></td>
</tr>
<tr>
<td>between June and August 2015 to assist in developing the SEAP</td>
<td></td>
</tr>
<tr>
<td>(SECAP).</td>
<td></td>
</tr>
<tr>
<td>Facilitate exchange between the pilot Governorates (GoRS and GoL).</td>
<td>MoFA, Two Governorates, and MoLD</td>
</tr>
<tr>
<td>Coordinate the activities of international donors and share relevant</td>
<td>MoFA/ MoC / Molnv/ MoAnts Two Governorates</td>
</tr>
<tr>
<td>information with the ‘Pilot Governorates’ (GoRS and GoL).</td>
<td></td>
</tr>
<tr>
<td>Collect the monitoring data and information from the on-going projects and extract the best practices, and share the outcomes with other Governorates.</td>
<td>Two governorates - MoLD NREA – MoERE</td>
</tr>
<tr>
<td>Provide information on procedures – reduce project preparation time.</td>
<td>MoFA, MoLD/ MoEnv/ MoERE/MoHUUD/ MoTr/ MoTrm/ MoAts, and Two Governorates</td>
</tr>
<tr>
<td>Compile the learned lessons (technical specifications, procedures, financing options) from on-going projects and make this information available to be a model to follow.</td>
<td>MoFA/ NREA – MoERE Two Governorates</td>
</tr>
<tr>
<td>Publicity of current actions and projects being executed by Governorates, to motivate other Governorates to take similar actions. Also, to communicate the energy and budget savings.</td>
<td>MoLD Two Governorates (Luxor and Red Sea)</td>
</tr>
</tbody>
</table>

The following are some additional suggestions, where necessary time and budget are available, to carry out strategic guidance and technical assistance to the interested Governorates for the SEAP (SECAP)
development and implementation, including support on the EE and RE measures, energy audits, and development of economic energy project.

At the NFP recent meeting held on 28\textsuperscript{th} August 2016, the tasks of the ‘Joint Services Council - JSC’ to prompt energy conservation and energy efficiency in the future were presented. Once the new Local Development law is endorsed, hopefully in 2017, the proposed ‘JSC’ could significantly add value. In both cases the awareness, knowledge, experience and measures in developing SEAPs (SECAPs), initiating projects and managing the implementation could be supported by many stakeholders, notably NREA in the initial phase (refer to Figure 3).

It is vital to protect Egyptian Heritage sites and Antiquities, especially in Luxor, where most of these heritage sites and antiquities (temples and tombs) exist. With the increased tourist influx visiting these places, such strategies become even more important. Also, tourists’ related logistics and excessive transport activities to move their buses in and about these sites will lead, not only to the increase in CO\textsubscript{2} emissions from vehicles, but also causes vibrations – especially near tombs and temples as well as near the two Memnon statues, on the way to the Valley of Kings – and causing air pollution, besides fatigue and perhaps leading to cracks on the long term. This also can vastly be noticed in Luxor when tourists in large numbers are moved from the Western bank to the Eastern bank of the River Nile to visit Al-Karnack Temple, where most of the current means of water transport, if not all (small passenger boats/dhows), are run by diesel, which emit a high level of CO\textsubscript{2} into the air. Thus, it causes air pollution and eventually results in a huge impact on the statues and the sustainability of Egyptian heritage sites in the World’s Cultural City Luxor.

Obliquely, the Governorate of Red Sea will have the same pattern, but in a different scenario since the City of Hurghada will have a big share of the strategy implementation in increasing the number of tourists by 2030.

The SEAPs (SECAPs) can provide support in developing plans and projects to enhance the heritage sites’ management in terms of its sustainability and climate actions as well as offering green solutions. Also, the SEAPs (SECAPs) could fit well to play a key role and take part in achieving the recommendations and joined declaration that resulted from the First Arab Ministerial Meeting held on December 23, 2015 in Cairo, Egypt. In addition, the recommendations of the First Arab Forum on Sustainable Communities and Green Building (1\textsuperscript{st} AFSCGB’14 held between 8\textsuperscript{th} and 10\textsuperscript{th} of November 2014 in Cairo, Egypt that addressed Sustainable Communities and Green Building and other environmental issues) could assist in the development of SEAPs (SECAPs).

The second Union for the Mediterranean (UfM) Ministerial Conference on Sustainable Urban Development to be held in Egypt in May 2017 would be an excellent forum to report some of the CES-MED Project’s progress and development in the South Mediterranean countries.

The CES-MED project can assist in achieving the National Sustainable Development Strategy 2030 where the GoEG aims at accomplishing SDG 7: Affordable and Clean Energy, and its sub-goals, mainly:

**Goal 7.1 - Ensure universal access to affordable, reliable, and modern energy services by 2030.**

**Goal 7.2 - Increase the share of renewable energy substantially in the global energy mix by 2030.**

**Goal 7.3 - Double the global rate of improvement in energy efficiency by 2030.**

In addition, the local governorates can contribute to sustainable energy savings through SEAPs (SECAPs) implementation. The following section summarises the legal and institutional framework with the aim to suggest recommendations that would assist in the SEAPs (SECAPs) implementation in the two selected governorates.
Summary

Improving the Legal and Institutional Framework is outlined as follows:

- Governorates should develop and implement their own SEAPs (SECAPs) to support the execution of national energy policies and action plans. It is needed for the national level to take more actions to reduce energy consumption and consequently lower CO₂ emissions;
- On the Legal Framework development, there are several opportunities to pave the way for SEAPs (SECAPs) development at governorate (municipality) level;
- The institutional set-up of the two selected governorates (municipalities) and their current structure needs technical support as their direct responsibility of the overall planning of Sustainable Energy (Renewable Energy and Energy efficiency) is not known;
- Establish a Strategic Sustainable Energy Unit (SSEU) or Energy Efficiency Unit (EEU) at the Governorate with a trained EE manager or an EE officer is vital to accomplish SEAPs (SECAPs). The introduction of a policy tool is vital for the governorate level. The SSEU would be under the direction of the Secretary General of the governorate and with coordination with MoLD. The results of the implemented SEAPs (SECAPs) would measure the actual annual energy consumption data (electricity, final energy (for fossils fuels) and primary energy (for RE generation/consumption)) of Governorates need to be shared with this database for the Baseline Emissions Inventory (BEI);
- Governorates (Municipalities) have the responsibility to develop and implement a Sustainable Energy Action Plan, to reduce their own energy consumption, according to National Strategy and Action Plans targets, and promote energy conservation among the general public;
- Governorates (Municipalities) can initiate additional taxes in coordination with the Ministry of Electricity and Renewable Energy (MoERE) and the Ministry of Local Development (MoLD) to encourage the implementation of energy saving measures for the mentioned sectors. Income from such revenues needs to be allocated to either the enforcement process, or to measures included in the SEAPs (SECAPs), aiming at reducing energy consumption;
- Governorates are recommended to engage in Public Private Partnership agreements and/or start a company (or joint venture), for the purpose of RE; and
- Governorates (municipalities) are recommended to develop national procurement regulations to include energy performance criteria.

Sectoral recommendations

Transport

- On the transport side, the legal framework is not yet developed in a sustainable and clean energy direction that reflects the energy saving ambition of the Government of Egypt. Thus, it is recommended to develop a new transport strategy, including energy conservation and clean public transport solutions. This strategy would need support by donors; and
- Since the Governorate of Luxor has almost one-fifth of the world’s heritage sites and monuments, air and water pollution from traffic and transport (land and water), mainly CO₂, should be reduced in order to mitigate its negative (direct and indirect) impacts with time on these heritage sites and monuments. The SEAPs’ (SECAPs’) implementation would assist in developing plans and projects to assist in reducing such impacts.

Sustainable Energy: Renewable Energy and Energy efficiency

- The procurement regulations should be aligned with energy regulations including energy performance criteria and to be supported by Donors such as AFD, KfW and EBRD to upgrade the Governmental and industrial buildings Energy Efficiency Codes (BEECs);
• Develop a business plan that supports solar, wind or waste to energy projects, since the new electricity law governing the sale of electricity generated from RE is enacted and in operation. The recent announcement of Egypt’s Minister of ERE on September 16, 2016 regarding the considerable reduction of the PV feed-in tariff (FIT) scheme would support SEAPs (SECAPs) in developing RE, especially increasing investments for projects between 500 kW and 20 MW in size, and 20 MW and 50 MW in size – to increase the number of feasible (bankable) energy projects; and

• In support of the implementation of SEAPs (SECAPs), it is recommended to initiate EE actions and to mandate energy audits in government buildings at the two governorates, until a law of mandating energy audit is officially issued and enacted.

Environment

• A comprehensive strategy on Solid Waste Management (SWM) should be in place. Thus, SEAPs (SECAPs) can assist in developing such SWM strategy as well as coordinating all current laws and regulations related to SWM, especially that of waste to energy.

Tourism, Antiquities, and Heritage sites

• The urban development closer to registered heritage sites and monuments casts pollution from construction and negative impacts on these heritage sites. Hence, SEAPs (SECAPs) can assist in developing plans to reduce such negative impacts through recycling of construction waste to reduce embodied energy and CO₂ emissions;

• The impact from the nearby agricultural farms closer to heritage sites and monuments can affect these sites. Hence, SEAPs (SECAPs) can develop action plans to reduce waste through recycling (waste-to-energy), underground water migration, and CO₂ capturing projects; and

• Since the Governorate of Red Sea is a touristic hub and encompasses many hotels and resorts; the SEAPs (SECAPs) can develop action plans and priority projects to assist in transforming these hotels and resorts to be smart, green, and sustainable to further decrease energy consumption and enhance EE, especially after the second increase in the electricity tariff (August 2016), and consequently mitigate CO₂ emissions.
2 INTRODUCTION

2.1 EU and CES-MED Project

The European Union (EU) is leading the global fight against climate change and is considering it as an urgent matter that needs immediate attention. The EU committed itself to reducing its overall emissions to at least 20 per cent below 1990 levels by 2020 through the development, among others, of Sustainable Energy Projects that can contribute to reducing the emission of Greenhouse Gases (GHGs). It became more ambitious to reach at least 40 per cent by 2040. The EU analysis of different scenarios shows that domestic emission reductions of 40 per cent and 60 per cent below 1990 levels would be the cost-effective pathway by 2030 and 2040. In most countries of the MENA region, the built environment, including buildings is responsible for the 50 per cent of the electricity consumption.

“No single nation can achieve the reduction of CO₂ emissions and meet its set targets by excluding buildings from their national strategy & action plans.” - UNEP 2013

2.2 CES-MED project brief and Objective of the Report

Sustainable Energy (Renewable Energy and Energy Efficiency) is an important tool to achieve Sustainable development and clean environment at the national level. Governorates (Municipalities) can play a key role in achieving energy savings and climate adaptation objectives, therefore the EU initiated the regional “The Cleaner Energy Saving Mediterranean Cities Project” (CES-MED) under the European Neighbourhood and Partnership Instrument (ENPI), that was launched on the 7th of January 2013 for a period of 3 years (2013-2016), and was extended in January 2016 for 18 additional months till July 2017.

The CES-MED project covers eight countries (South Mediterranean), namely: Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine and Tunisia. The project’s primary goal is to support and strengthen the capacity and involvement of the Local Authorities to embrace and implement SD Policies (sustainable energy and public transport systems) with respect to national regulatory and legislative frameworks. In addition, the CES-MED project offers direct support and assistance – in terms of expertise and training sessions – to Local Authorities for the preparation and implementation of Sustainable Energy Action Plans (SEAPs) known in 2016 as Sustainable Energy Climate Adaptation Plans (SECAPs) in cities, villages and regions of the aforementioned countries, so that they become eligible to join the Covenant of Mayors (CoM), not Mandatory.

Therefore, the National Coordination Focal Point (NFP) at the Ministry of Foreign Affairs (MoFA) has been established to secure a coordinated platform among the major stakeholders active in the field of sustainable energy. Moreover, the SEAPs (SECAPs) grant cities the ability to execute measures and action plans in a structured and integrated approach and track their efforts while communicating to stakeholders the significance of energy efficiency and climate adaptation measures.

The benefits from implementing SEAPs (SECAPs) by the two governorates are summarised as follows:

- Reducing energy use, electrical bills, and CO₂ emissions, thus lowering Carbon Footprint,
- Establishing a hands-on manuscript (manual) to coordinate, execute and monitor SEAPs (SECAPs),
- Improving quality of services of street lighting, buildings, waste collection and transportation,
- Enhancing the governorates’ sustainable and green image, wherever relevant, and
- Gaining the trust of relevant stakeholders and donors for the allocation of funds and the implementation of sustainable and green projects.

The SEAP (SECAP) focuses on Energy Saving Actions for the following sectors:
• Reduce the energy consumption in buildings,
• Enhance energy efficiency by adopting climate change adaptation measures,
• Electricity production and management at the local level (such as public street lighting),
• Sustainable and clean urban transport,
• Production of energy from non-conventional sources (renewable energy),
• Sustainable tourism and its facilities (Heritage and antiquities’ sites, and museums), and
• Solid waste and wastewater management.

The inclusive SEAP process is defined in the Guidebook developed for the South Mediterranean countries by the Joint Research Centre (JRC) of the EU, as a top-down procedure, including:

1) Initiation:
- Establish political commitment (the agreement with MoFA and selected governorates),
- Support in developing appropriate governance structure, and
- Build stakeholders support.

2) Planning:
- Assess current policy framework,
- Establish and conduct the Baseline Emission Inventory (BEI),
- Develop the Vision: at least decrease 20 per cent of CO\textsubscript{2} emissions in or across required and/or selected sectors by 2020 (not mandatory),
- Elaborate the plan, and
- Secure sustainable financial resources to support implementations and projects’ funding.

3) Implementation:
- Approve and submit the SEAPs (SECAPs), and
- Implement the SEAPs (SECAPs).

4) Assessment, Monitoring and Reporting:
- Assess the results of implementation,
- Monitor SEAPs (SECAPs) actions, and
- Report the findings the SEAPs (SECAPs).

In Egypt, two Governorates are partnering with CES-MED project for the development and executing of the SEAP (SECAP) action plans in full collaboration and coordination with the MoFA – the NFP:
• Red Sea (City of Hurghada), North East, falling under the Ministry of Local Development (MoLD),
• Luxor (City of Luxor), South, Upper Egypt, falling under the MoLD.

The objective of the report is to review the current legal framework in the concerned area and produce a national recommendations paper identifying a set of actions at the national level based on the challenges and constraints in the area of sustainable energy savings, and more precisely, the best accompanying measures required at the national level to assist local authorities in the formulation and implementation of sustainable energy policies and actions such as those formulated in SEAPs (SECAPs) and to compliment Egypt’s Vision 2030, yet contribute towards Egypt’s SD Strategy 2030. Moreover, improve the ranking of Egypt and the two governorates at both the regional and international level such as the Global Competitiveness Index (GCI).

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1 The author of this report has had the pleasure to attend and participate in the EC JRC Experts meetings held between the 3\textsuperscript{rd} and 4\textsuperscript{th} of December 2013 in Ispra, Italy, to review this COM Guidebook, released in April 2014.
Based on review and analysis of the institutional framework, the report identifies areas that meet the definition of Covenant Coordinators that may be interested and have potential to become Coordinators for CoM, including institutions that can house and/or adopt the future regional CoM offices, however it is not mandatory.

The information for this report has been gathered in the following way:

- Information obtained from the specific institutions, organizations and programmes operating in Egypt, through meetings, phone calls and email exchange, see interview list Annex I, and
- Internet and desk search of sustainable energy programs and projects available on websites of the stakeholders: government, community, and international organizations.

In December 2015, the CO21 Paris Agreement on Climate Change has added impetus to the necessity for pragmatic approaches in boosting Climate Change Adaptation (CCA), in order to increase measures and actions towards strengthening climate resilience. The evolving know-how of experts from European financing institutions and the European Commission (EC) offers insights into how these climate issues can be best integrated into projects’ development and implementation.

The CES-MED project is a clear manifestation of such development that is aiming to assist governorates in developing SEAPs (SECAPs) and adapting to CC risks. Within this framework, the “Integrating Climate Change Information and Adaptation in Project Development: Emerging Experience from Practitioners” – has been developed to provide assistance to aid practitioners assess climate change risks and vulnerabilities, and integrate adaptation measures – structural or non-structural – into project planning, design and implementation.

The overall goal is to help in making projects and investments more resilient to influence climate change (CC) and strengthen adaptation measures that fortify climate resilience. In support of CCA, the following financial institutions are recommended to support SECAPs’ projects funding:

- Agence Française de Développement (AFD),
- Council of Europe Development Bank (CEDB),
- European Bank for Reconstruction and Development (EBRD),
- European Commission’s Directorate-General for Climate Action (DG CLIMA),
- European Investment Bank (EIB),
- KfW Development Bank (kfW),
- Nordic Investment Bank (NIB), and
- National Banks (National Bank of Egypt, Misr Bank, Banque du Caire and others).

Existing donor projects and the funding opportunities that can be used by cities and municipalities to support the implementation of SEAPs’ projects are documented in the project section (Pages 82-106). Donors and Funding initiatives at local Level regarding Sustainable Development (SD) is in Annex III.

### 2.3 Agreement with the NFP for the co-preparation of the report and its structure

In Egypt, the CES-MED project is supervised and coordinated by the Ministry of Foreign Affairs (MoFA) – the National Focal Point (NFP) consisting of the following members:

- **Ambassador Adel Ibrahim** – Deputy Assistant Minister for EU Affairs, the MoFA;
- **Mr Ahmed Yousry** – Third Secretary, office of Deputy Assistant Minister for EU Affairs, MoFA;
- **Dr Naguib Amin** – CES-MED Team leader;
- **Dr Mohsen Aboulnaga** – CES-MED Project’s National Expert and Senior Advisor; and
- **Dr Ahmed Sedky** – CES-MED Project’s Local and Municipal Development Expert in Egypt, Mashreq Office.
After several meetings at the MoFA (NFP), contacted members agreed to support the project and take part in the NFP. The MoFA agreed to the following:

- Assist Governorates in terms of guidance in regards to SEAP and CoM initiatives (CoM is not mandatory) that can be replicated on a National level;
- Ensuring logistic support to CES-MED actions during all its phases;
- Providing regional helpdesks for Governorates; and
- Offering technical assistance to Governorates.

Earlier meetings were held in April 2015 to discuss the CES-MED project’s main points:

- Objectives and importance of CES-MED project to Egypt;
- Applied implementation steps;
- Intervention concepts;
- Project Budget;
- Engagement for participation;
- Content of the Sustainable Energy Action Plan (SEAP); and
- Project progress to date and examples of actions to be prescribed in the SEAP.

The first meeting was held on April 2, 2015 at the MoFA and was attended by the following members:

- **Ambassador Yasser Atef** – Deputy Assistant Minister for EU Member States, MoFA;
- **Dr Ahmed Azzam** – First Secretary, Office of Deputy Assistant Minister for EU Affairs, MoFA;
- **Mr Tamer Hammad** – First Secretary, Dept. of Environment and Sustainable Development, MoFA;
- **Ms Mirande Gebra** – First Secretary, Dept. of Energy, MoFA;
- **Dr Naguib Amin** – CES-MED Project’s Team leader;
- **Dr Mohsen Aboulnaga** – CES-MED Project’s Senior Advisor;
- **Mr Serge Yazigi** – CES-MED Project’s Key Expert for Mashreq; and
- **Mr Rameh Mohamed** – Municipal Council of Hurghada, Representative of Red Sea Governorate.

The second meeting was held on April 9, 2015 at the MoFA (NFP & NGC); members attended were:

- **Ambassador Abo Baker Mahmoud Hefny** – Deputy Assistant Minister for EU Affairs, MoFA;
- **Dr Ahmed Azzam** – First Secretary, Office of Deputy Assistant Minister for EU Affairs, MoFA;
- **General Abdelfattah Hamdy Attila** – Deputy Governor, Governorate of Red Sea, MoLD;
- **Representative** – Ministry of Local Development (MoLD);
- **Dr Naguib Amin** – CES-MED Project’s Team leader;
- **Dr Mohsen Aboulnaga** – CES-MED Project’s Senior Advisor; and
- **Mr Serge Yazigi** – CES-MED Project’s Key Expert for Mashreq.

Prior introduction meetings, between June and September 2014, were conducted - Members are:

- **Ambassador Ihab Fahmy** – Head of EU and Euro-Mediterranean Partnership Department and Chief of Cabinet to the Assistant Foreign Minister for European Affairs, MoFA; and
- **Dr Mohsen Aboulnaga** – CES-MED Project’s Senior Advisor.

The condition of meeting the CO₂ reduction of 20% by 2020 is excluded in the cooperation agreement between Egypt and CES-MED project since the target is deemed unrealistic, hence is not mandatory. Therefore, the CES-MED project focuses on the development and implementation of Sustainable Energy Action Plans (SEAPs) which were recently modified to “Sustainable Energy Climate Action Plan (SECAP)” but with the same set-up and agreed objectives and deliverables signed in the agreement with the Ministry of Foreign Affairs – Egypt, and according to the agreed Guidelines developed specifically for the South Mediterranean Countries.

The CES-MED project report and its expected recommendations have been discussed during three consecutive meetings with the NFP at the MoFA on April 4, 2015, August 20, 2015, and October 17,
2015. It was further discussed on June 6, 2016 and at working meeting held on July 13, 2016 that provided an overview of the existing framework, together with related recommendations on the National level for the development and implementation of SEAPs (SECAPs) in the two selected Governorates.

The focus is mainly on issues related to Sustainable Energy in the urban sectors, including:

a) Energy Savings (ES);
b) Energy Efficiency (EE); and
c) Renewable Energy (RE).

Some of the concerned partners and stakeholders who have been consulted during the preparation of this report (refer to Annex I) are generously thanked for their time, support, and efforts to provide information. Without their support the content of this report could not have been developed.

A special thanks to the National Focal Point members, notably all the above-mentioned ambassadors and their assistants at the MoFA, and all members and attendees of the coordination meetings in Egypt and at both governorates for their full support and endless input. Thanks also go to HE Ambassador Maged Refaat (Deputy Assistant Minister for The Union for Mediterranean (UfM) Affairs – MoFA) for supporting the CES-MED project and his endless and valuable advice, and last but not least, thanks to Counsellor Mohamed Algammal, who is replacing Mr. Ahmed Yousry at the MoFA to take charge of the CES-MED project in Egypt.
In February 2016, H.E. Abdelfattah Elisi, President of Egypt has boldly launched Egypt’s Vision 2030 and the National Strategy on Sustainable Development 2030 (SDS)7,8.

"An efficient and effective government administrative body, characterized by professionalism, transparency, justice and responsiveness, offers quality services, and can be held accountable, able to increase citizen satisfaction, and strongly contributes in the achievement of Egypt’s development goals and in improving the status of the Egyptian people."

The National Strategy on Sustainable Development 2030 is in line with the Sustainable Development Goals (SDGs) issued and endorsed by the United Nations in December 2015. Egypt’s Vision 2030 has four dimensions as shown in Figure 4. In 2014, The Cabinet was committed to boost economic growth, attract investments and pave the way for social justice. The Cabinet continued its efforts to formulate a long-term vision and develop a sustainable development strategy for the country until the year 20306. The Sustainable Development Strategy (SDS) 2030 aims at creating a modern, open, democratic, productive, and happy society6. In preparing for the SDS 2030, a participatory planning approach was adopted. In addition to key experts, public, private sector and civil society organizations were leading this process to ensure the enforcement and implementation of the policies, programs and initiatives to achieve the strategy’s targets7.

The Ministry of Planning, Monitoring and Administrative Reform (MoPMAR) has developed, in close coordination with the above-mentioned team, a comprehensive monitoring and evaluation system to
closely observe the execution of the SDS, and assess its impact and frequently measure the progress
towards achieving the set goals of the SDS by utilizing different key performance indicators (KPIs)\textsuperscript{6,7}.

3.1 Sustainable Development Strategy Methodology

In developing the SDS’ methodology the approach was based on three main themes: a) Participatory
Approach; b) Utilising best practices and previous experience; and c) Compatibility dimension between
SDS and SDGs. Figure 5 depicts such methodology in details and its main players\textsuperscript{9}.

3.2 Egypt’s SDS 2030 Main Key Performance Indicators

A Government framework to effectively monitor and follow up the implementation for each general
goal and subsequent sub goals has been developed by the MoPMAR. For each sub-goal, a set of KPIs
established to evaluate input-output nexus and outcomes (the vital few)\textsuperscript{10}. The Socio-economic action
plan for the fiscal year 2016-2017 has been approved and signed by a Presidential Decree on July 20,
2016.

3.3 Egypt’s Sustainable Development Strategy and Sustainable Development Goals

As part of the National Sustainable Development Strategy 2030 (SDS), the Egyptian government is
aiming to accomplish the SDG 7 - Affordable and Clean Energy, and its sub-goals, specifically\textsuperscript{7}:

Goal 7.1 - Ensure universal access to affordable, reliable, and modern energy services by 2030.
Goal 7.2 - Increase substantially the share of renewable energy in the global energy mix by 2030.
Goal 7.3 - Double the global rate of improvement in energy efficiency by 2030\textsuperscript{7}.

The SDS goals encompass five main goals\textsuperscript{8}:

a) Economic Development.
b) Fighting Corruption.
c) Citizens’ Happiness.
d) Human Development.
e) Market Competitiveness, with the main goal to be among the World’s top 30 strongest economies
as shown below in Figure 6.

The following section highlights the key performance indicators (KPIs) that are relevant to CES-MED
project and its SEAPs (SECAPs), mainly in Energy, Urban development, Environment, and Domestic
Related Energy Policy as shown in Figure 7.

Energy

- Secure energy resources,
- Increase reliance on local resources,
- Reduce the intensity of energy consumption, and
- Raise the actual economic contribution of the energy sector in the national income\textsuperscript{8}.
Figure 6 The Constituents of Egypt’s SDS Goals

Figure 7 Sectors’ Pillars of Egypt’s Sustainable Development Strategy 2030

Urban Development
- Increase the urbanized area in Egypt by about 5 per cent of its total area,
- Establish 7.5 million housing units, and
- Solve the problems of slum areas.

Environment
- Increase water productivity by 5 per cent per year,
- Reduce the percentage of days where the air quality index is less than 100 per cent compared to similar countries,
- Double the rate of energy efficiency by 2030, and
- Reduce the intensity of generating municipal waste to 1.5 Kgs per capita per day.

Economy
- Achieve economic growth rate of 7 per cent on average,
- Raise investment rate to 30 per cent on average,
- Increase the contribution of services to GDP to 70 per cent,
- Raise the contribution of exports to 25 per cent of the growth rate, and
• Reduce Unemployment Rate to 5 per cent$^9$.

### 3.4 Measures and Reforms in Energy, Legislative and Economy sectors

In harmonising Egypt’s SDS and ensuring a smooth execution, major reforms were approved in 2015. The government has also put forward measures to address such reforms, mainly in these sectors$^8$.

#### Energy Measures

The 1st Legislation and Resolutions were issued between 2014 and 2015 to include the Renewable Energy Law and Electricity Laws. The second Energy Reforms included three measures:

I. Subsidies - the government put in place measures to rationalize all subsidies during 2014, 2015, and 2016 as part of a gradual plan in the medium term to reduce these subsidies.

II. Feed-in-Tariff - the government issued the renewables FiT law to boost private investments.

III. Electricity law - the new law will help in gradually deregulating the market.

#### Economic Measures

To measure the SD strategy 2030, an effective and efficient monitoring machinery to follow up the progress made in the SDS was developed. Figure 8 shows a published set of KPIs that were developed to measure the economic development and progress$^9$.

**Figure 8 Economic Measures and KPIs (2013/2014 to 2030)**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>2013/2014</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Growth Rate</td>
<td>2%</td>
<td>12%</td>
</tr>
<tr>
<td>Investment Rate Growth</td>
<td>14%</td>
<td>30%</td>
</tr>
<tr>
<td>Contribution of Services to GDP</td>
<td>46%</td>
<td>70%</td>
</tr>
<tr>
<td>Unemployment Rate</td>
<td>13%</td>
<td>5%</td>
</tr>
</tbody>
</table>

7% On average

### 3.5 Egypt’s Energy Strategy 2030

In 2013, Egypt faced a challenge in providing a sufficient amount of electrical energy from its primary energy resources, especially oil and natural gas that contributes to 86-87 per cent of the total energy resources needed for generating electricity as of 2015. However, this percentage has been reduced due to installing solar energy and wind farms power plants and diversifying of the energy mix. Studies show that even though Egypt possesses a reserve of primary energy resources, but there are high demands on these resources due to the rapid utilization and increase of extraction costs. This may be due to the increase in annual population rate as Egypt is now among the top 20 countries in terms of population rate and ranked 15 as per July 2016 compared to rank 16 after Germany in 2015$^{11}$. According to the Ministry of Petroleum (MoP), the primary energy consumption in 2014 has grown at an average annual rate of 4.6 per cent and the growing fuel subsidies that are equivalent to €13.8 billion (USD 20bn) in 2011, estimated to be 20 per cent of Egypt’s state budget forming 10 per cent of the GDP. Therefore, Egypt developed the National Energy Strategy (NES) 2030, endorsed in February 2016 with a main pillar:

“An energy sector that meets national SD requirements and maximizing the efficient use of various conventional and renewable resources contributing to economic growth, competitiveness, achieving social justice, and preserving the environment. RE and efficient resources management leader, an innovative sector capable of forecasting and adapting to local, regional and international developments, yet complying with SDGs.$^{12}$

Alongside the NES 2030, the Energy Sector Policy Support Programme (ESPSP) – the EU’s TARES Project in Egypt – 2012 to 2016 (€59,267,205 million, an equivalent to EGP 590.3 million on the date...
of signing the agreement), concerning energy policies reform and providing technical assistance to support the Government reform of the energy Sector which started in 2014. The EU’s TARES Project looks at 18 per cent energy saving by 2035; however, it is not clear if this target can be achieved. TARES aims to improve energy policy and regulatory framework and promote energy efficiency and mitigation of GHG emissions. The ESPSP intended to support Egypt’s government in executing its far-reaching energy reforms and to foster implementation of its strategic energy partnership with the EU to improve energy security and sustainable development. In July 2014, the first outcome of the Government’s energy policy reform was enacted by a Ministerial decree that increased the primary energy prices and electricity tariff, in turns a part of the subsidies was lifted up. This reform led to the drop of the subsidies in August 2014 from 20 per cent to 17.5 per cent, i.e., by 2.5 per cent in the 1st year. In this project, the EU and Egypt anticipated that it could feasibly achieve energy savings up to 20 million tons of oil equivalent (mtoe) by 2035, corresponding to 18 per cent of the total consumption in 2035. The expectations are that potential savings might affect all sectors including the construction, industry, and transport sectors with 8.6mtoe, 6.76mtoe, and 4.5mtoe, respectively (published on the EU External Action web site, 19th July 2016). The second round of reform in electricity Tariff was enacted on August 8, 2016 by the Ministerial Decree No. 364 (2016) that increased the prices of electricity.

According to the Egypt’s Energy Strategy for 2030, it is expected that Egypt will be an importer of oil within ten years, namely from the start of this century’s third decade, if energy saving measures are not applied and enhanced in all sectors. This situation represents an additional challenge for the economy that may be affected by the price fluctuations in the international energy markets. Nevertheless, with the current natural gas discovery, this means revisiting such strategy for modification, yet emphasise the urgency of more energy saving measures to curb high energy demands and promote energy efficiency which would lead to exporting most of such natural gas discoveries. Thus, Sustainable Energy (Renewable Energy and Energy Efficiency) is the way forward to achieve energy saving targets and lower the dependence on conventional resources to produce and generate electricity in cities. Therefore, the diversification of the energy sources to maximize the benefits of using local resources, which are characterised by continuous and stable prices; such as investing in the generation of electricity from renewable resources that are rich in Egypt, while applying energy saving measures and policies that are of prime importance. Local governorates can contribute to sustainable energy savings through SEAPs (SECAPs) implementation. The next section summarises the legal and institutional framework with the suggested recommendations that would assist implementing the SEAP in the two governorates.
4 EXISTING LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 Existing Framework’s Introduction

According to the 2014 constitution, the state shall be divided into administrative units; each enjoys a legal status. Such units shall include governorates, cities and towns, centres and villages. The State ensures administrative, financial and economic decentralisation, under the law regulating the methods of empowering administrative units to improve and manage public facilities. The State also ensures the fulfilment of the needs of local units in terms of scientific, technical, administrative, and financial assistance; however, each local unit should have an independent financial budget\[15\]. Also, Egypt’s 2014 Constitution – endorsed in a free referendum by Egyptian citizens — emphasised for the first time on key strategic issues\[15\]. Details of the below-mentioned four clauses are shown in Figure 9.

1. **Sustainable Development and Social Equity (Chapter 2: Economic Pillars, clause No. 27).**
2. **Natural Resources: Efficient Use and Management (Fundamental Society Pillars, clause No. 32).**
3. **Efficient Water use (Fundamental Society Pillars, clause No. 44).**
4. **Healthy Environment (Fundamental Society Pillars, clause No. 46).**

Currently, Egypt is divided, in terms of institutional set-up, into twenty-seven Governorates\[8\] and it is subdivided in 2015 into seven administrative regions (Fig. 10). Each governorate is headed by a Governor, who is considered an extension of the central government, and is supervised by the Minister of Local Development (MoLD). The Governor enjoys wide administrative authority, and in specific cases, he/she exercises the power of the ministers in their governorates. Under the Governor is the General Secretary. The Governor is appointed by H.E. President of Egypt based on nomination by the Minister of Local Development. The organisational set up of MoLD is shown in Figure 12\[16\].

\[15\] Details of the below-mentioned four clauses are shown in Figure 9.

\[16\] The organisational set up of MoLD is shown in Figure 12.
Historically, the country is mainly divided into two zones: a) **Lower Egypt** in the north; and b) **Upper Egypt** in the south. All zones are under the jurisdiction of the Ministry of Local Development (MoLD) and the Secretariat General of Local Development. Nevertheless, under presidential decree no. 475 of 1977, which was further modified by a Presidential Decree No. 45, 2015, Egypt is divided into seven economic regions as shown in Figure 10 that depicts these regions. Nonetheless, Region 5 has been given an important status and agglomeration in December 2015 as part of the development of this region following the opening of the New Suez Canal in August 2015.

The local administration system is divided into 4 main domains as follows:

a) Local administration units;

b) Economic regions (Figure 10, page 40);

c) General secretariat for local administration; and

d) Supreme council for local administration.

According to Law No. 43 (Art. 12), the second level within the Governorate is the Governorate’s Executive Council (GEC). The Governor heads the governorate and the Governorate’s Executive Council (GEC), which includes eleven Directorates of services as well as branches of ministries and central authorities. The GEC encompasses representatives from ministries that provide services (Housing and Utilities, Transport, Electricity and Energy, Education and Health as well as Social Affairs, and Sports) to oversee all plans and projects in the governorate. Each Governorate has a General Secretary who is responsible for planning and technical affairs, and supervises the Districts’ Affairs “El-hay”. Under the Governorate’s General Secretary (GS) directly comes the Assistant Secretary General (AGS) who is responsible for the administrative affairs (Figure 11).

![Figure 10 Egypt’s seven economic regions](image-url)
The Governorate’s SG plays a supportive role in the development and implementation of SEAPs (SECAPs). There is also a Local Council (LC) ‘el Majless el Mahaly’, whose members are elected for a 4-year term. The LC is headed by a Chairman. The LC has approval and monitoring roles. Every governorate is divided geographically into districts.

Figure 11 Governorate’s current framework
Figure 12 Organizational set-up of MoLD

The NFP has confirmed that Governorates are governmental entities ‘Official departments (public institutions) and are under the jurisdiction of the Ministry of Local Development (MoLD) being a central government system. This is in the light of Law No. 43 of the year 1979 and by-laws.

The development and implementation of SEAPs (SECAPs) at the two governorates’ level for the Sustainable Energy Policy and Unit covering Urban Planning, Buildings, Transport, Tourism, Energy, Electricity, Renewable Energy, Environment, Solid Waste and Wastewater, would assist in developing measures and projects to lower energy consumption, hence CO₂ emissions.

4.2 Legislations: Laws and Regulations

The Local Government Law No. 43 of year 1979 describes the systems of the local authority at the Governorates in Art. 1 – 3. However, a new law for local government has been developed and approved by the State Council in July 2016 and is due for approval by the Cabinet in August 2016, and expected to be reviewed by the parliament and approved by early 2017. The Governorates’ Law No. 43 describes the responsibilities of the Governorates in Art. 12 as follows:

- All Infrastructure and utilities,
- Water supply and maintenance,
- Roads (internal roads inside and within the governorate bounders),
- Street public lighting,
- Waste collection (Responsibility of Districts ‘Majless el Hay’),
- Mobility (internal transportation in the governorate’s cities or villages),
• Beautification of public spaces,
• City planning (in coordination with the National Supreme Council for Planning and Urban Development - SCPUD),
• Building permits (procedures are in line with that regulated by MoHUUD’s Unified Building Law and building and EE codes for residential and commercial buildings, and other types of buildings). Refer to building sector (pages 44-45).

Other services are mainly under the responsibilities of the following Ministries whose local representatives (level of Deputy Minister) are on board the governorate’s Executive Council Board:
• Electricity supply and maintenance (MoERE (EEHC and EETC)),
• Sanitation (water supply and wastewater) and management (MoHUUD and Water Holding Company (WHC),
• Educational buildings (under Ministry of Education and Educational Buildings Authority (EBA),
• Health units and Hospitals (under the Ministry of Health (MoH).

All Ministries’ representatives forming the Governorate’s Executive Council (GEC) are headed by H.E. the Governor (Figure 11). In addition, the governorate is able to pursue the following responsibilities in close coordination with MoLD as per the Presidential Decree No. 133, year 199919,20:
• Attract investments,
• Set new free zones areas,
• Execute public service projects,
• Establish local development plans within the national framework,
• Develop legislations related to public services that are managed by the governorate,
• Foster projects needed for upscaling the economy, set projects’ priorities, and envisage financing possibilities, and
• Suggest all governorate’s infrastructure projects and determine possible and appropriate funding resources and donors after the approval of the MoLD.

Furthermore, Governorates (municipalities), can be owners of buildings (Art. 43), and can charge fees for licensing procedures (Art. 44), and cannot, in principle, take loans (Art. 45). Governorates are in a legal position to collect fines (Art. 50), set their own – moderate – budget (Art. 55) and use funds collected from revenues from Created Special Funds, which are approved on an annual basis by MoLD and MoF and endorsed by the Prime Minister. Also, Governorates cannot impose taxes (Art.35), but impose service charges. During the fiscal year, changes to the approved budget are possible; however, it has to be approved by the Minister of LD and Minister of Finance.

 Licensing procedures are defined by the concerned Ministry, e.g., for buildings as per the procedures developed by the MohUUD; hence governorates follow the national regulations, codes, and by-laws; and cannot make changes. For procurement, governorates are bound by the regulations set and endorsed by Presidential and Cabinet decrees and the MoLD, or by MoERE and MoPMRs for energy and Electricity specific projects as well as NREA for renewable energy projects. In tendering and procurement procedures, governorates have to follow the national procedures for tendering (Art. 58). Nonetheless, a green approach should be included in this process. Tendering related to buildings runs through the MoHUUD. This is a time factor, to be considered in planning and implementation. Governorates are governmental entities; hence By-law No. 43 on Regulating Procedures and Means of Procurements should be updated29.

Although Conserving Energy and Improving Energy Efficiency Codes for Residential and commercial buildings exist, the codes for Governmental and Industrial buildings need to be developed and be ready for implementation. Governorates can develop direct proposals and tendering schemes for RE and EE projects in full coordination with the MoERE and NREA (refer to Electricity, Energy and RE sectors in...
Nevertheless, the current NEEAP and the BEECs for Residential and Commercial Buildings could be utilised for the time being for the said purpose, but perhaps require updates since these codes were developed in 2005 and 2009 and needed to meet the 2016 international standards.

For Public Private Partnership (PPP) and ESCO projects, Governorates can initiate PPP projects. To execute PPP, governorates – mainly districts – are classified according to geographical setting and boundaries, but not according to population categories as classified in Jordan and other countries. Nonetheless, the Governorates (Municipality) Law of 2016 is currently in the process of approval and endorsement to replace Law No. 43 of the year 1997. The draft law has been approved by the State Council in July 2016 and was sent to the Egyptian Parliament for review and endorsement and expected by early 2017. The updated law includes more independence and responsibilities for municipalities on local economic development which makes it possible to coordinate certain activities at a higher level, or provide support that otherwise would not be available in the previous municipal law. However, in the current legal framework, governorates (Municipalities) have the opportunity to develop SEAPs (SECAPs), but would need robust consultation and capacity building in the field of sustainable energy and better governance to achieve the objectives of the CES-MED project.

SEAP (SECAP) and Local Authority – Governorates

There are sectors where Governorates can influence the energy consumption abatement and energy efficiency improvement, such as:

- Transport. Governorates’ vehicle fleet and buses, increase the dependence on clean transport and public transport, and access to mobility.
- Buildings’ energy consumption. Governorates’ owned buildings and enforcement of EE Building Codes using Green principles and measures, mainly renewable energy, e.g., the main building of the Governorate of Luxor in city of Luxor.
- Electricity. Street lighting and water pumping.
- Waste (Waste Management).
- Renewable Energy (Solar and Wind) as well as Thermal (Solar Water Heating) and Waste to Energy (Agriculture Biogas).

Thus, all actions need sensible and well-timed planning. Financial provision or public private partnership (PPP), sector engagements and establishing companies in collaboration with governorates is possible in various fields namely, clean energy projects (renewable energy and solid waste). Such projects are regulated, i.e., Governorate’s ownership 51% and private sector 49%.

4.3 Cities, Towns and Villages Development

The coordination planning process between governorates and the SCPUD is shown in Figure 13. For planning and financing housing projects, Governorates together with the Housing and Development Bank (HDB) – a public bank under the jurisdiction of Ministry of Housing, Utilities and Urban Development (MoHUUD) – established a protocol of cooperation to fund residential projects (Low-cost housing) within cities or towns under the official boundaries approved by the SCPUD. Under this protocol, the HDB gives loans to finance residential projects and related public services (schools, kinder-gardens, and primary health units) that are needed and planned within the neighbourhood boundaries, and are under the direct management of the governorate. Such set up must be under the boundaries of the cities and villages that are within the jurisdiction of the governorate. The HDB and Real Estates Bank (REB) are the banks that provide funds for government housing projects.
These two banks are the main public banks that fund the development of governmental housing projects and private housing in governorates and urban areas within the legal jurisdiction of the governorates’ official cardoons. Governorates and Municipal Councils can take loans from these banks to finance their housing projects in coordination with MoHUUD and MoLD as specified above. The Law No. 43 of year 1979, regulates the structure of the governorate’s financial transactions through the central bank of Egypt. However, established Governorates’ Special Funds (GSFs) generate revenues to fund governorates’ projects and can deal with public banks.

For Egypt, seven main areas were recognized by the National Environmental Action Plan (NEAP) to be tackled between the year 2002 and 2017. Among these areas are water, land, solid waste management, and biodiversity21:

- **Water**: improving sanitation coverage for urban and rural areas, with implementing low-cost non-conventional treatment technologies and increasing potentiality for wastewater reuse.
- **Land**: targeting sound environmental management of urban settlements, including the development of new settlements with essential infrastructure services to decrease dependency on primary cities, thus limiting commute distance. This is expected to increase the inhabited areas of Egypt from 4 per cent to 25 per cent; provide access to land for the inhabitants, and secure tenure; and upgrade slums and squatter settlements.
- **Solid Waste Management**: targeting the development and implementation of an integrated system for waste collection and recycling including the design and production of containers and trucks and involvement of the private sector.
- **Biodiversity**: conserving biodiversity resources, including the promotion of eco-tourism projects and contributing to the regional development of South Sinai.

The following sections present the relative legislative framework on a series of sectors that are within the SECAPs’ scope, or affiliated with it.

### 4.3.1 Building Sector

The building sector in Egypt is significantly influenced by the rapid growth in population, estimated in 2016 at 2.5 per cent yearly22, and urban development. This proportionally causes a huge development rate in this sector and consequently an urban sprawl. Such tendency is making the construction sector to lead other sectors and be one of the fastest growing sectors of Egypt’s economy. The construction sector formed an average of 6.3 per cent of the National GDP in 2015, and consequently causing the
employment of 8 to 10 per cent of the local workforce\textsuperscript{22}. One of the sectors that have an immense and considerable influence on the national economy is the building sector, which is closely bound to around 95 industries, including: steel, aluminium, cement, brick, glass, ceramics, gypsum and other related industries\textsuperscript{23}. Therefore, relying on \textbf{sustainable and green materials} in the building construction sector would lead to making buildings sustainable and green by utilising low-carbon emitting technologies to reduce the embodied energy.

Thus, this will contribute in meeting the new direction of the Government of Egypt in pursuing this strategic goal of sustainable green growth path and adopting green economy, as a tool to achieve SD and SDG No.7, 11, and 12 which are highlighted in Egypt’s SD Strategy 2030\textsuperscript{24}. This suggests that \textbf{energy savings in buildings} is a major activity of the SEAPs (SECAPs) implementation at both selected governorates.

In 2010, the World Bank stated that Egypt faces overwhelming challenges to execute two moderately sophisticated Building Energy Efficiency Codes (BEECs): the residential buildings and the commercial buildings that were introduced in 2005 and 2009 respectively, in a milieu where basic building code requirements could not be well enforced\textsuperscript{25}. At that time, interest in energy efficiency was not high on the agenda since energy subsidies were widespread in all sectors, especially for residential users. This view changed in 2014, thus it is a \textbf{priority for SEAPs (SECAPs) implementation}.

The \textbf{Unified Building Law (UBL) No. 119 of year 2008} issued by the Minister of HUUD and the Presidential Decree issued on May 11, 2008, and its executive regulations and appendix ministerial Decree No. 144 of year 2009 were ratified by the House of Parliament in May 2009 in order to systemise and regulate the process of building across Egypt. This law was decreed in amendment with the aim to be integrated into prior laws. It mainly addresses two main issues: i) Urban Planning (UP); and ii) Planning and Urban Development (PUD). This law also covers in its mandate the Local authorities’ units, touristic areas, industrial zones, and all urban areas in all regions of Egypt\textsuperscript{26}. In addition, under the legal framework of \textbf{Building Law No. 119 of year 2008}, the New Urban Communities Authority (NUCA), provides all regulations pertaining to new communities \textbf{outside of metropolitan municipal boundaries} in the form of Terms of Reference (TOR), and is responsible for providing the infrastructure for said communities\textsuperscript{27}. Nonetheless, the urban planning law was endorsed with no reference to \textbf{energy efficiency or green building}, and lacking the \textbf{incentives} for adopting or applying green concepts. However, a new simplified general building law, which is just now under development, will provide a new motivation in constructing more energy efficient buildings. Strong national government leadership and support are needed for developing compliance and enforcement procedures that may be required at the local level. This is mainly required in \textbf{training and capacity building} in the building sector and supply chain, and in removing energy subsidies\textsuperscript{22}. The latter was enacted in August 2016.

The National Housing and Building Research Centre (HBRC) under the Ministry of Housing, Utilities and Urban Development (MoHUUD) issued the building codes. The HRBC also developed several codes related to the energy consumption in buildings: a) Residential buildings; and b) Commercial buildings, whereas that for the Governmental buildings and Industrial buildings are yet not developed nor published). The development of these codes is part of the \textbf{National Building Law No. 7 (1997)}\textsuperscript{28}. The following codes have been developed, approved, and published in Arabic and English:

- Egyptian Code for Improving \textbf{Energy Consumption in Commercial Buildings}, Part 2 serial 2/306, Decree 190 year 2009 (issue date: May 12, 2009),
- Egyptian Code for \textbf{House Design Standards}, serial 602, decree 80 year 2009,
The BEECs have been developed by HBRC in collaboration with MED-ENEC and The Egyptian German Joint Committee on Renewable Energy, Energy Efficiency, and Environmental Protection (JCEE).

In addition, the GoEG approved the creation of the Central Unit for Sustainable Cities and Renewable Energy (CUSCRE) according to the Egyptian Cabinet Decision No. 512 for year 2014, as part of NUCA. The CUSCRE is commissioned to pursue the planning, design, construction and operation of green and sustainable communities while adopting concepts of energy efficiency, water desalination, waste management, sustainable transportation, and green economy.

The BEECs currently cover mainly residential (conditioned and Non-conditioned) and non-residential buildings (Large offices, EG-LOF and Hotels, EG-LHOT). However, the codes for industrial and governmental buildings are under preparation, but not yet endorsed or published; this is expected in 2017. Figure 14 shows the metaphor of the BEECs as per 2015. Nevertheless, the enforcement of building codes, in general, is rather half-hearted. The Roadmap for Enforcement of EE Building Codes is expected by 2017. According to a study carried out by MED-ENEC in 2014, executing the residential BEEC is predicted to reduce electrical energy consumed for cooling in new homes by 20 per cent, yet to improve levels of thermal comfort in non-air conditioned homes would also have good results. These codes and others for public buildings are mandatory. The process of enforcing BEECs is still in the early phases, and thus compliance is insignificant.

A comprehensive implementation programme was designed, but is yet to be implemented. The SEAP (SECAP) implementation can address such compliance tool and develop projects to enforce the codes for EE. In addition, compliance tools are still not adopted and therefore need to be developed along with the BEECs.
with capacity building in this area. Nevertheless, a research proposal was developed and submitted in early 2015 to the Ministry of State for Scientific Research’s (MoSSR) Science and Technology Development Fund (STDF) in an effort to overcome such negativity and develop a compliance tool to assist municipalities in ensuring the BEEC is applied through an automated process. This project No. 10775 is entitled: “Innovative and Economic Compliance Tool for Egypt’s Building Energy Efficiency Code (Egypt-BEEC) to Address Climate Change Adaptation”. Its challenge topic is Economic modelling software for sustainable settlements planning; its number is TDF-NCP/014/1/11 with an estimated budget of 800,000€; and its field is Sustainable Building and Built Environment. This project could be a good start for SEAPs (SECAPs) to be implemented, and donors could provide funds.

The Egyptian Green Building Council (Egypt-GBC) was established as a governmental entity by virtue of Ministerial Decree No. 56, 2009. Egypt-GBC’s main objective is to promote green construction in Egypt. The Council comprises of Government officials and business leaders. It also aims at encouraging investors to adopt BEECs as well as other sections of the existing BEECs to achieve environmental conservation. Egypt-GBC is headed by the Minister of Housing, Utilities and Urban Development; and its members include a number of scientists in the fields of environment, energy, and housing from all relevant sectors, as well as representatives of ministries.

In addition, a Ministerial Decree was issued in 2010 to establish the appraisal system of Green Pyramid Rating System (GPRS), which is deemed a green building measurement program used for verifying conformity. Nevertheless, an endeavour was initially adopted in 2009 to transform the building sector to be green. The GPRS rating system was endorsed by a Ministerial Decree in 2010, and is considered the national building rating system. Themes of the GPRS include revision of sustainability characteristic within green building, while assessing ecology, energy efficiency, water efficiency, materials and resources, indoor environmental quality, as well as management and innovation.

The GPRS is also developed to look into all aspects of sustainability towards greening buildings and cities. A Sustainable Design Process Model (SDPM) was also developed to guide professionals build environmentally sound buildings.

In 2016, a task force was formed by many experts representing the MoERE, Cairo University (CU), British University in Egypt (BUE), and members of HBRC and other entities. The first workshop was held at HBRC to revise the GPRS and to put forward suggestions to update in accordance with the latest international standards. The new version is expected to be ready by the end of 2016 or early in 2017 after endorsing the updated GPRS version by Minister of HUUD.

### 4.3.2 Electricity Generation Sector

Egypt developed progressive policies and legislations (laws and regulations) in the electricity sector. Egypt, Morocco, Tunisia and Jordan are considered among the few countries in the ENPI region with relatively comprehensive RE and EE policies in place. Electricity consumption in Egypt has rapidly increased from 49 TWh in 1996/1997 to over 127 TWh in 2010/2011. In all building sectors Electricity consumption accounts for 53TWh over 106.6 TWh a year (50 per cent of the total); out of which the residential sector only accounts for almost 38 per cent of the total. The Egyptian Electrical Utilities and Consumer Protection Regulator Agency (Egypt-ERA) predicts such consumption in the residential sector to be about 62 TWh of the total electrical energy consumption 143 TWh in 2013/2014, which accounts for the highest rate represented by about 43.4 per cent of the total electricity consumption. With the current growth rate of more than 7 per cent yearly, Egypt would need to double its current generation capacity by 2020. The Egypt-ERA was established according to the Presidential Decree No. 326 of year 1997 and the board of directors has been formed in 2001 as per the Presidential Decree No. 339 that was issued. This Presidential Decree aimed at reorganizing of Egypt-ERA, specifying its authorization and activities and forming the Board of Directors of the Agency to include experts in energy fields not related to the electricity sector, other consumers’ representatives, the public and...
experts in electricity sector. Egypt-ERA is a public authority acting independently from the Electricity Utility Stakeholders. Details on various functions, duties, activities and responsibilities are available in its website. Egypt-ERA also provides the regulatory framework for issuing licenses for producing, transmitting, and distributing electricity. It is a member of Mediterranean Energy Regulators (MedReg).

In 2015, the New Electricity Law No. 87 was issued and approved by the Legislation Department at the State Council and referred to the Government for the purpose of completing the related promulgation procedures. This new electricity law aims at raising the performance efficiency and service level of the companies operating in the field of production, transmission, distribution and sale of electricity. For this purpose, it intends to hold free and legitimate competition to create an appropriate atmosphere to attract investments to the electricity sector in order to cope with the increasing demands for electric power and to confirm the principles of transparency, antimonopoly and anti-favoritism. In June 2016, the Executive Regulations of the New Electricity Law have been enacted by Decree No. 230/2016 published by the MoERE. Also, Decree No. 203 of year 2014 was issued on November 4, 2015 regarding the stimulation of producing electricity from renewable energy. In addition, national regulations were modified in October 2014 to generate electricity from different clean energy sources, including Renewable Energy supported by Feed-in-Tariff. The new electricity tariff was issued for the fiscal year 2015-2016 to maximize the reduction in energy consumption. Moreover, Egypt-ERA introduced a monthly observatory system to predicate the daily consumption and load demands. Utilities provide energy consumption data to their consumers on the bills, which are obtained by official letter. Nevertheless, the provision of electricity consumption data is not included in the Electricity Law, but the MoERE started installing smart meters (Pre-paid meters cards) for the same purpose. In 2013, Egypt-ERA has approved a set of regulations in line with amendments (29/01/2012) in Decree No. 1 of 2012 to use Net Metering in buildings, and the electricity balance to be on a monthly payment and to use as a basis the consumption of bought net power. The electricity metering systems will be supplied by the relevant electricity distribution company; however, the subscribers bear the cost.

The new electricity tariff, as part of the energy policy reform, has been issued by the Ministerial Decree No. 436 of year 2016 – MoRER, by which an increase in electricity tariff prices has been enacted. The Governorates of Red Sea and Port-Saeed are classified as the leading governorates in Egypt to apply the Smart metering system in collaboration with MoERE. This is an effective government move to curb energy consumption, reduce energy waste, and save energy in the residential, commercial and public buildings. A reference to the laws related to the energy sector is presented on page 53.

Many investment incentives were announced between 2014 and 2015, including:
- Rationalisation of Electricity Consumption: The distribution of 12 million Energy Saving Lamps in the residential sector with 50 per cent discount (18 months guaranteed).
- Encouraging Investments: Allocation of needed lands to establish wind farms.

The Law No. 203 of year 2014 regarding the incentives for generating electricity from renewable energy sources was issued and allowed many projects to generate electricity from clean sources (refer to projects’ section). This law encompasses four implementation tools:
- Government project through New and Renewable Energy Agency (NREA).
- Project bided by Egyptian Electricity Distribution Company – EEDC (BOO systems).
- Feed-in-Tariff.
- Bilateral agreements and conventions.

As regards electricity generation from Renewable Energy Sources, Egypt has a substantial potential for solar and wind energy. Two-thirds of the country’s geographic area has solar energy intensity 6.4 kWh/m²/day and above; some of the highest solar radiation in the world (up to 3,000 kWh/m²/year)
and 96 per cent of the country is desert, making it a prime location for use of this resource. Also, the wind speed at the Red Sea coasts approaches 10m/sec. More information on the RES electricity generated options is presented in the next paragraphs.

**Solar Generation**

An Integrated Solar Combined Cycle Power Plant has been built and operating since 2011 in Kuraymat. Solar energy underwent major advances in electricity generation as a result of enacting Law No. 203 (2014). The plant is based on parabolic trough technology integrated with combined cycle power plant using natural gas as a fuel. The capacity of the plant is 140 MW, including the solar share of 20 MW. It is one of 3 similar projects that are being implemented in Africa (Algeria, Egypt, and Morocco), which mainly depends on integrating a solar field with a combined gas cycle.

In the past, GoEG issued a ministerial decree (1995) requiring all houses in new communities to utilize solar water heating (SWH). Almost 500,000m² of these SWH units were installed, although this is relatively modest to Egypt’s neighbouring countries; in comparison with the installed 6 million m² in Jordan. SWH was not in high demand due to the cheap rate of electricity until July 2014. Solar heating for hotels was required at the beginning of the 1980’s, but the implementation was carried out only by the high demands of 4-star and 5-star hotels and others, nevertheless, the dust covering these solar collector panels reduced their efficiency. In addition to maintenance difficulties, the high initial investments needed for these projects have proved a difficulty in bringing additional SWH to the market. However, SWH installations took momentum end of 2014, mainly in public buildings and hotels; a programme which is part of the EU-TARES Policy Programme in collaboration with the Egyptian Cabinet’s Information and Decision Support Centre (IDSC) and EFI-ECO (2014).

**Wind generation**

The Energy mix of Egypt is primarily dominated by fossil fuels (oil and gas), but about 2.4 per cent of Egypt’s current energy mix comes from renewables, mainly from the wind. Despite the abundance of wind resources, particularly in the Suez Gulf area, Kharga region, and Gulf of Aqaba area, less usage of renewables was utilized. This profile has changed between 2010 and 2015 when NREA, the authority affiliated with the MoRER that manages Egypt’s clean energy portfolio, installed a total capacity of 550 MW from wind energy projects alone in Zafarana and Hurghada in 2010. These projects were implemented in cooperation with Denmark, Germany, Spain and Japan. Currently, more than 1,020 MW of different technologies are in the implementation and preparation phase in the Gulf of Zayt on the Red Sea Coast. The NREA is aiming at increasing the installed capacity to reach around 2,000 MW, mostly from wind energy. Zafarana has been in operation since 2004 and has a capacity of 360 MW, where average wind speed is 9 m/sec. Egypt has registered Zafarana as a CDM project. Various studies indicate that electricity generated from wind resources represents the best opportunity for Egypt’s RE to reach competitive prices with electricity generated from oil and gas.

**Hydro Generation**

Electricity from hydro is responsible for generating about 11.2 per cent of Egypt’s power. The 2.1GW High Dam hydropower plant was commissioned and followed by the commissioning of the Aswan 2 power plant in 1985, and the Isna hydro power plant (1993) and that of Naga-Hamadi (2008).

**Waste to energy generation**

Power generation from gasification of sewage sludge in wastewater treatment plants has been already used (El-Gabal El-Asfer plant of 23 MW capacity), with a potential generation of 1,000 MW from agricultural waste.

**4.3.3 Energy Efficiency - EE**
Egypt has done a great deal from 2014 to present in order to secure a steady supply of energy, which was in consistent shortage in 2013. Despite the rapidly increasing fuel demands, the country is starting to face fewer challenges due to the increasing share of RE, which will reduce energy supply and secure resources for primary energy needed for generating electricity. Although energy consumption is on the rise due to the development in mega projects between 2014 and 2016 – an indicator for economic growth — it imposes a significant burden on the state due to energy subsidies, which underwent a major review in 2014 and 2016 and will gradually be reduced in six years’ span as part of the Energy policy reforms. According to the IMF, energy subsidies amounted to € 210,930 Billion (USD 237 Billion), in 2011 in the MENA region, corresponding to 8.6 per cent of GDP and 22 per cent of total government revenues. In Egypt and Algeria, it generally amounts to 11 per cent of GDP. Nonetheless, energy subsidies in Egypt are around € 21,735,580 Million (US$ 24,422m – an equivalent of EGP 217 Billion) forming almost 10.6 per cent of the GDP, which highlights the magnitude of possible savings. This has been progressively manifested on August 8, 2016 when the Ministerial Decree No. 364 on the new electricity tariff was issued by MoERE.

In the same path, renewable energy resources in Egypt are abundant, which offers a major potential for exploiting more alternative resources rather than relying merely on fossil fuels. The diversification of resources in Egypt’s energy mix could lead to substantial economic growth. Moreover, national policy and action plans are being implemented to promote RE and EE in all sectors.

The energy efficiency related Laws and Regulations are presented in the following paragraphs.

The Energy Efficiency Building Guideline (EEBG), which is based on international best practices was developed in cooperation with the New Urban Communities Authority (NUCA) of the MoHUUD. Building envelope requirements for conditioned buildings in Cairo (Egyptian EE Building Code) has also been developed. Some related supporting policies are highlighted below:

**Supporting Policies**

- **Minimum Energy Performance Standards (EPS)** with a mandatory labelling for some domestic appliances (Room AC, fridges and washing machines) have been adopted.
- **Mandatory building codes** have been set up with the aim to reduce the national electricity consumption by **20 per cent by 2020**, as stated in the Laws and Regulations section,
- **Two building codes were announced by ministerial decree (residential buildings - 2005 and commercial buildings - 2009)** by the MoHUUD, which is in charge of the Energy Efficient Building Codes (EEBC). Various stakeholders were involved in the process, including the Housing and Building National Research Centre (HBRC), the New Urban Communities Authority (NUCA), the Supreme Energy Council (SEC), and the Ministry of Electricity and Renewable Energy (MoERE). They represent part of the governmental institutions, legal and private sector entities.

Egypt’s EEBC was approved and will be reviewed every 5 years. With such legal framework in place, Egypt now plans to consolidate the cooperation between institutions and secure enforcement of the EEBC, but the challenge is the enforcement mechanism which is not yet operational. Hence this needs support to ensure compliance and good governance. The SEAPs (SECAPs) implementation at the local authority could focus on EEBC projects to be presented to donors to secure funding.

**Indoor and outdoor Lighting - EE**

The MED-ENEC, a project funded by the EU has been dealing with the Energy Efficiency in the construction sector in the Mediterranean. The project has established and developed guidelines and recommendations for the MENA region in January 2015. These guidelines include **Indoor lighting and outdoor lighting**; the latter encompasses the utilization of LED luminaires, also highlighted as the **street lighting** of the future. These guidelines and recommendations focus on.
• The leadership perspective,
• The boardroom perspective,
• Outdoor lighting, and
• Public procurement and planning.

In Egypt, MED-ENEC has also developed an EE Plan “Energy Efficiency Plan in the Electricity Sector for 2012-2015” that led to saving of 5.566 GWh, mainly by measures in the lighting sector such as:

• Changing current lighting to high-efficiency lighting in the household sector. The planned distribution of 60 million bulbs will save 3.320 GWh,
• Energy saving in street lighting of 1.200 GWH,
• Support through the Association of Energy Efficiency Engineers (AEEE), and
• A five-day seminar about EE lighting procurement conducted in cooperation with the MoERE in Cairo during 2013, 2014 and 2015.

The appliance labelling: Energy Label program for four home appliances. The use of Appliance labelling – the 2nd phase of the project in residential buildings (refrigerators, air conditioners and washing machines). The 1st phase in July 2009 was voluntary and it was encouraged to be mandatory in 2013. 

Savings achieved were 365 GWh and 1664 GWh by 2012 and 2015 respectively.

Renewable Energy and Energy Efficiency Comprehensive Law

The Egyptian Renewable Energy and Energy Efficiency Law (EG-REEEL) No. 203 of year 2014 has been developed to promote RE self-consumption, which has a comprehensive basis for supporting schemes and incentives. However, the EG-REEEL is a unique law made specifically for the MENA region, since it is a dedicated and comprehensive law with incentives for the private sector to invest in RE. This law proved that REEE has been effective in increasing renewable power capacity and has put the country on track to meet its RE target of 20 per cent by 2020. The NREA has been active in promoting large scale wind and solar energy projects for a long period, but not in small scale RE projects until recently.

In the last two years, several Net metering and Feed-in-tariff incentives were announced and have led to erecting around 6,000 rooftop PV systems in remote areas, that also contribute to environmental protection and meeting SDGs. The EG-REEEL allowed the private sector to have 720 MW of RE capacities under construction, resulting from the establishment of merchants’ IPP scheme.

The REEEL addresses three main issues: a) Establishment of new RE installations and grid connections, including ‘net metering’ which has been endorsed in September 2014 with the Feed-in-Tariff Law; b) Egypt’s Renewable Energy and Energy Efficiency Fund (EG-REEEF) has been established in 2012, but not funded; c) Tax and Customs regulations are under review in the 3rd Quarter of 2016.

Energy Efficiency Fund

The Legal basis for EE and Energy Savings (ES) targets in Egypt are based on a drafted law and National Energy Efficiency Strategy (NEES) 2000; savings are anticipated to be 15 per cent by 2030. According to MED-ENEC report, EE in the building sector in the MENA region is primarily funded through governments and the international donor community, while far less funds are offered by local commercial banks. The EIB has embarked on a study regarding how much money would be needed to implement the national targets under the NEEAPs in the building sector in MENA region, assuming that not all measures under the plans are equally financially and economically viable. “How much funds will be needed to achieve what?” According to the EIB, the answer could be: “If all measures currently considered under the national plans are implemented, the energy saving (ES) targets for 2020 could almost be achieved, resulting in ES of 12 Mtoe cumulative for the region”. The EIB study addressed 3 scenarios: a) Scenario #1: where only those measures that are immediately financially viable for the investor are implemented (e.g. changing to CFL), b) Scenario #2: governments to cover the difference between the financial and economic cost; and c) Scenario #3: where all measures planned to be
implemented require further subsidies (e.g. changing the building envelope in existing buildings). If only the measures under a specific scenario #2\textsuperscript{53} are implemented, 85 per cent of the targets could be achieved. This, of course, would result in much lower costs for governments. The difference between the full deployment scenario #3 and scenario #2 is substantial: €91 billion are needed of which €29 billion would be subsidies, which the government would need to offer incentive subsidised investments and to make them economically feasible for investors. This should be compared to the investment costs under scenario #2, which are €30 billion. Most of the savings and investment costs would be in Algeria and Egypt, the countries with the largest building stock\textsuperscript{53}. Examples of Energy Efficiency financing in Egypt (EEF) is non-pointed at EE directly, but support Industrial Modernization Centres. Sources of funding are from the government’s budget, where activity is in the form of credit guarantee program and equipment grant scheme\textsuperscript{53}. The SEAPs (SECAPS) implementation can support energy efficiency projects and donors can support funding the NREEF.

Energy Efficiency Budget Finance

In Egypt, where there is no designated EE agency till the date of issuing this report, the government supported the electricity distribution companies to deploy 6 million efficient lamps. The CFLs distributed to residential customers in Cairo, spending € 22.6 million, planned to save 20 ktoe/year. Examples for donor funding in Egypt, German Development Bank - kfw is in preparation for a loan to finance EE measures in public buildings in Egypt, especially university buildings. The loan will be accompanied by technical assistance up to € 2 Million to prepare the partner organization and build capacity\textsuperscript{53}. The European Bank for Reconstruction and Development (EBRD) also plans to invest up to € 979 Million (USD 1.1bn) in the MENA region. The loans are under the sustainable energy finance (SEF Facility). A loan of about € 26.7 Million (USD 30 Million) was announced to the National Bank of Egypt (NBE) for on-lending to private sub-borrowers for Energy efficiency and renewable energy projects. The EBRD also intends to provide technical assistance to support NBE and the sub-borrowers in the design and successful implementation of the credit line. The implementation and saved energy will be verified by an external source\textsuperscript{67}. In general, the banking sector is developing better in countries where the sector is not dominated by state banks. In Egypt, Jordan, Lebanon, Morocco and Tunisia banks act more freely than in Algeria, where fewer, but bigger banks\textsuperscript{52} are established. In April 2010, GIZ in collaboration with MoIFT issued an energy efficiency guide (EEG) for Egyptian Enterprises on how to become energy efficient companies. The objectives of the EEG are to assist enterprises to: a) reduce operating cost; b) increase operation efficiency; c) reduce the impact on the environment; d) decrease GHG emissions; and e) increase competitiveness\textsuperscript{54}. The EEG is structured into four main chapters: air conditioning, ventilation, lighting, and office equipment and IT\textsuperscript{53}.

4.3.4 Transportation Sector

In the framework of the green economy, as a tool to achieve sustainable development, clean and green transport is considered one of the key sectors. In Egypt, there is a high demand for competitive transport. The location of the two governorates (the Red Sea and Luxor) as tourists’ destinations highlights the importance of making transport systems more efficient and green. The governorate of Red Sea is linked to the Suez Canal, which has eight per cent (8%) of the world’s maritime shipping passing through it (accounting for 4.1 per cent of the national GDP), whereas transportation, storage, and Suez Canal sectors represent 11 per cent of the government economic plan as per 2012/2013\textsuperscript{55}. This is an important element to emphasise clean transport, especially after the opening of new Suez Canal in August 2015.

The Presidential Decree No. 474 of year 1979 established the Public Authority for River Transportation (PART) with the objectives to:
• Raise the efficiency of water transport facility and its navigational channels and development, achieving the optimal exploitation and technical foundations of sound economic order to play its role in national development;
• Develop a comprehensive plan for water transport facility and all industrial actions related to cope with the requirements of development in all fields;
• Supervise all water transport projects to ensure the safety of implementation and compliance with the conditions and technical specifications;
• Prepare the necessary programs and projects and supervise their implementation;
• Determine the use of industrial facilities;
• Cleanse and improve internal sewage and navigational locks and maintenance to achieve the optimised use of utilities;
• Division of navigational waterways to the lines for the transport of goods and passengers and conduct in accordance with the rules set out and navigation laws;
• Implementation of penalties in the laws regulating inland navigation; and
• Determine the shipping lines and locks, marinas public and set the special use rules.

The SEAP (SECAP) implementation can focus on clean transport projects in both Governorates (Luxor and the Red Sea) to be proposed to donors.

Egypt’s transport infrastructure is in relatively good condition, compared to that of its African peers. Transport mainly focuses on Cairo and follows the settlement patterns along other cities. The road transport network is supplemented by good inland water connections in rivers and a good rail network. Also Egypt’s roads carry the largest share of freight amounting to 53 per cent, which increases the country’s dependence on the maintenance of the road infrastructure. The quality of Egypt’s roads network has been considerably improved in the last two years. These roads’ developments were mainly taking place in Cairo – just like railway lines and infrastructure in general.

In terms of investments, there are many areas that could attract direct investments and funds such as: Road terminals and transit points, rail line expansion, connections and terminals (road – rail), value-added services around ports, and airport infrastructure.

The domestic freight amounts to almost 500 million tons in volume. Even with the diversified transport modes, freight (95 per cent) is still mobilised on the roads and the rest is through railways and water transport. The modes of diversified transport and infrastructure are mainly depending on ports, rivers, railways, and roads’ network. In the Red Sea area, there are nine ports. This may cause pollution problems in water, air and land that impact cities such as Luxor and Hurghada.

The SEAP (SECAP) implementation can focus on greening the transport sector by lowering air pollution and promoting road and clean transport projects in both Governorates (Luxor and Red Sea) to be developed and proposed to donors.

The MoTr is in the process of issuing new multimodal laws and regulations based on best international standards and regional agreements. In this line, a new regulatory was established for freight transport. Egypt is considering new regulatory policy in the fuel subsidy.

The MoTr is working on the Multimodal Freight Transport (MFT) related projects in MINTS of all modes covering:

• Logistics centre in 6th of October industrial zone. A pre-feasibility study was carried out by the EU and tender document preparation is in process under PPP format, and
• The MoTr will be pursuing a study for another logistics centre in 10th of Ramadan city and Borg El Arab Industrial Zones.
The Presidential Decree No. 27 of year 1990 concerning the baselines of the maritime areas was issued on January 9, 1990\(^{39}\). Also, the investment Law No. 8 of year 1997 covers many sectors (activities and fields), including those that are relevant to the scope of the CES-MED project and its SEAPs (SECAPS) implementation. These are covering Tourism in terms of hotels, hotel flats, motels, resorts and tourist transportation; sea transport, natural gas transport, housing projects for non-administrative purposes; infrastructure projects for wastewater, electricity, roads and communications\(^{42}\). The Transportation Regulatory Authority (TRA) is the body that is regulating this sector by defining the routes, issuing permissions, and controlling the whole sector’s operations. In addition, the internal transportation (inside cities), especially small cars (service and taxis) and buses have their own regulations and are mostly controlled and operated by Governorates. Specific laws couldn’t be found within the timeframe of the preparation of this report (Refer to National Strategies, page 66).

By end of 2016, about twenty PPP projects of nearly € 3.6 Billion (USD 4 billion) are to be tendered as a result of the completion of the New Suez Canal\(^{60}\). The Egyptian government developed a new long term policy in 2006 that activated partnerships with the private sector (PS) in order to boost the private sector’s contribution to investments in infrastructure projects. Such activation of the partnership policy and PPP with the private sector led to establishing a government entity - Central Unit for Partnership with Private Sector of the Ministry of Finance (MoF), to promote PPP, support its activities and liaising purpose\(^{61}\). The PPP Central Unit of the MoF delivers initiatives to bring unprecedented socioeconomic growth\(^{60}\). However, a BOO (Build, Own and Operate) agreement has been signed addressing an RE project (250MW Wind farm) to generate electricity from renewable sources\(^{43}\). In Egypt, many systems of partnership contracts between the public and private sectors, including the PPP (Public-Private Partnerships) and BOT (Build, Operate and Transfer), in addition to other mechanisms were implemented\(^{42}\). The partnership between the public and private sectors in Egypt is governed by the PPP Law No. 67 of year 2010 that regulates the private sector’s participation in infrastructure projects, services and public utilities. This law also provides guarantees to partnership contracts, as it does not allow sequestration or taking any action against facilities, machinery and equipment allocated to the execution of the participation contract and operation of the project\(^{55}\).

4.3.5 Tourism Sector

The Ministry of Tourism (MoTm) set ambitious goals in 2013 to increase the hotels’ capacity to 300,000 hotel rooms in order to accommodate 14 million visitors by 2020\(^{55}\). Tourism roughly forms 11.5 per cent to 13 per cent of the national GDP\(^{62}\). During the 1st quarter of the financial year 2013/ 2014, it was 2.2 per cent of the total GDP\(^{63}\). According to the General Authority of Foreign Investments (GAFI), the tourism industry, in terms of hotels and restaurants, has contributed 3.1 per cent of GDP (2011/2012)\(^{55}\).

Making cities and their infrastructures green, energy efficient, and resilient to provide good quality of life would promote tourism and further support such goals. The MoTm has established an Environmental Monitoring Unit (EMU) in the Tourism Development Authority\(^{64}\). The MoTm has achieved a growth rate of 10.2 (Jul-Mar), FY 2012/2013\(^{65}\). The role of CES-MED project and its SEAPs (SECAPS) execution would contribute in achieving such goals.

4.3.6 Waste Sector

Solid Waste and Waste Management

For Waste and Waste Management (WWM), the MoEnv is responsible for developing laws and regulations\(^{46}\). Under Article No. 46 of Egypt’s Constitution endorsed in 2014, it states that a healthy environment and its protection is a national duty. The state is to take the necessary measures to
preserve the environment. In December 2009, the GoEG therefore issued its vision, goals, policies and related plans to achieve the vision of future society by 2030.

The Legislative Framework for the Management of Solid Waste (LFMSW) has been established in accordance with Law No. 38 of 1967, concerning public hygiene and its implementation regulations. Additional laws in the field include the solid waste Law No. 9 of year 2009, concerning the protection of the environment and its implementation regulations, Law No. 48 of year 1982, regarding the solid waste for the protection of the Nile River waterways from pollution, Law No. 140 of year 1956 concerning public roads occupancy with regards to waste output and Law No. 84 of year 1968 on public roads. Moreover, the Law No. 4 of year 1994 – concerning the environment and its regulations – was amended by Law No. 9 of year 2007 to dwindle the gap in the legislative systems and environmental activities since there was no such legislation in place.

**National Solid Waste: Policy, Institution, and Legislation**

**Policy** - The Minister of Environment developed a Think Tank of prominent waste experts tasked with developing a vision for the national solid waste management policy. This policy developed the foundation of the national policy based on identifying the principles and its objectives.

The National Strategic Directives for Waste Management (NSDWM) were developed in 2014 through a nationwide consultation process and were submitted to the Ministry. It was first presented during the Second Egyptian Solid Waste Management Forum in November 2014.

**Institutions** - The National Solid Waste Management Regulatory Agency (NSWMRA) has been established in November 2015 under the MoEnv. The NSWMRA is in charge of developing and managing the SWM sector. This new entity is responsible for the protection of public health, improving quality of the environment, and developing a new sector of the economy as well as supporting the creation of new jobs. This will also send a strong signal for investors in the SWM sector. The institutional structure has been enhanced at the governmental for projects and programmes to manage, execute and sustain Governorates in a decentralised way. The SEAPs (SECAPs) implementation at the two selected governorates can develop SWM projects for donors to lower GHG emissions, mainly CO₂. Also, the Prime Minister of Egypt issued Decree No. 3005 in November 2015 to establish the National Waste Management Regulatory Agency (WMRA) with a more authoritative role in overseeing and regulating Solid Waste Management (SWM); and to be eventually expanded to include a local agency of WMRA in each governorate. This institutional structure at the local level needs technical support to enhance and enable a better management of SW programmes and projects, and help in executing these projects in a sustainable way. This legal framework is currently in cooperation with the Central Administration and Organisation Authority (CAOA) and expected to be in operation by end of 2016.

**Legislation** - a Waste Framework Law is currently under preparation to establish a holistic framework for the handling of waste across Egypt, promoting reuse, recycling, and recovery within a waste management hierarchy. It will also provide a framework for the WM sector development that aims at the whole waste cycle from generation to disposal. The new law will also regulate all waste streams and take into account the general environmental protection principles and sustainability, technical feasibility and economic viability, protection of resources as well as the overall environmental, human health, economic and social impacts. A number of subsidiary regulations relating to the management, transport, treatment and disposal of waste will be developed and implemented. There are other legislations implemented through different governmental agencies such as Law No. 14 of year 2007; Public Health Law No. 54 of year 2002; and Environmental Protection Law No. 52 of year 2006. The coordination between all these laws and regulations is to be considered in the new WM draft Law, to create a clearer framework for municipalities in the execution of SWM.
Construction waste – the construction and demolition waste (CDW) resulting from the construction process due to high urbanization rates is not considered municipal solid waste (MSW), since it doesn’t include organic substances. The EEAA indicates that the CDW generated annually was estimated at 4 million tons (in 2012).

Solid waste – Solid waste generated in the city of Hurghada – GoRS forms about 300 tons per day and can exceed 450 tons per day in summer and peak seasons. HEPCA SWM scheme in the south is operating in GoRS and Hurghada. HEPCA is an internationally recognized NGO registered (1995) with the GoRS and works closely with the Governorate in the door to door collection of SW for recycling and disposal of non-recyclables on a voluntary basis without taking fees or taxes. This suggests that there is a need to develop plans to create incentives for the private sector to take role in SWM and enforcing Law No. 9. Nonetheless, regulations on the privatization of solid waste management procedures’ guides are available through the MoEnv – EEAA. The SEAPs (SECAPs) can propose a project of reusing and recycling CDW instead of being accumulated in dump sites or disposed on the sides of streets and high ways, which causes lowering of visibility on roads and air pollution.

4.3.7 Environment Sector

For the Environment Sector in Egypt, the Environmental Protection - Promulgating the Environment Law No. 4 of year 1994 was issued and enacted by a Presidential decree on January 27, 1994. This law was amended by the Law No. 9 of year 2009. The Law No. 9 was updated by Law No. 105 in 2015 according to Presidential Decree issued on October 19, 2015. Laws No. 9 and No. 105 present the national legal framework and tools for the management of environmental issues. Also, Law No. 9 encompasses two main chapters: a) the Protection of Land Environment from Pollution; and b) the Protection of Water Environment from Pollution. The law’s articles are classified by the following topics:

- Development and Environment (Art.19-28)
- Hazardous Material and Waste (Art.29-33)
- Protection of Air Environment from Pollution (Art.34-47)
- Pollution from Ships (Art.48-68)
- Oil Pollution (Art.48-59)
- Pollution by Harmful Substances (Art.60-65)
- Pollution from Sewage and Garbage (Art.66-68)
- Pollution from Land Based Sources (Art.69-75)
- International Certificates (Art.76-77)
- Administrative and Judicial Procedures (Art.78-83)

The provision of this law covers a variety of environmental issues:

- Air: Conventions; Public Place; Closed Public Place; Semi-closed Public Place; Environmental pollution; and Environmental Degradation;
- Environmental Protection: Air Pollution and Rapid Transport Vehicles;
- Water: Water Pollution; Polluting Substances and Factors; Water Polluting Substances; Oil; Oily Mixtures; Unclean Balancing Water (Unclean Ballast Water); and Hazardous Substances;
- Waste: Hazardous Waste; Substance Handling; Waste Management; Waste Disposal; Waste Recycling; and Liquid Substances Harmful to the Water Environment.

It also covers: Reception Facilities; Discharge; Dumping; Compensation; Means of Oil Transport; Ships and Government Ship; Harmful Materials Carriers; and the Establishments – meaning the Laws Nos.: Industrial establishments subject to the provisions of Law No. 21 of 1958 and Law No. 55 of 1977. Tourist establishments subject to the provisions of Law No. 1 of 1973 and Law No. 1 of 1992.
Establishments used for electrical power generation and production, which are under the provisions of Laws nos. 145 of 1948, 63 of 1974, 12 of 1976, 13 of 1976, 27 of 1976, 103 of 1986. Mines, quarries and establishments operating in the field of oil exploration, drilling, transportation and usage, which are subject to the provisions of laws Nos. 66 of 1953, 86 of 1956, 61 of 1958 and 4 of 1988. Law No. 9 also includes all infrastructure projects; Environmental Monitoring Networks; Environmental Impact Assessment; Environmental Disaster; Competent Administrative Agency Protection of the Water Environment; Coastal zone; and Integrated Environmental Management of Coastal Zones.

In addition, Law No. 9 emphasises on the establishment of an Environmental Protection Fund (EPF) and Incentives. This system of incentives has been created in collaboration with the MoF, environmental protection activities or projects, which the EEAA can offer to agencies, establishments, individuals and others.

The Prime Minister’s issued Decree 964 of year 2015 amends Articles 7, 8 and 42 in the Environmental Protection Law No. 4 of year 1994. This decree was also endorsed by a Presidential Decree on April 19, 2015. It concerns the Environmental Resources Fund Allocation (ERFA) for offsetting the environmental disasters and piloting projects, as well as funding the studies of evaluation and Environmental Impact Assessment (EIA) and participation in relevant projects. This Decree No. 964 of year 2015 encompasses three main articles:

- Art.1: regulations and specifications for handling coal and fossil fuels;
- Art.2: regulations and specifications for selecting and building centres for municipal solid waste treatment and recycling;
- Art.3: regulations and specifications for selecting sites for municipal solid waste dumping and landfills or burning solid waste for energy generation; and
- Art.8: concerns the RFA which includes the following issues. Details of Art. 8 can be found in Annex II in this report.

In addition, many annexes were also issued and endorsed regarding waste water, in terms of criteria and regulations for handling and the use of fossil fuels and coal.

- Annex 1: Criteria and specifications of waste water and its drainage in water channels;
- Annex 11: Includes 3 sections (refer to Annex III)
- Annex 12: Conditions and Criteria of handling/ use of coal and fossil fuels; including 3 sections. Details for Annex 12 can be found in Annex II of this report.

The MoEnv announced a statement regarding the regulations concerning the use of Coal in accordance with the European Bank for Reconstruction and Development – EBRD’s letter issued in line with this regard. It stated that despite the EBRD’s strategy action that is based on their Energy Strategy 2030 the bank will not fund Greenfield Coal-fired power plants except in rare limitations, but they can fund those required for steel and cement factories due to their essentiality.

Natural Protectorates

The MoEnv issued a Law No. 102 of year 1983 for Natural Protectorates to designate certain areas to be declared as protectorates. Limits of each protected area and related basic principles for its management and for the preservation of its resources were defined in the Prime Minister’s decree. This law is also covering the desert tourism within these Protectorates.

Regarding the Protectorates in the Red Sea Governorate, there are also four decrees issued to govern these protectorates as follows:

- Decrees 450 of year 1986 and Decree 642 of 1995 for Elba National Park,
• Decree 143 of year 2003 Wadi El-Gemal/Hamata, and
• Decree 1618 of year 2006 for Red Sea Northern Islands.

The MoEnv, through the Egyptian Environmental Affairs Authority (EEAA) has developed a bundle of Climate Change Legislations in response to COP20 and COP21. According to a study on CCL, a national strategy entitled: "Integrated Coastal Zone Management (ICZM)" has been commended and it is charged under Law No. 4 of year 1994. This strategy was established in 2015, mainly for the protection of the Environment. It addresses many issues: a) irrational land use; b) shoreline erosion and flooding; c) water pollution; and d) the deterioration of natural resources and habitats. This national strategy was finalized and adopted in 2015.72,77.

For Climate Change Adaptation and Mitigation Measures (CCAMM), there is a lack of noteworthy legal framework, but nevertheless many policy plans are in implementation and many government agencies responsible for integrating CC into the national policy agenda were executed. Climate change mitigation and adaptation strategies are falling under the mandate of the MoEnv and its executive arm EEAA. A climate change unit (CCU) was first established in the EEAA in 1992, which has since been upgraded to the Central Department for Climate Change (CDCC) 77.

A Climate Change Action Plan (CCAP) has been developed by the MoEnv through the Second National Communication (SNC) to UNFCCC that was established in 2000. An inventory of GHG emissions, including policies, has been created to mitigate and evaluate their economic impacts after reduction. Such policy was not implemented or released until 2015.72 Results of the inventory of GHG emission yield an increase of the total emissions at an average of 5.1% annually. The GHG emissions were highly influenced by four sectors that contribute significantly to them. These are: a) energy, which accounted for 61 per cent of the total in 2000, 27 per cent, of which was transportation-related; b) agriculture by 16 per cent; c) industrial processes by 14 per cent; and d) waste by 9 per cent. Despite, the reduction of GHG emissions reported above there are barriers to GHG mitigation. Such barriers can be summarised as follows:

- Institutional capacity constraints,
- Lack of information about GHG reduction opportunities and technology, and
- Limited access to investment capital needed to execute mitigation technologies/procedures.

Nonetheless, an estimate of nearly 8.3mt CO2-eq reduction due to the existing mitigation efforts, which focused on three areas: a) Fuel substitution; b) Renewable energy; and c) Energy efficiency.77

A Climate Change Risk Management Programme (CCRMP) has been established in 2008 as a result of a partnership between Egypt and the Millennium Development Goals Achievement Fund (MDGAF). The CCRMP has three main objectives to:

- Integrate GHG mitigation into national policy and investment frameworks;
- Increase climate change adaptation capacities, particularly in agriculture and water; and
- Raise awareness regarding the impacts of climate change.77

Key achievements that came out of such joint programme are to successfully assist in and support the establishment of the following units and capacity building:

i. Clean Development Mechanism Awareness and Promotion Unit (CDMAPU) within the EEAA,
ii. Energy Efficiency Unit (EEU) that advises the Cabinet on energy efficiency,
iii. The MoWRI’s capabilities to forecast climate change scenarios, and
iv. The irrigation research and climate change crop simulation activities of the Ministry of Acclamation of Land Resources (MALR) 77.
Further to the SNC to UNFCCC, Egypt published in 2010 a National Environmental, Economic and Development Study (NEEDS) for CC to outline the financial and institutional needs for implementing prospective and on-going adaptation and mitigation measures. This study recognizes that the next phases of CC planning should include a National Action Plan for Adaptation (NAPA) and National Low Carbon Economy Plan (NLCEP). The NEEDS report highlights the urgency for developing a GHG monitoring system that aggregates and disseminates information about GHG emissions across sectors. Additionally, the MoEnv has signed an agreement with the Italian MoEnv in 2014 to transform El-Gouna City into the first carbon-neutral city in Africa.

Environmental Impact Assessment (EIA)

Law No. 4 indicates that the environmental impact of certain establishments or projects must be evaluated before any construction works are initiated or a license is issued by the responsible administrative authority or licensing authority. Additionally, the Executive Regulations relating to Law No. 4 classifies types of establishments or projects that must undergo an Environmental Impact Assessment (EIA) based on certain principles.

- Type of activity performed by the establishment.
- Extent of natural resources exploitation.
- Location of the establishment.
- Type of energy used to operate the establishment.

The EEAA developed a flexible system to manage the EIA projects in order to use limited economic and technical resources in the best possible way. This system encompasses a flexible screening system and projects, classified into three groups reflecting different levels of EIA according to the severity of possible environmental impacts and including a list of approaches based on the impact level. For more details, refer to Annex II.

Monitoring Guidelines

The MoEnv and EEAA issued guidelines for environmental inspection, monitoring issues, including:

- EIA Forms and Guidelines;
- Environmental Inspection Guidelines;
- Pollution Abatement.

Also, the National Network for Monitoring Industrial Emission Guidelines was established.

Considering the wide range of laws (nos. 4, 9, and 105) and regulations in place, there is a political commitment to environmental protection, sustainable energy actions, and sustainability as well as sustainable development by the Government of Egypt, the governorates and cities’ councils.

The Minister of Environment issued Ministerial Decrees No. 19 and No. 20 of year 2016.

The EEAA Chief Executive Officer (CEO) has also issued a Decree No. 26 of year 2016 regarding the list of these projects. More information about the list of these projects are available in Annex II.

EIA Guideline

The EEAA puts the EIA guidelines in place, which include a list of sectors to guide the process of EIA.

More information about the list of sectors are available in Annex II in this report. These guidelines will ensure, if executed diligently, a good direction to protect the environment in the governorates from new projects’ negative impact and that would have less influence on depleting resources, reducing air and water pollution and assist in the adaptation to climate change.

The SEAPs (SECAPs) implementation at the local authority would support meeting Sustainable Development Goals (SDGs), mainly SDG 7, 11, 12, and 13 in this important sector (environment) and developing projects for donors.
4.4 Role of NFP, key stakeholders and networks

The NFP recommends coordinating with the NCG, which encompasses a combination of participating Ministries and main stakeholders to support the implementation of SEAPs (SECAPs):

- **MoFA** to lead the coordination process for effective implementation of SEAPs (SECAPs).
- **Stakeholders**
  - **MoPIC** for the International cooperation and supporting information for donors, especially for Renewable Energy and Energy Efficiency Fund (REEEF),
  - **MoLD** to coordinate the proposed Joint Services Councils (JSC) at the two governorates,
  - **MoERE** to provide input on energy consumption (electronic data) at governorates,
  - **MoEnv** for waste management related issues,
  - **MoTrt** for clean transport strategy and accessible mobility, as well as to develop policies to foster and bestow public clean transport,
  - **MoHUUD** to update the BEECs and issue the BEECs for Governmental and Industrial buildings. Also, to issue buildings’ Energy Efficiency tendering, procurement and enforcement procedures for building codes. In addition, to develop procedures for green tendering and procurement in collaboration with MoEnv, MoIFT, MoLD and, MoF,
  - **MoHUUD, MoRER, MoIFT and MoLD** to enforce mandatory Energy Audits in commercial, industrial, and governmental buildings at the two governorates,
  - **MoTrm** to update Hotel Green Units and to mandate green measures and codes in hotels,
  - **MoAnts** to expand sustainability and green measures near heritage sites to protect heritage buildings in the SEAPs (SECAPs) areas, mainly in the Governorate of Luxor,
  - **MoPMRs, MoERE and MoEnv** to develop benchmark indicators in cities for GHG emissions,
  - **NREA** to develop comprehensive Energy Efficiency programmes in collaboration with RCREEE,
  - **RCREEE** to support NREA and MoERE in developing GHG emissions’ indicators,
  - **MoIFT and MoF** to update laws to allow for green product tax exemption,
  - **MoF** to update laws for importing electrical vehicles for the sole purpose of promoting mobility at the Governorates of Red Sea and Luxor, and
  - **MoF/ The Egyptian Central Bank** to regulate an incentives scheme to import green products.

As soon as the SEAPs (SECAPs) commence and move forward, more entities and stakeholders can add value and provide support. Involving the MoIC and MoF as well as international donors operating in Egypt (AFD, kfw, EIB, ERDB and JICA) and others is vital for their crucial role when it comes to budget allocation for SEAPs (SECAPs) development, implementation and projects’ fiches.

**Additional stakeholders** relevant to the development and implementation of SEAPs (SECAPs) are:

- **MoCom** to develop electronic key indicators for the two Governorates as a pilot study,
- **MoInv** to support projects’ opportunities for funding,
- **NSEC** to recommend developing energy indicators in all related sectors,
- **RCREEE** to offer technical support for updating RE and EE regulations,
- **Petroleum Research Centre (PRC)** to support SEAPs and SECAPs,
- **Oil and Gas Skills (OGS)** for capacity building during SEAPs (SECAPs) execution,
• **Utilities**: EEHC for coordinating the demand-side management (DSM) in the Governorates,
• **Egyptian funding/financing organizations**, e.g., HDB, REB and AUB,
• **National Bank of Egypt** to support funding projects’ applications,
• **Energy Lab** - Faculty of Engineering, Cairo University to support SEAPs (SECAPs) execution,
• **Air Group** to monitor Air pollution during SEAPs (SECAPs) execution at the governorates, and
• **Egypt-GBC** and **HBRC** to provide Green Labelling of buildings.

The proposed Joint Services Councils (JSC) to be established for coordination of key issues related to energy savings, energy efficiency, solid waste management or agriculture waste collection for biogas, etc. At a further phase, more involvement could be considered for Climate Change Actions (CCA) and scenarios for adaptation measures at the level of two governorates (the Red Sea and Luxor). Also, **Networking** relevant for the SEAPs (SECAPs) implementation at the two Governorates is proposed for the supportive and participative role. In addition, the proposed **National Sharing Platform** (NSP) is recommended to be developed to foster coordination.

The support of Green Economy’s Task Force members established by the MoPMAR in collaboration with the MoEnv in 2014 could offer support and be used in this regard. Moreover, the NSP could be a support platform in developing opportunities with the private sector for PPP projects.

Figures 15 and 16 provide an overview of the institutional set-up with most relevant to SEAPs (SECAPs) implementation.
4.5 National strategies, programmes, and planning tools

The overall national strategy is Egypt’s Vision 2030, and the Sustainable Development Strategy 2030 developed in 2015 and launched in February 2016, with the full support and patronage of H. E. the President of Egypt. The key preparation player is the MoPMAR in close collaboration with all ministries and stakeholders representing public, private, civil society and experts.

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. This study was funded by UNEP, UNDP, and GEF. 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.

The UNEP developed in 2007 the National Study ‘Energy Efficiency and Renewable Energy National Study’ (EERENS), as part of both the Mediterranean and National Strategies for Sustainable Development under Priority Field of Action 2: Energy and Climate Change. The key players are the "Plan Bleu" - a regional activity centre of UNEP/MAP (Mediterranean Action Plan), created, funded and steered by EC.

Also, an Energy Strategy 2007-2030 was developed by MoPMAR. Several Donor organisations are supporting the strategy developments.
On the governorates level, the governorate of Luxor has developed a Green City Strategy 2020 - GCS “Luxor the Heritage City of the World”. The GCS 2020 was announced during the Solar Energy Conference entitled: Luxor Green City. The conference was organised by H.E. the Governor and Governorate of Luxor between 13 and 14 of June 2014 in Luxor. The Green City Protocol signed by more than 45 key stakeholders also cemented the GCS 2020 recommendations. The implementation of the GCS has not been published yet. In addition, the Governorate of Luxor was selected as a member of the Resilient Cities Acceleration Initiative (RCAI) among 325 cities from 90 nations and joined the RCAI in its 3rd phase. The RCAI objective is mainly to assist selected cities to be more resilient in confronting environmental challenges and counterbalance the impact of CC risks on the socioeconomic life.

For the Urban and Building sectors, the Green Building Guideline (GBG) was published in 2013 along with the GPRS by the MoHUUD through Egypt-GBC. These guidelines are voluntary and address areas of environmental sustainability, including: Building site, Energy, Water, Indoor Quality and Materials. The total number of evaluated buildings using these guidelines is not yet available. However, the “Florenta Residence” project in New Cairo is known for receiving the silver certification (valid for 5 years) as per GPRS. The GPRS for Existing Buildings is under development. Another Eco-friendly project is El Gouna resort city near Hurghada, Governorate of Red Sea. The project was developed based on the green guidelines.

Concerning the Electricity Sector, the National Energy Efficiency Action Plan (NEEAP) for Egypt is so far, the main umbrella regarding EE at the national level; however, but more plans and support are needed. The NEEAP follows the energy saving targets that were set in the Energy Strategy 2007-2030, shown below, to reduce the electricity consumption. In early 2014, the Egyptian Supreme Energy Council (ESEC) as per its Decree No. 9/11/05/12 and Energy Efficiency Unit (EEU) at the Cabinet developed a national plan to save energy in electricity and energy sectors. This National Plan was sent to all stakeholders to coordinate efforts such as MoEnv, MoHUUD, MoTm and MoLD. The first NEEAP was adopted and approved by the cabinet and received appraisal as part of the bi-annual updates. The national target is to lower the primary energy consumption by 4.96 per cent during each annual update, to reach an exemplary role of the public sector, which is beneficial for SEAPs (SECAPs) development. The NEEAP provides a comprehensive assessment of EE policies, guidelines, and projects for 2012-2015. Also, the NEEAP's measures and savings were applied in public buildings, which are of interest for SEAPs (SECAPs) development. These measures include:

1. Appliance labelling: Energy Label program for four home appliances (refrigerators, freezers, air conditioners and washing machines). Currently, the 2nd phase of appliance labelling in residential buildings is ongoing. – The 1st phase was voluntary (July 2009) and was encouraged to be mandatory in 2013. Savings achieved are 365GWh and 1,664GWh by 2012 and 2015 respectively.
2. Distribution of 12 million LED lamps to replace conventional inefficient FLs in residential buildings (2012-2015). Savings achieved are 360GWh and 3,320GWh by 2012 and 2015 respectively.
3. Awareness on Financing Tool to promote Solar Water Heating in residential buildings. Savings achieved are 10GWh and 67GWh by 2013 and 2015 respectively.
4. Street Lighting: Replacement of Mercury inefficient lamps by LED efficient lamps. Savings achieved are 21.3GWh and 450GWh by 2012 and 2015 respectively.
5. Reduce the energy consumption of Government buildings (2nd phase). Savings achieved are 9 per cent and 46.6 per cent by 2012 and 2015 respectively.
6. Energy conservation in drinking water plants and wastewater treatment plants. Savings achieved are 1.34GWh and 6.59GWh by 2012 and 2015 respectively.
7. Energy saving in hotels by using the supporting tool “EGYSOL” to promote SWH in hotels at the Governorates of Red Sea and South Sinai (Sharm El-Sheikh). Savings achieved are 1GWh and 12GWh by 2012 and 2015 respectively.1

The total saving achieved were 222.62GWh and 5565.69GWh in 2012 and 2015 respectively based on a 5-year average energy consumption of 112162.8GWh. The total savings are almost 5 per cent (5565.69GWh). Nevertheless, the NEEAP is currently being updated by RCREEE in collaboration with GIZ and expected to be completed by 2017.1

The EBRD in collaboration with The GoEG developed a policy in the Electricity sector on Egypt’s Renewable Feed-In-Tariff (completed in 2016). The leading Egyptian partners are the MoERE and Egypt-ERA. In September 2014, the GoEG announced an energy strategy focusing on the new Feed-in-tariff for renewable projects to encourage private developers to install and provide 4,300 MW electricity generation from RE. Adding to the new FiTs, long term producers were developed to lease lands for RE projects at 2 per cent of the value of energy produced, and a customs tariff of 2 per cent are applied on imported equipment and materials.

**Transport**

**Transport’s Strategy and Action Plan** has been developed as part of the EU- Egypt Action Plan, based on Egypt’s National Development Plan (2002-2007), to promote south-south trade, through encouraging the participation in regional projects (infrastructure, trade facilitation, energy and transport). Also, by promoting the cooperation in transport, particularly on developing infrastructure policies, executing reform programmes to separate regulation, management, and operation tasks, yet fostering private sector involvement in transport projects and services; applying air, maritime, and road safety measures, and developing a Civil Global Navigation Satellite System — GALILEO.

Key elements: take steps to strengthen and develop the institutional setup for the integration of Sustainable Development (SD) measures into other sectoral policies and plans, mainly in energy, transport, industry, regional development and agriculture. However, Transport’s key elements are:

a) Transport cooperation in the transport sectors (maritime, aviation, road, rail and inland waterway).

b) Implement a national transport strategy, including transport infrastructure development and transport sector reforming. This generally includes:

- Supporting the development and execution of the national sustainable transport policy concerning all modes of transport and related infrastructure, focusing on strengthening safety; integration of environmental considerations in transport; as well as inter-modality,
- Developing procedures to identify and assist implementation of high priority infrastructure projects. Such procedures should address financing strategies focusing on activating and promoting the participation of the private sector in transport projects; capacity constraints; lack of inter-modal equipment and missing link infrastructure,
- Renewing the development of a comprehensive regulatory framework,
- Continuing with the reform of the transport sector, including: institutional building, organizational restructuring; capacity building; strengthen and if necessary establish strategic planning units and develop better asset management procedures for different sectors, and
- Promoting the use of intelligent transport systems and information technology in managing and operating all modes of transport as well as supporting intermodality. However, information on fully completing such transport strategy is unknown.

**Transport policy and planning**, Agence Française de Développement (French Development Agency, AFD) and Egyptian Government are working together in the transport sector, mainly in developing efficient and less polluting urban transport. In this regards AFD is to:
a) provide technical support and expertise for pilot urban public transport projects with the aim to slow GHG emissions from individual vehicles by implementing public transport policy; and

b) Collaborate with the Egyptian government to overseeing a public transport improvement in Alexandria – this study is funded by EU87.

In December 2014, Egypt’s Prime Minister issued and sent a letter to all government entities to save 20 per cent of fuel cost. This decree was also supported by the Minister of Petroleum and Mineral Resources’ letter that was issued to save energy in all administrative buildings in this sector. It also includes the provision for lowering fuel consumption of governmental vehicles to save on fuel cost, switching off air conditioning (AC) systems by the end of working hours (16:00), and setting AC’s temperature at 24°C to lower energy use. This Energy Efficient Plan is applicable to public buildings and aims at saving energy use and lowering CO₂ emissions.

Urban Planning Strategy

In Egypt, the vision for developing cities, in general, has been set by the General Organisation for Physical Planning (GOPP) to include: a) Environmental competitiveness; b) Eco-friendly; and c) social equity. Also, the development pillars for cities were outlined to address SD, including88:

- Better environmental sustainability (BES),
- Develop infrastructure for transportation and network,
- Ensure effective system of governance for management of development projects,
- Develop new urban communities and diverse attractive urban centres,
- Create a better tourism environment,
- Ensure competitive environment for knowledge based economy, and
- Achieve social justice and improve social conditions.

For the first pillar – BES, the following are the main aspects88:

- Enhance the environmental conditions to achieve sustainability,
- Apply environmental legislations and regulations that assure improvement of citizens’ health,
- Lower air pollution from vehicles’ exhausts through upgrading public transportation,
- Develop potentials and capabilities of solid waste management,
- Raise dependence on new and renewable energy sources, and
- Increase green area per capita to enhance the quality of life.

Part of the planning strategy development for the Upper Egypt-Red Sea axis is to execute a regional plan that aims at establishing a-nuclei (nucleus) and to develop the eastern desert through horizontal axes that connect the Nile Valley with the Red Sea. Manufacturing, mining and tourism are among the economic activities that can be promoted and fostered to attract private and foreign investments and generate job opportunities, with the aim to attract population to this region by the year 2027.

In 2014, the Cabinet of Ministers reviewed the regional plan to issue necessary decrees, to mobilise resources, and the machinery for implementing it. In the Strategic Development Plan (SDP) of the southern Egypt mainly, implementation mechanisms have been developed by GOPP. The SDP aims at providing a legal and procedural framework for achieving SD, through:

- Assisting the project’s partners in developing an institutional framework for planning and participatory management, and forming partnerships to attract investments as well as ensuring continuity of the implementation process;
- Building and developing the capabilities of employees at GOPP and local authorities;
- Preparing and publishing guidelines for investments at the city and local community levels; and
- Conducting consultations to prepare local plans for local development in light of the SDP88.

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ROJECT IS FINANCED BY THE EUROPEAN UNION AND IS IMPLEMENTED BY THE HUMAN DYNAMICS CONSORTIUM
One of the CES-MED project outcomes will address the SDP and assist in achieving the above said aims, specifically “Build and develop the capabilities of employees at the local authorities”.

The GOPP has developed a general strategic plan (GSP) for the development of Southern Egypt, where both governorates (Luxor and the Red Sea) are included. In the GSP, the city of Luxor has three projects: a) Upgrade and develop North Karnak region; b) Develop the Golden Triangle area; and c) Develop the temple area – Esna, whereas the Red Sea Governorate has one project, which is the regional development plan for Raas Hadraba region.

Urban Communities Development

The MoEnv adopted a strategy to promote green building based on the contemporary trends of Sustainable Environmental Compatible Building (SECB) that encompasses many green features (more details are available in Annex II). The general principles for GB design are:

- Fostering a better environment and protecting the planet in general,
- Saving energy, water and protecting other natural resources,
- Achieving sustainability in buildings to support economy,
- Using materials that have less negative impact on the environment through production, use, maintenance or disposal, and
- Disposing of waste in a manner that doesn’t produce negative impacts on the environment and waste treatment to protect the ecosystem.

Thus, promoting sustainable building and rationalising construction methods, besides reducing energy consumption are the pillars upon which sustainable development can be realized for this sector with the support of the society. Part of the strategy actions indicates:

- Buildings must be compatible with the surrounding environment, based on sustainability; and
- Adopt and use of modern technologies and the possibility of energy transfer and advanced building material sources.

Various stakeholders (e.g., architects, engineers, and planners) now face the challenge of selecting and updating developed technologies in a way that has a lower adverse effect on the environment and at the same time providing the comfort parameters needed inside buildings.

The United Nations Development Programme (UNDP) has developed strategic plans and technical support in the Urban Planning and Building sectors. This technical support resulted from a seamless collaboration between the Government of Egypt (GoEG) and the UNDP. The following section highlights these strategic plans in different areas:

a. Strategic Urban Planning
   - Strategic Development Plan (SDP) of Southern Egypt (New Valley). The SDP started in 2002 and completed in 2017. The leading Egyptian partner is GOPP.
   - Participatory Strategic Urban Planning for Alexandria City till 2032. The SDP started in 2009 and completed in 2015. The leading Egyptian partners are GOPP and MoHUUD.
   - Participatory Strategic Planning for Balanced Spatial Development. The SDP started in 2009 and completed in 2014. The leading Egyptian partner is GOPP.
   - Strategic Development Plan for Greater Cairo Region 2050. The SDP started in 2007 and completed in 2014. The leading Egyptian partners are GOPP and UN-Habitat.

b. Technical Support
   - Technical Support to MoLD to aid in enhancing the Local Development. The technical support started in 2007 and completed in 2014. The leading Egyptian partner is MoLD.
Urban Planning Plans

As per the National Energy Efficiency Action Plans (NEEAPs), the participating countries in the region set targets in line with Policy Framework of Energy Efficient Practices (PFEFPs), which is in the process of being implemented to reduce energy consumption and promote the use of RE. Egypt has a target of 20 per cent by 2020, and the NEEAP includes measures of street lighting and solar water heaters.

The outcomes of an Urban Planning Workshop on Energy Efficiency were based on two trainings on Energy Efficient Urban Planning that were conducted at the Urban Training Institute (UTI) of the Housing and Building Research Centre (HBRC), under the Ministry of Housing, Utilities, Urban Development (MoHUUD) in Cairo, Egypt in 2013.

A guideline by MED-ENEC, developed in 2014, covers various aspects and scales of interventions for energy efficient urban planning. This action is based on five main categories: a) climate and topography; b) urban structure, including mobility and accessibility; c) urban morphology (principles); d) building types; and e) Renewable energy. In addition, an Energy Efficiency Urban Planning Checklist was also developed to assist in energy savings.

The AFD in collaboration with the Egyptian authority developed a Strategy - Axe 3: to protect and valorise the natural and cultural heritage, including main strategy themes:

- Promoting sustainable management of water resources (volume and quality),
- Reducing polluting industrial emissions, CO₂ emissions, and promoting EE and RE,
- Development and management of natural protected areas, and
- Development of archaeological sites.

Action Plans

Urban Communities Development

Project: Rehabilitation of the Third District of Sheikh Zayed – 6th of October city, Governorate of Giza

In an effort to develop sustainable and environmentally friendly districts; the MoEnv and MoHUUD signed a cooperation protocol at the end of 2013 to pursue a study and the execution of a pilot project for the rehabilitation of new cities to be green and sustainable, as part of an eco-friendly city.

The proposed action plan encompasses activities and environmental development projects:

- Preparation of guidelines, including standards for sustainable rehabilitation of green cities,
- Application of pilot models for integrating management of solid waste,
- Establishing a model for PV cells to raise awareness on the vital role of RE such as solar energy,
- Rehabilitation of green spaces for the development of the third district,
- Establishment of an environmental corner as a cultural and developmental centre, and
- Awareness and capacity building and training programmes.

Programmes

Awareness and training programmes

In an effort to develop and increase the level of awareness, the programme was divided into several regions and phases as listed below:

Region 1

Phase I: The purpose of this task was to measure the level of environmental awareness of environmental issues through questionnaires which can be found in Annex III in this report.

Phase II: Preparation of training and awareness programmes on environmental issues for various targeted categories in the community. More details can be found in Annex III in this report.

The United Nations Development Programme (UNDP) has also developed programmes and initiatives in the Urban Planning and Building sectors. This programme resulted from a seamless collaboration.
between the Government of Egypt (GoEG) and the UNDP. The following section highlighted these programmes in different areas:

c. Community Development
- Using ICT for Comprehensive Community Development. The programme started in 2013 and will be completed in 2018. The leading Egyptian partners are The Egyptian Ministry of Communications and Information Technology (MCIT).

Programme - Green Building
The Green Building programme included a number of workshops:

- Workshop under the title of “Sustainable Development” in June 2014 and is under the supervision of the Director General of Environmental Development, and
- Questionnaire entitled "Calculate Your Carbon Footprint" was distributed on 12 young participants in order to review their attitudes toward the environment and how they took the necessary decisions, by answering the questionnaire and calculating the total correction points in the questionnaire.

Region 2
- Air Pollution and Air Pollution Questionnaire, and Noise Resources and Noise Questionnaire.

Region 3 and 4
- A workshop entitled "Renewable Energy and Energy Rationalization in New and Urban Communities" was organized in November 2014 to view what has been achieved in the project of rehabilitation of Sheikh Zayed City as a green and sustainable city with the stakeholders. The workshop included a number of related seminars among them:
  - Improving energy efficiency projects to enhance energy efficiency,
  - Energy rationalization by using the LED technology and solar power plants in the new cities – Advisor at MoERE,
  - Environmental achievements to improve the Third district as a pilot model - General Manager of Environmental Development at EEAA,
  - Green Cities and SD, Higher Institute of Public Hygiene - University of Alexandria,
  - A seminar on "Health and the environment" was conducted and attended by 150 primary and preparatory school pupils in Sheikh Zayed City, and
  - A seminar entitled environmental pollution risks was attended by 30 students from Al-Azhar Institute, social specialists, and athletes in El Sheikh Zayed Youth Centre.

Conclusions of all workshops concluded the following recommendations:

- The importance of applying the Building energy efficiency code (BECC) in established or rehabilitated residential and commercial buildings. BECC was issued according to ministerial a Decree in 2005 for residential and 2009 for commercial buildings.
- Widening the use of LED technologies, whether in buildings or street lighting because of the important role in improving energy efficiency in cities,
- Focusing on the role of universities, schools, and NGOs in spreading environmental awareness of the importance of LED lamps’ use to rationalize energy consumption and reduce pollution.
- Raising the environmental awareness and boosting training among all residents of the new cities, and in all governmental entities and agencies on the importance of energy for SD.

Environmental awareness, training and capacity building
The development of residential areas Department participated in the following event. Workshop on "A strategic vision for re-using treated wastewater in Egypt by 2030", in the field of developing slums, with participation of the Advisory Board and stakeholders for cities adaption to climate change risks in cooperation with GIZ.
Nevertheless, GIZ also launched a programme on Climate Change Adaptation – PDP in informal settlements in Greater Cairo. It is in collaboration with MoHUUD and Governorates of Cairo and Giza. This CCA programme started in 2013 and is ongoing.

Projects

The World Bank developed two projects in the Building sector:

- **Inclusive Housing Finance Programme.** The project started in 2015 and is ongoing until 2020. The leading Egyptian partner is the MoHUUD.
- **Affordable Mortgage Finance DPL.** This project started in 2009 and was completed in 2015. The leading Egyptian partner is the MoHUUD.

Electricity Sector

Energy Efficiency Plans and Capacity Building schemes

In 2016, the Regional Centre for Renewable Energy and Energy Efficiency (RCREEE) has launched a call for proposals to implement “The Certified Energy Management Professional” training and certification scheme (CEMP) in cooperation with the MoERE and the League of Arab States (LAS). This pilot scheme falls under article 7 of the Arab Energy Efficiency Guideline (AEEG) that was adopted by the Council of Electricity Ministers of the LAS (resolution No. 195 of their 26th meeting held on November 23, 2010). The overall objective of the CEMP scheme is to develop, implement and evaluate the first CEMP pilot training and certification scheme. The scheme is established by the MoERE to provide EE training for large electricity consumers that fall under Art. 48 of the new Electricity Law and intended to enhance their capacity for meeting the related energy reporting requirement, and energy savings target as well as serving the market’s needs and regulations.

It is now mandatory in accordance with the New Electricity Law, Art. 48 to appoint an energy manager for consumers (EMC) with more than 500kW contracted load and improvement of end user electricity efficiency (EUEE). This needs Certified Energy Managers (CEM) and the form and method of how the training, examination, and certification are to be handled. The CEMP is carried out with the perspective of up-scaling and replication in Egypt and other countries in the MENA region, in case positive evaluation and related requests are granted after successful delivery of a pilot training and certification in Egypt. In addition, the CEMP training and certification scheme will provide a sound overview for EE opportunities and their implementation in buildings/ industry with a certification exam and qualification as an outcome.

Action Plans

In 2015, the MoERE launched an action plan for the electricity sector and it is established around three main pillars: a) Security; b) Sustainability; and c) Governance.

Key action: Security

The MoERE put forward action plans to boost energy supply through a set of policy measures to:

- Expand power Generation and transmission capacity,
- Diversify Energy Supply and Energy Mix, and
- Secure new LNG Import contracts.

Key elements

- Award contracts for upgrade transmission and distribution networks; leading institutions - EETC/DISCOS (2015 - 2016),
- Award contracts for new generation capacity by 2022 (54GW); leading institutions - EEHC/ EETC (2016-2019),
- Sign agreements for port, FSRU, pipeline and LNG shipments; leading institution - EGAS (2015).
- Award contracts for 12.5GW of coal-fired power generation; leading institution - EEHC
• Award contracts for 4GW of nuclear power generation; leading institutions - EEHC/NUCLEAR
• Award contracts to expand RE capacity to 25 per cent by 2022; leading institutions - EETC/NREA
• 3GW interconnector with Saudi Arabia; leading institute – EETC49.

Programmes
Between 2014 and 2015, fifteen (15) programmes on EE were announced, of which only four programmes have been completely executed between 2014 and 2015, and are detailed as follows40:

a) Distribution of 6.5 million energy efficient lamps. The amount of saving out of this programme is 3.1 billion kWh (Equivalent to 0.78 million tons of petroleum).

b) Reduction in electricity grid losses (reduced from 13.48 to 10.6%).

c) Energy saving programme in residential and governmental buildings using LED lamps (supply of 10 million LED lamps to be distributed).

d) A programme for installing high efficiency lamps for planned projects. It included 3,000 high-efficiency lamps for public street lighting; a programme amounting to approximately 535,000 high-efficiency lamps between 2012 and 2015.

Also, for the planned programmes 4575.66GWh are expected to be produced. These were planned between 2012 and 2015. This is in addition to three plants to save 2,550,800 TMN. In addition, a national plan for Energy Efficiency that was approved in 2012, is currently followed up and executed40. Also, the process of releasing regulations to encourage private sector for investment in energy production from renewable resources are underway and commenced after Egypt’s Economic Summit held in March 2015 in Sharm El-Sheikh41.

Energy Efficiency Plans
Energy efficiency plans in the electricity sector were developed in Egypt between 2012 and 2015 with savings of 5,566 GWh, mainly by measuring daylight and EE in the building sector.

Public Lighting
It is estimated that lighting accounts for nearly 6 per cent of global CO₂ emissions (1,900 million tons of CO₂ per year), which is the equivalent of the CO₂ emissions from 70 per cent of the world’s passenger vehicles, thus a considerable cut in carbon emissions can be done if lighting is more energy efficient.

In Egypt, lighting is consuming an average of 28-30 per cent from the produced electrical energy with an annual average increase of 10 to 11 per cent during the past two years (2013 and 2014); such consumption has increased over the past 10 years by 7.2 per cent. According to a study by MED-ENEC, almost double the existing generation capacity from 27GW (2010) to 50GW by 2020 will be required and probably another 120 GW by 2050, if the consumption pattern continues to be “Business as usual (BaU)”. Families and businesses already suffered hours of daily blackouts in some areas in 2013 and early 201440. However, this electricity disturbance has not taken place since 2015.

MED-ENEC has also developed procurement and planning for public street lighting that includes steps-tender conditions-key conditions of tenders, specifications- tender forms and other details. For further details, please visit reference40.

As part of the 2012 National Energy Efficiency Action Plan (NEEAP), the Egyptian government proposed concentrated activities in this field. If EE in lighting would be implemented, more than 10 per cent of the power capacity would not be needed and blackouts would be decreased. Energy efficient lighting design often produces savings between 50 per cent and 80 per cent40.

Energy Efficiency in the Construction Sector in the Mediterranean (EECS-MED), a funded project by EU, has developed Guidelines and recommendations for the MENA region (January 2015).
The guidelines and recommendations focus on issues such as: a) The political leadership perspective; b) The boardroom perspective; c) Outdoor lighting; and d) Public procurement and planning. Egypt was a pioneer in applying for large tenders for EE street lighting in 2010:

- 360,000 street lighting poles using high lumen HPS lamps and electronic gear was installed,
- The next step was replacing 5 million magnetic ballasts with digital dimmable ballasts until 2016,
- Street lighting is consuming 2,400 GWH at the present stage and is expected to save up to 1,200 GWH implementing the NEEAP and using smart lighting harvesting technologies.

Egypt has developed an “Energy Efficiency Plan in the Electricity Sector” between 2012 and 2015 saving 5,566 GWH – mainly by measures in the lighting sector including:

- The first phase: Change to high-efficiency lighting in the household sector. The planned distribution of 60 million bulbs shall save 3,320 GWH,
- The second phase: programme of energy efficiency standards and labelling for household appliances. This shall save 1,663 GWH, and
- Energy saving in street lighting of 1,200 GWH; supported by the Association of Energy Efficiency Engineers (AEEE).

This guideline was further supported by a 5-day seminar about EE lighting procurement that was successfully conducted in cooperation with the Ministry of Electricity and Renewable Energy (MoERE), Cairo in 2013, 2014 and 2015.

The UNDP developed two projects in the EE sector:

- Improving Energy Efficiency for Lighting and Building Appliances. The project started in 2011 and will be completed in 2017. The leading Egyptian partners are MoERE, NREA, Egyptian Electricity Holding Company (EEHC), Egyptian Authorization for Standards (EAS),
- “Waty El Watt” campaign (meaning lower your watt usage). The project started in 2015,
- More data is available at the UNDP 2015 Achievement Report.

The UNEP also developed a project in the EE sector concerning the Energy Saving Programme in Egypt (MEDREP Finance PROSOL). The leading Egyptian partners are MoERE and NREA.

The AFD developed two projects in the RE sector:

- A photovoltaic power plant to support renewable energy. This project was completed in 2014. The leading Egyptian partners are MoERE and NREA, and
- Construction of a wind farm of 200 MW on the western coast of the Gulf of Suez. The project was completed 2015. The leading Egyptian partner is the MoEnv.

Projects – Energy sector

The AFD developed the following project in the Energy sector, Extension of natural gas network: connecting 2.4 million households in Egypt. The project was completed in 2015. The leading Egyptian partner is the MoPMRs and EGAS.

Projects – Electricity sector

EU-funded Twinning project

In July 2016, the Egyptian Electric Utility and Consumer Protection Regulatory Agency (EgyptERA) launched the EU Twinning project in partnership with the Regulatory Authority for Energy of the Hellenic Republic (RAE), and the Italian RAE, Gas, and Water (AEESGi). This project comes as part of efforts to develop the Egyptian electricity sector under the auspices of the MoERE and the Support of the Association Agreement Programme (SAAP) of the MoIC, funded by the EU. The implementation period was 24 months with a budget of Euros 1.225 million. The project aims at offering technical support for Egypt’s electricity and power sector, through contributing to the institutional reform and
modernization of the Egyptian public administration, yet improving the business climate for investment in these sectors in Egypt. Hence, assist in enhancing the services provided to consumers.

The EU Twinning project is an essential step for Egypt’s electricity sector to achieve its strategic objective of interconnecting the Egyptian power system with neighboring countries and ultimately with the European network. The EU twinning project has three main components:

- **Component A** – Electricity Market transition (ensuring that all conditions for the implementation of the transitional phase of electricity market opening are met), simulating regulated and competitive market operations and analyzing potential ways in which it may evolve, and providing monitoring guidance and support as the market begins to open.
- **Component B** – Legal and Regulatory Framework (mainly review existing licenses, provide guidelines for drafting further needed licenses, draft a Licensing Regulation, develop a procedure to monitor companies’ compliance with their license terms and establish procedures for public hearings and dispute resolution).
- **Component C** – Standards, Performance Assessment and Benchmarking, and Investment Planning (review and refine the rules for reporting, monitoring, and benchmarking of key technical and financial indicators of the regulated companies in order to improve the efficiency of utilities in relation to tariff setting; it reviews the current tariffs and subsidies’ schemes and investment planning, including evaluation of power system adequacy under the new market rules).

The above three sections (A, B, and C) are mainly designed to manage the first transitional phase of the development of the electricity sector by applying the legal and regulatory framework, systems and standards, and performance evaluation and measurement.

The AFD developed and financed a number of projects in the Electricity sector:

- DRCC: regional control center in the Delta. The project will be completed in 2016. The leading Egyptian partners are MoERE and EETC/ EEHC, and
- EPTP: Strengthen high voltage electricity network (automated grid). The project was completed 2010. The leading Egyptian partner is the MoERE and EETC.

The EBRD developed two projects in the Electricity sector:

- Power sector energy efficiency project, completed in 2013. The leading Egyptian partner is MoERE, and
- Damanhour CCGT, a project completed in 2015. The leading Egyptian partner is the MoERE.

The World Bank developed a number of projects in the Electricity sector:

- EG-El Tebbin Power. This project started in 2006 and was completed in 2012. The Egyptian partners are MoERE and EETC/ EEHC,
- EGYPT Energy/Social Safety Nets Sector Reforms Technical Assistance. The project started in 2013 and was completed in 2016. The Egyptian partners are the MoPMRs, MERE and Egypt-ERA,
- First Fiscal Consolidation, Sustainable Energy and Competitiveness DPF. The project started in 2015 and will be completed in 2017. The leading Egyptian partner is the MoERE,
- EG Ain Sokhna Power Project. This project started in 2009 and will be completed in 2017. The leading Egyptian partners are MoERE and EETC/ EEHC,
- EG-Giza North Power Project. This project started in 2010 and will be completed in 2017. The leading Egyptian partners are MoERE and EETC/ EEHC,
- EG-Giza North Additional Financing. This project started in 2012, and
- EG-Helwan South Power Project. This project started in 2013 and will be completed in 2019. The leading Egyptian partners are MoERE and EETC/ EEHC.
In 2016, the MoERE and Shanghai Electric signed the final contract to establish a clean coal-fired power plant with a capacity of 2,640 MW.

**Energy Strategy**

According to the Minister of ERE, 54GW of new installed capacity (conventional and renewables) is needed through 2022, and on-going reforms in the regulatory framework and subsidies would create large opportunities for the private sector. In March 2015, the Minister of ERE highlighted the main challenges as follows:

- Electricity demand growth is exceptionally high (6 per cent p.a.),
- High energy intensity: 26 KBT/US$ in line with large net oil exporters,
- Power generation deficit (6 GW needed annually through 2022), and
- Energy subsidies reached 7 per cent of GDP in 2013/2014, but has been lowered in 2016.

A strategic EE roadmap and energy prices have been adopted by the Egyptian government. The new energy prices policy takes into account the low income of a large proportion of the population, as well as the competitiveness of industry, and aims not to jeopardise their supply. In addition, jobs and income are to be created in the development of renewable energies and energy efficiency.

**Energy Strategy 2015-2030**

In August 2016, the Minister of Petroleum announced the Ministry’s strategy 2030 as part of Egypt’s Strategy 2030.

The Egyptian Government has set plans to increase the share of Renewable Energies in its electricity supply from the current 9 per cent to 20 per cent by 2020. Many laws, by-laws and regulations have been developed and endorsed, as indicated by Egypt-ERA, under 3.1 Laws and Regulations. Given that RE only made up 2 per cent of the total energy mix in 2012, and that EE measures were not yet deployed at a large scale, the targets are ambitious, indicating a strong political will to reduce the energy consumption.

An institutional strategy for energy efficiency has been adopted by the Egyptian cabinet to be politically viable, with the aim to establish bundles of decentralised Energy Efficiency Offices (EEOs) in energy-intensive sectors. These EEOs will be responsible for achieving sector-specific energy efficiency indicators. The EEO of the Ministerial Council for Energy Issues (MCEI) is responsible for drawing up energy efficiency governmental policies and for coordinating energy efficiency measures across sectors.

Following the model of the Arabic energy efficiency guidelines, the Ministry of Electricity and Renewable Energy (MoERE) has agreed on and adopted a national action plan that provides an increase of approximately 10 per cent in energy efficiency in the electricity sector.

**The National Renewable Energy Action Plan (NREAP)** was developed and finalized in March 2015.

**Strategy for Renewable Energy 2027**

Egypt has developed a strategy for renewable energy covering seven objectives. These strategic objectives will lead to the increase of the shares of solar energy, wind energy and electricity generated from water to 26,000 MW. The Egyptian Government has also developed a plan for improving Energy Efficiency in the electricity sector to save electricity from total generated power in 2015 by 5,576 GWh. This forms about 5 per cent of the total generated Electricity. In addition, Egypt has set a target to produce energy from wind.
Furthermore, Egypt is planning to produce 20 per cent of its total energy generation out of renewable energy sources (9,500 MW), of which 12 per cent will be produced by wind energy (equivalent to 7,200 MW), 2 per cent from solar energy, and 6 per cent energy produced by water.

A target to produce electricity from solar energy to the capacity of 3,500 MW by the year 2027 has been also set. This detailed share and production, including the 2,800 MW produced through thermal solar energy, and the 700 MW through photoelectric power are summarized in Table 2. In total, 26,000 MW (26GW) are predicted by 2020 - 2027 as shown in Table 2.

For the development of the baseline emissions, as part of SEAPs (SECAPs) development, energy data and indicators are essential. The MoRER and MoPMRs are working on a National Energy Database with support of the EU funded TA to REEEP project.

The MoPMAR developed an indicators database (processed energy data) in each factory, but not yet on the national level, GHG emission per factory will be part of said database. The MoEnv may have a study on this part, but is not available.

Table 2 Egypt’s Renewable Energy Objectives/Targets

<table>
<thead>
<tr>
<th>Target</th>
<th>Target Date</th>
<th>Value (MW)</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>– Share of renewable energy in total energy produced (RE)</td>
<td>2022</td>
<td>9,500</td>
<td>20</td>
</tr>
<tr>
<td>– Share of wind energy in total energy produced (Wind)</td>
<td>2020*</td>
<td>7,200</td>
<td>12</td>
</tr>
<tr>
<td>– Share of Solar energy in total energy produced (Solar)</td>
<td>2020*</td>
<td>2,300</td>
<td>2</td>
</tr>
<tr>
<td>– Share of electricity produced by water in total produced energy (Hydro)</td>
<td>2020*</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>– Producing electricity from solar energy (Solar)</td>
<td>2027</td>
<td>3,500</td>
<td>-</td>
</tr>
<tr>
<td>– Share of Thermal Solar energy from total produced energy (Solar)</td>
<td>2027</td>
<td>2,800</td>
<td>-</td>
</tr>
<tr>
<td>– Share of Photoelectric energy from total energy produced (Solar)</td>
<td>2027</td>
<td>700</td>
<td>-</td>
</tr>
</tbody>
</table>

*RTargets for 2020 is 20%

Renewable Energy and Energy Efficiency

Plans – Renewable Energy

In 2016, IRENA issued a report on the Roadmap of RE future 6 about the REmap that offers a global plan to double the share of renewables in the world’s energy mix by 2030. It highlighted countries’ opportunities in doubling RE share. According to IRENA, Egypt is expected to have less than 1 per cent renewable energy (% indicates how much renewable energy each country consumes in 2030), if the REmap Options are deployed.

Programmes and Initiatives

The Egyptian-German Committee on Renewable Energy and Energy Efficiency (EG-JCREEE) was established and commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The lead executing agencies in Egypt are the Ministry of Electricity and Renewable Energy (MoERE) and the New and Renewable Energy Authority (NREA).

The joint committee performs its activities for the period 2015 to 2018 and cooperates with a range of interested groups, including eight Egyptian ministries, the Ministerial Council for Energy Issues (MCEI), and the Association of Egyptian Industry (AEI).

The EG-JCREEE’s objective is to develop and implement long-term strategies for renewable energy and energy efficiency. According to the EG-JCREEE the Egyptian institutions will be able to develop such transforming policies and strategies in RE and EE. The programme braces these eight entities by providing wide-ranging policy advice and holistic capacity development measures, and educational initiatives and technology transfer.
Initiatives

Fifteen initiatives were launched with the goal to enhance the statutory and regulatory framework for fostering RE and EE and conducting capacity building for key institutions, preparing and implementing national dissemination programmes. These include: a) Solar collectors for heating water; b) Photovoltaic systems; and Educational campaigns.

The GoEG launched the initiative ‘Egypt Sun’ in 2014, which aims at executing EE measures for lighting and exploiting RE sources in public buildings, including 100 – 150 projects in different areas in Egypt. It provides rooftop PV and efficient lighting systems in these buildings with an initial target to implement in 3 years (2014 - 2016). Implementing these projects will reduce electricity use by around 43 GWh annually and fuel consumption by around 9 tons of oil equivalent each year.

A training course on “Design of feed-in tariffs” has been organised for the member states by the Regional Centre for Renewable Energies and Energy Efficiency (RCREEE) in Cairo.

A Power Purchase Agreement has been developed jointly with the Egyptian Regulatory Authority (Egypt-ERA). It establishes favourable conditions in which the commitment of private investors was encouraged. With the program’s support, Egypt-ERA has developed a regulatory contract for grid access for future private power plant operators to facilitate the undergoing liberalisation of the electricity market. This is now being used in three pilot projects and extended to all companies registered with NREA in 2015.

Egypt-ERA is planning to create a national market for electricity generated from renewable sources. The strategy for establishing the trade based on certified guarantees of origin that is being put into effect.

The cabinet (GoEG) has also adopted a concept for a politically viable institutional strategy for energy efficiency (PVISEE). The PVISEE aims at establishing a series of decentralised energy efficiency offices in energy-intensive sectors that will be responsible for achieving sector-specific EE indicators.

According to the Minister of Petroleum and Mineral Resources’ (MoPMRs) decree issued in March 2015, all administrative buildings of the MoPMRs are to be energy efficient. This training scheme led to the training of 150 directors and Energy managers who will be responsible for these buildings’ energy performance. The training programme is entitled: “Energy Saving and Energy Efficiency in Administrative Buildings of the Egyptian Oil and Gas Minerals Resources Sector Resources Sector—EOGMRS.” The training aimed at raising awareness and building an understanding of Egypt’s energy efficiency mapping and playing a role in shaping the country’s future. The 5-day programme encompasses the following modules:

- Strategies of ES and EE in Public Buildings – The Role of Energy Coordinators;
- Energy Efficiency in HVAC Systems;
- Approaches and Procedures of ES and EE in buildings;
- Energy Efficiency and Savings: Artificial Lighting; and
- EE Technologies & Retrofitting Case Studies.

These energy managers are expected to accomplish:
- A better direction for building energy saving (ES) and energy efficiency (EE) strategies.
- Equip participants with the essential tools to improve buildings in terms of energy conservation and making these buildings efficient.
- Strengthen attendees’ know-how of EE.
- Enhance communication of ES and EE.
- Build capacity to support government targets of savings - 20 per cent of the total use of 2014.
- Ability to measure and audit EE in buildings.
g. Provide empowerment in monitoring EE action plan as part of sustainable energy action plan.
h. Reduce energy use by 20-30 per cent through adopting ES and EE measures\textsuperscript{108}.

**Initiatives**

**National Energy Efficiency Action Plans (NEEAP) in Egypt**

The NEEAP in Egypt is a strategic national plan framework that assists Egypt as part of the Arab Countries Framework to implement energy efficiency goals (EEG). The initiative was launched in 2010 with the aim to foster and improve electrical energy efficiency and consumption rationalization for end users in Egypt and the Arab states. The guideline can be applied to energy suppliers, distributors, and energy end-users. RCREEE was mandated by the Arab Ministerial Council of Electricity for monitoring the progress of NEEAPs, as well as the publication of annual reports.

The guideline advocates indicative targets, mechanisms, incentives, institutional frameworks, and financial and legal measures needed to seamlessly minimise the barriers in national markets. It also assists governments to set strategic six-year plans on two three-year phases for EE and puts plans for progress monitoring\textsuperscript{110}.

In August 2016, RCREEE in collaboration with MoERE and the League of Arab States (LAS), the German project DIAPOL-CE, and regional GIZ project RE-ACTIVATE held a coordinative meeting on Egypt’s National Energy Efficiency Action Plans (NEEAP).

In the framework of the NEEAP for Egypt, a review of the continuing procedures implemented for NEEAP by all stakeholders involved took place, and the barriers facing the execution of NEEAP were highlighted. Discussion about the project that concerns Employment promotion through renewable energy and energy efficiency (EPRREE) in the MENA region was also carried out in RE and EE fields.

In addition, a methodology for developing and implementing NEEAP was presented by LAS.

The DIAPOL-CE project shared the experiences of NEEAP development and funding acquisition for action implementation. Nevertheless, recommendations and future steps needed to advance the NEEAP in Egypt were underlined\textsuperscript{111}.

The NEEAP in Egypt includes various sectoral measures:

- Street lighting rationalization program,
- Rationalization programs for households, and
- Public utilities and facilities.

Potential saving of 5,566 GWh summing up to 4.96 per cent of the national energy production until 2015 was identified, of these savings, the following are the percentages:

- 59.7 per cent will be accomplished by virtue of exploiting high-efficiency lighting in households,
- 29.9 per cent by asking and motivating households to switch to high-efficiency appliances\textsuperscript{112}.

**Projects - Renewable Energy**

The recent forecast in the Middle East Solar Association’s (MESIA) annual outlook concludes that solar power projects and installation in the region will be increasing due to lower costs of oil, since the photovoltaic (PV) and Concentrated Solar Power (CSP) market will be spurred in the region rather than slowed down by the low oil and gas prices\textsuperscript{112,113}.

It is expected that 2,020 MW of solar generation capacity will be tendered in 2016 since Egypt, Jordan and Morocco’s installations are growing on an annual basis.

In Egypt, more than 1,500 MW is commencing during 2016\textsuperscript{112}. In 2016, a memorandum of understanding (MoU) has been signed between the Egyptian Government and TBEA-SunOasis, China,
to build a 1GW solar power plant, as part of the country’s efforts to diversify its energy mix through investing in renewables.

According to the Minister of MoIC, this power plant will be built in two phases, each of 500MW. In addition, Siemens has already planned to build a major wind power drive in 2015 through an agreement for 2GW of wind capacity and a rotor blade factory\textsuperscript{114}.

MESIA report also highlighted that the Egyptian example exhibits that it is possible to develop a solar market quickly, even from scratch. The new 2.3 GW solar programme has immensely engrossed and attracted positive responses from investors, and the first large-scale solar power plants being built this year will be realised. Moreover, MESIA anticipates that the installations of over 1,500 MW will be executed in 2016\textsuperscript{113}.

These two projects of 3GW (TBEA-SunOasis and Siemens) would contribute and support the government’s efforts to achieve Egypt’s targets of 20 per cent renewable energy by 2020.

There are many projects in the electricity sector that resulted from a seamless collaboration between the Egyptian and Japanese governments represented by JICA in Egypt. The following section highlighted these completed projects and that are in the pipeline in relation to the types: a) Electricity-Renewable Energy, and b) Electricity-Energy Efficiency\textsuperscript{115}.

a. Electricity: Renewable Energy

- Construction of 20 MW Solar Power Plant to supply electricity and mitigate climate change. JICA assistance amount was JPY 11 billion (approx. € 97,345,133 million) - DD by JICA Grant in JPY 100M (approx. € 884,956). The project’s agreement was signed in 2016 and its expected end date is 2019. Leading Egyptian institutions are the MOERE and NREA.
- Construction of 220 MW Wind Power Plant at Gulf El Zayt to produce electricity and mitigate climate change with JICA assistance amount of 38.8 billion JPY (approx. € 343,362,832 million). The project’s agreement was signed in 2010 and its expected end date is 2017. Leading Egyptian institutions are the MoERE and NREA.
- Construction of 120MW Wind Power Plant Project at Zafarana to produce electricity and mitigate climate change with JICA assistance of 13.5 billion JPY (approx. €119.5 million). The project agreement signing date was 2003 and end date was 2008 (opened 2015). Leading Egyptian institutions are the MOERE and NREA.
- Survey of West of Nile Valley area for assessment of Wind Energy potential. The JICA assistance amount was JPY 401 million (€ 3,548,673 million). The project’s agreement was signed in 2011 and end date was 2013. Leading Egyptian institutions are the MOERE and NREA.
- Construction of 140 MW Integrated Solar Combined Cycle Plant at Kuraymat to produce electricity and mitigate climate change – a project in cooperation with GEF through the WB, with JICA assistance amount of 20 billion JPY (approx. € 177 million). The project’s agreement was signed in 2008 and end date was 2011. Leading Egyptian institutions are the MOERE and NREA\textsuperscript{115}.

b. Electricity: Energy Efficiency

- Energy Control System Upgrading Project in Upper Egypt. JICA assistance amount was JPY 10.7 billion (€ 94.690,266 million). The project’s agreement signing date was 2008 and its expected end date is 2019. Leading Egyptian institutions are the MOERE and the Egyptian Electricity Transmission Company (EETC).
- Reduce energy loss and improve the reliability of power supply to target areas through upgrading electricity systems and networks. JICA assistance amount in JPY was 24.7 billion (€ 218.584,071 million). The project’s agreement was signed in 2016 and expected end date is 2022. Leading Egyptian institutions are the North Cairo/ North Delta/ Alexandria Distribution companies and the
Egyptian Electricity Holding Company (EEHC), eventually to be a transmission system operator (TSO).\textsuperscript{115}

Small solar systems of less than 1 MW have become applicable in emerging economies. For example, in Egypt, the Ministry of Agriculture (MoAgr) has installed a rooftop system of 140kW, with battery storage\textsuperscript{116}. Moreover, the Egyptian government has signed two agreements with the German Bank for Development (Kreditanstalt fuer Wiederaufbau, kfW) on December 22, 2010, in which renewable energy projects received financing of 284 million Euros.

The first agreement was signed with the Central Bank and the Central Authority for Energy to finance wind farms in Khalig El-Zein on the Red Sea (192 million Euro); and the second agreement was signed with the Ministry of WRI and the Ministry of ERE, where the bank offered 92 million Euros to finance Assiut dam and hydropower plants\textsuperscript{117}.

The German Development Bank, kfW provides funds and is currently supervising many projects in the Energy sector. These projects resulted from a seamless collaboration between the Egyptian and German governments. The following section highlights these completed projects and those undergoing developments in the pipeline in relation to types: a) Energy-Renewable Energy; and b) Energy -Energy Efficiency; c) Environmental Protection measures\textsuperscript{118}.

a. Energy: Renewable Energy (wind)
   - Wind Farm of 160MW capacity in Zafarana to generate electricity from a clean energy source, kfW fund of EUR € 92 million. The project started in 2004 and was completed in 2008. The leading Egyptian institution is NREA - MoERE.
   - Wind Farm of 240MW capacity in Gabal El Zayt to generate electricity from a clean energy source, kfW fund of EUR € 191 million. The project started in 2012 and is expected to be completed in 2017. The leading Egyptian institution is NREA - MoERE.
   - Wind Farm of 200 -250MW capacity in Gulf of Suez to generate electricity from a clean energy source, kfW fund is EUR € 72 million. The project is to start in 2017 and is expected to be completed in 2021. The leading Egyptian institution is NREA - MoERE.

b. Energy: Energy Efficiency (Building)
   - Energy Efficiency in public buildings to reduce energy consumption and mitigate climate change, kfW fund is EUR € 13 million. The project is to start in 2017 and is expected to be completed in 2021. The leading Egyptian institution is MoHUUD.

c. Energy: Environmental Protection measures (Power plants)
   - Rehabilitation of three thermal power plants (Shobra El Khema - Cairo, Ataka – Suez, and Damanhour- Beheira), kfW fund is EUR € 78 million. The project started in 2009 and is expected to be completed in 2017. The leading Egyptian institutions are EEHC – MoERE\textsuperscript{118}.

For Bio-Energy projects, the UNDP developed a project to generate clean energy in rural areas. The project title was Bio-Energy for Sustainable Rural Development. The project started in 2010 and was completed in 2015. The leading Egyptian partners are MoLD, MoHUUD, NREA, ARC, and the Private Sector\textsuperscript{90}.

The World Bank developed two projects in the RE sector\textsuperscript{94}:

• Kuraymat solar thermal hybrid project. This project started in 2007 and was completed in 2011. The leading Egyptian partners are MoERE and NREA.
• Egypt - Wind Power Development Project. The project started in 2010 and was completed 2017. The leading Egyptian partner is the MoERE and NREA.

Transport Sector
Strategy

In Egypt, the transport sector is a major consumer of fossil fuels, therefore, contributes a significant share of greenhouse gases (GHGs). The most common GHGs emitted from the mobile sources are carbon dioxide, nitrous oxide and methane\textsuperscript{119}. The Ministry of Transport (MoTr) developed a model freight transport (MFT) strategy in close collaboration with JICA. This is considered a world class multimodal transport infrastructure. For the MFT strategic importance, a dedicated corridor for MFT was set in Egypt’s Transport Master Plan 2012-2027 (MINTS)\textsuperscript{58}.

Egypt’s Transport Master Plan is under development to reach the strategy 2050. The MFT corridor in MINTS has identified many projects to support the MFT through 2012 – 2027. The MFT corridor in the MINTS projects represents development in all transportation modes (Ports, River, Railways, Roads, and Logistics) in order to support Egypt’s MFT Strategy. The Suez Canal Corridor new master plan is under development to support Egypt’s MFT strategy and to develop Regional MFT cooperation\textsuperscript{58}.

The Egyptian government has developed, as part of its transport strategy, a transportation master plan, including: Railways’ development, maintain and upgrade trains and their facilities and services (stations, signal systems, tracks, bridges, and tunnels, etc.). Also, the Metro completion of the three remaining phases of the third line with total estimated cost of EGP 35 billion, of which EGP 3.5 billion (investments) in 2013/2014. Roads and Bridges network to construct new roads and bridges to face the traffic congestion in the Nile Delta zone, with a total budget of EGP 2.7 billion.

In terms of Maritime, it aims at developing, maintaining, and repairing the satellite monitoring system and the maritime navigation systems in the Mediterranean Sea, Marsa Matruh and Aqaba Bay. The most important development projects in this master plan are in the Red Sea ports, Alexandria ports, Port Said and Damietta port. In this plan, the main strategic issue is to provide security, safety and comfort aspects for all transportation, facilities, networks and beneficiaries of its services\textsuperscript{55}. In 2012, a transport master plan was also developed between the MoTr and Japanese International Cooperation Agency (JICA) on a comprehensive nationwide system. The objective of this joint plan is to realize economically efficient transport, to promote modal shift and to materialize reliable, competitive and safe transport modes. The study encompasses:

- Conducting surveys and an analysis of the current condition in the transport sector,
- Conducting nationwide transport/ traffic analysis,
- Undertaking socio-economic survey and forecast up to 2027, and
- Reformulating the strategy and policies for the transport system nationwide\textsuperscript{120}.

Also, the electrification of Cairo-Alexandria train line that started in 2015 and is an on-going project. On the governorate level, the outcome of the plan can assist in driving an efficient transport network.

Programmes

Vehicle Inspection for air pollution reduction

The Government of Egypt committed itself to solve the growing problem of air pollution in cities. The MoEnv through the EEAA and USAID Programme, in collaboration with the Ministry of Petroleum and governorates of Cairo and Qalyubeya with the support of the private sector joined forces in 1990 to tackle this issue. A new Cairo Air Quality Programme (CAQP) was initiated in 1997 to reduce lead emissions from local smelters. As part of that programme, natural gas fuelled bus fleets were introduced to reduce diesel emission particulates’ pollution, the institution of a Vehicle Emissions Testing (VET) and certification programme. This VET aims at regulating emissions from more than one million vehicles in and around Cairo; and reducing the amount of pollutants in the City’s air\textsuperscript{121}.

Initiatives
Transportation Road and Safety initiatives

The Ministry of Transportation (MoTr) has developed an initiative to support the Ministry of Tourism’s (MoTm) Strategy of 2020, which is in collaboration with the Egyptian National Competitiveness Council (ENCC). This initiative is concerned with **Road safety measures including**:

- Continuation of the MoTr initiatives to improve bus/coach safety by introducing -in conjunction with the Egyptian Travel Agents Association (ETAA)- “On-The-Road Mobile Testing Units” to inspect vehicles operating in the Tourism sector (perhaps extending this to include taxis, minibuses, 4x4 safari vehicles);
- Road markings and directions on main tourism roads, if necessary funded by toll payments;
- Installation of speed cameras operated on a trial basis on main tourism areas, fines being collected on payment of road registration tax - This would reduce CO2 emissions;
- Introduction of global positioning system (GPS) and other technology to monitor behaviour of vehicles and buses;
- Safety is also an issue with river cruisers. A review along the lines planned for the railways should be undertaken to examine on-board safety procedures, particularly with respect to risks of fire and collision; and
- Inspections and checks on the quality of accommodation and facilities should extend to checking on the levels of security and health safety measures extended to clientele.

The UNDP has recently launched three initiatives in the transport sector to reduce traffic congestion, provide high-quality service buses, and establish non-motorized transport corridors in various governorates. All these initiatives aim at achieving clean transport.

Leading Egyptian partners are the MoTr, MoEnv, and MoLD:

- **Reduce traffic congestion**; a connected display system has been installed around the city center in Cairo, helping car drivers to locate vacant places in parking areas much faster,
- **Establish high quality service buses** that are integrated with an underground network to encourage car owners to shift from driving to using public transport systems,
- **Establish non-motorized transport corridors** for Fayoum and Shebin El-Kom cities with cycling tracks and improved pavements to encourage cycling and walking as clean transport,

The EBRD developed a **programme** in the Transport sector concerning ENR - Locomotive Renewal Programme, to be completed in 2016. The leading Egyptian partner is the MoTr.

The above suggests that all these measures should assist governorates in the development of SEAPs (SECAPs) to save primary energy used in vehicles and the secondary energy required for touristic facilities, hence lower GHG emissions, mainly CO2.

Projects

There are many projects in the transport sector that resulted from the seamless collaboration between the Egyptian and Japanese governments through JICA. The following section highlighted these projects in relation to sectoral types: a) Transport-Airport; b) Transport-Metro; and c) Transport Planning:

a. Transport-Airport
   - Construct an additional terminal building and the related facilities in the Borg El Arab Airport using Japanese advanced technologies and equipment to create an eco-friendly airport. JICA assistance amount was JPY 18.2 billion (approx. €161,061.947 million). The project’s start as per the signed agreement in 2016 and expected end date is 2020. Leading Egyptian institution is the Ministry of Civil Aviation (MoCA).
   - Modernize Borg El Arab International Airport by building a new terminal and related facilities to cope with the increase of air traffic of Alexandria area and improve the quality of services.
**JICA** assistance amount was JPY 5.7 billion (approx. €50,442,477.88 million). The project’s start date as per agreement was 2005 and expected end date was 2010. Leading Egyptian institution is the Ministry of Civil Aviation (MoCA)\textsuperscript{115}.

b. **Transport-Metro**
- Construction of Metro Line No. 4 - Phase 1 to meet the growing traffic demand by enhancing capacity of public mass transportation, thereby contributing to promote economic activity in the Greater Cairo region. The Project will facilitate connection from the west entrance of G. Cairo to the east and the centre of the city, and will also connect with the existing metro network, by facilitating transportation in the very congested areas, enhancing the mobility of passengers, and increasing the capacity and effectiveness of the metro networks in Greater Cairo. **JICA** assistance amount was JPY 32.7 billion (1\textsuperscript{st} tranche only); more is expected to be allocated (approx. € 289,380.531 million) - DD by **JICA** Grant (2.8 billion JPY - approx. € 24,778.761 million). The project agreement signed date is 2017 and expected end date is 2023. Leading Egyptian institutions is the MoTr and National Authority for Tunnels (NAT)\textsuperscript{115}.

c. **Transport Planning**
- The MISR National Transport Study. **JICA** assistance amount (Grant) in JPY 520 million (approx. € 4,601,770 million). The project agreement was signed in 2009 and end date was 2012. Leading Egyptian institutions is the MoTr and TPA.
- Onsite inspection and bridge repair, training and improvement of bridge management system. **JICA** assistance amount (Grant) was JPY 467 million (approx. € 4,132.743 million). The project’s agreement was signed in 2012 and end date was 2015. Leading Egyptian institutions is the MoTr and GARBLT.
- Study to enhance the capacity of developing the competitive strategy of Suez Canal Authority (SCA) to adapt to the fluctuating world maritime market. **JICA** assistance amount (Grant) was JPY 256 million (approx. € 2,265.487 million). The project’s agreement signing date was 2012 and end date was 2015. Leading Egyptian institution is the SCA\textsuperscript{115}.

The **UNDP** developed two projects in the Transport sector as follows:

- **Sustainable Transport Project for Egypt (STP).** The project started in 2010 and was completed in 2016. The leading Egyptian partners are MoEnv, EEAA, MoTr, MoHUUD, Ministry of Information (MoInf), MoWRI, GOPP, Social Fund for Development (SFD), Cairo University (CU), NGOs and various governorates,
- **Cycling Festivals.** The project started in 2010 and was completed in 2015. The leading Egyptian partners are MoLD, MoHUUD, NREA, ARC and the Private Sector.

More data is available at the **UNDP 2015 Achievement Report**\textsuperscript{90}.

Also, the **AFD** developed a number of projects in the Transport sector\textsuperscript{97}:

- **Support extension of the Cairo Metro network.** This project was completed in 2010. The leading Egyptian partners are MoTr and NAT and the Governorate of Cairo,
- **Support the improvement of urban transport in Cairo.** The project was completed in 2010. The leading Egyptian partner is the MoTr and the Governorate of Cairo,
- **FFEM:** promote the development of sustainable transport solutions,
- **Tram rehabilitation "Raml" Blue tram of Alexandria.** The project will be completed in 2017. The leading Egyptian partners are the MoTr and the Governorate of Alexandria.

In addition, the **EBRD** developed two projects in the Transport sector\textsuperscript{86}:
• **Egyptian National Railways Restructuring.** This project was completed in 2014. The leading Egyptian partner is the MoTr.

• **Cairo Metro.** The project was completed in 2015. The leading Egyptian partner is the MoTr.

The World Bank developed a number of projects in the Transport sector:

• EG-Railways Restructuring Additional Financing. This project was completed in 2010. The leading Egyptian partners are MoTr and the Governorate of Cairo.

• Egypt’s Vehicle Scraping and Recycling Program. The project started in 2010 and will be completed in 2016. The leading Egyptian partner is the MoTr and the Governorate of Cairo.

• Cairo Airport Development Project-TB2. The project started in 2010 and was completed in 2016. The leading Egyptian partner is the MoCA.

• Egypt’s National Railways Restructuring Project. The project started in 2009 and is expected to be completed in 2019. The leading Egyptian partners are the MoTr and the Governorate of Cairo.

**Environment Sector**

**Strategy and Policies**

Several strategies and policies have been developed, mostly with the support of international donors:

• Initial National Communication on Climate Change, Egypt, 1999 – MoEnv and EEAA.

• Second National Communication on Climate change, Egypt, 2010 – EEAA and UNDP.

• Third National Communication on Climate change, Egypt, 2014 – EEA and UNDP.

• National Strategy for Adaptation to Climate Change and Disaster Risk Reduction 2011, (NSACCDRR) – UNDP.

• National Air Quality Policy 2015, NAQP – UNEP.

• Egypt’s Indicators Development.

• National Solid Waste Management Policy (NSWMP) 2015 – GIZ.

The Egyptian Cabinet – Information and Decision Support Centre (IDSC) in collaboration with the UNDP have developed Egypt’s National Strategy for Adaptation to Climate Change and Disaster Risk Reduction (NSACCDRR) in December 2011. The NSACCDRR’s main objective is to increase the flexibility of the Egyptian community when dealing with the risks and disasters that might be caused by climate change and its impact on different sectors and activities. It also aims at strengthening the capacity to absorb and reduce the risks and disasters to be caused by such changes.

The Economic Cooperation and Development Division (SECO) of the State Secretariat for Economic Affairs – Switzerland has developed measures based on collaboration with the Egyptian government, to address the strategy objective No. 3: Support basic, environmental infrastructure:

• Contribute with technology and know-how transfer to improvements in infrastructure with a positive effect on the environment, the climate and employment. Sectoral activities include water supply, wastewater treatment, waste management (solid and liquid toxic waste), renewable energy and energy efficiency, and urban sustainability.

• Contribute to better corporate governance and financial sustainability in the management of investment projects and the operation and maintenance of public infrastructure.

• Contribute to policy dialogue on the provisioning of infrastructure jointly with other donors.

• Creation of new/ higher quality jobs in the area of environmental and RES.

The MoEnv issued a National Strategy for Integrated Coastal Management (NSICM), centered on three main axes:

• Strengthening the integrated coastal management policy,

• Promoting sustainable planning for coastal resources, and

• Raising and promoting awareness among stakeholders.
In the framework of supporting the execution of the NSICM, a cooperation protocol was prepared for the rehabilitation of northern lakes and the Nile Delta, and a set of guidelines was developed including:

- Guidelines for the EIA study for river ports and marinas.
- Guidelines for the application of environmental management systems for seaports.
- Guidelines for preventing pollution from ships.

**Policies**

The UNEP developed a policy in the Environment sector concerning Egypt’s Air Quality Policy and completed in 2015. The leading Egyptian partner is the MoEnv. More data is available at the UNEP 2015 Report.

**Plans**

The UNDP developed a plan on CCMA in the Environment sector. This plan resulted from a seamless collaboration between the Government of Egypt (GoEG) and the UNDP and focused on Climate Change Mitigation and Adaptation. The plan was completed in 2015. The leading Egyptian partner is the MoEnv.

**Programmes**

**Green Industrial Development**

The EEAA has issued a programme as a shift towards Green Industrial Development. This programme is considered key in addressing GHG emissions from industry; an effort to adapt to increasing climate change risks. The Intergovernmental Panel on Climate Change (IPCC) concerning the future scenarios for emissions by 2030 has indicated that carbon dioxide emission resulting from the industrial sector are estimated about 14 Gigatonnes (including electricity use).

**Egyptian Pollution Abatement**

The EEAA has developed a programme on the Egyptian Pollution Abatement (EPAP), which is structured in six modules:

a. Egyptian Pollution Abatement Programme (EPAP III)

b. Egyptian Pollution Abatement Project (EPAP II)

c. Private - Public Sector Industry Project (PPSI)

d. Broadcasting and Raising Awareness through Environmental Monitoring Program (PROPER)

e. Best Available Techniques in the Mediterranean Partner Countries (BAT4ME)

f. Egyptian Pollution Abatement Project (EPAP I).

**Protection of Natural Environmental Resources and Nature Conservation (PNERNC)**

Another programme has been developed by the EEAA concerning the Protection of Natural Environmental Resources and Nature Conservation (PNERNC). It includes three main sections:

a. Sustainable use of water.

b. The optimal use of energy resources.

c. Conservation of biodiversity level.

For more information regarding the PNERNC’s three main sections refer to Annex III.

**Environmental Awareness, Training and Capacity Building**

The EEAA has participated in a training on environmental development of their employees to improve their performance levels. The programme is entitled: Total Quality Management (TQM) in Leadership Development Center for governmental sector - the Central Agency for Organization and Management. The most important modules of TQM program are:

a) Definition of the basic concepts of TQM; b)
Improving the quality of governmental sector performance; c) TQM principles; d) TQM requirements; e) Quality improvement tools; and f) Quality application methods. A national workshop on the cost of environmental degradation in Egypt has been organized in January 2015 in collaboration between EEAA and PERSGA, since environmental degradation is considered a multi-dimensional problem, its calculated cost requires intensified studies. In parallel, to foster capacity building, a similar programme has been organised. The Department of Industrial Zones Management (DoIZM) has participated in the related workshop. Also, the Egyptian General Authority for Standards and Quality (EGASQ) - MoIFT, organised a seminar on "Awareness and Requirements of International Standard ISO 9001/2015" to promote Quality Management Systems (QMS). The 2015 QMS version of International standards ISO 9001 and the International Standard ISO 26000 for the social responsibility were introduced. The guidelines for the application of the standard (OHSAS 18001/2007) were also presented.

The UNDP developed a Programme on CCMA in the Environment sector. This programme resulted from a strong support of the Government of Egypt (GoEG) in climate change mitigation:

- Implementation of a national standards and labels programme for energy efficient home appliances. The programme is undergoing and expected to be completed in 2018. The leading Egyptian partners are MoEnv and MoERE.

In addition, the UNEP developed two Programmes in the Environment sector:

- Sustainable Consumption and Production Programme for Cairo City. The programme was completed in 2008. The leading Egyptian partner is MoEnv.
- Climate Change Risk Management Programme (CCRMP) in Egypt. The programme started in 2008 and was completed in 2013. The leading Egyptian partner is MoEnv.

The AFD developed and financed a programme in the Environment sector:

- Egyptian Pollution Abatement Programme 2. The programme was completed in 2007. The leading Egyptian partners are the MoEnv, EEAA, and MoTr.

Initiatives

Hurghada Environmental Protection and Conservation Association

An initiative entitled: Hurghada Environmental Protection and Conservation Association (HEPCA), has been established by the MoEnv in 1992 in response to environmental threats affecting the Red Sea. HEPCA is an international NGO concerned with topics of marine and land conservation. HEPCA’s team consists of diverse international scientists and experts. Their main target is to protect and preserve the natural resources of the Red Sea; and to promote conservation and sustainable tourism. It works in collaboration with Egypt’s governmental entities, e.g., the Governorate of Red Sea (GoRS); the National Conservation Sector; and the National Parks of Egypt.

Projects

There are many projects in the Environment sector that resulted from the productive and seamless collaboration between the Egyptian and Japanese governments through JICA. The following section highlights these projects in relation to sectoral types: a) Air and Water Quality; and b) Environmental Management:

a. Environment - Air and Water Quality
   – Achieve reductions in the emissions from enterprises whose environmental emissions are exceeding the national regulations, by providing financial assistance for introducing necessary environmental equipment (In cooperation with other donors). JICA assistance amount in JPY cost 4.7 of billion (approx. € 41,592.921 million). The project’s agreement was signed in 2006 and expected end date is 2016. Leading Egyptian institution is the MoEnv.
b. Environmental Management
   – Regional Environmental Management Improvement Project. JICA assistance amount (Grant) in JPY 627 million (Grant) (approx. € 5,548,673 million). The project’s agreement was signed in 2005 and end date was 2010. Leading Egyptian institution is the EEAA.

The UNDP developed a number of projects in the Environment sector, including:

- **Adaptation to Climate Change** in the Nile Delta through Integrated Coastal Zone Management. The project started in 2009 and will be completed in 2016. Leading Egyptian partners are the Coastal Research Institute and the Shore Protection Authority of MoWRI.

- **Support to the Egyptian Protected Areas (SEPA).** The project started in 2013 and was completed in 2015. The leading Egyptian partners are MoEnv and EEAA.

- **Low Emission Capacity Building.** The project started in 2013 and will be completed in 2016. The leading Egyptian partners are MoEnv and EEAA.

- **Egypt’s Third National Communication** to the UNFCCC. The project started in 2011 and was completed in 2015. The leading Egyptian partners are MoHUUD, MoWRI, MoALR, MoIFT, MoEnv, MoTm, MoTr, MoPMRs, MoERE, MoFAs and the SEC of the Cabinet of Ministers. More data is available at the UNDP 2015 Achievement Report.

Also, the UNEP developed a project in the Environment sector concerning the **Launch of Egypt’s Green Economy study**, which was completed in 2015. The leading Egyptian partner is the MoEnv.

In addition, the EBRD developed a project in the Environment sector:

- Cemex Egypt (Assiut Cement Company) – Fuel Substitution - the project was completed in 2015. The leading Egyptian partner is the MoEnv.

The World Bank developed two projects in the Environment sector:

- Alexandria Coastal Zone Management Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem). This project started in 2010 and it will be completed in 2017. The leading Egyptian partners are MoEnv and Governorate of Alexandria,

- Second Pollution Abatement Project. The project started in 2006 and was completed 2014. The leading Egyptian partner is the MoEnv.

**Tourism Sector**

**Strategy**

In 2012, the Ministry of Tourism (MoTm) in collaboration with the Egyptian National Competitiveness Council (ENCC) decided to **revisit the ministry’s strategy** with the goal of doubling tourism capacity, from its former peak in 2010. This strategy is targeting 20 million visitors by the year 2020.

This strategy was centred on seven strategic objectives:

- Economic,
- Socio-cultural,
- Development,
- Quality,
- Heritage,
- Marketing, and
- Environment.

In this strategy, the environmental objectives address the following themes:

- Adopt an approach to development that will ensure **environmental sustainability**;
• Identify areas of **special environmental interest** and habitat and areas of natural and scientific interest to **protect them under the law** and **manage public access** for the benefit of residents and visitors; and

• **Develop** a range of **Eco-tourism** products that respond to the requirements of future visitors.

The revisited strategy has **two goals** to guide it, mainly to: a) **Develop the overall tourism economy**; and b) **Distribute tourism income and benefits through employment creation and enterprises**.

Also, the **Tourism and Transport Council (TTC)** of the ENCC, a cross section of leading private sector organizations and companies, suggested the following goals:

• **Restore growth to peak levels as quickly as possible,**

• **Strengthen the tourism platform,** and

• **Take the challenging actions necessary to achieve the target of 20 million visitors by 2020**.

However, this number will be targeted by 2030, not 2020, according to the former Minister of Tourism’s statement in February 2016.

As per the recommended strategy, the level of success in tourism is driven primarily by six factors:

1. **Level of investment** in certain components, such as Access Transport, Product Developments, Marketing and HR Development.

2. **Human resources** – the critical contributor to the “visitor experience”.

3. **Quality of implementation** of strategy and plans – directly related to successful outcomes.

4. **Competitiveness in the global market** – necessary to boost marketing success.

5. **Innovation in both marketing and development** – to ensure differentiation to meet a more customised market demand

6. **Integrated planning and implementation**, which are key to securing competitive and comparative advantage.

It is vital and crucial to protect Egyptian Heritage sites and Antiquities, especially in Luxor, where most of these heritages sites and antiquities (temples and tombs) exist, from the increase of tourists’ influx that would result from the implementation of such a strategy. So, it is essential to consider the impact of the large number of tourists visiting these places and the impact of their related logistics, i.e., the excessive transport activities to move tourist buses in and about these sites. This will lead not only to the increase in CO₂ emissions (vehicles and busses), but also causes vibrations - especially near tombs and temples, as well as near the two Memnon statues - on the way to the Valley of Kings - causing air pollution, besides fatigue due to constant vibrations near these statues and perhaps leading to cracks on the long term. This also can vastly be noticed in Luxor when tourists in large numbers are moved from the Western bank to the Eastern bank of the River Nile to visit Al-Karnack Temple, where most of the current means of water transport, if not all (small passenger boats/ dhowes), are run by diesel and are emitting a high level of CO₂ into the air. Thus, it causes air pollution and eventually results in a huge impact on the statues and the sustainability of Egyptian heritage sites in the World’s Cultural City Luxor.

Obliquely, this will be the case in the Governorate of Red Sea but in a different scenario. The city of Hurghada will have a big share of the strategy implementation in increasing the number of tourists by 2030. In the City of Hurghada, the case will be different; it mainly focuses on the quality of air in the city due to the predicted increase in the number of buses and vehicles moving tourists and the expected high demand of electrical energy in buildings and energy increase needed for transportation, all leading to high level of GHG emissions, mainly CO₂.

Despite all the strategies and policies, there are still many challenges and solutions that need to be profoundly addressed through technical support and funds. The following **Future Challenges and Potential Solutions in Egypt’s Tourism** were suggested by the ENCC and are outlined as follows:
• In order to attract a great deal of investment, from all sources, **tourism development** must be **of high quality**. It must be imaginative enough to provide multiple sensory pleasures, while remaining **environmentally outstanding**;

• Egypt will have to compete globally in areas of quality and value. **Sustainable tourism** will require luxury, exceeding tourists’ expectations;

• Greater interest and functionality (than that found at home) accommodations. The space limitations of the typical top-level hotel room should spur the development of a luxury appointed condominium market;

• Market trawling is an obsolete approach. More focus on particular markets will demand towers, executive floors, and family floors;

• Hotels must offer **new health** and security services and niches in order to appeal to women in general, and to single women in particular (e.g., reserved floors), assistance with children, special beds/pillows for guests who have difficulty sleeping or have allergies, along with leisure/health areas, libraries, music rooms, cigar rooms, etc.;

• The visitor experience demands new, multi-level offerings based on age, education, language, while satisfying multiple senses. Leaders must plan and raise the skill levels of their staff;

• **Cruising** already has multi-entry, multiple-sensory experiences and is unrivalled in its diverse offerings and **quality standards**;

• **Green, sustainable buildings** blended closely with nature are the future. Highly artificial environments are retro. **Natural materials**, internal gardens, creative use of water (sight/sound), variable lighting; all play roles in an **integrated environment**; and

• Hotel brands now make ‘style’ a central essence, which gives an opportunity for creativity and innovation. Again, the blend of elements will be integral to successful design.

**Tourism Strategy 2020**

The **MoTm strategy 2020** strongly encourages Energy Efficiency and conserving all scarce resources. Tourism developments are encouraged to adopt measures of energy conservation, use of clean energy alternatives, including renewable energy such as solar power. Hotels in Egypt are categorized by high demands of primary energy and electrical energy, which will be deeply affected by the newly introduced prices (Tariff) of 2016 - that were for a long time heavily subsided. From the strategy viewpoint, such removal of subsidies will be intensely counterbalanced through reducing energy consumption and enhancing energy efficiency in hotels and their facilities.

Therefore, the tourism sector, mainly hotels should immediately plan to adopt sustainable energy and efficient measures towards greening this sector. Also, this strategy is crucial for the tourism sector; hotels’ facilities should examine and audit their use of energy and electricity, to explore the best economic way to focus on the activities with high intensity use of energy (e.g., laundry, water heating, including swimming pools, AC, and lighting) with the aim to lower their annual electricity bills and operation costs.

**Strategy Actions**

**Action 1: Sustainability - Tourism and Energy Use and Conservation**

Within the framework of implementing the **Tourism Strategic 2020 goal**, the MoTm in collaboration with the Egyptian Tourism Authority (ETA) put forward an **implementation tool** to address **Sustainability**. This tool is entitled: **Tourism and Energy Use and Conservation (TEUC)**.

**Energy** is a centre point in the implementation of this strategic action since it is a major necessity, and is becoming an expensive factor in operating tourism (hotels, transports, subsequent facilities, and related leisure activities) that are mainly depending on energy for daily operation. This is even
becoming a must in 2016 in light of gradual lifting of subsidies on energy, particularly the electrical energy tariffs.

The new **electrical energy consumption tariffs** announced on August 8, 2016 by the Minister of Electricity and Renewable Energy (MoERE) will make this strategic goal more vital to be implemented than ever.

The highlighted terms of challenges and solutions can assist in and be good ingredients for the SEAPs (SECAPs). Therefore, governorates can play a major role in addressing these main issues with the concerned stakeholders when the preparation of SEAPs (SECAPs) commences.

**Programmes and Plans**

According to the **Second National Communication (SNC)**, the aim of many national plans across sectors is to “create a national greenhouse gas mitigation portfolio to support the process of sustainable development in Egypt”. The SNC stressed that reducing GHGs by promoting sustainable energy (RE and EE) is consistent with the country’s long-term socio-economic development goals.

The Ministry of Water Resources and Irrigation (MoWRI), the Ministry of Agriculture and Land Reclamation (MoALR), MoERE and NREA are also involved in streamlining climate change goals with the country’s national action plans. Both MoWRI and MoALR have ministerial committees for climate change within their respective ministries. In 2009, the MoERE hosted RCREEE to promote renewables and demand response within MENA countries.

**Initiatives**

According to the UNEP report, an initiative on the **Red Sea Sustainable Tourism Initiative (RESTI)** was highlighted. This initiative mainly addresses the application of zoning, using extensive data gathering and GIS mapping techniques in the Red Sea area. It provides a clear example of dividing a coastal area into five zone types, primarily based on natural resources.

The classification of zones stretches from zero use (strict reserves), through use for ecotourism, to areas for moderate intensity development. Such classification has led to a considerable amount of scaling down of development previously proposed for certain areas, and the issuing of regulations that achieved agreement by both the tourism and environment ministries. Also, in the course of the government’s efforts to promote sustainable tourism in Egypt, the MoEnv and the MoTm have signed a cooperation agreement to transform the city of Sharm El Sheikh to be a green city.

In 2010, the MoTm has established a Green Tourism Unit (GTU) with a mandate to focus on fostering good practice in green tourism within the sector. This establishment has been created in light of the increasing awareness of tourists travelling to Egypt with the importance of environmental protection and staying in green facilities in mind. This has become a mounting factor influencing the selection of tourism destinations as a way of life.

In early 2014, the Ministry started revamping efforts in this area and prepared a roadmap to move Egypt up on the sustainability ladder. The roadmap adopts the concept of having the Green Tourism Unit play its role as a market enabler while promoting new activities, linking existing efforts and providing support to relevant market forces to advance greener practice. This will be accomplished through a green growth-oriented framework, managed by a team of professionals and through effective coordination with a variety of stakeholders within and outside the tourism sector.

An initiative was developed “**Green Star Hotel**” in the form of a public and private partnership (PPP). This initiative was established as a joint effort between Orascom Hotels, AGEG Consultants and GIZ. In addition, **Eco-label initiative** (voluntary) was launched to issue hotels with “**Green Stars**” award.
depending on their adoption of various sustainability and energy efficiency related measures. Such initiative seeks to potentially increase demand for green construction in the hotel sector. It was designed to respond to the growing environmental awareness of international consumers increasingly questioning the environmental credentials of various tourism services. However, this level of environmental awareness is currently seen much less amongst Egyptian consumers.

Projects

There are many projects in the Tourism sector that resulted from the productive and seamless collaboration between the Egyptian and Japanese governments through JICA. The following section highlighted these projects in relation to the type Tourism Development – Museums.

a. Tourism Development - Museums
   - Construction of the Grand Egyptian Museum in Giza area, to contribute to the conservation and utilization of the Egyptian cultural heritage, development of tourism, creation of new employment opportunities and to economic and social development. JICA assistance amount (Grant) was JPY 34.8 billion (approx. € 307,964.602 million). The project’s agreement was signed in 2006 and expected end date is 2018. Leading Egyptian institution is the Ministry of Antiquities (MoAts).
   - Capacity Development for the staff of the Grand Egyptian Museum Conservation Center (2nd phase)—3rd phase is planned. JICA assistance amount (Grant) was JPY 1.1 billion (approx. €9,734.513 million). The project’s agreement was signed in 2008 and expected end date is 2016. Leading Egyptian institution is the Ministry of Antiquities (MoAts).
   - Capacity Development for Management and Exhibition of the Grand Egyptian Museum. JICA assistance amount (Grant) was JPY 690 million (approx. €6,106.195 million). The project’s agreement was signed in 2016 and expected end date is 2019. Leading Egyptian institution is the Ministry of Antiquities (MoAts) 115. Exchange rate from JPY to Euro is 113.

The EBRD also developed a project in the Tourism sector:
   - Arabian Centres. The project was completed 2014. The leading partner is the MoTrm.

In addition, The World Bank developed a project in the Tourism sector:
   - Private Sector Tourism Infrastructure and Environmental Management Project. It started in 1993 and was completed in 2003. The leading Egyptian partners are MoTrm, ETA and MoEnv.

Waste sector

Programmes

National Solid Waste Management Programme (NSWMP)

The GoEG has launched the National Solid Waste Management Programme (NSWMP) with the support of EU and German development partners for the SD of the Solid Waste Management sector in Egypt. Such support is a result of technical cooperation addressing the policies, legal and institutional framework and providing capacity building at the national and local levels, including the GIZ technical assistance component and financial cooperation for investment in municipal solid waste management infrastructure and services in collaboration with KfW/EU financial assistance component. The NSWMP together with its partners and stakeholders is working on transforming challenges into opportunities for Egypt’s solid waste sector. The programme is commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The lead Egyptian executing institution is the MoEnv, represented by the Integrated Solid Waste Management Sector (ISWMS). The programme started in 2012 and is to be completed in 2016.
The NSWMP was launched in response to solid waste challenges in Egypt, where only 60 per cent of solid waste is actually collected, less than 20 per cent is recycled or properly disposed of. This creates a negative impact on public health and the environment; from piles of waste in the streets blocking irrigation channels. However, this waste varies according to the region, informal garbage collectors and recyclers make a major contribution to waste handling.69

The institutional framework and the technical and administrative skills for a sustainable solid waste management system are undergoing development.

The NSWMP goals are:

Component A: Institutions, Policies and Legislations
Component B: Investment Programming and Implementation
Component C: Professional Capacity Development
Component D: Planning, Services and Infrastructure, Improved Services and Facilities
Component E: Civil Society Participation
Component F: Implementation and Monitoring

NSWMP activities and capacity building:

- On 15th of March 2016, the NSWMP in collaboration with the Recycling and Economic Development Initiative of South Africa (REDDISA) organized a one-day workshop in Cairo on Extended Producer Responsibility (EPR) for waste tyres. The workshop was attended by industry representatives, government entities, recyclers and cement companies.
- Primary waste collection and recycling models – protocols signed with Qena Governorate, 13th April 2016, a protocol was signed between the NSWMP and the governorate.
- Egypt is a part of the study “The Climate Change Mitigation Potential of the Waste Sector” published by the German Federal Environment Agency (GFEA) in July 2015 “The Climate Change Mitigation Potential of the Waste Sector”. This study presents the GHG mitigation potential of municipal solid waste (MSW) management in the OECD countries as well as Egypt and India, and are elaborated by applying the life cycle assessment (LCA) method according to ISO 14040/14044 for waste management, and
- The NSWMP was also manifested and executed, as part of the cooperation framework between NSWMP and four Governorates (Assuit, Qena, Kafr El Sheikh and Al-Gharbiya). In these Governorates, it is implemented by GIZ, kfW and EU.

The Prime Minister of Egypt issued Decree No. 3005 in November 2015 that led to the establishment of the Egyptian Waste Management Regulatory Agency (WMRA) with a more authoritative role in overseeing and regulating the Solid Waste Management (SWM) in Egyptian cities and villages; and yet to be expanded to have a local agency of WMRA in each governorate.

The institutional structures at governorate level need to be significantly enhanced to enable for a better management of programmes and projects, and executed in a sustainable way. Nevertheless, the new law of Local Development would give governorates a more decentralised role.

The WMRA is a direct result of the National Strategic Directives for Waste Management (NSDWM) that were developed through a nationwide consultation process and it submitted to the MoEnv. It was first presented during the Second Egyptian Solid Waste Management Forum in November 2014.
In 2014, The MoEnv has developed a Think Tank of prominent waste experts with a task of developing a vision for the national **solid waste management policy**. This Think Tank developed the foundation for the national policy by identifying the main principles and objectives of the policy.

In 2014, the **National Strategic Directives for Waste Management** (NSDWM) was developed through a nationwide consultation process and was submitted to the Ministry. It was first presented during the Second Egyptian Solid Waste Management Forum in November 2014\(^{136}\).

**Solid Waste Legislations**

Currently, a waste framework law is under preparation to establish a comprehensive framework for the handling of waste across Egypt, promoting reuse, recycling, and recovery within a waste management hierarchy. The new law will regulate all waste streams and take into account the general environmental protection principles of precaution and sustainability, technical feasibility and economic viability, protection of resources as well as the overall environmental, human health, economic and social impacts.

Also, subsidiary regulations that are related to the management, transport, treatment and disposal of waste are under developed for implementation\(^{136}\).

**Projects – WM**

**Egypt has been among countries participating in Capacity Development for the Clean Development Mechanism (CD4CDM) Project.**

In May 2011, the UNEP has launched the project – Capacity Development for the Clean Development Mechanism (CD4CDM)\(^{137}\) – with the aim to assist in establishing GHG emission reduction projects that are consistent with national **sustainable development goals**, particularly projects in the **energy sector**. It will do this by developing national capabilities so that people in these countries are, at the project’s conclusion, capable of analysing the technical and financial merits of projects and negotiating possible finance agreements with **Annex 1 countries or investors**\(^{138}\).

The project also aims at: a) developing a broad understanding of the opportunities offered by the **Clean Development Mechanism (CDM)** in the participating developing countries; and b) developing the necessary institutional and human capabilities to formulate and implement projects under CDM\(^{137}\).

**Projects – SW**

**Rehabilitation of Tenth of Ramadan City as a Green Sustainable Eco-friendly City**

Within the framework of developing industrial zones and adopting best practices such as that of the initial success of the rehabilitation of Sheikh Zayed City – a residential sustainable and green environmentally friendly city, in the 6\(^{th}\) of October city – Giza. This model has been re-applied to a residential - industrial area in the 10\(^{th}\) of Ramadan City.

This study project initially resulted from a coordinating effort of the MoIFT - **Cleaner Production Centre (CPC)** for SMEs in order to exchange experiences in the field of industrial development, which the CPC has adopted. This project is about **Solid Waste Stock Exchange (SWSE)**\(^{139}\).

A local guideline has been prepared for environmental and industrial standards for industrial - residential sustainable green cities\(^{138}\).

**Wastewater**

Electrical energy used for operating conventional wastewater treatment plants has been estimated at 1-2 per cent of the average residential consumption (Smith, 1978), equivalent to 1.2 million kWh/year in a city of 50,000 inhabitants in Egypt\(^{140}\).
Waste Stabilisation Ponds (WSP) instead, have a very low maintenance cost for unskilled labours and no electrical consumption. The real drawback of the WSP is the land cost since a large amount of land is needed from 1.5 to 3 Square meter per person\textsuperscript{64,139}.

The **UNDP** developed a number of projects in the **Waste** sector, including:

- **Solid Waste Management** in Minya Governorate - Phase II. The project started in 2010 and was completed in 2015. The leading Egyptian partners are MoEnv and EEAA.
- Strengthening the Regional Cooperation of Arab States in **Hazardous Waste Management** and Trans-Boundary Control. The project started in 2013 and was completed in 2015. The leading Egyptian partners are Basel Convention Regional Center and Cairo University.
- Protection of Human Health and the Environment from Unintentional Releases of **Persistent Organic Pollutants**. The project started in 2015 and will be completed in 2020. The leading Egyptian partner is MoEnv.

More information is available at the UNDP 2015 Achievement Report\textsuperscript{90}.

The **UNEP** also developed a project in the **waste** sector about **Global Partnership on Waste Management (GPWM)**. The leading Egyptian partners are MoEnv and EEAA\textsuperscript{132}.

The **World Bank** developed two **projects** in the **Waste** sector\textsuperscript{94}:

- **EG-land filling and processing services** for the southern zone in Cairo. This project started in 2008 and was completed in 2015. The leading Egyptian partners are MoEnv, EEAA, and Governorate of Cairo.
- **ONYX solid Waste Alexandria - Carbon**. The project started in 2006 and was completed in 2015. The leading Egyptian partners are the MoEnv, EEAA, and the Governorate of Alexandria.

**Water Management**

Egypt is considered the top African country that has the highest installed hydropower capacity, generating hydropower of 13.7 TWh\textsuperscript{141}.

Water and wastewater utilities are generally the largest public consumers of energy in municipalities, usually responsible for 30-40 per cent of the total energy consumption\textsuperscript{142}. Conducting EE in municipal water management could lower significantly the operation cost, and in the meantime, mitigate the effect of climate change risks. In this regard, waste Stabilization Ponds are definitively classified low emission and climate resilient urban infrastructures at the city level\textsuperscript{143}.

**International Conventions**

Egypt is one of the signatures contracting parties of Barcelona Convention No. 22 of the Mediterranean countries. The Barcelona Convention plays a major role in the Mediterranean region, as a sustainable development forum and framework for co-operation in the management of its common assets. It also conserves the Mediterranean marine and coastal environment, while fostering regional and national plans for sustainable development\textsuperscript{143}.

**Wastewater Projects**

There are many projects in the Waste Water sector that resulted from the productive and seamless collaboration between the Egyptian and Japanese governments through **JICA - Egypt**. The following section highlights these projects in relation to the sectoral types: a) Waste Water - Rural development/ Irrigation; and b) Waste Water - Water-save agriculture:

a. Rural Development/ Irrigation
b. Water-sell agriculture

- Sustainable System for Food and Bio-energy Production with Water-saving Irrigation in the Egyptian Nile Basin. **JICA** assistance amount (Grant) was JPY 400 million (approx. € 3,539.823 million). The project’s agreement was signed in 2009 and end date was 2015.

Leading Egyptian institution is National Water Research Centre (NWRC)\(^\text{115}\).

### Water Sector

**Strategies**

Pressure on water resources will increase due to climate change, population increase and non-use of modern technology in irrigation and buildings. According to Plan Bleu’s analysis of future trends - measured by the renewable natural resources exploitation index, water withdrawals will exceed water availability by 2025 across the region of East Mediterranean as well as Egypt, Libya and Malta. This level of water withdrawal is already as much as, or higher than, the limits of their resources. The strain on water resources is even more severe considering ‘exploitable’ water resources, which represent about half or one-third of total natural water resources\(^\text{143}\).

The extensive uses of water in agriculture, **drinking water**, **buildings** and other uses, such as tourism-related activities are more and more severe. Water used for irrigation represents 60 per cent of the total water quantities used for human related activities in the Mediterranean area, and this percentage extends to more than 80 per cent of total water uses in Cyprus, **Egypt**, Greece, Morocco, Syria, Tunisia and Turkey. However, the water used in irrigation in Egypt forms about 80 per cent of the total annual use\(^\text{144}\). Based on a workshop (Fréjus) conducted in 1997, an analysis of the 21 countries and territories adjoining the Mediterranean were involved. The outcomes led to the classification of countries with current and **future water demand**, and impending risks of shortage. Egypt is categorised in the group four of countries with such risk \(^\text{143}\).

**Policies**

**Water reuse and management**

Between 2014 and 2015, policies in Egypt are targeting the use of non-conventional water resources. This includes **reuse of wastewater** (grey water), as well as using **brackish water** from agricultural drainage for reuse.

National studies of **water efficiency** in the Mediterranean countries, including Egypt, were also carried out between 2008 and 2011. Reports on the progress in terms of **monitoring and promoting Water Demand Management (WDM) policies** in these countries were also presented and discussed at the third workshop on WDM (UNEP/MAP/Plan Bleu 2007). The actual progress, made over the past 15 years to incorporate WDM into water policies and some policies, was highlighted.

**Water pricing and incentives to save water**

Until 2014, Egypt had neither tariff structure nor incentives directed on saving irrigation water.

Egypt and Tunisia reformed irrigation water pricing in the 1990s. There were three aspects to this: transparency of cost price, flexibility (regionalised pricing, varying according to the purpose of the irrigated areas), and related national objectives (food security). The general trend is towards increasing water price for the user in order to recover a growing proportion of the real costs of supplying drinking water and sewage services (EU States, Egypt, Spain, Morocco, Tunisia, and others).
The use of renewables for desalination

In the last two decades, about 100 desalination plants (DPs), coupled to renewable energy sources worldwide have been built in the Mediterranean region (Algeria, Egypt, Spain, and Tunisia). These DPs (low-capacity solar and wind-powered desalination plants) were mainly built to supply water in remote sites that were cut off from an acceptable water quality.

Initiatives

The MoWRI launched an initiative in August 2016 concerning the saving of water consumed in irrigation, which is estimated to 81 per cent of total water used in Egypt. The MoWRI also kicked-off another initiative to raise the awareness of farmers on the importance of water as a national resource. Both initiatives are in line with Egypt’s 2014 constitution on conserving and management of water as a natural resource.

The EBRD developed a project in the Water sector:

- The Aqualia Investment Venture was completed in 2009. The leading Egyptian partner is MoTm.

Projects – WW

Many projects were initiated in the Mediterranean region for water management. Egypt took part in five projects, namely: SIRRIMED, SWUP-MED, WATERBIOTECH, WASSERMED, and SIRIUS:

- **Sustainable use of irrigation water** in the Mediterranean region (SIRRIMED)
  - Duration: From July 2010 to March 2014,
  - Total cost: €4,239,534, EC funding: €2,999,078,
  - Participating countries: 15 participants from seven countries (Italy, France, Greece, Spain, Egypt, Morocco, and Lebanon).

- **Sustainable water use securing food production in dry areas** of the Mediterranean region (SWUP-MED)
  - Duration: From July 2008 to June 2013,
  - Total cost: €3,992,766, EC funding: €2,728,104,
  - Participating countries: Nine participants from six countries (Portugal, Italy, Egypt, Turkey, Syria, and Morocco).

- **Biotechnology for Africa’s sustainable water supply** (WATERBIOTECH)
  - Duration: August 2011 to January 2014,
  - Total cost: €1,264,465.8, EC funding: €999,528,
  - Participating countries: Participants from 11 Countries (Spain, Saudi Arabia, Burkina Faso, France, Tunisia, Italy, Egypt, Senegal, Sri Lanka, Morocco, and Algeria).

- **Evaluated climate change impacts on tourism, agriculture and water resources** (WASSERMED)
  - Duration: January 2010 to January 2013,
  - Total cost: €3,669,943, EC funding: €2,933,973,
  - Participants from Nine countries (Italy, Greece, Spain, France, Egypt, Jordan, and Tunisia).

- **Efficient water resource management in water-scarce environments** (SIRIUS)
  - It focuses in particular on water for food production with the perspective of a sustainable agriculture in the context of integrated river-basin management,
  - Duration: 14 October 2010 to 30 September 2013,
  - Total cost: €2,934,818 €, EC funding: €2,499,997,
  - Participating countries: 18 participants from 13 countries (e.g., Spain, Malta, Italy, France, Egypt).

Programmes - Water & Wastewater

The AFD and Egypt are working together in a programme as well as funding two major projects to improve Water and Wastewater Services Programmes (IWWSP).

Water recycling
The **Red Sea Governorate** started to apply the use of grey water for spraying and washing the streets in Hurghada; they contribute a large margin in the provision of water and reducing pressure on the sewerage network. The Governor of the Red Sea stated that an instruction was made to install independent units of grey water for homes processing and reuse in landscape irrigation. This model is to be gradually circulated in areas of different residential neighbourhoods as a first stage. Grey water that comes from showers and washing machines at homes, as well as water from washing the main reservoirs.

The **EBRD** developed a programme in the **Wastewater** sector:

- **Wastewater Expansion Programme** in Kafr El Sheikh, which was completed in 2014. The leading Egyptian partner is the MoEnv.

The **Governor of the Red Sea** stated on July 13, 2016 at the weekly cabinet meeting that the preservation projects formed by the Council of Ministers, are estimated at about €0.57 Billion (approx. 5.7 Billion EGP); one of which is the "EASE" desalination plant, the largest plant in North Africa, providing 40,000 cubic meters of water per day.

The plant is thus contributing to the conservation of water, which is essential to the Red Sea’s water problem. It is to be implemented with a total cost of €45,180,827 (§ 450 million).

The **AFD** developed and financed two projects in **Wastewater** sector as follows:

- IWSP 1: improve water and wastewater services in the governorates of Beheira, Damietta, Gharbia and Sharkia; and
- IWSP 2: improve water and wastewater services in the governorates of Qena, Sohag, Assiut and Minya.

The **World Bank** developed a number of projects in the **Water** sector:

- **EG-Enhanced Water Resources Management.** This project started in 2012 and will be completed in 2016. The leading Egyptian partners are MoHUUD, MoEnv, EEAA and EWHC.
- **Regional Coordination for Improved Water Resources Mgt. and Capacity.** The project started in 2012 and will be completed in 2016. Leading Egyptian partners are MoHUUD, MoEnv, EEAA, EWHC.
- **Integrated Sanitation & Sewerage Infrastructure Project.** The project started in 2008 and was completed in 2015. The leading Egyptian partners are MoHUUD, MoEnv, EEAA and EWHC.
- **EG-Integrated Sanitation and Sew. Infra. 2.** The project started in 2011 and will be completed in 2017. The leading Egyptian partners are MoHUUD and EWHC.
- **Sustainable Rural Sanitation Services Program for Results.** The project started in 2015 and will be completed in 2020. The leading Egyptian partners are MoLD, MoHUUD, MoEnv, EEAA and EWHC.
- **EGYPT-Integrated Irrigation Improvement and Management Project.** The project started in 2005 and will be completed in 2016. The leading Egyptian partners are MoALR and MoWRI.

Projects

**Joint Cooperation in infrastructure**

In 2016, Egyptian MoIFT and Ministry of Investment (MoInv) in collaboration with the Chinese Affairs Minister of Development and Reform Commission and Deputy Minister of Trade signed a joint cooperation agreement. This joint agreement targets the studying and implementation of 18 projects funded by China in various infrastructure fields (Electricity, Transportation, Housing, and Industry as well as Communication sectors).

**Funding Municipal Solid Waste**

In July, the EEAA through the Central Department of Waste Management proposed an executive programme to improve the municipal solid waste services in Egypt (July 2012). The proposed
The programme covers mainly: a) removal of accumulated solid waste; b) improving the efficiency of collection and transport to prevent further accumulations; c) establishing mobile and stationary transfer stations; d) improving the efficiency of controlled dumping sites; and establishing sanitary landfills. The estimated financial allocations required to execute the proposed programme for the two governorates are about 100 million EGP (10.04 million €) as shown in Figure 17. However, due to budget constraints, the programme was not executed\textsuperscript{151}.

![Figure 17 Funding Municipal Solid Waste for the Governorates of Luxor and Red Sea](image)

**National Municipal Solid Waste**

The following section graphically presents an overview of the National Municipal Solid Waste as of 2014.\textsuperscript{151}

![Figure 18 National Solid Waste Collection Coverage](image)
Figure 19 Sanitary landfill of Municipal Solid Waste

Figure 20 Municipal Solid Waste Destination
5 RECOMMENDATIONS OF NATIONAL LEVEL ACTIONS

- The CES-MED project implementation in Egypt is an excellent tool to support local authorities (governorates) in achieving urban sustainable energy savings (USES) in cities through the smooth execution of SEAPs;
- The SEAPs (SECAPs) also contributes towards accomplishing Egypt’s Vision 2030 and Sustainable Development Strategy (SDS) 2030 that was boldly launched in February 2016;
- The CES-MED project can contribute to the most relevant sectoral pillars of Egypt SDS 2030, mainly: a) Energy; b) Environment; c) Urban development; and d) Policies; and,
- Governorates need support, budget, knowledge management, enhancing skills and know-how as well as capacity building and training to reduce emissions using baseline emissions inventory (BEI).

Considering the existing legislations (laws and regulations) and actions plans in the energy sector, including electricity and renewable energy (NEEAP and NREAP - under update) and those in other sectors (buildings, transport, tourism and antiquities, and environment, including: wastewater and SWM); and taking in account H.E. Prime Minister’s letter of 2015 to reduce fuel consumption, save energy and improve energy efficiency in administrative and governmental buildings, the political will to develop and implement SEAPs (SECAPs) at the governorate’s level is eminent. Moreover, H.E. the Prime Minister’s Decree (No. 3005 of November 2015) resulted in establishing the National Waste Management Regulatory Agency (NWMRA) with a more authoritative role in overseeing and regulating the Solid Waste Management (SWM) in Egyptian cities and villages, and the eventual expansion to have a local agency of WMRA in each governorate; this would assist SEAPs (SECAPs) developing a strategy including action plans and projects for SWM.

The institutional structures at the governorate level need to be significantly enhanced to enable for a better management of programmes and projects, and their execution in a sustainable way. Nevertheless, the new law of Local Development -when approved- would give governorates a more decentralised role. Thus, the two governorates need support, budget, knowledge management, enhanced skills and know-how as well as capacity building and training to reduce emissions using Baseline Emissions Inventory (BEI). It is also recommended to mandate energy saving and energy efficiency, including energy audits to be developed and enacted; it is recommended that Governorates pursue and conduct energy audits in governmental and industrial buildings to deduce the areas of improvement. The institutional set-up and/or ‘infrastructure’ needs to be supported to be in a position to pursue such task.

The SEAPs (SECAPs) can assist in providing projects, plans and related actions in line with Egypt’s SDS 2030. The steps of SEAPs (SECAPs) development process (paragraph 2.1) are reviewed on requirements or success factors, to be able to provide targeted recommendations. Based on the feedback from the stakeholders and NFP’s meetings, most of these issues are currently not – sufficiently – in place, especially in the smaller municipalities. Figure 21 depicts the four steps of the SEAP (SECAP) process.

![Figure 21 Steps of developing the SEAP (SECAP) process](image-url)
1. **Initiation**

- The commitment for energy saving actions is present; however, implementation of existing action plans, such as NEEAP, is not progressing as planned due to lack of budget and capacity building and training.
- For an appropriate governance structure, a Strategic Sustainable Energy Unit (SSEU) with a skilled Manager who would be responsible for SEAPs (SECAPs) development and implementation has to be in place. This requires not only budget, knowledge management and skills to be effectively operational, but also approved tools and mechanisms to monitor performance using strategic and operational KPIs to measure the set targets, and
- Stakeholders support needs to be built on both, internal levels for execution of SEAPs (SECAPs) projects and on the external level, to generate acceptance by the public in different sectors; residential, commercial, etc.

2. **Planning**

- With the current policy framework, governorates (municipalities) can develop and implement SEAPs (SECAPs), however internal capacity building and training to enhance skills in energy saving and executing SEAPs (SECAPs) need to be developed. The initiative is already in launching phase at the governorates of Luxor and Red Sea (City of Luxor and City of Hurghada).
- To be able to establish the Baseline Emission Inventory (BEI), energy and financial data need to be accessible and available for the governorates (municipalities). Currently (part of) the municipalities’ electricity bill is set against the waste collection fees (appearing in electricity bills), that are collected by the utilities. Therefore, this indicates that Governorates may not know their actual electricity expenses and related consumption. Nevertheless, this will be verified during the SEAPs implementation. Electricity data can be obtained from the utilities by an official (ministerial) letter. Internal data collection systems consume time, for instance, the fuel consumption vehicles under the governorates’ (municipalities) responsibility or the specific fuel (electricity) consumed for cooling buildings, need to be developed to be able to assess internal energy uses electronically from the MoERE representative.
- Not only a vision and governance are needed, but specific and concrete energy reduction targets of the SEAPs (SECAPs) have to be set as well. The reduction targets could be linked or refer to the targets in the energy strategy, NEEAP and NREAP. For instance, energy savings in residential, industrial, and commercial sectors are 20%, 15%, and 13% respectively, in street lighting 40-60% energy saving by 2025, if LED lamps are applied - related to the baseline year - and governmental buildings to abide by the National Energy Efficiency Building Codes (EEBCs).
- To be able to elaborate the SEAPs (SECAPs), economic assessment and development of ‘feasible and bankable projects’ should be made, to select the most appropriate energy saving actions. This requires specific knowledge management and skills, and the capacity to be able to make sound decisions on green solutions and technological choices. In Europe, consultants are often hired for such specific tasks. However, the capacity and budget needs to be in place to support hiring such consultants, not only financial, but basic technical understanding would be also required, or an access point for such information needs to be in place.
- To be able to secure sustainable financial resources, most governorates (municipalities) have to depend on their annual budgeting procedures; however, these budgets have to be approved by the Minister of Local Development (MoLD), and the Minister of Finance (MoF). This is a time-consuming procedure; on the other hand, large investments cannot be supported by Governorate (municipal) budgets.
3. Implementation

- In the governance structure, the **internal approval procedure of the SEAPs (SECAPs)** needs to be included. If this is not yet in place, the Governor and/or MoLD in coordination with MoFA – (NFP) would be the highest eligible for SEAPs (SECAPs) approval.
- The most critical phase in the implementation of the SEAPs (SECAPs) is the **responsible entity, SSEE or Manager, who is required** not only to have the **decision-making power** but also needs to be able to manage this process. Also, sufficient experience or skills in project and knowledge management, coordination, technical standards, tender documents, relevant procedures, and adequate staff capacity to oversee the execution or implementation are needed.
- **Create opportunities for Governorates (municipalities) to engage in PPP- projects**, or even the options for municipalities to establish a company, e.g., RE or EE, or a joint venture with Governorates could be considered.

4. Monitoring and Reporting

- A great value of the SEAPs (SECAPs) is monitoring activities to learn about the **actual savings**, and measure performance and implementation cost and **return on investment**. This requires not only procedures for energy monitoring (data collection), but also implementation cost and challenges, for future prediction.

  Standardized procedures, methodologies, reporting templates specific for governorates would support getting the actual results, and in a way where between comparison between municipalities is easier. For instance, making links to data collection mechanisms on the national level. The monitoring mechanisms need to include feedback loops to make adjustments in case of changes.

  In many countries including Egypt, the current challenges that most governorates/ municipalities face are:

  - ‘To sustain the shop operating’
  - **The ‘strength of their financial health’ needs to be looked at. This would need technical and financial support through projects developed by SEAPs (SECAPs)**
  - **Formal budgeting procedures** requires time and planning.
  - **Planning and implementation procedures**, which are not known upfront and therefore can be very lengthy, make appropriate planning complicated, and are not encouraging for the private sector to engage in cooperation with the public sector.
  - **Motivation** to ‘invest’ efforts in energy saving actions, if reduced E-bills lead to lower budgets in the next years, then the net balance is near to ‘0’. This is not encouraging to make the effort to reduce energy consumption, while many other issues are considered of higher priority, unless, reduction of energy consumption is mandatory.

  As indicated in paragraph 2.1, this chapter provides recommendations to involve municipalities, in an active way, by developing and implementing their own SEAPs, to support the implementation of national energy policies and action plans. At the national level, more actions are needed to reduce energy consumption.

5.1 Improving Legal and Institutional Framework

In the **institutional set-up** of the two selected governorates (municipalities) and their current structure, technical support is needed since the direct responsibility of the overall planning of Sustainable Energy (RE and EE) is unclear. **Introducing a new tool like the SEAPs (SECAPs)**, needs to be well planned and robust. At the selected two governorates’ level, establishing of **Strategic Sustainable Energy Unit** - Energy Efficiency Unit (SSEE) with a trained Manager/ Officer (Figure 15 & 16) is vital to achieve the SEAPs (SECAPs). This process could be smoothly implemented in other larger governorates (municipalities) such as Cairo, Alexandria and Giza at a later stage based on best practices when results
of the SEAPs (SECAPs) are reported, and utilized as an exemplary model for larger governorates’ development in the future.

To support Governorates (municipalities) in building information tools, two electronic information points should be established on the short term as shown in Figure 16 below. The first one relates to government and donor information: **Info Point GoEG and Finance** (Figure 16). This information point could be established as a short-term action plan, if the National CoM Coordinator is to be in place (not mandatory). When connected to the EE Unit at the Governorate would be under the direction of the **Secretary General of the governorate and with coordination with MoLD**. This information point collects the relevant information from the different ministries on regulations, procedures and obligations. The members of the NCG play a crucial role in bringing the relevant information. Beside the current NCG members, it is recommended by the NFP to include along the process development, in order of priority. This would initially include MoHUUD for BEECs (governmental and industrial buildings (EE Buildings), MoERE for Electronic data on electricity consumption), MoTr for transport strategy and mobility planning, and at a later stage the MoIC for donors’ info and MoF for budgeting support, if needed. Also, the MoPIC can provide the information for relevant support by the donors’ community, to start the implementation of the first Pilot SEAPs (SECAPs) measures. The second information point could be the **National Sharing Platform (NSP)**, which is proposed to connect to the private sector for PPP and ESCO projects, and specific waste management projects. This entity will be developed in connection to SEAPs (SECAPs), and could make its starting position stronger (EU funding in this direction might be considered).

A responsible unit for energy data collection to be set up in the two governorates to coordinate with the MoERE and MoLD for the E-database (Figure 16). The results of the implemented SEAPs (SECAPs) measures the actual annual energy consumption data (electricity, final energy (for fossils fuels) and primary energy (for RE generation/consumption) of Governorates, which needs to be shared with this database, preferably for the BEI sectors2. It is still unclear which entity would be responsible for collecting and or delivering the data, either through the Energy Unit or not, to the database in MoERE, so communication can take place on the ministerial level, or directly from municipalities to MoERE data base unit. This might be a future option, when the digital/online information system is fully operational. On the **Legal Framework development, there are several opportunities to pave the way for SEAPs (SECAPs) development at municipality level**.

The first opportunity after endorsing the **Governorates’ law No. 43 (1979)**, which is currently being reviewed by the Parliament and is under the responsibility of MoLD, Environmental and energy sustainability is to include it in this Law, as well as mandatory support of municipalities to the national environmental and energy action plans, like NEEAPs, by the development, implementation and monitoring of planning tools, like SEAPs (SECAPs). Additionally, the possibility for governorates to generate new income revenues provided the new governorate (municipality) law allows for such imposed income, to support implementation of energy conservation measures, as indicated in the **Donors and Funding Initiatives in the areas of Sustainable development at the Local Level**. These income revenues in coordination with MoF will be created either by charging new energy service taxes to cover specific enforcement cost, e.g., EE Building Codes (EEBCs) enforcement, and recommending licensing to enforce the mandatory Energy Audit for consumers.

2 The following BEI sectors are defined: buildings, equipment/facilities and industries (sub sectors: Municipal buildings, Tertiary (non-municipal) buildings, equipment/facilities, Residential buildings, Municipal public lighting, and Industries), transportation (though in Jordan it is not likely that electricity consumption for vehicles is already registered, first pilot just started) and other sectors (agriculture, forestry, fisheries)
Figure 15 Enhanced Governorate’s framework with SE (RE & EE) Unit to implement SEAP (SECAP)

Figure 16 Proposed strategic approach to Institutional and legal framework recommendations
For instance, by including articles on the following:

- Governorates (municipalities) have the responsibility to monitor their energy consumption, in the fields of Transport, Buildings, Electricity, Waste and Energy.
- Governorates (Municipalities) have the responsibility to develop and implement a Sustainable Energy Action Plan, to reduce their own energy consumption, according to National Strategy and Action Plans’ targets, and to promote energy conservation among the general public; the building, residential, commercial and industrial sectors, for the above-mentioned fields - within the range of their influence, (such a licensing, public space allocation and permits, Energy Efficiency Day). The SEAPs are to be submitted with the Annual budget to MoLD.
- Governorates (Municipalities) can initiate additional taxes in coordination with MoERE and MoLD related to encouraging the implementation of energy saving measures for the mentioned sectors. Income from such revenues needs to be allocated to either the enforcement process, or to measures included in the SEAPs (SECAPs), aiming at reducing energy consumption.
- The conditions for municipalities to engage in Public Private Partnership agreements and/or start a company (or joint venture), for the purpose of RE.

Approval processes of a new law take time; a priority should be given to endorse the new law, to make it in effect as soon as possible, as well as developing the relevant regulation or bylaws for specifications of implementation. Additionally, governorates (municipalities) are bound by national procurement regulations. These regulations (under the Ministry of Industry and Trade) are to be revised to include energy performance criteria for appliances and equipment procurement.

On the transport side, the legal framework is not yet well developed, in a way that it reflects the energy saving ambition of GoEG. Therefore, the recommendation is to develop a new transport Strategy and Law that includes energy conservation. This would need support by Donors.

The procurement regulations of MoHUUD are to be aligned with the energy laws, by-laws and regulations, to add energy performance criteria (or even make it mandatory) in the procurement and tendering processes of governmental buildings. This could be supported by Donors such as AFD, KfW and EBRD to upgrade the Governmental Buildings’ Code on energy performance.

In the new Waste Management Law, the coordination of all laws and regulations related to waste (management), currently existing under MoEnv is to be considered and additionally, the legal framework for waste to energy needs to be included. A comprehensive strategy on Solid Waste Management (SWM) should also be in place. SEAPs (SECAPs) can assist in developing such SWM strategy.

It is recommended that in the updating process of the By-laws No. 43 (1979) - ‘Regulating Procedures and Means of Conserving Energy and Improving Its Efficiency’ - which is currently under approval - the following issues could be tackled:

- Clarify the position of municipalities as governmental entities, and obligation to abide by law No.43,
- Recommend the energy type of the 65 TOE, final energy consumption or primary energy in commercial and governmental buildings,
- Align a new article for Solar Energy and Energy Efficiency Codes to meet standards of 2015/2016 in cooperation with the MoHUUD and issue BEECs for governmental and industrial buildings,
- Obligate utilities to provide clear insight to Governorates (Municipalities) in electricity consumption and bills, and
- Access for Governorates (Municipalities) to energy consumption data for the Baseline Emissions Inventory (BEI) sectors for the purpose of SEAPs (SECAPs) development.
In support of implementation, recommendations including the development of regulations that indicate to whom energy audits should be submitted and according to which procedure, penalties for not following for such procedures, as well as a regulation that clarifies the procedures to apply for the mandatory compliance certification for governmental entities.

Furthermore, a regulation that clarifies the accessibility of the Energy database, and which entities are eligible to provide data should be placed, preferably in a way that allows municipalities to benefit from the database for their SEAPs (SECAPs) development. Also, making these relevant regulations and procedures available for governorates (Municipalities).

As indicated in the ‘Donors and Funding Initiatives in the areas of Sustainable development at the Local Level’ report, another new source of revenue could come from energy generation projects. Additionally, to be able to develop a business plan that supports such projects, the use of either solar, wind or waste to energy solutions would be very beneficial, since the new electricity law governing the sale of electricity generated from RE is in operation. This would increase the number of feasible (bankable) energy projects.

- Develop a regulation under the Environmental Protection Law No. 9 (2009) to make Environmental fund operational, this would need funds from donors.
- Since the Governorate of Luxor has almost one-fifth of the world’s heritage sites and monuments, air and water pollution from traffic and transport (land and water), mainly CO₂, should be reduced in order to mitigate its negative (direct and indirect) impacts on heritage sites and monuments. SEAPs (SECAPs) can develop plans and projects to assist in reducing such negative impacts.
- The impact from the nearby agricultural farms closer to heritage sites and monuments can affect these sites. Hence, SEAPs (SECAPs) can apply plans to reduce waste through recycling (waste-to-energy), underground water migration, and CO₂ capturing projects.
- The urban development closer to registered heritage sites and monuments casts pollution from construction, as well as negative impacts on these sites. Hence, SEAPs (SECAPs) can assist in developing plans to reduce such negative impacts through recycling of construction waste to reduce embodied energy and CO₂ emission.
- The Governorate of Red Sea is a touristic hub which encompasses many hotels and resort. SEAPs (SECAPs) can develop plans and projects to assist in transferring hotels and resorts to be smart, green, and sustainable to further decrease energy consumption and enhance EE, especially after the second increase in the electricity tariff (August 2016), thus lower CO₂ emissions.
- The recent announcement of Egypt’s Minister of Electricity and Renewable Energy (ERE) on September 16, 2016 regarding the considerable reduction of the PV feed-in tariff (FIT) scheme. The scheme would lead to increasing investments and development in the RE. For projects between 500 kW and 20 MW in size, FIT rate will be reduced by 42.65 per cent from $13.6 cents/kWh to $7.8 cents/kWh and for projects between 20 MW and 50 MW in size, the rate will be reduced by 41.42 per cent from $14.34 cents/kWh to $8.4 cents/kWh.\(^{152}\)
- The initial target to build 4.3 GW of RE projects would assist in achieving the aim of producing 20 per cent of its energy mix from renewables by 2022.\(^{152}\) SEAPs (SECAPs) can assist in developing plans and projects in this area to support Governorates’ plans.

### 5.2 Support at National level for the preparation and implementation of SEAPs (SECAPs)

The new governorates law can only come into real effect when related budgets are assigned. Governorates (municipalities) need to be able to have the relevant budget line items to carry out their responsibilities; only then would the political commitment be in force. This is a priority for the national support. Budgets would need to be created for SEAPs (SECAPs) development (EE Manager/ SEE Unit)
and implementation (measures, actions and their monitoring), in the form of a revolving fund. The new EG-REEEF, refer to the Donors and Funding Initiatives in the Areas of Sustainable Development at the local Level – Annex III and Annex IV.

Considering the current financial health of many municipalities, the role out of the SEAPs (SECAPs) can only take place in the two governorates (municipalities), in good financial health, and those that already joined the current initiatives. These Pilot SEAPs (SECAPs) can set successful examples for other governorates (municipalities) to join the Project at a later stage.

The SEAPs’ (SECAPs) sector agreed upon in the NFP meetings - that are relevant for Egypt - are besides those indicated by CES-MED project (EE for Municipality Buildings, EE Building Code enforcement, Street lighting and Mobility (transportation) planning), Electricity Generation (due to the existing feed in tariff and legal framework) and Waste (due to the number of donors and IFI initiatives related to waste and waste to energy). The projects relevant to SEAPs and contact details of the Donors and IFI’s in the Areas of Sustainable development at the Local Level are available in (Annex III). Examples of potential projects related to SEAPs (SECAPs), implemented by Donors and IFI’s in Egypt are listed in Annex III.

The NFP – MoFA that is leading the coordination process for better SEAPs (SECAP) and ensuring smooth implementation recommends coordination with relevant stakeholders (Ministries and authorities) to support the implementation of SEAPs (SECAPs). At a later stage, the main stakeholders to support in this are:

- **MoPIC** for the International cooperation and support information for donors, especially for Renewable Energy and Energy Efficiency Fund (REEEF),
- **MoLD** to coordinate on the proposed Joint Services Councils (JSC) at the two governorates,
- **MoERE** to provide input on energy consumption (electronic data) for governorates,
- **MoEnv** for waste management related issues,
- **MoTrt** for clean transport strategies and accessible mobility,
- **MoTrt** to develop policies to foster and provide public clean transport,
- **MoHUUD** to update the BEECs and issue the BEECs for Governmental and Industrial buildings. Also, to issue buildings’ Energy Efficiency tendering, procurement as well as buildings’ codes enforcement procedures. In addition, to develop procedures for green tendering and procurement in collaboration with MoEnv, MoIFT, MoLD and, MoF,
- **MoHUUD, MoRER, MolFT and MoLD** to enforce mandatory Energy Audits in commercial, industrial, and governmental buildings at the two governorates, and
- **MoTrm** to update Hotel Green Units and to mandate green measures and codes in hotels,
- **MoAnts** to expand sustainability and green measures near heritage sites to protect heritage buildings in the SEAPs (SECAPs) areas, mainly in the Governorate of Luxor,
- **MoPMRs, MoERE and MoEnv** to develop benchmark indicators in cities for GHG emissions,
- **NREA** to develop a comprehensive Energy Efficiency plan in collaboration with RCREEE,
- **RCREEE** to support NREA and MoERE in developing GHG emissions indicators,
- **MolIFT and MoF** to update laws to allow for green product tax exemption,
- **MoF** to update laws for importing electrical vehicles for the sole purpose of promoting mobility at the Governorates of Red Sea and Luxor, and
• **MoF** and Egyptian Central Bank to regulate an incentives scheme for importing green products.

As soon as the SEAPs (SECAPs) commence and move forward, more entities and stakeholders can add value and provide support. Involving the MoIC and MoF as well as international donors operating in Egypt (AFD, EIB, ERDB, JICA and kfW) and others, which are vital for their crucial role when it comes to budget allocation for SEAPs (SECAPs) development, implementation and action projects.

**Additional stakeholders** relevant to the development and implementation of SEAPs (SECAPs) are:

• **MoCom** to develop electronic key indicators for the two Governorate as a pilot study,
• **MolInv** to support projects’ opportunity for funding,
• **NSEC** to recommend developing energy indicators in all related sectors,
• **RCREEE** to offer technical support for updating RE and EE regulations,
• **Petroleum Research Centre** (PRC) to support SEAPs and SECAPs,
• **Oil and Gas Skills** (OGS) for capacity building during SEAPs (SECAPs) execution,
• **Utilities**: EEHC for coordination of the demand-side management (DSM) at Governorates,
• **Egyptian funding/financing organizations**, e.g., HDB, REB and AUB,
• **National Bank of Egypt** is to support on funding projects fiches,
• **Energy Lab** - Faculty of Engineering, Cairo University to support SEAPs (SECAPs) execution,
• **Air Group** to monitor Air pollution during SEAPs (SECAPs) execution at the governorates, and
• **Egypt-GBC** and HBRC to provide Green Labelling of buildings.

Moreover, to promote the implemented EE measures - including those by the public in the different sectors - every SEAP (SECAP) should include an EE Award, in line with Bylaw on the National level.

Actions additional to the recommendations for the institutional set up and legal framework - indicated in the previous paragraph - at the national level to support municipalities in the development and implementation of SEAPs (SECAPs) are listed in the below table, including the responsible entities to take or initiate such actions.

Table 3 indicates the Long-term actions at national level to support SEAPs’ (SECAPs) implementation. The measure in the below table will need a longer timeframe (up to five years) before they can all be in place. As a later stage the NGC members would set priorities for these action, as from their gained experience, they have the best perspective on which action would be the most successful, or the quickest. This could be a discussion point for their next meeting with CES-MED project’s Nation Focal Point (NFP) – Ministry of Foreign Affairs (MoFA).

The question arises, what could be done on the short-term with the support of CES-MED, currently in place? These actions are listed in Table 3.

**Table 3** Long term actions at national level to support SEAPs (SECAPs)

<table>
<thead>
<tr>
<th>WHAT</th>
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<tr>
<td>Political</td>
<td></td>
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<tr>
<td>Include development of Governorates’ SEAPs (SECAPs) in the NEEAP update and NREAP updating.</td>
<td>MoERE - NREA TA to REEEP and NERAP</td>
</tr>
<tr>
<td>Include updates in regulations, for Governorates on EE Bylaw, the necessary actions to support Governorates’ SEAPs (SECAPs) development.</td>
<td>MoLD and MoERE</td>
</tr>
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</table>
Streamline procedures for energy (supply) projects, make them transparent and inform Governorates (Municipalities) about them | MoERE

Integrate flexibility in Governorate (Municipality) Budget to assign budgets for staff and energy saving measures with a ‘light procedure’ for MoERE approval, when following required methodologies for SEAPs (SECAPs) actions. | MoERE, NREA, MoPMRs, and Governorate (MoLD)

Establish “incentives” for Governorates (Municipalities)  
• E-bill saving can be used for investment in the next Energy Saving protocol | MoLD, MoF, and MoERE

Action:  
• Launch an annual Governorate RR & EE Award (May 21st, Arab EE Day) for Governorates with the best implemented Energy Action[^1] | MoIC (CES-MED) Governorates (Luxor Red Sea, SuDeP)

Create investor awareness for EE/RE to support new urban projects | “JSC” Governorates and MoLD

Institutional  
Assign a responsible Professional entity for SEAPs (SECAPs) coordination - Energy Efficiency Manager/ Strategic SE Unit for the two Governorates. Also, the proposed JSC to coordinate projects of SEAP (SECAP). | EEHT - MoERE

Utilities (EEHC) to provide electricity bills | Distributors to provide grid access. EETC - MoERE

Assign a CoM coordinator to support Municipalities (not Mandatory) | MoPIC, MoLD and EU

Mobile Energy and Environment Clinic to be initiated by the MoEnv and MoIFT/ Chamber for Trade and Industry and MoInf. | Egypt-ERA, MoEnv, MoCom, MoLD Governorates

Information  
Publish the list of labelled appliances and equipment. | Egypt-ERA / MoERE

Provide information on different, relevant Application Procedures, where to go to get what and when? | MoLD, MoERE, MoEnv, MoAnts, MoTra, MoHUUD

Develop technology, tender documents packages, and application templates, success factors for implementation, monitoring and reporting procedures. | MoERE, MoHUUD - HBRC, and MoLD

Provide methodology for energy data collection and indicator development on the Governorate level for Buildings (in corporation with MoHUUD/ HBRC), Street lighting (MoERE and NREA), Governorates’ Vehicles (Governorates), RE supply for electrical vehicles (MoERE, NREA, MoF and MoEnv). | MoHUUD – HBRC, MoEnv, MoERE, MoPMRs and NREA

Develop a ‘scheme’ of ES and EE measures for Governorates, including cost estimations and technical specifications: street lighting, low consumption vehicles and vehicle management, EE Building renovation, PV, Waste to Energy (biogas), Commercial licensing criteria, Green Public Transport Promotion, Codes Enforcement procedures and Public Communication for raising awareness. | MoHUUD/ HBRC/ MoEnv / MoERE / MoPMRs/ NREA/MoLD

6 POTENTIAL COVENANT OF MAYORS COORDINATORS

The European Commission defines “Covenant of Coordinators”\(^4\) as those public administrations, which provide strategic guidance, financial and technical support to municipalities signing up to the Covenant of Mayors (COM) but lacking necessary skills and/or resources to realise their requirements. The EC distinguishes between Territorial Coordinators, which are sub-national decentralized authorities - including provinces, regions and public groupings of municipalities - and National Coordinators, which are national public bodies - including national energy agencies and the Ministry of Energy. The European Commission defines “Covenant Supporters”\(^5\) as European, national, and regional networks and associations of local authorities, which leverage their lobbying, communication and networking activities to promote the Covenant of Mayors’ (COM) initiative and support the commitments of its signatories. Coordinators and Supporters are distinct in their operations, as coordinators focus on supporting governorates with the development and/or implementation of their SEAPs, while supporters mainly provide networking activities. The priority for Egypt may be to assign Covenant Coordinators; however, organizations capable of undertaking both roles could be possible too.

CoM Coordinators

One or more NCG members could be appointed as a focal point or SEAPs Coordinator who is given the full support of local authorities as well as the necessary time and budget to carry out the role.

The National CoM Coordinator (not Mandatory) would need to be able to do the following tasks:

- Offer strategic guidance and technical assistance to the governorates for SEAPs development and implementation
- Support municipalities with their extensive technical knowledge on EE and RE measures, energy audits, and development of economic energy projects
- Assist in application of regulations and procedures from the different Ministries

During the NFP meetings, two potential CoM coordinators were discussed:

- A (new) Unit to support and facilitate control of the SEAPs’ (SECAPs) development. However, in depth knowledge and/or experience of RE and EE is not yet in place, and internally there was no agreement yet as to whether a new unit should be established. It could be possible for the planned EE Unit to take this role, additionally.
- NREA does have the technical knowledge and experience needed to provide support to SEAPs’ development and implementation.
- A Regional Coordinator could be considered for smaller governorates (municipalities). As indicated, the tasks of the Joint Services Council (JSC) could be extended beyond their current tasks in waste landfill management, to include energy conservation activities in the future.

In both cases the knowledge and experience in developing SEAPs (SECAPs), initiating projects and managing the implementation could be supported by MoERE and NREA, MoAnts, MoTrm, and MoTr as well as MoHUUD in the initial start-up phase. It could be further investigated within the UfM Ministerial Meeting which is due to take place in Cairo, Egypt in April 2017 and could play a support role to the CESMED project. The SEAPs (SECAPs) would fit very well in the thematic set-up. However, (financial) support would be needed to organize and manage activities around the SEAPs (SECAPs) exchange in the region, and this could be considered by the EU.

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\(^4\) [http://www.covenantofmayors.eu/Covenant-Coordinators.html](http://www.covenantofmayors.eu/Covenant-Coordinators.html)

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## 7. ANNEXES

### 7.1 Annex I – Consultation Contacts

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<tr>
<td>Dr</td>
<td>Hussein Abaza</td>
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<td>Sherif Hosny</td>
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<tr>
<td>Mr</td>
<td>Ahmed Shokry</td>
<td>Director of Projects Egyptian of Tourism Authority Ministry of Tourism</td>
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<tr>
<td>Dr</td>
<td>Mohamed Bayoumi</td>
<td>Director United Nation Development Program (UNDP)</td>
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<tr>
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</tr>
<tr>
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<tr>
<td>Eng</td>
<td>Khaled Zahran</td>
<td>General Manager Planning and Project Department EGAS, MoPMRs</td>
<td>06.09.16 Tel 10.09.16 Meeting</td>
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## Donors and IFI’s

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<tr>
<td>Mr</td>
<td>Leopold VILLEROY DE GALHAU</td>
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<td>Mahmoud Megahed</td>
<td>Energy Sector Coordinator KfW - Egypt</td>
<td>03.08.06 Tel 23.08.16 Tel 22.08.16 Email 23.08.16 Email</td>
</tr>
</tbody>
</table>
### 7.2. Annex II- Laws/ Regulations, Decrees and Decisions related SEAPs (SECAPs)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Laws/ Regulations/ Decrees and Decisions</th>
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</table>
| Governorates    | Law No.43 (1979) describes the responsibilities of the Governorates | Art.12:  
- All Infrastructure and utilities,  
- Water supply and maintenance,  
- Sanitation and management,  
- Electricity supply and maintenance,  
- Roads,  
- Street public lighting,  
- Educational buildings,  
- Health units and its services,  
- Waste collection,  
- Beautification of public spaces,  
- Public services and management,  
- Maintenance and management,  
- City planning in coordination with the National Supreme Council for Planning and Urban Development (SCPUD),  
- Building permits – procedures are regulated by Unified Building Law (see building sector), and  
- Residential, commercial, and other types of buildings' licensing. | A new Law has been developed to replace Law No. 43. It has been approved by the State Council last July 2016 and was sent to the Egyptian Parliament for review and endorsement. It includes more decentralisation and improvements of local authority and gives more responsibilities for local economic development of the Governorates (Municipalities).  
Endorsement of the new Law is expected early 2017.  
Governorates can direct influence on energy consumption of their street lighting, buildings and vehicles fleet and indirect influence energy consumption for transportation, and through licensing conditions.  
Explore licensing procedure of Governorates to assess where they can have influence related to energy issues.  
How energy efficiency is not mandatory in the procedures? This needs technical support. |
<table>
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</table>
| Building | Unified Building Law No. 119 of 2008[^26] | Building Energy Efficiency Codes (BEECs):  
- BEEC 2006 & 2009  
  - Residential buildings 2006  
  - Commercial buildings 2009  
  - Governmental Building 2009  
- Egyptian Code for Ventilation in Buildings, decree 160 year 2013  
- Improving Energy Consumption in Residential Buildings, Part 1 Serial 1/306, decree 482 year 2005  
- Egyptian Code for Energy Efficient Building, 2009[^28]. | Under the legal framework of [this law](http://www.hbrc.edu.eg/Cods%202016.pdf), the New Urban Communities Authority (NUCA), provides all regulations pertaining to new communities [outside of metropolitan municipal boundaries](http://www.hbrc.edu.eg/Cods%202016.pdf) in the form of a Terms of Reference (TOR), and is responsible for providing the infrastructure.  
- There is a joint committee between the MoHUUD (represented by HBRC) and MoERE to develop a tool to enforce the BEEC but the outcomes is not published yet. Hence, SEAP (SECAP) can support in developing such enforcement tool.  
- Lack of Enforcement of Building Codes in general.  
- Include EE Building Code enforcement in SEAP (SECAP). | |


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**Article 41: Housing**  
The state commits to the implementation of a housing programme that aims at achieving balance between population growth rates and the resources available, maximizing investment in human energy, and improving its features, within the framework of achieving sustainable development.  
It has been activated by leading institution MoHUUD.  
A colossal number of social housing units were built between 2015 and 2016 in Cairo and other governorates.
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<th>Sector</th>
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<tbody>
<tr>
<td>National Environnemental Action Plan (NEAP)(^{21})</td>
<td></td>
<td>For Egypt, seven main areas were recognized by this plan, to be tackled between the year 2002 and 2017. These areas are land, water, solid waste management and biodiversity. The MoEnv – EEAA created section to prompt and support green buildings development. How is it not mandatory? All efforts are voluntary.</td>
<td></td>
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<tr>
<td>Egyptian Cabinet Decision No. 512 for year 2014 (^{27})</td>
<td></td>
<td>The Government of Egypt has approved the creation of the Central Unit for Sustainable Cities and Renewable Energy (CUSCR), as part of the NUCA. Its role need to be supported in both governorates</td>
<td></td>
</tr>
<tr>
<td>Ministerial Decree No. 56, 2009 (^{30})</td>
<td></td>
<td>This Decree established The Egyptian Green Building Council (Egypt-GBC) in 2009 as a governmental entity to promote green construction in Egypt. It is not active enough compared to other GB Councils</td>
<td></td>
</tr>
<tr>
<td>Electricity</td>
<td>Presidential Decree No. 326 for the year 1997(^{18})</td>
<td>Establishing the Egyptian Electrical Utilities and Consumer Protection Regulator Agency (Egypt-ERA)</td>
<td></td>
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\(^{30}\) National Housing & Building Research Centre – Available at: [http://www.hbrc.gov.eg](http://www.hbrc.gov.eg) (Accessed: 29.07.2016)


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<tbody>
<tr>
<td></td>
<td>Presidential decree No. 339 for the year 2001&lt;sup&gt;37&lt;/sup&gt;</td>
<td></td>
<td>Reorganizing the Egypt-ERA, specifying its authorization and activities and forming the Board of Director of the Agency to include experts in energy field not related to electricity sector, other customers’ representatives, public persons and experts in electricity sector.</td>
</tr>
<tr>
<td></td>
<td>Law No. 87 of 2015&lt;sup&gt;36&lt;/sup&gt; The issuance of the Electricity Law&lt;sup&gt;160&lt;/sup&gt;</td>
<td></td>
<td>This electricity law aims at raising the performance efficiency and service level of the companies operating in the field of production, transmission, distribution and sale of electricity.</td>
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<td></td>
<td>Law No. 164 of 2000 The Egyptian Electricity Authority to be transferred to Egyptian joint stock company&lt;sup&gt;161&lt;/sup&gt;</td>
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</thead>
<tbody>
<tr>
<td>Transportation Sector</td>
<td>Egypt's Constitution of 2014[^11]</td>
<td>Article 43: The state commits to protecting, developing and maintaining the Suez Canal as an international waterway that it owns. It is also committed to the development of the canal sector as a significant economic pillar.</td>
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<td></td>
<td>The Presidential Decree No. 474 for the year 1979 established the Public Authority for river transportation[^43]</td>
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<td></td>
<td>Master plan for Nationwide Transport system in Egypt[^162]</td>
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<td></td>
<td>Presidential Decree No. 474 for the year 1979</td>
<td>To establish the Public Authority for River Transportation (PART) with the objectives to:</td>
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<td></td>
<td></td>
<td>- Raise the efficiency of water transport facility across the Nile River and its navigational channels and development, achieving the optimal exploitation and technical foundations of sound economic order to play its role in national development;</td>
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<tr>
<td></td>
<td></td>
<td>- Develop a comprehensive plan for water transport facility and all industrial actions related to cope with the requirements of development in all fields;</td>
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<td></td>
<td>- Supervise all water transport projects to ensure the safety of implementation and compliance with the conditions and technical specifications;</td>
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<tr>
<td></td>
<td></td>
<td>- Preparing the necessary programs and projects and supervise their implementation; and</td>
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<td></td>
<td></td>
<td>- Determine the use of industrial facilities set up by the Commission.</td>
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<tr>
<th>Multimodal Freight</th>
<th>Decree No. 27 (1990) concerning the baselines of the maritime areas of the Arab Republic of Egypt&lt;sup&gt;44,46&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Private Partnership (PPP)</td>
<td>Law No. 67 of 2010 regulating Partnership with the Private Sector in Infrastructure Projects, Services and Public Utilities&lt;sup&gt;163&lt;/sup&gt;</td>
</tr>
<tr>
<td>Tourism Sector</td>
<td>Egypt’s Constitution of 2014&lt;sup&gt;11&lt;/sup&gt;</td>
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</table>

**Art. 15**: A Supreme Committee for PPP Affairs (PPPA) shall be formed and is competent to:
- Setting of an integrated national policy for PPP
- Endorsing the application of the PPP structure on Projects of Administrative Authorities.
- Monitoring the allocation of funds to ensure the fulfillment of financial obligations resulting from the implementation of PPP contracts.
- Approving the conclusion of the contract.
- Conducting studies and proposing means to provide and develop the market tools necessary to provide appropriate financial structures for PPP projects.

**Art. 34**: The provisions that must be included in the PPP contract.

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<tr>
<td></td>
<td><strong>Law No. 1 of 1973 and Law No. 1 of 1992 concerning the Tourist establishments</strong>70</td>
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<td></td>
<td><strong>Law No. 8 of 1997 on Investment Guaranties and Incentives</strong></td>
<td>This law is covering Tourism in terms of hotels, hotel flats, motels, resorts and tourist transportation.</td>
<td></td>
</tr>
<tr>
<td>Waste Sector</td>
<td><strong>Egypt’s Constitution 2014</strong> 11</td>
<td><strong>Article 46:</strong> stated that each citizen has the right to healthy environment and its protection is a national duty55.</td>
<td>The statement is an obligation to take the necessary measures to preserve the environment and not to damage it.</td>
</tr>
<tr>
<td></td>
<td>Study conducted in 2013-2014 under the Ministry of Environment (MoEnv) and Egyptian Environmental Affairs Authority (EEAA)</td>
<td></td>
<td>The study indicates that the current policy, institutional and legal framework for the waste management (WM) sector is ineffectual. Institutional roles and responsibilities are indistinguishable and capacity needs enhancements, not only across Ministries, but also throughout Governorates, new communities and municipalities as well. The division of responsibility between Ministries is unclear, and this is the forerunner to duplicate effort, inefficient use of human resources.</td>
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55 The Environment status report of Egypt 2014, p. 4, [http://www.eeaa.gov.eg/portals/0/eeaaReports/SoE2015AR/%D8%AA%D9%82%D8%B1%D9%8A%D8%B1%20%D8%AD%D8%A7%D9%84%D8%A9%20%D8%A7%D9%84%D8%A8%D9%8A%D8%A6%D8%A9%20%D9%81%D9%89%20%D9%85%D8%B5%D8%B1%20%D9%84%D8%B9%D8%A7%D9%85%202014.pdf](http://www.eeaa.gov.eg/portals/0/eeaaReports/SoE2015AR/%D8%AA%D9%82%D8%B1%D9%8A%D8%B1%20%D8%AD%D8%A7%D9%84%D8%A9%20%D8%A7%D9%84%D8%A8%D9%8A%D8%A6%D8%A9%20%D9%81%D9%89%20%D9%85%D8%B5%D8%B1%20%D9%84%D8%B9%D8%A7%D9%85%202014.pdf) (Accessed: 07.07.2016)

### The legislative framework for the management of solid waste established in accordance to **Law No. 38 of 1967**, concerning public hygiene and its’ implementing regulations\(^{54}\)

**Law No. 31 of year amended law No. 38 of year 1967**\(^{56}\)

- This law imposes 2 per cent charges as a cleanliness tax, which was added to utilities bill (electricity monthly bill), though it was not effective due to many complaints and deliverables. Such law requires that a license be issued by the local council for all workers employed as waste collectors.
- It considers domestic and industrial waste as garbage and solid wastes. It also specifies garbage containers, means of transportation and intervals of solid waste collection.

**Law No. 4 of 1994**\(^{55}\)

- **Art.38** prohibits burning, disposal or treatment of solid waste except in designated areas that are far away from housing, industrial or agricultural areas as well as from waterways.
- **Art.39** requires that collectors of waste maintain their garbage bins and vehicles in a clean state. Such garbage contents should be collected and transported at suitable intervals according to the conditions of each area. The garbage’s quantity shouldn’t exceed the capacity of any of these bins at any time.

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\(^{54}\) The Ministry of Environment; Egyptian Environmental Affairs Agency (EEAA): [http://www.eeaa.gov.eg/ar-eg/](http://www.eeaa.gov.eg/ar-eg/)%D9%85%D9%88%D8%B6%D9%88%D8%B9%D8%A7%D9%8A%D8%A8%D9%8A%D8%AA%D8%A7%D9%84%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D9%84%C3%88%82%D8%B1%D8%A7%D8%A8%D9%8A%D8%AA%D8%8B%83)\(\text{Accessed: 07.07.2016}\)

\(^{55}\) The Environment status report of Egypt 2014, p. 4, [http://www.eeaa.gov.eg/portsals/0/eeaaReports/SOE2015AR/%D8%AA%D9%82%D8%B1%D9%8A%D8%B1%20%D8%AD%D8%A7%D9%84%D8%A9%20%D8%A7%D9%84%D8%A8%D9%8A%D8%AA%D8%8B%83](http://www.eeaa.gov.eg/portsals/0/eeaaReports/SOE2015AR/%D8%AA%D9%82%D8%B1%D9%8A%D8%B1%20%D8%AD%D8%A7%D9%84%D8%A9%20%D8%A7%D9%84%D8%A8%D9%8A%D8%AA%D8%8B%83)\(\text{Accessed: 07.07.2016}\)
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<tr>
<td></td>
<td>Law No. 9 of 2007 amended Law No. 4 of 1994&lt;sup&gt;54, 70&lt;/sup&gt;</td>
<td></td>
<td>The amendments aim at dwindling the gap in the legislative systems and environmental activities since there was no such legislation.</td>
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<tr>
<td></td>
<td>Law No. 106 of year 1976 organising construction works and construction and demolition debris (C and D)</td>
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<td></td>
<td>Law No. 137 of year 1981</td>
<td>Art.117 requires employers to inform their workers of the hazards associated with the non-compliance with safety measures and that personal safety equipment, together with training on its use, should be provided to the worker</td>
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<td></td>
<td>Law No. 140 of 1956 concerning public roads occupancy with regards to waste output&lt;sup&gt;54&lt;/sup&gt;</td>
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<td></td>
<td>Law No. 84 of 1968 on public roads&lt;sup&gt;54&lt;/sup&gt;</td>
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<td></td>
<td>The solid waste Law No.9 of 2009 concerning the protection of the environment and its implementing regulations&lt;sup&gt;54&lt;/sup&gt;</td>
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<sup>54</sup> The Ministry of Environment; Egyptian Environmental Affairs Agency (EEAA): [http://www.eeaa.gov.eg/ar-eg/%D9%85%D9%88%D8%B6%D9%88%D8%B4%D9%8A%D8%AF%D9%84%D9%81%D8%A4%D9%85%D8%AE%D9%84%D9%85%D8%B5%D9%84%D8%A9%D9%82%D8%AA%D8%A7%D9%BA%D9%86%D9%8A%D8%A7%D8%AA/D8%B4%D8%B1%D9%88%D8%A9/D8%A7%D8%AA.aspx](http://www.eeaa.gov.eg/ar-eg/%D9%85%D9%88%D8%B6%D9%88%D8%B4%D9%8A%D8%AF%D9%84%D9%81%D8%A4%D9%85%D8%AE%D9%84%D9%85%D8%B5%D9%84%D8%A9%D9%82%D8%AA%D8%A7%D9%BA%D9%86%D9%8A%D8%A7%D8%AA.aspx) (Accessed: 07.07.2016)

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<tr>
<td></td>
<td>Law No. 48 of 1982 regarding the solid waste for the protection of the Nile River waterways from pollution&lt;sup&gt;54&lt;/sup&gt;</td>
<td>Gives permitting authority to the MoIRL to protect the River Nile and other waterways against pollution from solid waste</td>
<td></td>
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<tr>
<td></td>
<td>Presidential Decree No. 284 of year 1983</td>
<td>Establishing the Cairo and Giza Beautification and Cleansing Authorities</td>
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<td></td>
<td>Law No. 10 of year 2005</td>
<td>Establishing a solid waste collection fees</td>
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<td></td>
<td>Prime Minister’s Decree No. 1741 of year 2005</td>
<td>Amending the Executive Regulations of Law No. 4 of year 1994 and covering regulations for the selection of sites for recycling, land filling and equipment entailed for waste collection &amp; transfer.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prime Minister’s Decree 964 of year 2015</td>
<td>Annex 1: Criteria and specifications of waste water and its drainage in water channels; Annex 11 includes 3 sections: a. Conditions and specifications for means of collecting and transporting municipal solid waste; b. Conditions and specifications for the means of selecting and building centres of municipal solid waste treatment and recycling; and the production of organic fertilisers; and</td>
<td></td>
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<sup>54</sup> The Ministry of Environment; Egyptian Environmental Affairs Agency (EEAA): [http://www.eeaa.gov.eg/araeg/%D9%85%D9%88%D8%B6%D9%88%D8%B9%D8%A7%D8%AA%D8%A8%D9%8A%D9%A6%D9%8A%D9%A9%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA](http://www.eeaa.gov.eg/araeg/%D9%85%D9%88%D8%B6%D9%88%D8%B9%D8%A7%D8%AA%D8%A8%D9%8A%D9%A6%D9%8A%D9%A9%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA/D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA/D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA%D8%A7%D9%84%D9%85%D8%AE%D9%84%D9%81%D8%A7%D8%AA.aspx) (Accessed: 07.07.2016)
Energy sector | Egypt's Constitution of 2014<sup>11</sup> | Article 32: The state commits to making the best use of renewable energy resources, motivating investment, and encouraging relevant scientific research. The state works on encouraging the manufacture of raw materials, and increasing their added value according to economic feasibility.

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c. Conditions and specifications for the selecting sites for municipal solid waste-SW dumping and landfills or burning SW for energy generation.
- Annex 12: Condition and Criteria of handling and use of coal and fossil fuels; including 3 sections:
  a. Conditions, criteria and general specifications for handling and use of coal and fossil fuels;
  b. Specific Conditions and criteria for handling and use of coal and fossil fuels
- Section I - handling and coal and fossil fuels at ports and its corridors; and
- Section II- handling intermediate storage plants outside ports.
- Section III - Specific conditions and specifications for transporting coal and fossil fuels
  c. Specific Conditions and criteria for using coal and fossil fuels.

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<td></td>
<td>Energy Efficiency Plan in the Electricity Sector for 2012-2015</td>
<td></td>
<td>This plan led to saving of 5.566 GWh, mainly by measures in the lighting sector such as: - Change the high efficiency lighting in the household sector. The planned distribution of 60 million bulbs shall save 3.320 GWh - Energy saving in street lighting of 1.200 GWh - Supported by the Association of Energy Efficiency Engineers (AEEE) - A five-day seminar about EE lighting procurement was successfully conducted in cooperation with the ministry of energy and electricity in Cairo in 2013, 2014 and 2015. - The second phase of program of Energy Efficiency Standards and Labelling for household appliances. This shall save 1.663 GWH.</td>
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- The second phase of program of Energy Efficiency Standards and Labelling for household appliances. This shall save 1.663 GWH.
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<tr>
<td>Environment sector</td>
<td>Egypt's Constitution of 2014 11</td>
<td>Article 46: Environment: Every individual has the right to live in a healthy, sound and balanced environment. Its protection is a national duty. The state is committed to taking the necessary measures to preserve it, avoid harming it, rationally use its natural resources to ensure that sustainable development is achieved, and guarantee the rights of future generations thereto.</td>
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<td></td>
<td>The 2015 Global Climate Legislation Study 75</td>
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<td></td>
<td>Law No. 21 of 1958 and Law No. 55 of 1977 for Industrial establishments</td>
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<td>Law No. 1 of 1973 and Law No. 1 of 1992 for Tourist establishments</td>
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<tr>
<td></td>
<td>Laws Nos. 66 of 1953, 86 of 1956, 61 of 1958 and 4 of 1988 concerning mines, quarries and establishments operating in the field of oil exploration, drilling, transportation and usage</td>
<td></td>
<td>• Law No. 4 indicates that the environmental impact of certain establishments or projects must be evaluated before any construction works are initiated or a license is issued by</td>
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the competent administrative authority or licensing authority.

- The Executive Regulations relating to Law No. 4 classifies types of establishments or projects that must undergo an Environmental Impact Assessment (EIA) based upon the following main principles:
  a. Type of activity performed by the establishment.
  b. Extent of natural resources exploitation.
  c. Location of the establishment.
  d. Type of energy used to operate the establishment

- The EEAA developed a flexible screening system to manage the EIA projects in order to use limited economic and technical resources in the best possible way, by classifying the projects into three groups reflecting different levels of EIA according to severity of possible environmental impacts:
  a. The "A" list - projects for establishments/projects with minor environmental impact.
  b. The "B" list - projects for establishments/projects which may result in substantial environmental impact.
  c. The "C" list - projects for establishments/projects which require complete EIA due to their potential impacts.
| Law No. 9 of year 2009 | Includes all infrastructure projects; Environmental Monitoring Networks; Environmental Impact Assessment; Environmental Disaster; Competent Administrative Agency Protection of the Water Environment; Coastal zone; and Integrated Environmental Management of Coastal Zones. Emphasis on the establishment of an Environmental Protection Fund (EPF) and Incentives were developed. This system of incentives is created in collaboration with the MoF, environmental protection activities or projects were EEAA can offer to agencies, establishments, individuals and others. |
| National Environmental, Economic and Development Study (NEEDS) for Climate Change (2010) | This study aims to outline the financial and institutional needs for implementing prospective and ongoing adaptation and mitigation measures. It recognizes that the next phases of climate change planning should include a National Action Plan for Adaptation (NAPA) and National Low Carbon Economy Plan (NLCEP). The NEEDS report highlights the urgency for developing GHG monitoring system that aggregates and disseminates information about GHG emissions across sectors. |
| Agreement between the MoEnv and Italy’s MoEnv (2014) | This agreement’s objective is to transform El-Gouna City into the 1st carbon-neutral city in Africa. |
| **Prime Minister’s Decree 964 of year 2015**\(^{71}\) | - Art.1: regulations and specifications for handling coal and fossil fuels;  
- Art.2: regulations and specifications for selecting and building centres for municipal solid waste treatment and recycling;  
- Art.3: regulations and specifications for selecting sites for municipal solid waste dumping and landfills or burning solid waste for energy generation  
- Art.8 concerns the RFA which includes the following issues:  
  1. Offset environmental disasters,  
  2. Pioneering pilot studies of best practices concerning environmental protection from pollution and achieving sustainable development,  
  3. Low cost technology transfer,  
  4. Financing and manufacturing pilot models of equipment, apparatus, and monitoring stations,  
  5. Instituting and operation of monitoring networks,  
  6. Establishment and management of natural protectorates to save natural resources; | - Pollution by Harmful Substances (Art.60-65)  
- Pollution from Sewage and Garbage (Art.66-68)  
- Pollution from Land Based Sources (Art.69-75)  
- International Certificates (Art.76-77)  
- Administrative and Judicial Procedures (Art.78-83)  
- Amending Art. 7, 8, and 42 in the Environmental Protection Law No. 4 of 1994  
- This Decree was also endorsed by a Presidential Decree on 19\(^{th}\) of April 2015, concerning the Environmental Resources Fund Allocation (ERFA) for offset the environmental disasters and pilot projects, as well as funding the studies of evaluation and Environmental Impact Assessment (EIA) and participation in relevant projects.  
- Many annexes were also issued and endorsed regarding waste water, in criteria and regulations for handling and the use of fossil fuels and coal. |

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<tr>
<td>7.</td>
<td>Counterbalance and monitor unknown pollution sources,</td>
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<td>8.</td>
<td>Financing studies needed for starting-up and preparation of environmental programmes, review of EIA studies, and develop the guidelines/criteria of pollution's quantitative loads,</td>
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<tr>
<td>9.</td>
<td>Participating in financing natural protectorates' projects, which are managed by the governorates and municipal councils, civil societies, and public participation partial fund,</td>
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<tr>
<td>10.</td>
<td>Pollution's combating projects,</td>
<td></td>
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<tr>
<td>11.</td>
<td>Incentives to reward best practice achievements and projects in environmental protection,</td>
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<tr>
<td>12.</td>
<td>Enhancement and capacity building for the EEAA, and</td>
<td></td>
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<tr>
<td>13.</td>
<td>Any other purposes which aims at environmental protection and development.</td>
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<tr>
<td><strong>Law No 102 of year 1983 for Natural Protectorates</strong> empowered by the Prime Minister</td>
<td></td>
<td>Designating certain areas to be declared as protectorates.</td>
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<td></td>
<td></td>
<td>Defining the limits of each protected area and setting the basic principles for its management and for the preservation of its resources. This law is also covering the desert tourism within the Protectorate.</td>
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<tr>
<td><strong>Decrees governing Protectorates in the Red Sea:</strong></td>
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<tr>
<td>- Decrees 450 of year 1986 and Decree 642 of 1995 for Elba National Park,</td>
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<td>- Decree 143 of year 2003 Wadi El-Gemal/ Hamata,</td>
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<td><strong>Decree 1618</strong> of year 2006 for Red Sea Northern Islands.</td>
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<tr>
<td>Law No. 48 of 1982(^{164})</td>
<td>Concerning the protection of the Nile River waterways from pollution.</td>
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<tr>
<td>Ministerial decision No. 92 for the year 2013</td>
<td>The Executive Regulations of Law No. 48 of 1982</td>
<td></td>
</tr>
<tr>
<td><strong>Law No 102 of year 1983</strong> for Natural Protectorates</td>
<td>It was empowered by the Prime Minister to designate certain areas to be declared as protectorates. A Prime Minister’s decree defines the limits of each protected area and sets the basic principles for its management and for the preservation of its resources. This law is also covering the desert tourism within the Protectorate.</td>
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</tbody>
</table>
| **Protectorates in the Red Sea Governorate** | - Decrees **450** of year 1986 and Decree 642 of 1995 for Elba National Park,  
- **Decree 143** of year 2003 Wadi El-Gemal/Hamata, and  
- **Decree 1618** of year 2006 for Red Sea Northern Islands\(^{74}\). |
| **Decree No. 1969** of year 1998 | For governorates overlooking River Nile there is a decree issued to protect and regulate islands according to protectorates |
| **Law No. 4 of year 1994** | **Law No. 4** indicates that the *environmental impact* of certain establishments or projects must be evaluated before any construction works are initiated or a license is issued by the competent administrative authority or licensing authority. |

\(^{74}\) Nature Conservation Sector Protectorates declared in the framework of Law 102 of year 1983

Additionally, the Executive Regulations relating to Law No. 4 classifies types of establishments or projects that must be undergo an Environmental Impact Assessment (EIA).

<table>
<thead>
<tr>
<th>Laws (Nos. 4, 9, and 105) and regulations in place</th>
<th>There is political commitment for environmental protection and sustainable energy actions, and sustainability as well as sustainable development by Government of Egypt, the governorates and city’s councils.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ministerial Decrees No. 19 and No.20 for year 2016</td>
<td>Regarding the list of projects for the EIA screening:</td>
</tr>
</tbody>
</table>
| Decree No. 26 for year 2016 | - The "A" List Projects  
- The "B" List Projects  
- The "Scoped EIA" List Projects  
- The "C" List Projects  
- Projects that have Special Conditions |
### 7.3 Annex III - National strategies/programmes/planning tools related to SEAP’s

<table>
<thead>
<tr>
<th>Sector</th>
<th>National strategies/programs/planning tools</th>
<th>Relevant provision</th>
<th>Remarks/Recommendations</th>
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</thead>
</table>
| Governorates | Green City Strategy 2020  
“Luxor the Heritage city of the World” | | |
| | Egypt' Vision 2030, and SDS developed in 2015 and launched in Feb 2016 | | |
| Egypt Green Economy Strategy 2030 | | A planning tool to achieve SD in Egypt was manifested by a study on Green Economy Committee at the Ministry of Planning, Administrative Reform and Monitoring (MoPMAR). This study was funded by UNEP, UNDP & GEF. |
| Strategic Development Plan (SDP) of the southern Egypt | It aims at determining the mechanisms for implementing the SDP and assisting to provide a legal and procedural framework for achieving SD, through:  
- Assist project’s partners in developing an institutional framework for planning and participatory management, and forming partnerships to attract investments as well as ensuring continuity of the implementation process;  
- Build and develop the capabilities of employees at GOPP and local authorities;  
- Prepare and publish guidelines for investments at the city and the local community levels; and  
- Conduct consultations to prepare local plans for local development in light of the SDP. | |

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<table>
<thead>
<tr>
<th>Sector</th>
<th>National strategies/ programs / planning tools</th>
<th>Relevant provision</th>
<th>Remarks/ Recommendations</th>
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</thead>
<tbody>
<tr>
<td>Transportation sector</td>
<td>Transport Strategy and Action Plan(^{46})</td>
<td>It has been developed as part of EU- Egypt Action Plan, based on Egypt’s National Development Plan (2002-2007), to promote south-south trade, through encouraging FDI participation in regional projects such as: infrastructure, trade facilitation, energy and transport. This also include Promoting cooperation in the transport field, in particular on developing infrastructure policies, implementing the sector reform programme aiming at separating regulatory, management and operation tasks; fostering the involvement of the private sector in transport projects and services; applying air, maritime, and road safety measures, and developing a Civil Global Navigation Satellite System.</td>
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<tr>
<td>Egypt’s Transport Master Plan</td>
<td></td>
<td>Egypt’s Transport Master Plan is under development to reach 2050. The Egyptian government has developed a transportation master plan that includes: Railways’ development, maintain and upgrade trains and their facilities and services (stations, signal systems, tracks, bridges, and tunnels, etc.). Also, the Metro completion of the three remaining phases of the third line with total estimated cost of EGP 35 billion.</td>
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<tr>
<td>Model freight transport (MFT) strategy(^{45})</td>
<td></td>
<td>This is considered a-world class multimodal transport infrastructure and services. For the MFT strategic importance, a dedicated corridor for MFT was set in Egypt’s Transport Master Plan 2012-2027 (MINTS).</td>
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Vehicle Inspection for air pollution reduction, Cairo Air Quality Programme (CAQP) 1997

As part of that programme natural gas fuelled buses' fleets were introduced to reduce diesel emission particulate pollution and instituted a Vehicle Emissions Testing (VET) and certification programme. This VET aims at regulating emissions from more than one million vehicles in and around Cairo; and reducing the amount of pollutants in Cairo’s air.\(^\text{121}\)

Transportation Road and Safety initiatives\(^\text{122}\)

Road safety measures including:
- Continuation of the MoTr initiatives to improve bus/coach safety by introducing in conjunction with the Egyptian Travel Agents Association (ETAA) “On-the-Road Mobile Testing Units” to inspect vehicles operating in the Tourism sector (perhaps extending this to include taxis, minibuses, 4x4 safari vehicles);
- Road markings and directions on main tourism roads, if necessary funded by toll payments;
- Installation of speed cameras operated on a trial basis on main tourism areas, fines being collected on payment of road registration tax - This would reduce CO\(_2\) emissions;
- Introduction of global positioning system (GPS) and other technology to monitor behaviour of vehicles and buses;
- Safety is also an issue with river cruisers. A review along the lines planned for the railways should be undertaken to examine on-board safety procedures, particularly with respect to risks of fire and collision; and


- Inspections of and checks on the quality of accommodation and facilities should extend to checking should extend to checking on the levels of security and health safety measures extended to clientele.

<table>
<thead>
<tr>
<th>Building Sector</th>
<th>Green Building Guideline (GBG) 2013</th>
<th>These guidelines are voluntary and addressing areas of environmental sustainability such as: building site Energy, Water, Indoor Quality and Materials issues.</th>
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</thead>
</table>

**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:
  - 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.

**strategy to promote green building based on the contemporary trends of**

- It encompasses the following features:
  - Location and design,
  - Shading and afforestation,
  - Natural ventilation,

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| **Sustainable Environmental Compatible Building (SECB)** | **- Building materials, and**  
**- Environmental design and energy conservation.**  
Part of the **strategy actions** indicates:  
- Buildings must be compatible with the surrounding environment, according to the concept of sustainability. Through the balanced interaction with natural resources like sun, wind, topography of the land, available building materials, compatible with social values, customs and traditions of the community, and  
- Adopt and use of modern technologies and the possibility of energy transfer and advanced building materials sources. |
| **Rehabilitation of the Third District of Sheikh Zayed – 6th of October city, Governorate of Giza** | **A pilot project for the rehabilitation of new cities to be green and sustainable, as part of an eco-friendly city81.**  
The proposed **action plan** encompasses activities and environmental development projects:  
- Preparation of a local guideline (urban and environmental) that includes standards for sustainable rehabilitation of a green city,  
- Application of a pilot models for integrating management of solid waste,  
- Establishing a model for PV cell to raise awareness of the vital role of RE such as solar energy,  
- Rehabilitation of green spaces for the development of the third district, and  
- Establishment of an environmental corner as a cultural and developmental centre, and.  
- Awareness and capacity building and training programs81. |
The GB programme included a number of workshops:

- Workshop under the title of "Sustainable Development" on June 15, 2014 and is under the supervision of the Director General of Environmental Development.
- Questionnaire entitled "Calculate Your Carbon Footprint" was distributed on 12 young participants in order to review their attitudes toward the environment and how they took the necessary decisions, by answering the questionnaire and calculate the total correction points in the questionnaire.

Region 2
- Air Pollution and Air Pollution Questionnaire, and Noise Resources and Noise Questionnaire.

Region 3 and 4
- A workshop entitled "Renewable Energy and Energy Rationalization in New and Urban Communities" was organized in Cairo House on Wednesday, 5th of November 2104 to view what has been achieved in the project of rehabilitation of Sheikh Zayed City as a green and sustainable city with stakeholders, the workshop included a number of lectures such as:
  - Improving energy efficiency projects in Egypt by the National Director of the project to improve energy efficiency,
  - Energy rationalization by using the LED technology and solar power plants in the new cities – Advisor at MoERE,
  - Environmental achievements to improve the Third district as a pilot model - General manager of Environmental Development at EEAA,
- **Green Cities and Sustainable Development**, Higher Institute of Public Hygiene - University of Alexandria,
- A seminar on "Health and the environment" was conducted and attended by 150 primary and preparatory school pupils in Sheikh Zayed City, and
- A seminar entitled **environmental pollution risks** was attended by 30 students from Al-Azhar Institute, social specialists and athletes in El Sheikh Zayed Youth Centre.

Conclusions of all workshops concluded the following recommendations:
- The importance of applying the **Building energy efficiency code (BEEC)** in residential and commercial buildings issued according to ministerial Decree in 2005 for residential and 2009 for commercial in all buildings and cities that are established or rehabilitated.
- Widening the use of **LED technologies**, whether in buildings or street lighting because of its important role in improving energy efficiency in cities,
- Focusing on the role of **universities, schools and NGOs** in spreading environmental awareness of the importance LED lamps use to rationalize energy use and reduce pollution.
- Raising the **environmental awareness and increase training** among all residents of the new cities as well as in all government entities and agencies on the importance of **energy for sustainable development**.
<table>
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<tbody>
<tr>
<td>Electricity Sector</td>
<td>Action plan for the electricity section⁹⁶</td>
<td>It is centred on three main pillars: a) Security; b) Sustainability; and c) Governance.</td>
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</table>
| Egypt Renewable Feed-In-Tariff | Framework, 2016                                | The EU twinning project has **three** main components:  
- **Component A** – Electricity Market transition (ensuring that all conditions for the implementation of the transitional phase of electricity market opening are met), simulating regulated and competitive market operation and analyzing potential ways in which it may evolve, and providing monitoring guidance and support as the market begins to open  
- **Component B** – Legal and Regulatory Framework (mainly reviews existing licenses, provides guidelines for drafting further needed licenses, drafts a Licensing Regulation, develops a procedure to monitor companies’ compliance with their license terms and establishes procedures for public hearings and dispute resolution)  
- **Component C** – Standards, Performance Assessment and Benchmarking, Investment Planning (reviews and refines the rules for reporting, monitoring, and benchmarking of key technical and financial indicators of the regulated companies so to improve the efficiency of utilities in relation to tariff setting; it reviews current tariffs and subsidies schemes and investment planning including evaluation of power system adequacy under the new market rules)  |                           |

⁹⁶ Minister of ERE presentation, Egypt’s Economic summit, March 2015, Sharm El Sheikh, Egypt
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<tr>
<th>Sector</th>
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<tr>
<td>Waste Sector</td>
<td>National Solid Waste Management Programme (NSWMP)(^{57})</td>
<td>The NSWMP goals are:&lt;br&gt;<strong>Component A</strong>: Institutions, Policy and Legislation&lt;br&gt;<strong>Component B</strong>: Investment Programming and Implementation&lt;br&gt;<strong>Component C</strong>: Professional Capacity Development&lt;br&gt;<strong>Component D</strong>: Planning, Services and Infrastructure, Improved Services and Facilities&lt;br&gt;<strong>Component E</strong>: Civil Society Participation&lt;br&gt;<strong>Component F</strong>: Implementation and Monitoring.</td>
<td>The NSWMP together with its partners and stakeholders is working on transforming challenges into <strong>opportunities for Egypt’s solid waste sector</strong>. It is launched in response to solid waste challenges in Egypt, where <strong>only 60 per cent of solid waste is actually collected</strong>, less than <strong>20 per cent is recycled</strong> or <strong>properly disposed of</strong>.</td>
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Primary waste collection and recycling models – protocols signed with Qena Governorate, 13th April 2016, a protocol was signed between the NSWMP and the governorate, and Egypt is part of the study “The Climate Change Mitigation Potential of the Waste Sector” published by the German Federal Environment Agency (GFEA) in July 2015 “The Climate Change Mitigation Potential of the Waste Sector. This study presents the GHG mitigation potential of municipal solid waste (MSW) management in OECD countries as well as Egypt and India and one balance for the OECD countries are elaborated by applying the life cycle assessment (LCA) method according to ISO 14040/14044 for waste management.

The NSWMP was also manifested and executed, as part of the cooperation framework between NSWMP and four Governorates (Assiut, Qena, Kafr El Sheikh and Al-Gharbiya). It is implemented by GIZ, KFW and EU.

**Capacity Development for the Clean Development Mechanism (CD4CDM) Project**

Aims to assist in establishing GHG emission reduction projects that are consistent with national SDGs, particularly projects in the energy sector. The project also aims at: a) developing a broad understanding of the opportunities offered by the Clean Development Mechanism (CDM) in the participating developing countries; and b) developing the necessary institutional and human capabilities that allows them to formulate and implement projects under CDM.
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<tr>
<td>Wastewater</td>
<td>policies targeting the use of non-conventional water resources</td>
<td>This includes reuse of wastewater (grey water) as well as using brackish water from agricultural drainage for reuse.</td>
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| Sustainable use of irrigation water in the Mediterranean region (SIRRIMED) | - Duration: From July 2010 to March 2014,  
- Total cost: €4,239,534, EC funding: €2,999,078,  
- Participating countries: 15 participants from 9 countries (Italy, France, Greece, Spain, Egypt, Morocco, and Lebanon). |  |  |
| Sustainable water use securing food production in dry areas of the Mediterranean region (SWUP-MED) | - Duration: From July 2008 to June 2013,  
- Total cost: €3,992,766, EC funding: €2,728,104  
- Participating countries: 9 participants from 9 countries (Portugal, Italy, Egypt, Turkey, Syria, and Morocco). |  |  |
| Biotechnology for Africa’s sustainable water supply (WATERBIOTECH) | - Duration: August 2011 to January 2014,  
- Total cost: €1,264,465,8, EC funding: €999,528,  
- Participating countries: Participants from 12 Countries (Spain, Saudi Arabia, Burkina Faso, France, Tunisia, Italy, Egypt, Senegal, Sri Lanka, Morocco, and Algeria). |  |  |
| Evaluated climate change impacts on tourism, agriculture and water resources (WASSERMed) | - Duration: January 2010 to January 2013,  
- Total cost: €3,669,943, EC funding: €2,933,973  
- Participants from 7 countries (Italy, Greece, Spain, France, Egypt, Jordan, and Tunisia). |  |  |
| Efficient water resource management in water-scarce environments (SIRIUS) | - It focuses in particular on water for food production with the perspective of a sustainable agriculture in the context of integrated river-basin management,  
- Duration: 14 October 2010 to 30 Sept. 2013,  
- Total cost: €2,934,818, EC funding: €2,499,997,  
- Participating countries: 18 participants from 13 countries (Spain, Malta, Italy, France, Egypt). |  |  |
## Sector: Energy

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<tr>
<th>National strategies/ programs/ planning tools</th>
<th>Relevant provision</th>
<th>Remarks/ Recommendations</th>
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<tbody>
<tr>
<td>National Energy Efficiency Action Plan (NEEAP)</td>
<td>The national target to lower the primary energy consumption by 4.96 per cent each time, to reach the exemplary role of the public sector, that are interesting for SEAP development. It provides a comprehensive assessment of energy efficiency policies/ guidelines, and projects in place for 2012-2015. The NEEAP also detailed measures and savings undertaken in the public sector - are of interest for SEAP (SECAP) development.</td>
<td>The total saving achieved were 222.62GWh and 5565.69GWh by 2012 and 2015 respectively based on a 5-year average of energy consumption 112162.8GWh. The total savings was 5565.69GWh (almost 5 per cent).</td>
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### Policy Framework of Energy Efficient Practices (PFEEPs)

The PFEEPs is in the process of being implemented by which related measures to reduce energy consumption and promote the use of renewable energy (RE) were promoted. Egypt has a target of 20% of by 2020 and the NEEAP includes measures of street lighting and solar water heaters.

### Energy Efficiency and Renewable Energy National Study (EERENS), developed in 2007

It was developed in 2007 as part of the Mediterranean and National Strategies for Sustainable Development; Priority Field of Action 2: Energy and Climate Change. The key players are the "Plan Bleu" - a regional activity centre of UNEP/ MAP (United Nations Environment Program/ Mediterranean Action Plan), created, funded and steered by EC.

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<table>
<thead>
<tr>
<th>Energy Strategy 2015-2030</th>
<th>Egyptian government has set plans to increase the <strong>share of Renewable Energies</strong> in its’ electricity supply from the current 9 per cent to 20% by 2020.</th>
<th>This is a very promising energy strategy to achieve the 20% targets by 2020.</th>
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<tbody>
<tr>
<td><strong>Energy-Efficient Plan for public buildings</strong></td>
<td>It includes provision for fuel consumption of governmental vehicle to save on fuel cost, closure of AC systems by end of working hours, and set AC temperature at 24°C to lower energy use. This <strong>Energy Efficient Plan for public buildings</strong> aims at saving energy use and lowering CO₂ emissions.</td>
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<tr>
<td><strong>Energy Efficiency Plan in the Electricity Sector</strong></td>
<td>Saving 5,566 GWH – mainly by measures in the lighting sector including:</td>
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<td>- <strong>The first phase:</strong> Change to high efficiency lighting in the household sector. The planned distribution of 60 million bulbs shall save 3,320 GWH.</td>
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<td>- <strong>The second phase:</strong> program of energy efficiency standards and labelling for household appliances. This shall save 1,663 GWH.</td>
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<td></td>
<td>- Energy saving in street lighting of 1,200 GWH; supported by the Association of Energy Efficiency Engineers (AEEE).</td>
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<td><strong>Between 2014 and 2015, fifteen (15) programs on energy efficiency</strong></td>
<td>only four programs have been completely executed between 2014 and 2015, detailed are:</td>
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<td></td>
<td>e) Distribution of 6.5 million energy-efficient lamps. The amount of saving out of this program is 3.1 billion kWh (Equivalent to 0.78 million ton petroleum).</td>
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<td>f) Reduction in electricity grid losses (reduced from 13.48 to 10.6).</td>
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<td></td>
<td>g) Energy saving program in residential and governmental buildings using LED lamps (supply of 10 million LED lamps to be distributed and to be paid in instalments).</td>
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</table>
A programme for installing high efficient lamps for planned projects. It included 3000 high efficient lamps for public lighting to be installed in public streets; a program amounting to approximately 535,000 high efficient lamps between 2012 and 2015.

**Energy Efficiency in the Construction Sector in the Mediterranean (EECS-MED)**  
It has developed *Guidelines and recommendations for the MENA region* (January 2015). The guidelines and recommendations focus on issues such as: a) The political leadership perspective; b) The boardroom perspective; c) Outdoor lighting; and d) Public procurement and planning.

**Institutional strategy for energy efficiency**  
Aims to establish bundles of decentralised Energy Efficiency Offices (EEO) in energy-intensive sectors. These EEO will be responsible for achieving sector-specific energy efficiency indicators. The EEO of the Ministerial Council for Energy Issues (MCEI) is responsible for drawing up *energy efficiency policy* and for coordinating *energy efficiency measures* across sectors.

**National Renewable Action Plan (NREAP), 2015**

**Strategy for Renewable Energy 2027**  
This strategy aims to increase share of solar energy, wind energy and electricity generated from water to 26,000 MW (26GW) by 2020 – 2027, through:  
- Improving Energy Efficiency in the electricity sector to save electricity from total generated power in 2015 by 5576 GWh. This forms about 5 per cent of the total generated Electricity.  
- Producing 20 per cent of total energy production out of renewable energy sources (9500 MW), of which 12 per cent will be produced by wind
| Energy Saving and Energy Efficiency in Administrative Buildings – Egypt’s Oil and Gas Sector – MoPMRs | The training aimed at raising awareness and building an understanding of the role of Strategies to meet Egypt’s energy challenges. It was stated all administrative buildings of the MoPMRs to be energy efficient building. This training scheme led to training of 150 directors and Energy managers who will be responsible for these buildings’ energy performance. The 5-day programme encompasses four modules:
- Strategies of ES & EE in Public Buildings – The Role of Energy Coordinators;
- Energy Efficiency in HVAC Systems;
- Approaches and Procedures of ES & EE in buildings;
- Energy Efficiency & Savings: Artificial Lighting; and EE Technologies & Retrofitting Case Studies. |
| Environment sector | Egypt’s National Strategy for Adaptation to Climate Change and Disaster Risk Reduction (NSACCDRR) | The NSACCDRR main objective is to increase the flexibility of the Egyptian community when dealing with the risks and disasters that might be caused by climate change and its impact on different sectors and activities. It also aims at strengthening the capacity to absorb and reduce the risks and disasters to be caused by such changes. |
National Strategy for Integrated Coastal Management (NSICM)

is centered on three main axes:
- Strengthening the integrated coastal management policy,
- The sustainable planning for coastal resources uses,
- Raising and promoting awareness among stakeholders.

In the framework of supporting the execution of the NSICM, a cooperation protocol was prepared for the rehabilitation of northern lakes and the Nile Delta and a set of guidelines was developed:
- Guidelines for the EIA study for river ports and marinas.
- Guidelines for the application of environmental management systems for seaports.
- Guidelines for preventing pollution from ships.\(^\text{129}\)

Green Industrial Development Programme

This programme is considered key in addressing GHG emissions from industry an effort to adapt to increasing climate change risks.

Egyptian Pollution Abatement Programme (EPAP)\(^\text{130}\)

structured in six modules:
- Egyptian Pollution Abatement Program (EPAP III)
- Egyptian Pollution Abatement Project (EPAP II)
- Private Public Sector Industry Project (PPSI)
- Broadcasting and Raising Awareness through Environmental Monitoring Program (PROPER)
- Best Available Techniques in the Mediterranean Partner Countries (BAT4ME)
- Egyptian Pollution Abatement Project (EPAP I)


<table>
<thead>
<tr>
<th>Protection of Natural Environmental Resources and Nature Conservation (PNERNC)</th>
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<tr>
<td>It includes three main sections a) use of water; b) optimal use of energy resources; c) Conservation of biodiversity.</td>
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<td><strong>b. Sustainable use of water:</strong></td>
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<tr>
<td>- The introduction of integrated management of water resources and the water use rationalization. Increasing sewage water treatment,</td>
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<tr>
<td>- Encouraging the participation and contributions of the private sector in investment projects, especially</td>
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<td>- drinking water projects and re-using of treated sewage water,</td>
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<td>- Encouraging the projects of water recycling,</td>
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<td>- Increasing the responsibility of users and increasing their sense of projects ownership (through their participation in the management and ownership of water and sanitation facilities,</td>
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<td>- Decentralization of the executive responsibilities of the Ministry of Water Resources and irrigation,</td>
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<td>- Controlling pollution as one of the integrated management dimension of water,</td>
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<tr>
<td>- Activating the role of National Water Council to ensure coordination between policies and programs and to support laws that improve application and compliance,</td>
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<tr>
<td>- Applying the principle of polluter must pay principle, and</td>
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C. **The optimal use of energy resources:**

- The optimal use of available resources of oil, natural gas and mineral resources,
- Developing strategy for energy sector in Egypt including traditional, new and renewable resources,
- Providing infrastructure necessary for CDM projects that generate economic profits,
- Improving energy efficiency production in power plants generation,
- Increasing generation capabilities from the available resources such as wind farms, solar energy, and nuclear energy) in addition to gas-powered plants,
- Expanding the use of energy-saving technology such as combined cycle technology in the production of electric power because of its high thermal efficiency,
- Conducting studies of environmental impact assessment and application of environmental conservation standards in power generation plants,
- Improving efficiency of electricity transmission, distribution and reducing the loss of the national grid and the expansion of high-efficiency appliances and energy saving bulbs,
- Promoting the expanding of using high-efficiency appliances and energy saving bulbs, and
- Activating the role of the Supreme Council of Energy.

d. Conservation of biodiversity level:
- Achieving popular participation in biodiversity conservation Programs,
- Improving scientific and technical capabilities in biodiversity conservation and natural resources in development areas,
- Developing the National capacities for biodiversity conservation,
- Making biodiversity a tool for the development of natural resources in favour for the public development plans,
- Implementing obligations towards international covenants and conventions,
- Supporting the legislative rules and promoting economic and social incentives for biodiversity conservation and sustainable development of natural resources, and
- Mobilizing of the national efforts for biodiversity conservation to ensure its continuity and the optimal use of its components.

| Total Quality Management Programme (TQM)\(^{132}\) | A capacity building training on environmental development of their employees to improve their |

The most important modules of TQM program are:

- a) Definition of the basic concepts of TQM,
- b) Improving the quality of governmental sector performance,
- c) TQM principles,
- d) TQM requirements,
- e) Quality improvement tools, and
- f) Quality application methods.

### Tourism

**Revisited Tourism Strategy**

This strategy is targeting 20 million visitors by the year 2020. The revisited strategy has **two goals** to guide it, mainly to:

- a) Develop the overall tourism economy; and
- b) Distribute tourism income and benefits through employment creation and enterprise.

It was centred on seven strategic objectives:

- Economic,
- Socio-cultural,
- Development,
- Quality,
- Heritage,
- Marketing, and
- Environmental.

In this strategy, the environmental objectives address the following themes:

- Adopt an approach to development that will ensure **environmental sustainability**;
- Identify areas of **special environmental interest** and habitat and areas of natural and scientific interest, and to **protect them under the law** and **manage public access** for the benefit of residents and visitors; and

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| Tourism Strategy 2020 | **Strategy Actions**  
| Action 1: Sustainability - Tourism and Energy Use and Conservation | The MoTm strategy 2020 strongly encourages Energy Efficiency and conserving all scarce resources. Tourism developments are encouraged to adopt measures of energy conservation, use of clean energy alternatives, including renewable energy such as solar power. This strategy is crucial for tourism sector; hotels’ facilities to examine and audit their use of energy and electricity to envisage the best economic way to focus on the activities with high intensive use of energy such as laundry, water heating including swimming pools, air conditioning and lighting with the aim to lower their annual electricity bills and operation costs. |
| Second National Communication (SNC) | The aim of many national plans across sectors is to “create a national greenhouse gas mitigation portfolio to support the process of sustainable development in Egypt”. The SNC stressed that reducing GHGs by promoting sustainable energy (RE and EE) is consistent with the country’s long-term socio-economic development goals. |
| Red Sea Sustainable Tourism Initiative (RESTI) | This initiative is mainly addressing the application of zoning, using extensive data gathering and GIS mapping techniques in the Red Sea area. |
| PPP - Green Star Hotel initiative | The program is Eco-label initiative (voluntary) is leading to issue hotels with “Green Stars” award depending on their adoption of various sustainability and energy efficiency related measures. |
7.4 Annex IV – Example Projects Funded by Donors and IFI’s

For further details and donor contact details see Donors and Funding Initiatives in the Areas of Sustainable development at the Local Level report (Annex II).

Donor activities relevant for SEAP (SECAP) development and implementation are:

**NEEAP**
- **Appliance labelling**: Energy Label program for home appliances (4).
- **Distribution of 12 million LED lamps** to replace conventional inefficient fluorescent Lamps in residential buildings (2012-2015).
- Awareness on Financing Tool to promote **Solar Water Heating in residential buildings**.
- **Street Lighting**: Replacement of Mercury inefficient lamps by LED efficient lamps.
- **Reduce the energy use of Government buildings** (2nd phase).
- **Energy conservation in drinking water plants** and wastewater treatments plants.
- **Energy saving in hotels buildings** - supporting tool (EGYSOL) to promote SWH in hotels at governorates Red Sea and South Sinai (Sharm El Sheikh).

**EU**
- **Energy Efficiency in the Construction Sector in the Mediterranean (MED-ENEC)**.
- Large tenders for **EE street lighting** in 2010: (360 000 street lighting poles using high lumen lamps and electronic gear were installed.)
- **EU Twinning project**. It aims at offering technical support for Egypt’s electricity and power sectors.

**GIZ**
- **Green Star Hotel** initiative, PPP as a joint effort between Orascom Hotels, AEGE Consultants and GIZ.
- **National Solid Waste Management Policy** (NSWMP) 2015

**RCREEE**
- **The Certified Energy Management Professional (CEMP)**, a training and certification scheme
- A training course on "Design of feed-in tariffs".

**WB**
- **First Fiscal Consolidation**, **Sustainable Energy** and **Competitiveness**.
- **Kuraymat solar thermal hybrid** project.
- **Wind Power Development** Project.
- **Vehicle Scrapping and Recycling** Program.
- **Alexandria Coastal Zone Management** Project (Under the Investment Fund for the Mediterranean Sea Large Marine Ecosystem).
- **Second Pollution Abatement** Project.
- **Private Sector Tourism Infrastructure** and Environmental Management Project.
- **Land filling and processing services** for southern zone in Cairo.
- **ONYX Solid Waste** Alexandria - Carbon.
- Sustainable Rural Sanitation Services Program for Results.

JICA

- Construction of 220 MW Wind Power plant at Gulf El Zayt.
- Construction of 120 MW Wind Power plant Project at Zafarana
- Survey of West of Nile Valley area for assessment of Wind Energy potential.
- Construction of 140 MW Integrated Solar Combined Cycle Plant at Kuraymat.
- Energy Control System Upgrading Project in Upper Egypt.
- Reduce energy loss and improve reliability of power supply to target areas through upgrading electricity system and network.
- Construction of Metro Line No. 4, phase 1.
- Achieve reductions in the emissions from enterprises whose environmental emissions are exceeding the national regulations, by providing financial assistance for introducing necessary environmental equipment (In cooperation with other donors).
- Regional Environmental Management Improvement Project.
- Sustainable System for Food and Bio-energy Production with Water-saving.

UNDP

- Strategic Development Plan of Southern Egypt (New Valley).
- Improving Energy Efficiency for Lighting and Building Appliances.
- ‘Waty El Watt’ campaign (meaning lower your watts’ usage).
- Reduce traffic congestion; a connected display system has been installed around the city center in Cairo, helping car drivers to locate vacant places in parking areas much faster.
- Establish high quality service buses that are integrated with underground network to encourage car owners to shift from driving to using public transport systems
- Establish of non-motorized transport corridor for Fayoum and Shebin El-Kom cities with cycling tracks and improved pavements to encourage cycling and walking as clean transport.
- Sustainable Transport Project for Egypt (STP)
- Cycling Festivals.

Climechange

- Second National Communication on Climate change, Egypt, 2010.
- Third National Communication on Climate change, Egypt, 2014.
- Climate Change Mitigation and Adaptation.
- Implementation a national standards and labels programme for energy efficient home appliances.
- Adaptation to Climate Change in the Nile Delta through Integrated Coastal Zone Management.
- Low Emission Capacity Building.
- Solid Waste Management in Minya Governorate - Phase II.
- Strengthening of the Regional Cooperation of Arab States in Hazardous Waste Management and Trans-Boundary Control.
- Protect Human Health and the Environment from Unintentional Releases of Persistent Organic Pollutants.

**UNEP**
- Energy Saving Programme in Egypt (MEDREP Finance PROSOL).
- National Air Quality Policy 2015, NAQP.
- Egypt Air Quality Policy.
- Sustainable Consumption and Production Program for Cairo City.
- Climate Change Risk Management Programme (CCRMP).
- Launch of Egypt Green Economy study.
- Capacity Development for the Clean Development Mechanism (CD4CDM)
- Global Partnership on Waste Management (GPWM).

**USAID**
- Cairo Air Quality Programme (CAQP).

**kfw**
- **Wind Farm of 160MW capacity** in Zafarana to generate electricity from clean energy source.
- **Wind Farm of 240MW capacity** in Gabal El Zayt to generate electricity from clean energy source.
- **Wind Farm of 200 250MW capacity** in Gulf of Suez to generate electricity from clean energy source.
- **Energy Efficiency in public buildings** to reduce energy consumption and mitigate climate change.
- Bio-Energy for Sustainable Rural Development.
- The National Solid Waste Management Programme (NSWMP)

**EBRD**
- **Power sector energy efficiency project.**
- **ENR - Locomotive Renewal Programme.**
- Cairo Metro

**AFD**
- **Strategy - Axe 3:** to protect and valorise the natural and cultural heritage.
- **A photovoltaic power plant** to support renewable energy.
- **Construction a wind farm of 200 MW, western coast, Gulf of Suez.**
- **Extension of natural gas network for residential homes.**
- **FFEM:** promote the development sustainable transport solutions.
- **Tram rehabilitation "Raml" Blue tram of Alexandria.**
- **Egyptian Pollution Abatement Programme 2.**
- Improve Water and Waste Water Services Programmes (IWSP).
- Wastewater Expansion Programme in Kafr El Sheikh. IWSP 1: improve water and wastewater services in the governorates of Beheira, Damietta, Gharbia and Sharkia
- IWSP 2: improve water and wastewater services in the governorates of Qena, Sohag, Assiut and Minya.
The European Union is made up of 28 Member States who have decided to gradually link together their know-how, resources and destinies.

Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance and individual freedoms.

The European Union is committed to sharing its achievements and its values with countries and peoples beyond its borders.