CEDARE

SCP National Action Plan

NATIONAL ACTION PLAN FOR SUSTAINABLE CONSUMPTION AND PRODUCTION (SCP) IN EGYPT | 2015

UNEP

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SwitchMed Programme is implemented by the United Nations Industrial Development Organisation (UNIDO) and the United Nations Environment Programme (UNEP), through the Mediterranean Action Plan (MAP) and its Regional Activity Centre for Sustainable Consumption and Production (SCP/RAC) and the Division of Technology, Industry and Economics (DTIE).
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FOREWORD

Envisioning a more sustainable Egypt is no longer a dream nor an unrealistic endeavor. This realization in itself is a great achievement to behold, given that state officials at all levels spearheaded by the president, have made it very clear that sustainable development is a key objective for Egypt. It is now perceived as a strategic instrumental policy framework for a more prosperous future Egypt.

The panacea of all public and official lobbying efforts for adopting a national agenda for sustainable development, have resulted in a widely declared endorsement during the proceedings of the 'Egypt the Future' the Egypt Economic Development Conference (EEDC). The conference convened in Sharm El-Sheikh on the 13-15th March 2015, is a key milestone of the government's medium-term economic development plan. Thus reflecting a national consensus designed to overcome current economic challenges and bring prosperity and improved social services to the people of Egypt.

At this international gathering attended by several global leaders and the Chief Executive Officers of major international companies, Egypt announced its launching of its Sustainable Development strategy for 2030. The new vision aims to strategically position Egypt among the world's emerging economies. The main objective of the strategy is to integrate sustainable development principles across sectors.

The process of development of the strategy involved the participation of different ministries and stakeholders. The Ministry of Environment played a leading role in collaboration with the Ministry of Planning in this context of a strong partnership with the Ministry of Planning.

Against this backdrop, it is clear that the national policy development process has been set forth to endorse more actionable activities to both expedite a transition towards green economy, and achieve sustainable development. This is particularly important since the global development community is dynamically discussing 'Post 2015 Development Agenda' and the sustainable development goals (SDGs) to replace last decade's millennium development goals (MDGs); yet another important consideration underlying Egypt's new sustainability outlook.

In this respect, Egypt's Ministry of Environment has been working in recent years with the support of international partners, especially the United Nations Environment Programme (UNEP) to pave the way for mainstreaming green economy and sustainable consumption and production related policies as tools to achieve sustainable development. Towards this end a 'Green Economy Scoping Study' for Egypt was developed and later launched in collaboration with the Center for Environment and Development for the Arab Region and Europe (CEDARE) and UNEP.

This publication at hand addressing 'Sustainable Consumption and Production National Action Plan for Egypt' is considered another significant stepping stone contributing to a continuum of knowledge accumulation for nationally integrating sustainability in Egypt's key economic sectors. The national action plan addresses four priority sectors including: Energy, Agriculture, Municipal Solid Waste and Water.

More importantly this publication is a blueprint for actionable activities that could be translated into operational projects accompanied with policy interventions required for the actual implementation of Egypt's sustainable development goals and economic priorities. This national action plan when implemented, will mainstream the newly introduced concepts and tools of sustainable consumption and production into Egypt's overall sustainable development policy framework and gradually alter unsustainable consumption and production patterns by introducing policies and projects that could provide better informed decision making processes and success stories that can be replicated and up-scaled on the national level in different geographic regions.

It is therefore my pleasure to thank on behalf of the Ministry of Environment our partners at the European Commission for funding the project and our partners at UNEP and CEDARE for leading and facilitating the development process of the action plan with the support of the ministry's team and focal points. I would like to underscore the importance of the consultation process and the participatory approach that has been endorsed to develop the national action plan and to ensure its realistic reflection of Egypt's actual socio-economic and environmental needs and aspirations

This national action plan is the beginning of a long journey ahead, towards having future generations of Egyptians living in sustainable communities and cities.

Dr. Khaled Fahmy

Minister of Environment

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The National Sustainable Consumption and Production Action Plan for Egypt was commissioned by the United Nations Environment Programme (UNEP). It was prepared and coordinated by the Centre for Environment and Development for the Arab Region and Europe (CEDARE) on behalf of the Egyptian Environmental Affairs Agency (EEAA), and Ministry of Environment (MoE).

The development process leading to the drafting of the action plan and including the facilitation of the stakeholder consultation has been led by the Sustainable Growth Programme (SGP), CEDARE.

Special thanks are due to **Dr. Hussein M. Abaza**, lead author, **Ms. Sina Hbous**, principal investigator and Economist and **Mr. Ramy Lotfy Hanna**, sustainability consultant and senior research specialist for their substantive contribution and valuable input in addition to the guidance they have provided during the course of preparing the action plan.
The overall development process for the action plan has been coordinated by **Dr. Hossam Allam**, Regional Programme Manager of SGP.

However, successfully completing the process of developing an action plan would have never been possible without the effort of a well harmonized consorted team that comprises members from different ministries and representatives of different institutions including the Egyptian Ministry of Environment and UNEP.

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Energy: Dr. Anhar Hegazi, Senior Expert

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Supervision and coordination

Luc Reuter, SwitchMed Coordinator, UNEP-DTIE

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About SwitchMed

The EU funded SwitchMed project is implemented jointly by the project countries (Algeria, Egypt, Israel, Jordan, Lebanon, Morocco, Palestine and Tunisia) and the institutional partners UNEP, UNIDO and SCP-RAC. SwitchMed is divided into 3 components addressing different parts of the transition process to Sustainable Consumption and Production (SCP) - SDG12:

(i) A policy component, built around the Barcelona convention (for the Protection of the Mediterranean Sea and Coastal Regions) and SCP national action plans;

(ii) Demonstration activities linked both to the policy component and the private sector;

(iii) Networking function to allow for exchange, joint learning and further scaling up;

UNEP-DTIE is coordinating the national policy component – Reinforcing circular economy in the Mediterranean governance framework and mainstreaming SCP in national policies. Under the national policy component the project countries will develop Sustainable Consumption and Production National Action Plans (SCP-NAP).

The implementation methodology used under the SwitchMed national policy component has been adapted to each countries' specific needs and requests. To assure coherence between ongoing and previous national work, the activities at country level build on already existing work and projects (Green Economy, SCP assessments, sustainable development assessment and strategies, SCP projects, etc). In this process UNEP works with national consultants in the project countries to allow a transfer of knowledge and reinforcement of national capacity. The SCP-NAP methodology assures that a large and diverse group of national stakeholders are involved in the national process (government, civil society, private sector, media, academia, bi- and multilateral partners, UNCTs, etc). Furthermore collaborations with UN institutions and other bi-lateral partners have been established at country level.

Main objectives:

- Leapfrogging to socially inclusive Sustainable Consumption and Production practices preserving the environment;
- Integrating the natural capital and the environment in the core business of Mediterranean companies
- Creating a critical mass of citizens for SCP;

The successful development of eight SCP-NAPs demonstrates that:

(i) in-country activities have to be nationally owned and nationally driven to be successful;

(ii) the involvement of a large and diverse group of national stakeholders from the beginning of the planning process is crucial;

(iii) linkages and synergies have to be established with already existing projects and initiatives and collaboration with other partners should be encouraged and fostered.

Each country has chosen to follow its own path to develop an SCP-NAP and this series of publications clearly shows the diversity of processes as well as outputs. In some countries the SCP-NAPs are based on SCP national assessments, while in other national partners decided to build upon already existing national SCP information and knowledge.

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Executive Summary

This document is intended to identify key priority activities and projects needed to support the creation of sustainable communities and cities in Egypt through the promotion of sustainable consumption and production patterns. The identified set of projects constitute the main element of the SCP Action Plan guided by Egypt's Green Economy Strategy and the 2030 Sustainable Development Strategy. This list of projects is the result of an extensive consultation process and is a translation of the principles of Green Economy (GE) and Sustainable Consumption and Production (SCP) in key economic sectors in the form of practical projects on the ground. This project is a continuation of efforts by the Egyptian Ministry of Environment in collaboration with international partners, particularly the United Nations Environment Programme (UNEP) to pave the way for mainstreaming green economy and sustainable consumption and production related policies as tools to achieve sustainable development.

National efforts to make this transition included the preparation in 2013 of the 'Green Economy Scoping Study' for Egypt launched in March 2015 in collaboration with the Center for Environment and Development for the Arab Region and Europe (CEDARE) and UNEP. Building on the diagnosis of the Egypt Green Economy Scoping study, the Sustainable Consumption and Production Action Plan for Egypt is considered another significant milestone contributing to a continuum of knowledge accumulation for nationally integrating sustainability in Egypt's key economic sectors. The national action plan addresses four priority sectors including: Water, Energy, Agriculture, and Municipal Solid Waste.

The strategic objective aims to translate the conceptual framework of green economy (GE) from a broad vision towards A development into operational specific plans and projects. It also explores the inter-linkages and nexus amongst priority sectors and their contribution towards "Sustainable Integrated Communities". The Action Plan builds on recent studies that provided a review of the Egyptian Government's efforts to promote green policies and integrate environmental considerations in some sectors. The Action Plan explores recent updates relevant to GE and SCP in an effort to monitor the current challenges and opportunities that face increasing rates of urbanization in Egypt, triggered by increased rates of population growth and the need to provide housing for the different segments of the population and associated physical and social services.

Egypt's Sustainable Consumption and Production Action Plan

Process and Rationale

- A Multi-stakeholder consultation process including 92 experts from 4 different sectors including energy, water, agriculture, and waste
- The Action Plan is translated into 6 different programs to implement 28 different projects presented by 13 different government institutions and specialized research centers
- The identified projects are selected on the basis of their relative importance and priority, practicality and the extent to which they support the development of Sustainable Integrated Communities

The presented action plan is the outcome of a participatory consultation process following a multi-stakeholder approach (including government, academia, private sector, civil society and international organizations) to ensure its realistic reflection of Egypt's actual socio-economic and environmental needs and aspirations. The Ministry of Environment led the SCP consultation process with its partners at the European Commission funding the project, along with UNEP and CEDARE facilitating and supporting the development process of the action plan in collaboration with the ministry's team and focal points. The action plan was designed, structured and drafted in complete synchronization with the Egyptian Ministry of Environment, to facilitate its validation and endorsement by higher level of public officials and to ensure the ease of its implementation by respective line-ministries.

In designing this national action plan, we have insisted on providing conceptual and operational objectives and frameworks complemented by a set of suggested policy enablers and actionable projects that could translate SCP into concrete projects on the ground. The action plan is also intended to provide solutions for mainstreaming SCP policies nationally that would also facilitate the achievement of the SDGs as new global benchmarks for the implementation of sustainable development; especially SDG 12. This national action plan when implemented, will mainstream sustainable consumption and production concept into Egypt's overall sustainable development policy framework and gradually alter unsustainable consumption and production patterns towards more sustainable ones and highlight success stories that can be replicated and up-scaled at the national level in different geographic regions. Governance commitment and policy coherence are essential essential elements in this process.

The emphasis in this work has been laid on exploring the inter-linkages between the four priority selected sectors and how addressing the challenges related to each sector can be addressed to promote synergies, complementarities and supportiveness thus contributing towards the development of "Sustainable Integrated Communities" in Egypt. Accordingly, the presented SCP Action Plan for Egypt identified the main elements for each of the four priority sectors;

For the energy sector, the key strategic goal is to ensure sector sustainability by promoting both Energy Efficiency "EE" and the use of Renewable Energy "RE". It is predicted that by 2035, considerable level of energy efficiency can be reached with total potential savings from final energy consumption of about 18% including the following sectors; 23% transport, 18% industry and 16% buildings (residential, commercial and public). In addition, the Combined Renewable Energy Master Plan "CREMP" finalized in 2015 predicted RE contribution by 2025/2026 to reach 18% of the total produced electricity, while in 2029/2030 it will reach 22% including 14% wind, 4% PV, 1% CSP and 3% Hydro.

In order to achieve this key strategic orientation in the energy sector, the strategy is based on the following main objectives:

- Ensuring security of supply, through diversified
  energy sources

- Ensuring both the technical and financial
  sustainability of the sector
- Modernizing the system, improving its governance
  and promoting private sector investment

Regarding the agriculture sector, the key strategic goal is to promote sustainable rural agricultural communities as part of the 1 million-feddan project to drive economic activities and provide jobs and other services for different segments of the population. In order to achieve this key strategic orientation in the agriculture sector, the strategy aims to; introduce solar powered water pumps to replace traditional water pumps, and the use of solar energy to power water desalination stations for agricultural cultivating purposes; the utilization of agricultural waste to produce energy and biofuel; the use of new modern grain storage mills to cut on wastage and promote more sustainable storage practices.

The key strategic goal for the water sector is based on the 2030 national wastewater strategy developed by CEDARE Water Department is to extend wastewater treatment for agricultural purposes. The strategy aims at promoting the efficient and sustainable use of water from all sources, underground, Nile water, rainwater, and treated wastewater. The use of desalinated seawater is also being seriously considered as well as changing the legal codes for desalination and wastewater reuse for agricultural purposes.

As for the municipal solid waste sector, the key strategic goal is to develop an integrated solid waste management system in Egypt. In order to achieve this key strategic objective, the following actions should be undertaken: promote good governance, promote R&D and innovation, support public awareness and community engagement, restructure of certain public institutions and changing legislations, providing access to finance, and encouraging investments, expand the recycling sector, endorse the concept of polluter pays principle, and adopt the process that promotes the reduction, reuse, recycling, and recovery of waste.

In addition to the demonstration projects in the priority sectors, the national sustainable consumption and production action plan for Egypt will lay special emphasis on the following Priority Actions to be undertaken by the government to facilitate SCP across sectors:

- Create a coordinating mechanism to be attached to the Prime Minister's Office to ensure proper coordination between different sectoral ministries, monitor implementation of strategies and action plans, evaluate outcomes, and introduce corrective actions as appropriate.

- Undertake a review of existing laws and regulations, as well as market incentives and assess their impact on SCP and reformulate and or introduce a package of regulatory reforms supported by incentive measures that promote SCP across sectors.

- Initiate a national process for integrating SCP considerations in sectoral strategies, action plans and programs.

- Institute in law the requirement for government bodies to purchase equipment, supplies and services that are produced in an environmentally sustainable manner.

- Initiate a national process for integrating SCP considerations in sectoral strategies, action plans and programs.

- Launch a public awareness campaign using conventional means, including television, radio and newspapers as well as non conventional means such at mobile phones, through mosques and churches,identifying public figures as goodwill ambassadors for SCP to communicate the importance and benefits of adopting an SCP approach for different target groups and from the perspective of each sector.

- Develop a long-term research and development (R&D) agenda to support a transition to a green economy and SCP across sectors.

- Develop a capacity development program to include training courses and on-the-job training to promote SCP in the different sectors.

- Ensure the integration of SCP and green economy concept in the education curricula of the different disciplines, and consider awarding academic degrees in this field.

- Provide a package of incentive measures that promote the engagement of the private sector in investing in projects that support SCP, including through PPP.

- Design trade policies that encourage the import and export of environment-friendly technologies and equipment.

- Direct financial institutions to fund projects and investments, particularly by SMEs in the field of SCP and green economy.

These strategic directions and proposed activities covering the 4 different sectors are translated into 28 projects presented by 13 different entities. The following list of projects have been identified through an open and transparent process, including specialized experts, government representatives and a wide range of stakeholders who actively participated different in working groups meetings addressing the 4 priority sectors: Water, Agriculture, Energy, and Municipal Solid Waste. The proposed projects by different institutions and ministries were subject to evaluation and a filtering process to ensure their relevance to the overall theme of the action plan and the sectors. These 28 projects are grouped under 6 SCP components:

1. Policy Instruments for SCP
2. Integrated Community Development
3. Sustainable Agriculture
4. Sustainable Water Management
5. Sustainable and Renewable Energy Applications
6. Integrated Solid Waste Management

Overall, the following 13 entities have presented projects towards the sustainable production and consumption action plan:

- Ministry of Environment - Egyptian Environmental Affairs Agency (EEAA)
- Ministry of Industry, Trade& SMEs/ ENCPC
- Housing and Building National Research Centre
- Egypt National Cleaner Production Centre (ENCPC) and Olive Oil Council
- Ministry of Agriculture and Land Reclamation
- Ministry of Water Resources and Irrigation - Holding Company of Water and Waste Water HCWW - Ministry of Agriculture and Land Reclamation
- Soils, Water and Environment Research Institute, (SWERI) Agricultural Research Centre & Climate Change Information Centre
- AERI – Agriculture Economic Research Institute
- Egypt National Solid Waste Management Program - GIZ
- Centre for Environment and Development in Arab Region and Europe (CEDARE)
  Ministry of Energy and Electricity (MoEE)/New and Renewable Energy Agency
  (NREA), Ministry of Local Development
- Arab Water Council
- Ministry of Water Resources and Irrigation

CHAPTER 1:
SCP Action Plan Scope & Methodology

1.1Background

1.1.1. Global & Regional SCP Trends

On a regional level, SCP trends are as rigorous and dynamically evolving as their counterparts on the international level.

For the Arab region, a draft of a Roadmap for the Implementation of a 10-year Framework of Programmes on Sustainable Consumption and Production in the Arab Region was developed in 2014. Annual Arab roundtables are also held under the 'Temporary Secretariat for the Arab Roundtable on SCP' and national 10 FYP focal points were assigned to contribute to having an agreed upon vision for SCP in the region. The League of Arab States is also starting to integrate the nexus framework notably addressing Water Energy and Food into its future plans and commitments towards sustainable development in the Arab Region.

For Africa, in 2005 an African 10 FYP framework was developed in Nairobi, Kenya during the Second African Expert Meeting on the 10-Year Framework of Programmes on Sustainable Consumption and Production. The African Roundtable on Sustainable Consumption and Production (ARSCP) holds annual meetings to monitor updates and expedite sharing of success stories to reinforce the African framework 10 FYP.

For the Mediterranean region, an action plan for SCP is underway including a comprehensive roadmap to establish objectives and activities to support a shift to SCP.

Egypt's Value Proposition & Potential Gains

Egypt's SCP Action Plan recognizes that Consumption and Production are at the core of the creation of Sustainable Communities. Yet current unsustainable production and consumption patterns lead to deforestation, water scarcity, food waste, and high carbon emissions, causing the degradation of key ecosystems. Accomplishment of the SCP goal will create synergies and support attainment of other goals on food, water and energy while also contributing to climate change mitigation, thus leading to the establishment of sustainable integrated communities.

1.1.2. Egypt's National Action Plan for SCP

As a follow-up to these efforts at the national level, Egypt has always been a leading country in Africa and the Middle East in introducing sustainable development. A national committee for sustainable development was created in 2006 and, a strategy framework for sustainable development was developed. Consequently, Egypt also developed an SCP Action Plan for the City of Cairo in 2008. The action plan, entitled "Sustainable Consumption and Production Programme for Cairo City" aimed at providing incentives for the introduction of sustainable consumption and production patterns at city level.

The priorities of the programme were harmonized with existing policies, such as the National Environmental Action Plan (2002-2017) to avoid isolation of the SCP programme. Four thematic areas and twenty projects have been identified under the SCP programme. The approach adopted in preparing the Cairo SCP programme document was based on a systematic approach, following the general methodology of the African 10 Year Programme Process.

Furthermore, CEDARE in cooperation with UNEP and the Egyptian Ministry of Environment undertook a comprehensive "Green Economy Scoping Study for Egypt" in 2013 to assess the potential for Egypt's transition to a green economy and sustainable development. The study can be considered as an initial stepping-stone towards introducing green and sustainable policies in Egypt. Inherent in this process is a transformation towards a more sustainable consumption and production patterns. The study has focused on water, agriculture, energy, and municipal solid waste.

The study has resulted in launching a national dialogue spearheaded by the Ministry of Environment to adopt the findings and recommendations of the study in an effort to develop a national strategy and action plan to promote the principles of green economy, including the promotion of sustainable consumption and production. On the 4th of December 2013 a meeting was held with the Egyptian Environmental Affairs Agency (EEAA) and attended by relevant government officials

responsible for sustainable development, with international cooperation to discuss the prospects and national priorities to be considered when planning for an SCP framework in Egypt.

Egypt's Value Proposition & Potential Gains

As a next step to upscale its current efforts to roll-out sustainable development in Egypt, the Egyptian Ministry of Environment, with the support of UNEP and CEDARE, has decided to develop an SCP National Action Plan for Egypt under the framework of the SWITCH-Med project funded by the European Commission (EC) and in line with the 10-Year Framework Programme for Sustainable Consumption and Production (10 YFP).

The action plan will focus on demonstrating the importance of creating Sustainable Integrated communities in Egypt with focus on four priority strategic sectors. These include: Water, Agriculture, Energy, and Municipal Solid Waste. Sectors have been identified on the basis of the extent of their significance to creating sustainable communities that support resources efficiency efforts, promote competitiveness, create jobs, and promote environmental conservation, human health and welfare.

1.2 Overarching Strategic Objective

Within Egypt Sustainable Development Vision 2030, and the overarching direction to support the development of 'Integrated Sustainable Communities", the National Action Plan aims at supporting Egypt's development efforts in achieving sustainable consumption and production practices in its key economic sectors, including Energy, Agriculture, Water, and Waste. The action plan aims at doing so by promoting the efficient allocation and use of water and energy resources, enhancing sustainable agriculture development as well as waste management, including prevention, reduction, recycling, reuse, and recovery. As such, these orientations in the specified sectors should ultimately lead to an equitable distribution of wealth, poverty reduction and an improved environment, health and human welfare. The specific objectives of the action plan include the following:

Promote the development of integrated sustainable communities as an operational framework for physical development in Egypt;
Enhance high-level government buy-in for the implementation of the SCP national action plan;
Strengthen the decision-making process by encouraging more active involvement by government officials and other relevant government entities, private sector organizations and other concerned stakeholders;
Produce a comprehensive National Action Plan that provides policies and directives to promote SCP and green economy across sectors and by different stakeholders;
Deepen research on methodologies, principles, approaches, and technologies for SCP;
Mainstream SCP and green economy into the overall policy cycle, programmes and strategies, as appropriate;
Consider SCP key enabling factors and conditions, including policy reforms and capacity development with focus on strengthening capacities for SCP management;
Promote good governance, transparency, accountability, and the adoption of a participatory and all-inclusive approach in the design and implementation of strategies, programmes, and action plans;
Promote a gradual transition to a green and circular economy as a conceptual framework for policy making;
Provide actionable recommendations on institutional mechanisms and processes that would better enable national and local government entities, the private sector and civil society to contribute to the national decision making process to achieve sustainable development with particular focus on Integrated sustainable communities;
Present a list of projects and activities with clear timeframe, budgets and potential implementation partners;
Encourage private sector engagement and public-private-partnerships (PPP) in the implementation of the SCP action plan;
Promote the translation of sectoral strategies and action plans into practical and implementable activities.

1.3. Conceptual Framework

The conceptual framework aims at defining the main elements necessary to position concepts of sustainable consumption and production within Egypt's sustainable development policy processes. As such, this conceptual framework is in line with Egypt's national policy directive and guideline that provide the political umbrella to promote the development of integrated sustainable communities with focus on four key sectors: Agriculture, Energy, Integrated Water Management, and Municipal Solid Waste Management.

Conceptually, the SCP Action Plan recognizes the following principal elements:

a. The importance of decoupling economic development from environmental degradation;

b. The increasing realization that economic welfare depends, to a large extent, on the inter-dependencies between different resources inputs and sustainable consumption practices;

c. Promoting integrated policies that achieve economic development, equity, social cohesion, and environmental integrity while encouraging overall sustainable lifestyles and communities, and

d. The gradual shift to a green economy and circular economy.

The strategic objective aims at translating the conceptual framework from a broad vision of achieving a green economy and sustainable development into operational specific plans and projects. As such, promoting Integrated Sustainable Communities is the overarching key strategic objective of this action plan and its relevant projects.

Promoting 'Integrated Sustainable Communities' is specifically relevant, since the current regime is targeting the expansion and creation of new mega cities and sustainable rural agricultural communities through several initiatives. An action plan that promotes sustainable communities should aim at promoting:

- Integrated water management systems with emphasis on renewable sources of water;
- Energy efficiency and an increased reliance on renewable sources of energy;
- Sustainable agriculture practices, including efficiency in the use of water and energy and other factor inputs, and
- Integrated waste management, including waste reduction, recycling, reuse, and recovery.

These four sectors when implemented in a synergistic and supportive manner should ultimately lead to the creation of integrated sustainable communities. These communities reconcile different sustainable practices in daily and operational life, including sustainable behavioral patterns of consumption and encompass different sustainable production modes across different sectors. There is no one-size-fits-all formula to create sustainable communities; rather, each country has its unique socioeconomic conditions that require country specific strategies and models. Thus developing sectoral policies in an integrated and complementary manner will ultimately lead to achieving sustainable development objectives with integrated sustainable communities having the potential of demonstrating how this end may be achieved.

SCP Policies for Integrated Sustainable Communities require economic, social and environmental considerations to be fully taken into account in the planning, design and construction of such communities and cities in Egypt. The development of these communities should ensure sustainability from environmental, social and economic perspectives and in terms of the financial viability and sustainability of proposed economic activities in the

projected communities and cities. The envisioned new community should be designed and developed as an integrated self-contained and self-sufficient sustainable entity. Promoting SCP will go a long way in greening the Egyptian economy and creating integrated sustainable communities.

Supporting policies should be designed to provide economic and investment opportunities for the inhabitants of new communities, offering employment, housing, health, educational, cultural, and recreational services that are affordable and can meet the needs of the different segments of the population. It should aim at driving economic activities through adopting an SCP approach, thus contributing to GDP, social cohesion and integration, and environmental integrity.

The community or city to be developed should follow the Polycyclic approach with core units developed around specific economic, social, and cultural functions and activities that may be developed at different stages. These should support and complement other core units; they can also function as stand-alone developments. The comprehensive planning and design of the integrated communities or cities should aim at developing a carbon neutral environment with due consideration given to the use of renewable energy (solar, wind, biogas), recycled seawater using solar energy (in case the site of the proposed city or community is located close to the sea), cultivation using water efficient and saving techniques (drip, sprinkler, hydroponic agriculture), recycled wastewater for fodder and green areas, use of waste for biofuel and composting, etc. These building blocks of the community require a complementing policy agenda to harmonize and coordinate different sector specific strategies and action plans in such a way to ensure cohesion and inter linkages between sectors.

The Economic Dimension

The planning, design and construction of the proposed city or community should aim at maximizing its contribution to the sustainable economic development of the specific region (if it is located along the North Coast, the Red Sea, Upper Egypt, etc.) and the country as a whole. The physical planning, design, and construction should give due consideration to the efficient use of resources and other factor inputs. Identified economic activities for the city should be self-sustaining, generate income for its inhabitants and contribute to the national GDP.

In order to ensure the economic sustainability of the core units to be developed within the community or city, activities have to be identified on the basis of the unique characteristics of geographic location of the site, available resources and potential natural endowments in the area: water, energy generating potential, soil and other resources, demand, trends of regional and international markets for the identified products and services, and expected population growth and economic/financial payback period. Priority economic activities and SCP policies and applications are identified for the city or community may focus on one main driving activity or a mix of activities. These may include agricultural, industrial or

tourist activity, or a major educational, research and cultural event; it may also serve as an administrative and conference service hub as a driver for the development of the proposed city or community.

The Social Dimension

Adopting an all-inclusive participatory approach is an indispensable process in the development of the proposed city or community. This process ensures the integration of the local communities in the selected location or site of the development in the design as well as in the implementation of the action development plan of the city. It will also ensure that the needs, concerns, and priorities of the local community are fully taken into account within the design plan. This includes the provision of housing and social services such as educational, health, cultural and recreational services that reflect the socioeconomic circumstances and needs of the different segments of the population. Job creation, particularly for the local community, is an important component of the development process of the new community.

The Policy Dimension

The main role of the Government is to set an integrated national policy framework to link different sector-specific strategies and planning. The integrated policy agenda need to encompass green economy and SCP policies. A harmonized and coherent policy package to include a regulatory framework and market instruments among other enabling conditions should be designed to support this transition.

Partnerships & collaborative action

It should be emphasized that relevant stakeholders, including the local community, government bodies, academia, the private sector, and civil society should be engaged in the planning and implementation of any proposed city or community. The role of government bodies, both central and local, has to be clearly identified in the implementation, management, and construction activities as well as economic and services activities.

The private sector should also be expected to be actively involved in the various activities in the proposed city or community, including Public-Private- Partnership. Attracting private sector investment is key to the success of such new developments. There are various challenges and opportunities involved in engaging the business community and the private sector in such a project. The role of the civil society and that of community-based natural resources management, including the recognition of the benefits of adopting SCP policies, is also as important as the perceived role of the private sector as major investors and innovators. The active involvement of civil society organizations to provide awareness, to affect behavioral change and support government and private sector efforts is an essential element for achieving success in this regard. As such, horizontal coordination between different ministries/sector strategies is required. But vertical coordination with multi-level stakeholders is also needed. This is especially true to address issues of structural inequalities and maintain access to resources to support sustainable livelihoods.

The Environmental Dimension

The development and design of the proposed community should fully take into account its prevailing environmental and ecosystem conditions. This is essential in order to ensure the integrity of the system and that it continues to provide the resources and services needed to support and sustain the identified priority services and activities. Investing in the environment and in the local community should be considered as an opportunity for the sustainable development of the proposed city and the entire country as a whole. The holistic design of the proposed city should emphasize investing in renewable energy as the main source of energy to support all forms of activities and developments. It should also emphasize investing in water conservation, recycling, and reuse. This is in addition to investing in solid waste management in order to promote resource efficiency and produce organic compost and biofuel while providing and maintaining a clean and healthy environment. Ensuring the provision of a sustained and secure source of water is a crucial element for the long-term viability and sustainability of the proposed new community. Relying mainly on depleting underground water, as the main source of water, is not an option. It should therefore be emphasized that investing in wastewater treatment and the desalination of seawater using solar energy should be given a priority in response to water stress and foreseen future scarcity of this vital natural resource.

Promoting SCP will go a long way in enhancing resource efficiency, particularly water and energy. It will also contribute to efforts leading to achieving food security as well as waste reduction and minimization. Building and construction activities should mainly rely on local material available in the proposed site. Emphasis should also be laid on the use of environmentally sound technologies and production processes that avoid and minimize waste and promotes the recycling of solid waste and wastewater into usable material, biogas, and compost. In addition to being climate change resilient, the community should aim at ensuring the realization of a sustainable built environment by advocating the following:

- water and energy efficiency and increased use of renewable sources of water and energy;
- sustainable economic activities including agricultural and supporting industries, tourism, and a cultural educational and research hub;
- sustainable housing and construction;
- sustainable transport;
- integrated waste management;
- green public procurement, and
- sustainable business.

This should result in reduced GHG emissions, biodiversity conservation, and generally improved health and environment. In this action plan, focus will be laid on the priority selected sectors and cross sectoral inter-linked, as they relate to the creation of sustainable communities in Egypt in addition to other cross-cutting topics that have been determined throughout the consultation process.

1.4. Methodological Approach Methodological Approach

1.4.1. Process Design & Methodology

The methodological design process of the SCP action plan is mainly based on a participatory approach to create a blue print for a proactive stakeholder engagement model to design and draft the required SCP action plan. The resulting consultation process has created collaborative platform and communication channels with all relevant stakeholders to garner feedback, collect data, receive contributions, and obtain guidance on how to improve the process of designing and producing the SCP action plan. The consultation process is regarded as an on-going process for the strategic management and design, an up-to-date and relevant action plan that reflects the rapid dynamic changes that the Egyptian economy is witnessing. To develop content for the consultation process to be utilized by different stakeholders, several activities have been undertaken:

Phase One: Preliminary Pre-diagnostic Process
Phase Two : Diagnostic/Baseline Assessment
Phase Three: Action Plan Design
Phase Four : Consultation process
Phase Five : Validation process

The implementation of these phases included research and compilation of data through primary sources comprising structured and semi-structured interviews and meetings with the four lead sector experts assigned to support the design of the action plan. A survey has been designed and sent to focal points in relevant ministries and stakeholders, including the Egyptian National Cleaner Production Centre.

The phases also covered secondary sources, including national, regional and international annual reports and studies. Special focus was made on national annual reports prepared by line ministries and other relevant public entities.

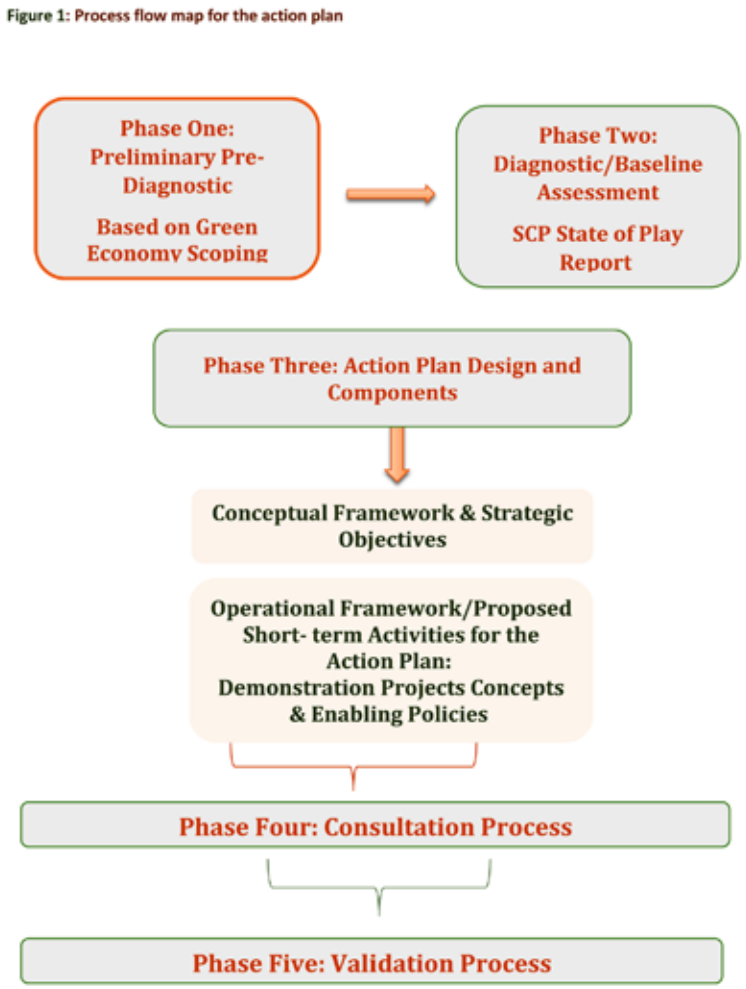
Primary sources of data were also used to both validate and update gathered information.

Furthermore, following up the outcomes of “Egypt SCP State of Play” report and through discussions between sector experts, officials and the project team, a design scheme for the national SCP action plan for Egypt has been reached and consolidated. Additionally, the project team has also scrutinized international examples and best practices of similar and relevant SCP action plans designed for countries with closely similar socio-economic characteristics to that of Egypt. The project team has explicitly requested to distinguish the present national SCP action plan for Egypt through the provision of a gradual buildup of a well-thought design process engaging different stakeholders and providing multi-levels of analysis, leading up to the suggestions of policies and projects for the four sectors which represent the focus of this action plan, namely agriculture, energy, water, and municipal solid waste. Accordingly, the principal structure and the main components of the action plan include the following elements:

- Conceptual framework
- Operational objectives and framework
- Policy enablers and projects

The diagram shown below represents the process flow map which has guided the design and component selection process of the action plan (Figure 1).

Figure 1: Process flow map for the action plan



1.4.2. SCP Consultation Process

A report titled "Roadmap to a National SCP Action Plan for Egypt" was prepared during this phase to detail the consultation participatory process that the design and development of the action plan hinges on. The report discussed the below mentioned development process of the consultation process.

Preparatory meetings: Two meetings were held between CEDARE and the Egyptian Ministry of Environment to discuss the scope, design and required organizational and preparatory activities towards putting together the SCP action plan. The first meeting was held on the 4th of December, 2013. The meeting was attended by relevant Government officials responsible for sustainable development, international cooperation and SCP policies to discuss the prospects and national priorities to be considered when planning for an SCP related framework. The main outcomes of the meeting comprise the following two steps:

- focus on the four sectors that have been targeted by Egypt's green economy scoping study and
- secure the support of the Egyptian Government in promoting a proactive agenda for promoting sustainable development in Egypt.

A second meeting was held on the 6th of July 2014 to recap and discuss developments related to the development of the SCP action plan after the signature of CEDARE's agreement with UNEP. At the meeting, detailed discussions on the design of the stakeholders' consultation process for the project took place. The value of the stakeholders' consultation and involvement was underscored to ensure:

- national commitment and ownership;
- integration within existing national policies, and
- comprehensive and reliable assessment of national economic, social and environmental realities.

The main outcome of the meeting was developing a structure for the stakeholder consultation process. Participants at the meeting agreed on creating two levels of coordination and dialogue (Figure 2):

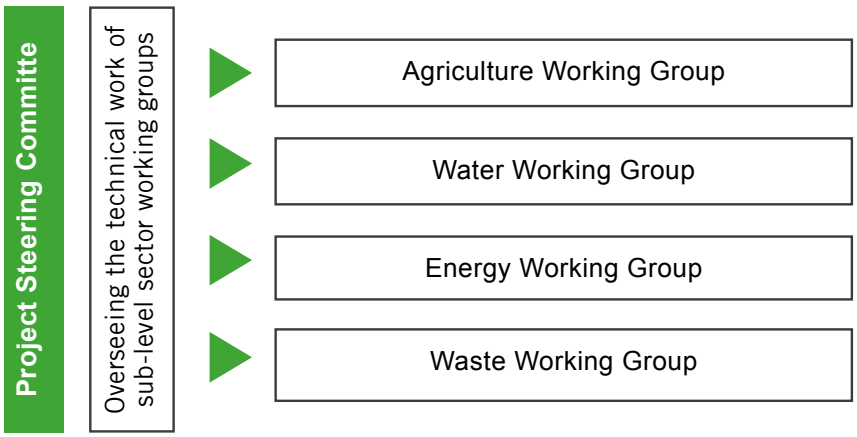


Figure 2: Consultation Process Structure

Table 1: Consultation meetings in Chronological Order:

First Expert Coordination Meeting (12th of February 2015):
The meeting discussed the possible structure of the action plan and set expectations of the working group meetings. Other tackled topics included the organization of the working group meetings and the content to be provided during these meetings. The details of the launching Workshop related to the agenda, attendees, and content were discussed as well.

Launching Workshop (5th of March, 2015):
The workshop was held under the auspices of the Egyptian Ministry of Environment during the deliberations of The 15th African Ministerial Conference on the Environment (AMCEN) which in turn was held during the period of March 2-6 and hosted by Egypt in Dusit Thani Lakeview, Cairo. The objective of the workshop was to unveil the process of developing and drafting the Sustainable Consumption and Production (SCP) National Action Plan for Egypt and highlight potential opportunities and challenges for promoting SCP policies in the targeted four sectors; Agriculture, Water, Energy and Municipal Solid Waste.

First Steering Committee Meeting (24th of March, 2015):
The meeting was held upon an extended invitation by the Ministry of Environment to the Steering Committee members of the project. The meeting aimed at raising constructive discussions, gathering information, obtaining consensus (related to the design and components of the action plan), and re-confirming the role of the steering committee and current line ministries' SCP related updates and activities.

Participating in the Consultation Meeting for the Working Group of the Environment Pillar for the 'Sustainable Development Strategy 2030' (March 30, 2015):
The meeting was part of a series of consultation meetings, held by the working group responsible for the 'Environment Pillar' within the context of developing the new 'Sustainable Development Strategy 2030' for Egypt. The consultation process of developing the strategy is under the supervision of the Ministry of Planning. CEDARE's participation was supported by the Ministry of Environment to encourage the mainstreaming of the concept of sustainable consumption and production into ongoing deliberations of the Environment Pillar of the upcoming 2030 Strategy.

Second Expert Coordination Meeting (9th of April, 2015):
The Egyptian Cleaner Production Centre and the Council of Technologies were invited to participate. The meeting reviewed the results and recommendations of the Steering Committee meeting, introduced changes to the operational framework of the action plan and finalized its design components.

First working group:
Working group members discussed the relevance, feasibility and priorities of suggested projects. Members were invited to submit projects and related information.
Solid Waste: May 31, 2015
Water: June 24, 2015
Agriculture: July 5, 2015
Energy: June 21, 2015

Second working group:
Working group members were presented with the preliminary results of the expert information, data gathered and the collected projects to validate and provide final input before finalizing the action plan.
Energy: August 19, 2015
Water & Agriculture: August 24, 2015
Solid Waste: August 26, 2015

Second Steering Committee Meeting (March 24, 2015):
The steering committee convened to review the technical details, presentations and compiled projects for the action plan. The committee discussed the feasibility and range of actions needed for high-level official endorsement and implementation of the action plan.

Chapter 2:
Rationale for adopting SCP policies in Egypt

2.1. Local Economic, Social and Environmental Challenges

The current government has earnestly declared and acknowledged the significance of sustainable development and the urgent need to address climate change through sustainable consumption and production. The following is part of the Egyptian President's speech at the UN climate change summit related to the Arab region[1] delivered in September 2013:

The Fifth Assessment Report of the Intergovernmental Panel on Climate Change has sounded a clear warning that the world should turn to new development patterns, which include appropriate consumption methods and sustainable production systems which seek to mitigate climate change and adapt us to its adverse effects.
Our countries suffer the effects of climate change, prominently desertification. The international community is thus invited to support efforts for greening deserts by using recycled sewage water, which helps absorb greenhouse gases causing global warming, and which protects the environmental balance and bio-diversity.

On the socio-economic front, the Government is taking actions to upgrade the quality of social services and safety nets including public services such as health, education and housing. Plans have been put in place to expand the number of citizens that benefit from healthcare. In partnership with banks, the Government has launched several housing projects to provide low-income families, especially younger couples, with affordable housing. The government has launched mega projects including the extension of the Suez Canal, developing the road infrastructure, enhancing transportation networks, and creating the new Cairo Capital City. In addition, there are fresh investments in real estate, agricultural land reclamation, government organizational structure, sustainable agricultural communities, and urban development with increased foreign FDI.

AThe Government has also set a progressive plan to reform fuel and electricity subsidies. A new food ration system, including electronic cards, has been recently implemented providing low-income and poor families with a wider range of basic foodstuff at affordable prices. These are but few examples of ongoing initiatives by the Government to integrate medium and low-income families in the economy. However, a number of challenges continue to face the Government: financing such social expenditure, and ensuring that the appropriate and deserving members of the community are the main beneficiaries is necessary.

On the environmental front, Egypt is witnessing increased environmental degradation. Many factors have contributed to environmental deterioration

in Egypt. These include weak integration of environmental considerations in policies, plans, and programmes. Unsustainable practices accompanied by population growth, increased economic activities, high rate of urbanization, and an unsustainable production and consumption patterns have all contributed to the inefficient allocation and use of resources.

Other environmental impacts include air pollution resulting from contaminants and emissions, hazardous and non-hazardous waste, solid and wastewater pollution from urban centers, industry, agriculture and other activities. There are also increasing concerns over Egypt's vulnerability to climate change impacts and the associated rise in average temperatures, increased frequency of sand storms, and the potential impact on sea level rise and the possible inundation of the Nile Delta and coastal areas.

From the above, it is evident that there is an urgent need for a paradigm shift. Conventional reforms and policy agendas will not offer integral solutions to the chronic problems at hand. It is no longer a viable option to pursue long-term development goals without having the social and environmental dimensions at the core of policies and decision-making processes. Transitioning to a green economy and to a more sustainable consumption and production patterns represent a way forward for the country.

2.1.1. Present Consumption and Production Patterns

AThe country's Ecological Footprint per person grew 94% between 1961 and 20082. A fundamental change in the way resources are used, produced, processed, transported and consumed is indispensable for achieving sustainable development. In most instances Government policies continue to neglect taking into account environmental consideration in the formulation of different policies, plans, and programmes. This has led to the inefficient use of resources, increased rates of pollution and waste generation, environmental degradation with its negative impacts on health and human welfare.

On the other hand, consumption is influenced by traditional and cultural habits and practices, consumer purchasing power, socio-economic status, and rate of urbanization, globalization, and behavioral attitudes. Accessibility to information, data and level of awareness are vital elements that can influence current unsustainable consumption patterns. Well-informed and aware consumers will gradually shift towards more sustainable consumption patterns. Currently, lack of awareness and information, in addition to other factors such as level of education, have resulted in unsustainable patterns of consumption in the country. Egypt is facing scarcity in water and energy, and shortage in food supply to meet local demand. This is mainly triggered by increased demand due to population increase and changing consumption patterns. It is therefore essential to aim for water, energy, and food security taking into consideration the increasing interdependencies amongst Water-Energy-Food nexus.

2.1.2 Opportunities for active SCP Engagement

Introducing innovative approaches to protect and enhance ecosystem services can create new market opportunities, green jobs, and enhance the economic integration and empowerment of local communities. SCP policy interventions in the agriculture sector could promote sustainable agricultural practices, encourage the use of organic fertilizers, minimize water wastage, improve the quality of soil, and increase productivity. In the water sector, policies targeting water quality and adequate sanitation could decrease water borne diseases, while at the same time increase access to clean and safe water in rural areas. Furthermore, integrating water efficiency measures in agriculture and in urban areas can lead to increased water efficiency and reduce water loss.

A gradual shift to renewable energy, on the other hand, can lead to the opening up of new markets, generating new economic activities and services, and creating new jobs. It also addresses increasing energy demand and fluctuating prices of fossil fuels. Investing in recycling, waste to energy applications, reuse and waste recovery through community voluntary initiatives could counter the increasing problem of waste disposal that Egypt is currently facing. While investing in an integrated solid waste management system that promotes waste avoidance, recycling, reuse and recovery can address the solid waste management problem in Egypt. Promoting practices such as waste to compost and waste to energy applications can open up new market niches for SMEs, community enterprises and entrepreneurs, generate energy and cut down on the use of fertilizers.

Generally speaking, it should be recognized that SCP has been perceived as directly linked to many other developmental priorities, including economic growth and competitiveness, job creation, environmental protection, water and energy security; poverty alleviation; healt and education.

Analyzing Consumption and Production Patterns

Constraining Challenges:

- Unsustainable consumption and production patterns continue to represent one of the main challenges facing Egypt, resulting in inefficient allocation and use of resources, increased generation of solid and wastewater, and pollution.

- This trend reinforces a continuous cycle of wasteful use of resources across the economy with deep cultural roots fueled by a lack of public awareness, information dissemination and little to no education that demonstrates the value of sustainable consumption and production.
- Unsustainable consumption patterns are attributed to a range of driving factors:
    - cultural and social habits that shape consumption;
    - need for specific SCP legislations and accompanying strict regulations for compliance and enforcement, and
    - the need for a clear policy framework that first prioritizes SCP and then attempts to address the current gap through tangible policies and projects.
- The Government recognizes that on the short to medium term, shifting the general public behavior from unsustainable consumption pattern to a more sustainable one might prove to be a significant challenge.

Lessons Learnt:

- There is an increasing recognition for the need to make a qualitative shift towards green circular economy as a means to achieve sustainable development.
- There is a need for a reformed governance and institutional structure that can support the transition to a green and sustainable economy with more sustainable production and consumption patterns.
- A full roll out of SCP policies will require a long term vision that promotes the dual objectives of sustainable lifestyles and communities.
- Attaining sustainable consumption patterns is much harder to get to when compared to production. No matter how difficult or contested the task might be, scarcity of natural resources, energy and dependence on imports of strategic and vital goods will oblige the Government to venture in planning of the caveat.

Value Proposition:

- The creation of sustainable integrated communities and cities is a direct translation of the concept of green economy. Cross-cutting linkages and inter-dependencies

between industrial, agricultural, water resources, energy supply and waste management are dynamic determinants that characterize such communities.

- Policies that promote SCP are important tools that facilitate the development of such communities by defining operations and procedures and guiding policy principles, implemented and endorsed by the Government, relevant responsible public institutions and the private sector.

- The complexity of SCP policies needed for the creation of integrated sustainable communities requires cross institutional coordination and harmonization of decision making and information transparency and interchange.

- There is a need to invest in SCP policy frameworks, knowledge and indicators to ease and accelerate the successful introduction of SCP policies across different sectors and their corresponding institutions.

2.2.Diagnostic/Baseline Assessment: Current Status of SCP Policies

2.2.1. Overview SCP Institutional and Legal Framework in Egypt

The overall present policy, institutional and regulatory environment is gradually becoming more conducive to a shift towards more sustainable consumption and production patterns. However, there is no public entity that is entrusted with promoting SCP in Egypt. SCP related policies are managed by different ministries and institutions within specific national sectors without necessarily being labeled as such. These will be explored in detail in the following sections of this document.

The Constitution

The country's new Constitution drafted in 2014, includes several articles related to the environment and sustainable development. Article 27 recognizes the relationship between economic development, social justice, and safeguarding the environment, signaling the possibility of adopting the three main pillars of sustainable development. The article indirectly acknowledges related tools and instruments to achieve sustainable development, including green economy and sustainable consumption and production. It states that:

The economic system aims at achieving prosperity in the country through sustainable development and social justice to guarantee an increase in the real growth rate of the national economy, raising the standard of living, increasing job opportunities, reducing unemployment rates and eliminating poverty.

Article 32 is another relevant article that defines the role of the Government as a custodian of natural resources, which is owned by the people. The article directly

refers to the importance of investing in renewable energy:
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.

Article 44 refers to commitment of protecting the Nile River and related historical rights. It states that:

The state commits to protecting the Nile River, maintaining Egypt's historic rights thereto, rationalizing and maximizing its benefits, not wasting its water or polluting it. The state commits to protecting its mineral water, to adopting methods appropriate to achieve water safety, and to supporting scientific research in this field. Every citizen has the right to enjoy the Nile River. It is prohibited to encroach upon it or to harm the river environment. The state guarantees to remove encroachments thereon. The foregoing is regulated by law.

Article 46 emphasizes the environment as a human right, thus highlighting the importance of citizens' behavior in using and consuming resources, thus encouraging responsible consumption.

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.

Following the same message, Article 79 states that:

Each citizen has the right to healthy and sufficient food and clean water. The State shall ensure food resources to all citizens. The State shall also ensure sustainable food sovereignty and maintain agricultural biological diversity and types of local plants in order to safeguard the rights of future generations.

It should be emphasized that it is the first time that the Egyptian Constitution refers explicitly to sustainable development both as a right and an obligation for current and future generations.

Institutions and Policies

The Ministry of State for Environmental Affairs which has recently changed in 2014 to become a full-fledged Ministry of Environment is the Government body overseeing environmental policy in Egypt. The Ministry is entrusted with the management of scarce natural resources in addition to the design and formulation of policies governing the state of the environment as designated by the Presidential Decree No. 275/1997. The Ministry's executive and administrative arm is the Egyptian Environmental Affairs Agency (EEAA), which is responsible for environmental protection and policy implementation.

EEAA was established under Prime Minister's Decree No. 631/1982 which was amended later to include Nature

Conservation Sector within its scope of responsibility. The EEAA is responsible for the preparation of national environmental plans, drafting laws related to the environment, coordinating international cooperation initiatives and overseeing the implementation of environmental related projects. This is in addition to drafting codes and standards, and supervising environmental protection and development fund among other activities. The EEAA evaluates on yearly basis an average of 64,000 environmental impact assessments studies for different projects including industrial, energy, communications, housing, tourism among others.

In 2001, EEAA formulated the National Environmental action plan for Egypt (NEAP) 2002/2017. The plan was a first national attempt to design and introduce an environmental policy framework for the country. In 2009, the preparation of a second NEAP was initiated to supplement the first plan and integrate sustainable development. The Ministry of Environment with financial and technical support from the GEF is preparing strategic sectoral documents providing a framework for integrating the environment in priority sectors to achieve sustainable development.

A National Committee for Sustainable Development was established in 2006 by a Prime Ministerial Decree No. 47. The Ministry of Environment provides the secretariat of the Committee, which includes representation from all ministries. Other committees were also formed to address related focus areas including:

- Egyptian Committee on the Combat of Desertification
- National Committee for Climate Change
- Egypt CDM Council (Clean Development Mechanism)
- National Steering Committee on Biodiversity

The National Committee for Sustainable Development along with the Cabinet of Ministers and The Ministry of Environment have issued a national sustainable development strategy framework in 2007 to complement the NEAP. However, the Committee has not been able to effectively influence policy along more sustainable lines. Within this juncture, clean development mechanism CDM/APU unit was established in EEAA in 2009 under the activities CDM Component of the Joint Program of Climate Change Risk Management in Egypt (CCRMP). The unit is considered an operational success with active portfolio of projects in the process of implementation and in the pipeline. The unit operates under the Environmental quality department in the EEAA and mandate with specific areas of focus including energy, industry, waste and transport. A CDM bureau is also operational under the climate change unit in the EEAA. Both are overseen by the Egypt CDM council and national committee of climate change.

There has been progress in endorsing sustainable policy in public policy trajectory. This has been very clear in all newly issued reports for the state of the environment in Egypt by the EEAA. Currently EEAA's new policy directives are more precise and in line with global and regional environmental priorities

and support sustainable development objectives. In 2013, the Ministry selected the industrial zone of the Sadat city as a pilot green and sustainable development city. The project aims at promoting energy efficiency in street lighting, upgrading the quality of drinking water in schools and designing a modern waste management process for the city. As for environment cuts across sectors, EEAA has recently initiated a process for integrating environmental and social considerations in sectorial policies. Jointly with the Ministry of Planning and Administrative Reform it has developed a strategic document entitled "Green Economy as a Tool to Achieve Sustainable Development" in 2014. During the fifteenth session of the African Ministerial Conference on the Environment (AMCEN) which was held during the period of March 2-6, 2015 at the Dusit Thani Lakeview Hotel in Cairo, Egypt, the Ministry of environment launched the "Egypt Green Economy Scoping" Study. This is the first time the meeting is held in Cairo – the birth place of the AMCEN – in thirty years since the inception of the Conference in 1985. The Egyptian Minister of environment currently assumes the presidency of the AMCEN. As a president, Egypt aims to promote inclusive green economies to achieve sustainable development and poverty reduction including the promotion of Sustainable Consumption and Production policies.

The Ministry of trade and industry is another Ministry that is entrusted with supporting sustainable patterns of consumption and production. The Corporate Social Responsibility (CSR) Centre, operating under its umbrella, has an agenda to incorporate and influence sustainable patterns of consumption and production into CSR initiatives and projects through opening a dialogue with the private sector and raising awareness related to sustainable development.

On the other hand, The Egyptian National Cleaner Production Centre (ENCPC) was established in 2005 as a service provider to promote cleaner production methods and applications. It was established in cooperation with the United Nations Industrial Development Organization (UNIDO) as part of UNIDO/UNEP global network of NCPCs/NCPPs (47 Centres) and part of the Egyptian Industrial Council for Technology and Innovation. The Centre provides the following services:

- Cleaner Production and Resource Efficiency Programmes;
- Energy Efficiency and Industrial Application of Renewable Energy;
- Environmental Impact Assessment Studies (EIA);
- Clean Development Mechanism (CDM) and Carbon Footprint;
- Chemicals Management
- Chemical Leasing Services
- EU Directive on Registration
- Evaluation, Authorization of
- Chemicals (REACH)
- EU Directive on Classification
- Labeling and Packaging (CLP)
- Persistent Organic Pollutants (POPs)
- EU Directive on ROHs (Restriction of Hazardous Substances)
- Industrial Waste Management, Recycling and Zero Waste; and
- Environmentally Sound Technology (EST) Transfer & Innovation.

In August 2014, the Ministry of Planning has launched a consultation process

to integrate sustainability concerns in a number of themes covering the period 2015-2030. Main themes are Education, R&D and Innovation, Social Justice, Democracy, and Environment. The consultation process to develop the 2030 vision for sustainable development was recently announced during Egypt's landmark economy conference, which was held in Sharm El-Sheikh in March 2015. The development process of the strategy has been initiated during January 2015 and the initial preparatory phase has been finalized in February; it involves the study of national and international experiences and success stories in this regard.

During the second phase the strategy targets Egypt's environmental deterioration and degradation, with focused efforts on the preservation of natural resources and biodiversity and reduction of emissions. The strategy also calls for the adoption of environmental indicators. A gradual transition to sustainable consumption and production is mentioned in this context. The Federation of Egyptian Industries houses the Environmental Compliance Office (ECO) established in 2002 by presidential decree No. 64. ECO provides consultancy services for the private industrial sector in the field of cleaner production, environmental management systems and energy efficiency. The compliance office was successful in providing funds and loans to more than 185 industrial facilites with funding reaching L.E. 215 million, 150 million of which were given as loans and the rest was self-funded by beneficiaries.

Similarly, the Social Fund for Development, and an array of ministries and even on the governorate governance level, officials have concertedly geared their policy agenda to address sustainable development, especially targeting the energy sector. More interest has been given to environmental degradation, especially with respect to activities related to environmental compliance. These developments can be considered a solid indication of Egypt's willingness to adopt and integrate SCP policies on the medium to the long term.

Legislation

Environmental Law No. 4 of 1994 is the main law that reflects concern for the environment and stresses the importance of safeguarding natural resources. The law provides incentives to those who implement environmental protection activities or projects and enact penalties

against those who violate its provisions. The Law called for the creation of the EEAA and stated its role. The law also provides for a mandatory environmental review for projects and industrial investments. It forbids the handling of hazardous substances and wastes or the construction of any establishment for treating such substances without a license from the competent administrative authority. It forbids the import of hazardous waste or their transit through Egyptian territory. It is mandatory for all those who produce or handle dangerous materials to take appropriate precautions to protect the environment.

In accordance with the law, all establishments (industrial or other) are required to ensure that air pollutants emitted (or leaked) from their facilities do not exceed the maximum permissible levels. It is prohibited to incinerate, dispose

of or treat garbage and solid wastes or to spray pesticides or any other chemical compounds, except in accordance with the conditions and safety measures specified in the Executive Regulations of the law. The law was amended in 2009, to widen the scope of penalties and increase enforcement in case of environmental breaches. The executive regulations of the new amendments were issued in 2012. The law calls for the protection of biodiversity, ozone, water resources and conservation of natural resources. Penalties of environmental violations range between fining and imprisonment. The law has no special stipulation for climate change mitigation, enforcing laws regarding sustainable development or related green or SCP concepts.

Results of the Diagnostic/Baseline Assessment

Constraining Challenges:

- The Government realizes the necessity to address the following policy gaps:
- The need for an integrated approach to policymaking, where environmental and social considerations, including SCP considerations, is integrated in general regulations.
- The need for inter-ministerial coordination and policy coherence.
- A governmental mechanism to ensure stakeholders participation, including civil society associations and the private sector in the process of formulating policies and strategies in general.
- Informed decision makers that have the skills and administrative qualifications and experience to implement SCP related policies.
- Technical skills in the public sector and specialized institutions entrusted to implement SCP policies in the different sectors.
- A public system of checks and balances and a strong monitoring and evaluation mechanism to review progress and impediments.

Lessons Learnt:

- For the first time, the new Constitution has included sustainable development as a path that the Egyptian economy needs to pursue to address its current challenges. However, the way to realize a green economy including a national mechanism for cleaner production and consumption requires more than a political will.
- The concept of sustainable development is therefore being gradually taken up by policy actors in the country.
- Although at first it might seem as a tangled web, SCP policies integrally applies to all sectors, even ones that have not been explicitly focused on by this study. It is synonymous with industry in general and with the different sectors that encompass it.
- The Cross-cutting nature of SCP would allow it to be a major cornerstone and a transformative catalyst for attaining a circular economy and the formation of integrated sustainable communities.

Value Proposition:

- There is a need to underscore the existing cross-cutting nexus between different sectors of the economy that need to be accounted for when introducing SCP policies to ensure efficiency, up scaling, and positive impact.
- It is important to integrate SCP policies in different sectors at the same time with rigorous coordination between different community stakeholders, including government institutions and the private sector.
- Consequently, cross-sectoral efforts to integrate SCP policies will eventually support the creation of sustainable communities and lead to direct and indirect

2.2.2. Sectorial SCP Developments Elements of SCP in Energy

Understandably, the energy sector plays an important role in the overall economic development in Egypt along with water, as they both formulate irreplaceable natural resource inputs and infrastructure for all economic productive sectors that can accelerate Egypt's brown and green growth. Since 2007 Egypt has undoubtedly been facing energy challenges that negatively impact its economic recovery and its ability to attract new investments and limit its productive capacity. This will in return reduce, or at the very least cap, GDP. The "Green Economy Scoping Study - Egypt" (UNEP) shows Egypt's lack of energy security and emphasizes the need for an immediate paradigm policy change to re-direct Egypt's energy mix towards more diversified sources.

Guided by the need to ensure future energy security for achieving sustainable development, the Government of Egypt "GOE" has devoted efforts since early 2013 to update its energy strategy (2015-2035). The strategy update is being conducted within the framework of the joint Egypt-EU "Energy Policy Support Programme". One of the key strategic goals is to ensure the energy sector sustainability through different measures among which is promoting both Energy Efficiency "EE"" and the use of Renewable Energy "RE"" resources. It is predicted that a considerable level of energy efficiency can be reached at the end of 2035 with Potential savings of the total final energy consumption of about 18%. This is determined by 23% in transport, 18% in industry and 16% in buildings (residential, commercial and public).

The industrial sector is a key enabler for achieving sustainable development in Egypt. It plays an essential role in providing the industrial products to different economic and services activities, attracting foreign direct investment (FDI), contributing to the Gross Domestic Product (GDP) with a share that has increased from 13% to 37% between 1998 and 2012. The sector has over 30,000 establishments creating almost two million productive job opportunities.

Currently, the development of the Egyptian industrial sector is facing a number of challenges that affect its productivity, competitiveness and sustainability. These challenges include but are not limited to the absence of clear industrial development strategies and plans, limited regulations for attracting investment and the shortage of energy supply to the sector.

As a major energy consumer, the industrial sector accounted for almost 38% of the total final energy consumption and 33% of electricity consumption in 2009/2010. During the last five years the sector was highly affected by the energy resources shortage that Egypt is currently facing, particularly on Natural Gas. This situation and the Government trend to gradually phase out energy subsides within five years (2014-2019), requires the adoption of appropriate policies and actions for promoting the use of sustainable energy systems in the sector as an essential step for ensuring its productivity, competitiveness and sustainability.

The current government energy strategic directions target the development of the energy system to become more adaptable, resilient and efficient to help avoid the unsustainable production and consumption pattern it currently has. The core future energy sector goals include:

- ensuring security of supply, through diversified energy sources;
- enhancing both the technical and financial sustainability of the sector, and
- modernizing the system, improving its governance and promoting private sector investment.

Challenges facing the sector:

On the industrial energy efficiency (IEE) level, it was concluded that the energy use efficiency in the sector is remarkably low, as the specific energy consumption for different industrial plants were found to be higher than international levels by 10%-50% with an average of almost 25%; therefore, efforts should be directed towards upgrading EE in industry. These programs have also identified several potential EE options for possible application in the Egyptian industry.

On the possible renewable energy applications, the Industrial Processes Heat "IPH" in the Egyptian industry almost consumes about 35% of the industrial energy consumption in Egypt, the majority of it are at low and medium temperatures. Solar, water/air heating technologies have been identified to have a good technical potential for application in industry in cases that can show economic feasibility. With the declining costs of RE technologies, in particular photovoltaic systems for electricity generation and the application of the Feed in Tariff "FIT" policy adopted by the Egyptian Government in October 2014, rooftop solar PV systems can be an option to be investigated for industrial application.

Strategic and policy Directions

Guided by the need to ensure future energy security for achieving sustainable development, the Government of Egypt "GoE" has devoted efforts since early 2013 to update its energy strategy (2015-2035). The strategy update is being conducted within the framework of the joint Egypt-EU "Energy Policy Support Proramme."

One of the key strategic goals is to ensure the energy sector sustainability through different measures among which is the promotion of both Energy Efficiency "EE"" and the use of Renewable Energy "RE"" resources. It is predicted that a considerable level of energy efficiency can be reached at the end of 2035 with Potential savings of the total final energy consumption of about 18%. This is determined by 23% in transport, 18% in industry and 16% in buildings (residential, commercial and public). Meanwhile, the Combined Renewable Energy Master Plan "CREMP" was finalized in 2015 and predicted that RE contribution by the year 2025/2026 will account for 18% of the total produced electricity, while in 2029/2030 it will be 22% including 14% wind, 4% PV, 1% CSP and 3% Hydro.

Institutional and Policy Framework:

At the national strategic and policy levels:
(1) The Supreme Energy Council "SEC", headed by the Prime Minister, was established in 2006 and reformulated in 2014 with the involvement of all concerned ministers. The SEC is the core authorized body for supervising and adopting the national and sectoral energy strategies and policies including their supportive legislative and institutional frameworks in energy pricing, programmes and investment.

(2) Concrete steps have been taken for the establishment of the Organization of Energy Planning "OEP". It will act as the technical secretariat for SEC, and be mandated by the preparation of the integrated energy strategy and polices to be adopted by SEC. The OEP will also monitor and follow-up the programmes and plans of the different energy entities and their conformity with the adopted strategic directions.

At the development and Implementation level, the energy sector is managed by two specialized ministers:

(1) The Ministry of Petroleum "MoPet" and Mineral Resources has a strategic role in ensuring the upstream and downstream availability of fuels and natural gas to satisfy the demand of the different consuming sectors, including the electricity power sector. It is also involved in the planning and decision-making of the development of energy strategies and polices. The ministry has two main subsidiary organizations, the Egyptian General Petroleum Company "EGPC", dealing with all processes related to oil and petroleum products refineries, production and trade, and the Egyptian Gas Company "EGAS" responsible for the Natural Gas production, distribution and trade. In August 2015 a gas regulatory agency was also established to regulate the Gas operations and markets.

(2) The Ministry of Electricity and Renewable Energy "MOERE" is responsible for the planning, development and operation of power stations and the transmission and distribution networks. It is also involved in developing the long-term energy policy and setting electricity prices. The Ministry is entrusted with expanding the utilization of new and renewable energy resources through the New & Renewable Energy Authority (NREA), which is operating as its affiliate. The Ministry is responsible for supporting and devoting efforts towards upgrading the energy efficiency within the power sector.

NREA is responsible for implementing the Government's strategies related to renewable recourses. It also oversees renewable energy projects, expedite renewable energy use, disseminate information, and engage the private sector to invest in renewable energy. It also has a research center, established in collaboration with the European Union and Italy. The center has testing laboratories for solar thermal and solar cells (photovoltaic) and energy efficiency labs for home appliances.

As an independent entity, The Electric Utility and Consumer Protection Regulatory Agency (EgyptERA) was established by presidential decree No. 326 / 1997. Assuming a safeguarding role, the agency makes sure that all activities of electric power generation, transmission, distribution, and sale, are carried out in compliance with the laws and regulations

in effect in the Arab Republic of Egypt, especially those relating to environmental protection.

Thus its main role is a regulatory one including setting out regulations that ensure lawful competition in the field of electric power production and distribution in the best interests of the consumer.
The Ministry of Petroleum is also involved in decision making concerning Egypt's energy mix. It has a strategic role in ensuring the upstream and downstream availability of fuels and natural gas to power electricity networks and stations.

The Ministry of Environment with its general mandate is also another influential public institution that should be closely working with the Ministry of Electricity and Renewable Energy, NREA, the Ministry of Petroleum, and their subsidiary organizations.

On the other hand, the Industrial Modernization Center (IMC), a subsidiary of the Ministry of Trade and Industry, has an Energy Efficiency and Environment Protection Programme. This programme aims at reducing the specific energy consumption per unit product without any negative impact on the product quality or quantity as well as limiting polluting emissions and identification of possible direct uses of solar energy. The Ministry of Industry and Foreign Trade has the ability to introduce and impose cleaner production and efficiency related applications on local industries. This may be implemented through the Egyptian Organisation for Standardisation and Quality, the General Industrial Development Authority and the General Organisation for Export and Import. Control measures can be taken in this regard.

A leading Central efficiency unit has also been established in 2009 within the Information and Decision Support Center (IDSC) which functions under the umbrella of the Egyptian Prime Minister's Cabinet of Ministers "CoM". The unit has been engaged in projects and strategies to propagate energy efficiency practices. The head of the unit had been urging all ministries to establish their own energy efficiency unit, subsidiary to the one at IDSC, to create synchronization and harmonization efforts and coordination activities between different public entities. The energy efficiency unit under discussion provides a variety of capacity building and training services, especially to public sector civil servants.

In response to the SEC decree No. 14/8/10/5, urging different ministers to establish dedicated energy efficiency units, to coordinate efforts with the Central Unit at IDSC, the Ministry of Environment and other ministries, has established such unit while other ministries and governorates are following suit by establishing their own energy efficiency units. The Ministry of Tourism has established the green tourism unit to promote sustainable tourism; the ministry of Housing established a department for sustainable cities including applications of water and energy efficiency practices. The governorates of Ismailia, Menya and Qalyubia have established their own energy efficiency units. According to the Minister of local development, energy efficiency units will be established at the governorate level to work in compliance with the Ministry of Electricity and Energy

regulations. In the same decree, SEC has also urged government buildings to use energy saving measures on their premises and act as a clearinghouse for all energy related initiatives.

On the other hand, the Cleaner Production Center (CPC) Industrial Modernization Center (IMC), a subsidiary of the Ministry of Trade and Industry, has an Energy Efficiency and Environment Protection Programme. This programme aims at reducing the specific energy consumption per unit product without any negative impact on the product quality or quantity besides limiting polluting emissions and identification of possible direct uses of solar energy. The Ministry of Industry and Foreign Trade has the ability to introduce and impose cleaner production and efficiency related applications on local industries. This is being developed in cooperation with the Egyptian Organisation for Standardisation and Quality, the General Industrial Development Authority and the General Organisation for Export and Import. Control measures can be taken in this regard.

There are numerous inter-ministerial committees and working groups that are also involved in cross-sectoral policies, including energy efficiency and energy insecurity. Delete" In an effort to coordinate and harmonize related activities of institutions, especially ministries, in 2006, a Prime Ministerial decree was issued to create the Supreme Council for Energy. The Council is headed by the Prime Minister with the participation of all concerned ministers. The Council supervises the various policies and strategies of the energy sector, including their supportive legislative and institutional frameworks, policy initiatives, investment programmes, and energy pricing. There are also serious talks to create an Energy Planning Authority by a presidential decree to act as a clearinghouse for all energy related initiatives.

In order to promote sustainable energy production in 2008, the Supreme Energy Council "SEC" for Energy, endorsed Egypt's renewable energy strategy goals and targets.

Renewable energy share should reach 20% of the total generated electricity energy by 2020 as 12% wind, 6% Hydro and 2% solar.

RE targets were planned to be met through governmental projects (33% of the total installed capacities) and private sector projects (67% of the total installed capacities).

It was decided to install about 3500 MW from solar energy by 2027.

In July 2012, the cabinet approved a plan for providing solar energy in Egypt.In its attempt to reach these targets NREA has put in place a package of policy tools to encourage private sector investment. Some of these policies are (1) Exempting renewable energy systems, its components and spare parts from customs duties and approval of zero customs duties on wind

equipment; (2) adopting, and facilitating, land use policy for wind power developers; (3) carbon credits, and (4) Power Purchase Agreements (PPAs). The table below shows additional policies:

August 2009	Issuing competitive bids to enable international private sector to invest in electricity generating from wind power.
	Approval for applying feed-in tariff in concept.
June 2012	Allowing Investors and industries to build & operate RE power plants to satisfy their electricity needs or to sell electricity to other consumers though the national grid.
January 2013	Board of Directors of the Egyptian Electricity Utility & Consumer Protection Agency to apply net metering system to encourage the implementation of PV Roof Top systems for residential uses. The consumer can set photovoltaic systems on the roof top of buildings and sell the electricity generated to the grid through a separate meter.
September 2013	Heavy industries are obliged to use a percentage of its electricity consumption from RE sources, starting from 2015.

As related to wind energy, the Government is already generating a total of 740 MW from several wind farms such as the Hurghada wind farm, which has been operational since 1993. The farm generates 5MW and saves about 1000 tons of oil equivalent, while reducing emissions of about 2800 tons of CO2. The largest operational wind farm is the Zafarana wind farm, which produces 545 MW. Its implementation took several stages starting in 2001, and was installed in cooperation with the German, Danish, Spanish and Japanese Governments. To meet the wind energy target, a number of projects are currently under implementation in addition to new projects in the pipeline with private sector partnerships.

As for solar energy, according to NREA, the total installed capacity of solar heaters in Egypt is about 750 thousand square meter. There are about 20 Egyptian companies working in the field of manufacturing, importing, and installaing solar water heaters. There is also an ongoing cooperation with the tourism sector to expand on the utilization of renewable energy applications by increasing the use of solar heaters in hotels and surrounding villages. The Kuraymat CSP combined cycle solar thermal electricity generating plant is another facility with a total capacity of 140 MW, including a solar share of 20 MW .The project is considered as the first CSP project in the region. The Government also decided to power villages by Photovoltaic Systems.

The Government is also planning to implement a solar thermal power plant with a capacity of 100 MW at Kom Ombo, and 240 MW with governmental and private sector investments, including two photovoltaic power plants, each with a capacity of 20 MW by NREA. This is in addition to projects, each with a capacity of about 20 MW, by the private sector based on Build, Operate, Deliver (BOD) system.

To meet projected targets, the Government is plan to attract about 10 billion dollars in foreign investments in renewable energy infra-structure projects by 2020.

In September 2014, the Government has finally announced its implementation of the Feed-in Tariff after approving it in principle a couple of years ago. "FIT" pricing system for the implementation of 4300 MW of renewable energy electricity plants including 2000 MW of wind, 2000Mw of PV systems and 300 MW of roof top small scale PV systems. The ministry has also announced all the associated land allocation, financial conditions and contacting conditions this important step aims at encouraging both household and private investors to rely more on clean energy.

Likewise, the Government has decided to gradually phase out of all energy subsidies over a five-years period (2014-2019), leading to an estimated annual subsidy savings of 51 billion LE amounting to about 2% of the GDP. This will thus completely liberalizing the market and rendering renewable energy investments a competitive edge over other sources of energy. From the period of 2013-2015, the Government increased electricity prices by 30% and in July 2015 increase was adopted, however such increase was waved for the small poor consumers but will come into effect, however targeting specific higher tiers.

To promote sustainable energy consumption and efficiency, the Government in 2012, the "MOERE" announced the National Energy Efficiency Action Plan "NEEAP" an energy efficiency plan (2012- 2015) was launched with a goal to decrease the electricity consumption energy usage in residential, touristic and public areas by 5% by mid-2015.

The energy efficiency Unit at the IDSC is working to meet this target and coordinating actions across sectors and between different public authorities to initiate EE actions and build capacity for the sectoral EE units. Through the Unit, a joint energy efficiency, a street lighting programme is currently being implemented by the Ministry of Finance, Ministry of Local Development, and Ministry of Electricity and Energy. The Unit has also launched an initiative called "shamsek Ya Masr" to promote the application of "combined energy efficient lighting and solar PV systems "in government buildings. The initiative aims at implementing 100–150 projects of such systems related to the installation of solar photovoltaic and CLF lamps in public premises in three years. The initiatives are intended to save 5-8 MW by the end of 2016. The Unit will provide all required technical support, including the preparation of tenders, technical documents in addition to providing staff training. Services are provided free of charge in addition to covering the cost of

50% of required equipment. By June 2015 almost 52 projects were completed. About 24 governorates and seven ministries and other public bodies have asked to join the initiative so far.

Similarly, the "MOERE" Ministry of Electricity has recently initiated a national project to distribute 13 million subsidized led-lamps that could be paid on installments and integrated to the electricity bill. So far about 4 million led-lamps have been distributed.

In 2013, the Minister of Electricity and Renewable Energy started the installation of two photovoltaic systems in its HQ, each with the capacity of about 40 KW. The system is intended to provide electricity for Government buildings and 10 roads across its premises. Some governorates and cities have followed suit, such as Sharm El-Sheikh where streetlights were powered by solar energy.

The Ministry of Electricity has also recently launched a national energy saving campaign "Wafar min Agl Masr" (Save for Egypt) for the public by providing reports and information and responding to inquiries. This initiative is well- coordinated with other related initiatives in order to ensure a consistent flow of information. There are a number of photovoltaic systems installed in different government facilities across the nation. This has led to increasingly utilizing electricity powered by solar energy, the use of Led-light bulbs, and light sensors in public facilities to become a national trend endorsed across Egypt by the public sector to set a role model for more sustainable energy consumption practices and cut public expenditure on energy and fuel consumption. According to the ministry of electricity, about 35 solar energy stations have been installed with a cost of 30 million Egyptian pounds.

Furthermore, the Government is currently considering asking all ministries to use diesel cars and energy efficient appliances to save electricity. The Ministry of Industry and Foreign Trade has already asked ministries and governmental authorities and institutions to reduce their electricity consumption by 20%. It has also announced that starting from June 18, 2014, air conditioner manufacturers and importers will be obliged to import or produce devices that can only be set on 20 degrees as a minimum cooling system and 28 degrees as a maximum heating system. On the other hand the Minister of Local Development has encouraged the use of solar energy to power street advertising banners as a form to promote energy efficiency.

Minimum energy performance standards with mandatory labeling schemes have been adopted for refrigerators, freezers, washing machines, air conditioners, CFLs, and electric water heaters. The Ministry of Electricity has started introducing smart and pre-paid meters in new urban residential areas, sold and distributed through electric Egyptian holding companies throughout the nation. About 2 million pre-paid meters have been installed and expected to lower electricity consumption up to 15%. Finally, based on instruction by the President, a detailed study is underway to design access to funding to encourage the purchase and usage of solar heaters in residential areas on a national scale.

Legislation: In 1986 law No. 102 was issued to regulate and set out a framework for using renewable energy resources. The law established the New & Renewable Energy Authority (NREA) with its mandate and legislative powers. Partnerships and tendering procedures are still enforced by public tendering Law No. 89, issued in 1998.

A new draft law for electricity has been issued by the Presidential Decree No. 87 for 2015, drafted few years back, but had yet to be approved. This law provides new legislations to ensure the smooth transition of the sector to a more economically managed style and liberalized mode in connection with the commercial use of renewable energy.

Recently in September 2014, Egypt's Cabinet issued Law No. 203 to incentivize the production of electricity from renewable resources and empowering NREA to allow it to form companies to produce and sell electricity. The Authority is now capable of attracting investors into partnerships within the renewable energy sector after the Minister of Electricity's approval of forming the new companies. NREA will also be able to make use of the revenues generated from the sale of electricity, based on the new amendment, to become self-sustainable. In the same month, the Cabinet approved a Presidential Decree encouraging the production and use of electricity generated from renewable energy.

The legislation would encourage the private sector to invest in generating electricity from renewable energy; however, no further details have yet been disclosed. Several other laws have been passed to transfer the ownership of several public land plots to NREA to be used for renewable energy investments. In the same year, a Prime Minister's decree No. 1257 was issued to remove subsidies on electricity over the period of 5 years. The cabinet has approved a long awaited new investment law which will provide incentives and facilities for obtaining land plots and licenses as well as encouraging businessmen and investors to buy land for the purpose of installing solar energy plants.

Regarding unsustainable energy consumption, there is no general legal framework for energy efficiency (EE) measures. However, there are ongoing research to produce energy efficiency standards. The Ministry of Housing Utilities and Urban Communities has initiated energy efficiency building codes. Another significant step taken to promote EE in the building sector was the establishment of The Green Building Council (EGBC) in January 2009.

Membership in the EGBC consists of both national and international personalities including government ministers from Cabinet level agencies, officers from respected NGOs, prominent businessmen, seasoned labor leaders, and major contractors. One of the objectives for establishing this council is to provide a mechanism to encourage building investors to adopt BEECs as well as other sections of existing codes that satisfy both energy efficiency and environmental conservation.

The council developed the Green Pyramids non obligatory EE rate system for buildings. The council is organizing the 1st Arab Forum on Sustainable Communities and Green Building in December 2014 with partnership of the Regional Office for

Arab States of the United Nations Human Settlements Programme (UN-Habitat). The forum will tackle climate change and adaptation, sustainable communities, green economy, and access to sustainable housing, green building, energy efficiency, and water resource efficiency as main themes.

The Approach and Actions Needed

Within the above EE scope, three objectives are to be pursued: (1) contribute to develop a demand of Energy Efficiency solutions; (2) improve the offer of energy efficient products and systems, and (3)support the creation of a market of EE products and services. Based on the current status of energy use in the industrial sector, efforts need to be more focused on achieving objective (1), mainly through two approaches:

1. a sectorial approach, more adapted to energy intensive sectors, where the main EE potential comes from technologies dealing with the process itself. A benefit of such approaches is that large energy consumption may be targeted with a limited number of enterprises;
2. a cross-cutting approach, targeting all sectors but mainly non-energy intensive sectors and SMEs, offers potential through EE improvements in general utility services (compressed air, combustion control, motors, boilers, ventilation, cooling, etc.), by techniques which are common to a large number of enterprises.

Given the above, a sectorial approach for achieving EE and promoting the use of RE could be more appropriately considered by the management of each intensive industry. Therefore, the proposed programme under the theme of “Sustainable Energy for Industrial Applications” within the SCP Action Plan includes a set of projects that are focusing on a cross-cutting approach, targeting the use of techniques which are common to a large number of enterprises and can be widely replicated in the Egyptian Industry.

The outputs: Mapping the Sector ENERGY

Challenges:

- Integrating energy efficiency and the use of renewable energy sources across sectors.
- Assessment of energy needs for new communities to ensure that sufficient energy sources are available to support economic activities and services as well as household needs.
- Energy and fuel subsidies, represent a huge burden on Government budgets is creating market distortions and contributing to unsustainable production and consumption patterns.
- There is a need for a well-structured institutional framework to govern the sector and act as a clearing-house for the many initiatives, policies and projects taken by a wide variety of institutions from different cross cutting sectors.
- Despite government successful efforts to overcome the gap between energy supply and demand, Egypt is still vulnerable since its energy mix largely depends on fossil fuel, natural gas and recently coal as opposed to renewable energy.
- Sector high financial deficit and uneconomical performance.

SCP Policies and Trends:

- In 2008, the Supreme Council for Energy announced that the renewable energy share should reach 20% of the total generated electricity energy by 2020 as 12% wind, 6% Hydro and 2% solar.
- In 2012 the Electric Utility and Consumer Protection Regulatory Agency (Egypt ERA) has issued the required conditions for companies to produce electricity from renewable energy and connect it to the national grid, based on a net metering principle.
- In 2012, a National Energy Efficiency Action Plan "NEEAP" for 2012- 2015 was launched. The plan covered only the electricity sector.
- In July 2012, the cabinet approved a plan for the development of providing solar electricity generation energy in Egypt. It was decided to install about 3500 MW from solar energy by 2027
- In 2010 the Supreme Energy Council "SEC" has urged ministries to establish dedicated energy efficiency units to coordinate efforts with the central energy efficiency unit at the COM.
- The Ministries of Environment, Tourism, Electricity and Housing have established dedicated energy efficiency units, and other ministries and governorates are following suit by establishing their own energy efficiency units.
- Energy efficiency units will be established at the governorate level to work in compliance with the Ministry of Electricity and Energy.
- Public entities have been instructed to use energy saving measures on their premises.

- The phasing out of fuel and energy subsidies by the Government is a first step in the right direction.
- Measures are being introduced to increase energy efficiency by upgrading the electricity network grid and enhancing the operational capacity of existing facilities.
- Though the Government has recently approved the importing of coal to meet the current shortage of fuel, major investments are being directed towards renewable sources of energy.
- The energy sector is the most active sector in adopting SCP related policies due to the energy crisis which have forced the Government to take action and look for alternative solutions.
- The Government has launched a number of energy efficiency campaigns and initiatives addressing the public, but there is a lack of institutions, policies and tools to address unsustainable consumption.
- NREA has put in place a package of policy tools to encourage private sector investment.
- There is a rapid noticeable increase in solar and wind energy investments.
- In September 2014, the feed in tariff "FIT" was announced for Solar and Wind power generation and was eventually implemented.
- Various promotion initiatives increased the use of grid connected photovoltaic systems, led light bulbs and sensors in government buildings.
- The usage of solar energy to light streets and advertising banners is gaining pace.
- The use of smart and pre-paid meters in new residential areas is enhanced.
- Subsidized Led Lamps are being distributed.
- Presidential decree No. 87/2015 for the reform of the electricity sector was issued for the purpose of liberalizing and encouraging the production of electricity from renewable resources.

Policy Enablers:

- Provide a package of regulatory and incentive measures that promotes the efficient use of energy and investments in renewable sources of energy.
- Phase out subsidies from energy extensive industries.
- Promote public awareness regarding the importance of reduced energy consumption by different consumers.
- Promote the use of solar energy in water desalination.
- Promote investment in the maintenance of the electricity network in order to reduce wastage and enhance the functioning of facilities beyond their optimum capacities.

Potential Gains:

- Energy efficiency across sectors will result in huge amounts of investments in new power stations. Adopting SCP will effectively contribute to energy efficiency in the different sectors.
- Integrating sustainable clean energy practices, including the introduction of renewables and EE practices in different sectors, will contribute to achieving energy security in Egypt and consequent sustainable development.
- Securing the necessary energy requirement is an essential prerequisite for sustainable communities that attract local and international investments as well as competitive and economically-viable projects, thus contributing to sustainable economic development.
- SCP policies that target the energy sector contributes effectively to the sustainability of the different economic sectors.

Elements of SCP in Agriculture

The role of the agriculture sector in Egypt as a driver of Egypt's economic growth has been diminishing over the years, with an increasing role of the industrial, tourism and services sectors. Although this has been the trend in any economic development trajectory of emerging economies, agriculture remains vital for Egypt. Having a thriving agricultural sector is vital to absorb Egypt's large pool of unskilled labor. It is as essential for addressing rural poverty, illiteracy and overall underdevelopment. But most importantly, Egypt has in the past years suffered from food insecurity and lack of ability to provide basic food needs of a significant portion of the population, especially among the poorest segments.

The Government has also announced its aim to reclaim a total of four million acres across the nation beginning with 1.5 million acres within one year. The Ministry has considered several proposed agricultural models during a meeting attended by the Prime Minister the Minister of Water Resources and Irrigation and the Minister of Petroleum.

In recent years, through close collaboration with the Ministry of Environment, the utilization of agricultural waste has been adopted to produce energy and biofuel. The use of new modern grain mills has also been announced in 2015 to cut on wastage and promote more sustainable storage practices. The Ministry of Environment has made budgetary provisions in its investment plans for minimizing and utilizing agricultural waste in the context of a national programme for agricultural waste that was introduced in October 2014. To reinforce the sustainable agriculture strategy 2030, the Prime Minister held a meeting in July 2014 to review the strategy and discuss possible steps to implement it. Another concern that the Ministry of agriculture is attempting to address is the alarming rate of the desertification of Egyptian soil through international knowledge transfer and support from national related centers. One of the suggested solutions is to enforce severe penalties on land encroachment in order to arrest soil degradation and increase crop yields.

Institutional and Policy Framework: The Ministry of Agriculture and Land Reclamation is considered the main Government body responsible for designing and implementing policies to integrate sustainable agricultural practices. However, the Ministry of the Environment, the Ministry of Irrigation and the Ministry of Planning are all government institutions that can directly and indirectly contribute to and reinforce the role of the Ministry of Agriculture. The extent of coordination between the different Government bodies is not made clear enough without steering through a coordinating institution.

In 2009 the Ministry of Agriculture and Land Reclamation has issued a "Sustainable Agricultural Development Strategy Towards 2030" which is an ambitious document with a comprehensive view on addressing chronic problems of the sector through the introduction of organic agriculture, reducing the use of chemical fertilizers, enhancing sustainable management of natural resources and enhancing efficiency in the use of water.

These strategies have been previously adopted since the 1980s, namely the 1980s Agricultural Development Strategy, the 1990s Agricultural Development Strategy, and the Agricultural Development Strategy towards 2017.

So far, the strategy has not been implemented through an actionable framework or pilot projects and activities. On another level, the strategy lacked coordination with the Ministry of Water Resources and Irrigation to align water distribution priorities to different economic activities, given Egypt's limited traditional water resources.

The Ministry has recently taken steps towards designing and implementing policy tools to encourage sustainable agriculture. In a bid to gradually phase out subsidies on chemical fertilizers while redirecting the same financial benefits to small farmers, the Prime Minister has, upon the suggestion of a committee representing the Ministries of Agriculture, Industry and Trade and Investment and Petroleum, approved increasing the prices of chemical fertilizers to reach L.E. 2000 per ton of urea fertilizers and L.E. 1900 for nitrate fertilizers. The financial gains from this price increase will be entirely used to finance small farmers' cooperatives. In 2015, the Minister of Agriculture took further steps by announcing the development of a digitized system to manage the distribution of fertilizers to curtail excessive usage and protect the soil.

In addition, a recently issued ministerial decree No. 1456 / 2014 has announced the creation of a 'Sustainable Agricultural Development' Council within the Ministry fully dedicated to propose and design policies to encourage sustainable agricultural practices. The Council is to be also responsible for implementing the sustainable agriculture 2030 strategy. The Council will tackle the issue of growing rice since it represents a huge burden on Egypt's scarce water resources. One of the suggested proposals regarding growing rice is putting a ceiling on the land to be used for growing rice and reduce it to 1.2 million acres down from 2.2 million acres currently cultivating rice. This is in compliance with the proposed quantity of land allocated for growing rice, as per the 2030 sustainable agriculture strategy.

The Government has also announced its aim to reclaim a total of four million acres across the nation beginning with one million acres of agricultural land within one year. The Ministry has considered several proposed agricultural models during a meeting attended by the Prime Minister and the Minister of Water Resources and Irrigation and the Minister of Petroleum. The Government has created a company to manage this mega-project and decided to start with reclaiming small pieces of land and create pilot sustainable rural agricultural communities.

According to the Ministry of Water Resources and Irrigation, Water Resources land reclaimed is to use water saving, efficient techniques and methods. However, experts question the use of non-renewable ground water versus the use of treated or reused waste water in irrigation. In April 2014 the Minister of Agriculture witnessed the operational launching of a mobile water desalination station powered

by solar energy in Matrouh governorate in an effort to supply non-traditional water resources for local agricultural activities at the governorate level. It is being considered as a pilot project with the intention to have it replicated in rural and remote governorates across the country. The project was sponsored by one of the largest NGOs in Egypt.

A number of governorates are currently studying the use of solar energy to power rural residents, farms and irrigation systems and a pilot project for an ideal solar powered farm has been already implemented in the South Sinai Governorate under the Ministry of Scientific Research and the Ministry of Agriculture.

The Ministry of Agriculture has also announced plans to study the introduction of solar powered water pumps to replace traditional water pumps with the use of solar energy to power water desalination stations for agricultural cultivation purposes. Another national project currently being considered is the development of Al Alamein city as a sustainable and green city. Additionally, a national project for improving field irrigation practices to promote more water efficient agricultural practices was announced and went into implementation in June 2014 through the provision of loans to farmers in partnership with the Social Fund for Development and the World Bank. The project is said to increase agricultural land by 7% to 10%.

In recent month, through a close collaboration with the Ministry of Environment, the utilization of agricultural waste to produce energy and biofuel has been initiated. The usage of new modern plastic grain mills have also been announced in 2015 to cut on wastage and promote more sustainable storage practices. The Ministry of Environment has allocated a provision in its investment plans for minimizing and utilizing agricultural waste in the context of a national programme for agricultural waste that was introduced in October 2014. To reinforce the sustainable agriculture strategy 2030, the Prime Minister held a meeting in July 2014 to review the strategy and discuss possible steps to implement it. Another concern that the Ministry of Agriculture is attempting to address is the alarming rate of the desertification of Egyptian soil through international knowledge transfer and support from national related centers. One of the suggested solutions is to enforce harsher penalties on land grabbing and to limit the degradation of the soil quality.

Considerable efforts have been made to implement some provisions of the sustainable agriculture 2030 strategy; however, these steps have not been integral enough to shift towards sustainable agricultural practices. Nonetheless, the Ministry of Agriculture is increasingly recognizing the role of scientific research and development as a path to achieve sustainable agriculture, especially the need to adapt locally innovative solutions that are suitable for local conditions and simultaneously cost-effective. The Ministry of Planning is taking concrete steps to develop a vision for sustainable agriculture to be assessed against measurable indicators to track progress. It is therefore essential that the role of different Government entities in encouraging sustainable agriculture are clearly defined to avoid bureaucratic ambiguity and the evasion of responsibility.

On another level, the role of the Ministry of local Development is to coordinate the work of governorates and local authorities, including local agricultural offices. The Ministry is responsible for transferring all the needs of local authorities to the cabinet, including local needs of the agricultural sector in different governorates. The coordination of land protection activities, prevention of building on agricultural lands, improving the livelihood of farmers, and providing the services of education, health, etc. to the rural communities is the mandate of this ministry in cooperation with line-ministries that have a more technical role in policy design.

Legislation: Agriculture is governed by several laws that date back to the sixties of the last century. Several modifications and changes have been made since then and until now that resulted in a mosaic of regulations that may not be in harmony with each other. A major modification in laws related to the agriculture sector is badly needed. Additionally, there is no specific law that governs and organizes organic agriculture. The Ministry is currently discussing the introduction of tougher legislations and penalties for illegal land grabbing. There are also regulations and specifications in place to control irrigation methods in reclaimed land. However, this is an apparent lack of comprehensive legislations and incentives. Lack of enforcement and compliance continue to encourage unsustainable agricultural practices, including the overuse of pesticides and chemical fertilizers in addition to water inefficiency and wastage.

Law No. 53 / 1966 on Agriculture

The Law is divided into three parts: agricultural production, livestock, and avoiding the encroachment on agricultural land and maintaining its fertility. The law is amended by the following laws: 59 / 1973, 100 / 1976, 31 / 1978, 59 / 1978, 54 / 1980, 207 / 1980, 16 / 1983, 225 / 1984, 2 / 1985, and 231 / 1988. The law comprises 195 Articles.

Penalties prescribed in the law, which resulted in the breach of the provisions hereof, are not commensurate with practical reality where more than forty years have passed since its promulgation. While the penalties prescribed for the erosion, destruction and building on agricultural land are not commensurate with the crime of the erosion, destruction of lands due to restricting the power of the competent authority represented by the Minister of Agriculture or the Governors authorized by the Minister to suspend the removal works as long as the issue is presented before a court of law.

Act No. 122 of 1980 on Agricultural Cooperation

This Act comprises 85 Articles and was amended by Law No. 122 / 1981; this amendment covers six Articles. According to experts, the law has deficiencies related to the duration of the board of directors term and the capital of the cooperatives and literacy requirements; the penalties prescribed by this law are not commensurate with reality on the ground.

Desert Land Law No. 143 / 1981

The Law comprises 29 Articles, including the disposition of private state-owned lands. Once more, penalties prescribed, the contents of the law that determine and specify the desert governorates, set the acre price and the number of acres set as a maximum allocation per individual and family have all been criticized. These laws are neither practical nor realistic; rather, they are in conflict with reality. Moreover, the Provisions of Article 22 have been found unconstitutional on the jurisdiction of the Supreme Court over the disputes arising from the provisions of this Law.

In summary, the current enacted laws do not reflect the realities of the sector nor do they benefit farmers or contribute to their wellbeing. Although these laws were set a long time ago to assist in achieving sustainable development, deficiencies in law caused failure to empower farmers. They can also have a negative impact on future legislations and amendments that deal with sustainable agricultural practices, especially when it comes to the enforcement of the law, applying penalties, compliance, and pricing.

The outputs: Mapping the Sector - AGRICULTURE

Challenges:

- The agricultural sector faces a number of challenges. These include the need for:
- Adopting an integrated community and rural development approach.
- Efficient and unsustainable irrigation practices to address increasing water scarcity.
- Efficient energy practices to operate irrigation systems including the pumping of underground water.
- Sustainable management of agricultural waste to produce biofuel and organic fertilizers.
- Excessive use of synthetic fertilizers and pesticides.
- The adoption of an integrated community and rural development approach.
- Adequate regulatory framework and incentive measures that encourage investments in sustainable and organic agriculture and agriculture related supportive industries.
- Policies that address unsustainable food consumption.
- Enhancing local capacity to apply sustainable agricultural practices and techniques.
- An intern-ministerial coordination mechanism to promote collaboration and synergies between relevant ministries.

SCP policies and trends:

- Steps have recently been taken by the Government to integrate sustainability considerations in developing agriculture strategy within the new sustainable development vision 2030.
- There is a serious attempt by the Government to phase-out subsidies on chemical fertilizers, which have been a main factor of the environmental degradation witnessed in this sector.
- The Government has accelerated its efforts to integrate renewable energy applications for irrigation purposes.
- The Government realizes the urgent need to increase the sector's productivity by increasing land reclamation and the creation of modern sustainable rural communities to develop rural areas and create more attractive rural living conditions and promoting the complete use of renewable resources and promote sustainable consumption and production.

Policy Enablers:

- Promoting sustainable rural agricultural communities as part of the 1.5 million feddan project, these agricultural communities can drive economic activities and provide jobs and other services for different segments of the population.
- Introducing a regulatory framework and policy incentives for organic agriculture.
- Introducing a national plan and policy incentives to accelerate efforts of integrating renewable energy applications in agricultural irrigation.

- Introducing policy incentives to encourage the use of modern field irrigation and drip irrigation.
- Harmonizing efforts between the ministry of water resources and irrigation and the ministry of agriculture.
- Revisiting the 2030 Sustainable Agriculture strategy to reflect the ministry's effort to promote sustainable rural agricultural communities as part of the 1.5 million feddan national project

Potential Gains:

- Integrating sustainable practices and using clean energy, especially in new reclaimed land has a strong drive to create rural integrated sustainable communities.
- SCP policies that aim at integrating sustainable agricultural practices combined with inter-related SCP led clean energy applications are viable seeds to nurture these communities.

Elements of SCP in Water

The water sector is another sector facing serious challenges. The demand for water in Egypt has been steadily increasing as a result of increased population growth, urbanization, agricultural and industrial expansion, and due unsustainable water consumption practices.

Egypt's allocated water withdrawal quota from the Nile River is set at the fixed amount of 55.5 billion m3, based on the 1959 agreement with the Sudan. Meanwhile, other traditional resources including rainfall, floods, and deep and shallow groundwater are nonrenewable and limited.

Water generation from non-conventional resources has not been adequately utilized due to the high cost of infrastructure and facilities needed for that purpose, mainly seawater desalination plants. Other non-conventional resources include agricultural drainage, and treated sewage water reuse, desalination of brackish groundwater, representing a small share in the total water supply. Furthermore, out-dated infrastructure and deteriorating municipal and industrial water and wastewater distribution networks have largely contributed to huge water losses. Another major strategic concern for Egypt is the Grand Ethiopian Renaissance Dam. Experts have raised serious concerns regarding the negative impact of the dam on the Egyptian water quota.

Institutional and Policy Framework: The Ministry of Water Resources and Irrigation (MWRI) is the main body responsible for water related policies and strategies. It is entrusted with monitoring water resources and rationalization of its use, planning and implementation of water development projects, and the management of the irrigation system in Egypt. Policies designed and implemented by the

Ministry is supported by the National Water Research Center (NWRC). It is a research entity within the MWRI. Under the Centre's umbrella, twelve research institutes support ongoing projects and national development plans.

MWRI is expected to work closely with the Ministry of Agriculture since about 85% of Egypt's water goes to agriculture. In 2015 the Government has planned an additional one million acres to be reclaimed for agricultural purposes in addition to the existing eight million reclaimed acres. Some experts are concerned that the usage of non-renewable groundwater might not be the best option, and alternative sources and measures should be introduced.

In 2010, a strategy for national water resources 2050 was been developed, and MWRI is currently updating the National Water Resources Plan (NWRP) to address water scarcity, including the efficient use and conservation of water resources. Despite the extent to which the plan was previously implemented or the policy incentives that have been designed to facilitate its implementation, the plan was not made clear. Any updated national plan should take into consideration the exponential increase of population with the associated increase in demand for drinking water and sanitation. Existing state of infrastructure and unsustainable water consumption practices are considerations that need to be accounted for in the new plan.

The Ministry launched several public awareness campaigns to influence public consumption patterns and behaviours towards more sustainable lines. The result was moderate at best due to limited funding and campaign design. As early as 2000, a project to upgrade irrigation systems and modernize surface irrigated methods have been proposed as opposed to traditional flood irrigation system.

Although modern surface irrigation is cheaper than drip irrigation, it has not been integrated or mainstreamed as the method of choice. Although less efficient than drip irrigation, modern surface irrigation, if practiced in the old lands and delta, could save 10%-15% on the medium term, and it is cost effective. The Holding Company for Drinking Water and Wastewater, operating under the umbrella of the Ministry of Housing and Utilities, was established in accordance with the Presidential Decree No. 135 / 2004. The main goal of the company is to treat and distribute drinking water and collect, treat and safely dispose of wastewater, either directly or through affiliate companies.

Recently, the Company has developed a plan to extend drinking water to deprived villages improve the maintenance, replacement and renovation activities for drinking water and wastewater collection systems. Public awareness campaigns were launched in order to raise awareness of users to more efficient and sustainable consumption patterns, including those causing pollution of waterways and underground water.

Also a 2030 national wastewater strategy by CEDARE Water Department has recently been developed to extend wastewater treatment for agricultural purposes. The strategy aims at promoting the sustainable use of water from all sources, underground, Nile water, rainwater (though limited), and

treated wastewater. The use of desalinated seawater is currently being seriously considered. A committee operating under the Ministry of Housing and Utilities was created in 2013 to be in charge of setting codes for desalination for domestic purposes.

The management for irrigation and drainage water has being handled by MWRI, while drinking and sanitation by the Ministry of Housing and Utilities through the holding company is representing a constraint for designing an integrated water management strategy for the country. Water subsidies and low water tariffs continue to encourage inefficient and wasteful water consumption practices. MWRI in collaboration with the ministry of agriculture are increasingly encouraging the use of renewable energy for irrigation purposes including water pumping stations for desalination purposes.

Legislation

Law 12-1984 dealing with irrigation and drainage water is the key text of legislation regulating the use of water and water management for different uses, including agricultural purposes. The law refers to the prohibitions for the use of untreated wastewater for agricultural purposes and sets limits for the use of underground water. It also includes provisions related to fines against violators, and conflict resolution mechanisms. However, the law failed to enforce modern irrigation methods, curb water losses, enforce penalties or punish violators.

There is a lack of monitoring, enforcement and compliance tools in the system. However, the law is currently under review and open for amendments. Among the suggested amendments to the law is adding more stringent measures and high penalties for noncompliance. Regarding water quality and polluting discharges, law No. 84 / 1982 was introduced to prohibit the discharging of untreated water and other solid pollutants and waste into the Nile River, irrigation and drainage canals, lakes and groundwater without a license issued by the MWRI. Licenses can be issued as long as the effluents meet the set standards.

The license includes both the quantity and quality that is permitted to be discharged. Discharging without a license can result in a fine. Law No. 4 / 1992 sets “effluent standards” for solid and hazardous waste and for discharges into the marine environment. Lack of enforcement and compliance continue to be the main hurdle facing the sustainability of the ecosystem. In 2008, standards and codes were set for wastewater reuse, and have been lately updated following the strategic 2030 Vision for reuse.

The Outputs: Mapping the Sector:- WATER

Challenges:

- Promote the use of renewable sources of water including the use of recycled wastewater for irrigation.
- Promote the use of desalinated water using solar energy.
- Unsustainable water consumption patterns in almost all sectors have seriously drained Egypt's water resources.
- Government reliance on the use of non-conventional water resources has been modest at best and should be taped into as a contributing factor to address water scarcity.
- Private sector engagement in projects and investments is rather limited and should be scaled-up.
- There is a need for an integrated water management strategy that oversees an action plan for supplying water from non-conventional resources, replenishes water ecosystems and conserves water. There is currently a new water strategy being developed for 2037.

SCP policies and Trends

- Research and development in renewable sources of water technologies and techniques.
- A 2030 national wastewater strategy by CEDARE Water Department has recently been developed to extend wastewater treatment for agricultural purposes.
- National standards and codes for water desalination are being developed.

Policy Enablers

- Develop integrated sustainable communities that use water in an efficient and sustainable manner.
- Achieve water security to meet human needs and support economic activities and future urban expansion.

Potential Gains

- Water is profusely used in agriculture, industries, residential consumption, therefore integrated water management partakes to the very life line of a sustainable community.
- Water rather a cross-cutting common input for everything, with this in mind, SCP

policies for water saving and sound management are imperative for the economy as a whole.

- Simply put, sustaining water supply equates the continuation of sustainable communities.

Elements of SCP in Municipal Solid Waste

The long term goal of the Government is to develop an integrated solid waste management system in Egypt which aims to prevent, reduce, recycle, reuse, recover, and then resort to safe disposal of waste. Efforts are being made to integrate the informal sector, who have already formed their own syndicate, into the formal sector, as well as encourage the creation of small businesses in solid waste sector.

Institutional and Policy Framework: The institutional framework for the sector has been relatively unclear for many stakeholders. A new Ministry of Urban Renewal and Informal Settlements has been created and is now responsible for municipal solid waste and construction and demolition management while other waste streams, including agricultural, hazardous and industrial waste, are managed by the Ministry of Environment. In 2000, the Ministry of Environment adopted the "National Strategy for Integrated Municipal Solid Waste Management". However, the extent of the success of this strategy remained modest. The Government established an Inter-Ministerial Committee (IMC) in 2009 to address the situation representatives from all key Ministries. The committee was entrusted to put a vision of SWM policies. As a result, a National Solid Waste Management Programme (NSWMP) has been established with the support of the German Development Cooperation to overhaul the policy governance of the sector. The Programme also aims at addressing current weak legislations, upgrade institutional capacity and eliminate conflicts of redundant work scopes. An "Egyptian Integrated Solid Waste Management Sector (ISWMS)" was established under the Ministry of Environment as a first step towards the establishment of an Egyptian Solid Waste Management Agency (ESWA). According to the 'Green economy Scoping Study for Egypt', some of the policies taken by the Government include a tax break for five years and custom duty exemptions for SWM equipment. In 2006 a strategic framework for the recycling of MSW was also introduced. The Government has also attempted to restructure the conventional informal waste collection system, known as the "Zabaleen" or garbage collectors and integrate them within the formal systems. In December 2013, the Ministry of Environment launched a national campaign for "Separating waste from the source" to collect waste from houses by separating it into two main components: organic wastes and solid waste. The Ministry of Environment, jointly with the Ministry of Local Development, has taken some measures to tackle the waste problem factories. An Egyptian Forum for Solid Waste Management was inaugurated

the same year in order to exchange knowledge and social visions in the field of solid waste management. Meanwhile strategic directives for the waste management sector were drafted through the support of the NSWMP. The strategic directives highlights key principles and approaches for reforming the waste sector. This is expected to be followed by a national strategy for waste management.

The Ministry is expected to put in place a new system to deal with municipal solid waste piling up in many residential areas in several urban and rural settlements in Egypt. It is also exploring business opportunities in recycling. The long-term goal is that an integrated solid waste management system is introduced in Egypt which aims at preventing, reducing, recycling, reusing, recovering, and then resorting to safe disposal of waste. The Ministry is trying to find methods and plans to integrate the informal sector that has already formed its own syndicate, into the formal sector and encourage the creation of small businesses within the solid waste sector.

In September 2014, a draft national strategy of integrated solid waste management in Egypt was introduced to encourage legislative change and structural reform to promote a circular economy on behalf of the Government. The strategy was based on:

Adopting an integrated management approach

- Good Governance
- Promoting R&D and innovation initiatives
- Public Awareness and community engagement
- Capacity Building
- Restructuring of certain public institutions
- Changing legislations
- Providing access to finance, and encouraging investments.
- Expanding the recycling sector
- Endorsing the concept of polluter pays principle
- Adopting the process of “refuse, reduce, reuse, repurpose and recycle”.

The strategy recommends the creation of a new institutional body to oversee the management of the integrated framework while creating satellite institutional units at the level of the various governorates. It has also proposed to integrate existing divisions and units on a ministerial level with the new proposed public body.

Legislation: The country has no unified solid waste management law. However, the sector is governed by Law No. 38 / 1967 on General Public Cleanliness and Law No. 4 / 1994 for the Protection of the Environment. The Public Private Partnership Law No. 67 / 2010 (the PPP Law) issued by the Ministry of Finance is considered a facilitating framework to invest in the sector infrastructure and integrate interested private sector investors. A unified law for waste management is currently being prepared for consultation with the various stakeholders. The new draft national strategy of integrated solid waste management recommends that there is a need to draft a specialized law for integrated solid waste management and its executive regulations that include stringent fines and implement the polluter pays principle.

The Outputs: Mapping the sector- Soild Waste Management

Challenges:

- Municipal solid waste collection and disposal remain an unresolved issue, indicating the need for a new policy perspective to face the increasing volume of waste and related health hazards.
- Integration of the informal sector into the economy remains one of the outstanding issues that need to be resolved.
- There is no specific law for solid waste management.
- Public policies have fallen short of designing an integrated management system for the sector.
- There are no specific policies to encourage SCP in particular.
- Current policies undertaken by relevant ministries do not focus on re-directing the sector from a liability to a profit generating one through recycling.
- It is not clear how the current institutional setup will oversee a national integrated solid waste management system. There is no single ministry/body that is completely responsible for municipal solid waste management.

SCP Policies &Trends:

- In recent years, municipal solid waste has become a priority issue that the Government needs to address.
- A draft national strategy of integrated solid waste management in Egypt was first issued in 2014, and the final strategy will be completed by 2015. A National Solid Waste Management Programme is under the overall responsibility of the Ministry of Environment.
- The strategy recommends the creation of a new institutional body to oversee the management of the integrated framework, while creating satellite institutional units at the level of Egypt's governorates.
- The informal sector waste collectors should be integrated into the formal collection system.

Policy Enablers

- Promulgating an integrated solid waste management law.
- The national regulatory framework should take into consideration the polluter pays principle (PPP).
- Adapting local collection, sorting, recycling, and disposal methods to international standards while preserving local particularities.
- Any new management system should aim at preventing, reducing, recycling, reusing, re-covering, and, then, resorting to safe disposal of waste.
- Any new system should fully take into account the actual costs of waste collection.

- Engaging in public awareness and facilitating access to information through education.
- Encouraging private sector investments in different stages of waste collection to disposal, including recycling and reusing.

Potential Gains:

- Zero waste policy is a characteristic of a circular economy and sustainable community.
- SCP in its conceptual context emphasizes waste minimization, reuse and recycling.
- Therefore, an integrated solid waste management system is vital to attain a zero waste policy.

2.2.3 The Cross-Cutting Sectoral Nexus

Based on the above mapping and analysis, it is appropriate to conclude the chapter with the main overall findings that will be used as the premise for determining the conceptual framework and operational objectives of the action plan. Independent sector mapping has shed light on the cross-cutting nature of SCP and the current policies being implemented. Based on this evidence, it is therefore valid to conclude that separately introducing SCP in different sectors can weaken its overall expected and intended impact. On the other hand, timed and consorted efforts to cross-cuttingly integrate SCP in different sectors is advantageous and a catalyst to the formation of sustainable communities.

Chapter 3:
National SCP Action Plan

3.1 Critical Considerations for Success

The National Sustainable Consumption and Production Action Plan for Egypt is a response to recommendations, expert technical contributions, consultation meetings, and the continuous championing process of the Egyptian Ministry of Environment on behalf of the entire government. The National Action Plan promotes actionable solutions which can positively influence Egypt's efforts towards attaining sustainable development. Given the above, the National Action Plan in this regard is consistent with existing strategies and overall governance directives of the Government.

It is therefore valid to conclude that separately introducing SCP in different sectors can weaken the overall expected and intended impact of SCP. On the other hand, timed and concerted efforts to integrate SCP in different sectors is advantageous and a catalyst to the creation of sustainable communities.

- There is generally a high concern about SCP among stakeholders but modest implementation steps, including SCP specific policies and legislations, are now in action.
- There is a plethora of initiatives but they are isolated.
- There is a need for coherence and coordination between different policies and initiatives.
- It is important to develop national dialogues and engage all stakeholders.
- There is a need to identify and better communicate the economic, social and environmental benefits of SCP and green economy to enhance the implementation of the action plan.

The ministry of Environment assumes the vital role of seeking and lobbying for a higher level of official endorsement and validation. Within the overall vision of supporting the development of "sustainable integrated communities", the Ministry is consistently working to ensure the inter-linkages between different line-ministries with the purpose of coordination and harmonization of their respective strategies and key objectives. Accordingly, the body of the action plan, which is hereby presented through the different suggested projects, is an advantageous driving force towards ensuring its implementation. Beside related policy recommendations, suggested projects are the direct input of government agencies, capable experts and other key stakeholders that underscore ownership and the concept of 'Empowered Agency of the Contributors' even in the endorsement and implementation stages.

This action plan can be considered a diverse sustainable consumption and production catalogue of projects that the Government and the private sector alike could select from and work on providing financing through government budget, international cooperation, regional and

international development banks, foreign direct investors, and the local businesses.

Highlighting the important role that the private sector could play is an understatement in this context. It could not be stressed enough that the private sector is as an important owner as the Government of this action plan. International experience and related discourse of knowledge have shown that a transition towards a green circular economy and the economic drive needed to achieve the new sustainable development goals (SDGs) calls for solid involvement and investment by the private sector. This is especially true related to infrastructure mega projects in energy, water, waste, or agricultural sectors.

Figure 3:Critical Success Factors for Implementation

3.2 Operational Framework: General Outlook for Implementation

Based on the above discussed conceptual framework, promoting integrated sustainable communities could not be accomplished with isolated policy development and activities, even if they are innovative, as they have little impact of bringing about real changes in consumption and production patterns. The reason for developing a National SCP action plan and six related programmes is to link long term vision to medium term target or short term activities which is necessary to tackle SCP in a systematic and proactive manner.

Proposed short term demonstration projects within proposed SCP programmes, related policy tools, medium term milestones and long-term targets are intended for informed decision-making that provides a framework for systemic decision making across sectors. The first two tables provide a comprehensive outlook including medium-term to long-term milestones and targets while the following section emphasizes the short-term demonstration projects.

National SCP Action Plan for Egypt: General Outlook		
Short-term Outcomes	**Medium-term Milestones**	**Medium-long-term Targets**
Demonstration Projects that lead to : ■ Putting SCP on Public Policy Agenda ■ Integrating SCP related policy into main economic sectors ■ Public Awareness on the significance of SCP ■ Invest in infrastructure to promote SCP methods ■ Promote sustainable production for industries ■ Accumulate Business Best Practices to exemplify in greening supply chains ■ Provision of technical assistance to businesses and industries to integrate sustainable production methods ■ Decelerate environmental degradation to improve competiveness	Resources Use Efficiency with a Focus on Energy, Water, Agriculture and Sustainable Buildings and Construction	Developing Integrated Sustainable Communities
	Integrated Solid Waste Management and Recycling	National Integrated Resource Management System to operate a circular economy
	Sustainable Public Services and Procurement Practices by SMEs and Green enterprises.	Egyptian Businesses to be sustainable and provide resource efficient, low carbon products and services. Businesses visibly leading their supply chains to improve SCP.
	Increase Market Supply and Demand for Sustainable Products	Re-direct consumer behavioral buying patterns towards more sustainable consumption patterns
	Focus on removing barriers to investing in resource efficiency and eco-innovation	Develop and Mainstream life cycle assessments in industrial production and develop adapted training Materials on SCP
	Introduce new Legislative framework that specifically target SCP	Produce and implement a sector development plan that identifies the technology and site requirements to support growth and technology advancement for industries
	Promote sustainable business Models	Upscale public institutions and centers of excellence to promote sustainable consumption and production
	Contribute to the development of pro-poor economic policies through the enhancement of competitiveness of industries by introducing clean technologies	Attain Economic development in line with the 10-YFP on SCP, national strategies and the Sustainable Development Goals

National SCP Action Plan for Egypt: Theme Based Outlook

	Short-term Outcomes	Medium-term Milestones	Medium-long-term Targets
Towards Integrated Sustainable Communities	■ Initiate Demonstration Projects: ■ Productive Low Cost Environmentally Friendly Village (PLEV) ■ Promotion of «Green Growth for Industry» ■ Biogas Digesters ■ Eco-innovation approach in small and medium-sized Enterprises in Egypt ■ Sustainable Public Procurement ■ Sustainable Water Production and Consumption Model for Agricultural, Industrial, Urban Development in the Western Desert ■ Recycling of agricultural waste ■ Industrial Waste Management and SME entrepreneurship hub ■ Supporting Policies: ■ Facilitate access to finance to support SCP projects and initiatives ■ Improve data and information management systems for environmental accounting, pollution mitigation and control ■ Provide high level coordination between different stakeholders to ensure consorted implementation ■ Promote principles of sustainable private sector investments ■ Invest in required infrastructure for the chosen demonstration projects. ■ Harmonize sector policies and legislation in selected sectors (Agriculture, Health, Education, Energy, Water, and Land)	■ Capacity Building of NGOs on Sustainable Consumption ■ Promotion of Sustainable Products through financial incentives ■ Develop Capacity Building of Industry in Life Cycle Management ■ Invest in Research and Development ■ Education and Outreach on the importance of sustainable lifestyles ■ Begin Public Sustainable Procurement programmes ■ Encourage businesses to adopt green procurement ■ Enforce existing efficiency standards in built environment ■ Enforce efficiency regulations and requirements on appliances ■ Raise public awareness on the benefits and opportunities of other modern biomass energy sources and develop capacity for their implementation ■ Promote environmental-friendly farming systems such as conservation farming, afforestation, and the use of composting ■ Promote sustainable land management and rehabilitate degraded lands when possible	■ Formulate a Strategy to develop sustainable communities ■ Create a national institutional body to oversee and monitor the progress of forming sustainable communities ■ Launch Awards Programs recognizing efforts towards Sustainable Communities ■ Study on the Economic, Environmental and Social Benefits of Extended Producer Responsibility on certain key products ■ Promote Backyard Composting and residential renewable energy applications in sustainable communities ■ Develop Related guidelines and community rating systems ■ Develop a national directive towards green sustainable procurement ■ Prohibit the import of select unsustainable products with widespread usage ■ Enforce national eco-labeling schemes on a wide scale ■ Develop measures to conserve agro-biodiversity ■ Formulate a plan for land use including urban planning for sustainable communities

3.3 Operational Framework: Short-term Implementation Activities

Short-term Demonstration Projects for the National SCP Action Plan for Egypt:

Acting in concert with other socio-economic and sector strategies, this national SCP action plan can help to institutionalize processes for resource allocation, monitoring and evaluation. A short-term demonstration project is the testing method to 'try before going national' to assess actual cost, including a tested cost benefit analysis in actual real life, especially that establishing sustainable communities in Egypt through the introduction of SCP policies is a new concept that has not been previously introduced. Below is the selection criteria for the demonstration projects.

Selection Criteria for the Short-term Demonstration Project:
Reflect government approved strategies (Sustainable development 2030), related action plans and recent declared mega projects
Promote integrated sustainable communities
Focus on: Cross-cutting Sectoral Nexus or a crosscutting issue or policy that could contribute to theAz creation of an integrated sustainable community
Lead to job creation and clear socio-economic benefits (inclusiveness)
Be sustainable through replication, experience transfer or scalability
Incorporate innovation and technology
Attract funding sources
Contribute to GDP
Promote efficient management of natural resources
Ease and feasibility of implementation
Halt environmental degradation
Promote a life cycle approach, when valid
Could be reflective of the demand (consumer) or supply (production) sides of integrating SCP practices

The overall Integrated Sustainable Communities Objective of this action plan requires a systematic integration of SCP policies that leads to greening the Egyptian Economy and achieving sustainable development. In order to create sustainable communities all sectors that support the functioning of the economy should operate in a coordinated and supportive manner as to form a harmonized canvas and present an enabling overall environment that can

lead to the development of sustainable communities. Energy, industry, agriculture, tourism, transport, natural resource management, and energy-efficiency in the built environment are all necessary components to properly and successfully achieve progress towards a green and sustainable community.

A necessary prerequisite for creating sustainable communities is having in place the required institutional setup and enabling conditions that would facilitate this process. Accordingly, proposed SCP policies and projects need to address water and energy generation through renewable resources and the promotion of water and energy efficiency technologies and practices on the consumption and the supply side simultaneously. This requires sustainable community water and energy systems. As far as water is concerned, emphasis should be laid on the use of renewable sources of water, including recycling and reusing wastewater while enhancing sea water desalination, using solar energy. Regarding energy, emphasis should be laid on energy efficiency measures and technologies, and the use of renewable sources of energy, including solar, wind, thermal, and waste-to-energy conversion processes. Agriculture is not only essential for bridging the gap between supply and demand and achieving food security but also as a means of rural development, opening up new economic opportunities, job creation, contribution to GDP, and as source for energy generation, production of compost and recycled products. Integrated solid waste management should contribute to resource efficiency and the generation of energy from organic and agricultural waste and through RDF as well as the production of compost.

Moreover, policy instruments such as market incentives and tripartite collaboration between the public, private and civil sectors and public procurement can be instrumental in promoting sustainable communities. Introducing and integrating SCP policies to enable cleaner production and consumption patterns should be considered as a necessary requirement for creating sustainable communities that could address the serious challenges of resource scarcity, shortage of affordable housing (particularly for low-income and poor families), unemployment, increased pollution, and environmental degradation. As an outcome of the stakeholder consultation process, 28 proposed demonstration project were assessed and refined to be introduced within the context of this action plan.

The 28 projects are organized under the framework of six SCP Components that if adopted together could serve as the core of this action plan in support of sustainable communities, emphasizing the integration of SCP policies into national economic and the social governance agenda.

The proposed Components are designed to ensure that:

- Projects are clustered to facilitate their implementation
- If Projects, although of varying nature and themes, are implemented in a harmonious and supportive manner, they could catalyze the creation of sustainable communities
- There is an effective role for different stakeholders, especially government institutions, during the implementation phase of the action plan
- Conflict of interest that might be experienced by different stakeholders during the implementation process is minimal.

These SCP Components are:

1. Policy Instruments for SCP Component
2. SCP Component for Integrated Community Development
3. SCP Component for Sustainable Agriculture
4. SCP Component for Sustainable Water Management
5. SCP Component for Sustainable and Renewable Energy Applications
6. SCP Component for Solid Waste Management

The presented table below provides a summary of the 6 SCP Components and the projects collected under each of the Components. For more details regarding the projects under each Component, an annex was prepared as a detailed report, explaining the submitted demonstration projects.

	Project title	Relevant Sectors/ Resources Nexus	Explaining contribution towards Integrated Sustainable Communities through SCP policies
1: Policy Instruments for Sustainable Consumption and Production (SCP) The Policy Instruments presents a package of policy instruments that are perceived as the first phase of integrating SCP on a national level. The Program brings together various initiatives and projects presented by working group members and public institutions to catalyze action and highlight possible synergies during the implementation phase.			
1	Facilitating Access to Finance for Green Growth & SCP practices Presented by: Ministry of Environment- EEAA	Agriculture, Trade, Industry, Water & Energy	Clean and green industries growth supports the creation of sustainable communities and cities. To do so, there is a need to improve access to finance for priority investments in infrastructure and new clean technologies. This projects aims to support the private sector through the provision of financial packages that promote different SCP industrial applications to be implemented to support the creation of a green industry applications including waste to energy, waste management, water savings, and energy savings.
2	Policy Tools towards Transition to Green Economy: National Green Economy Reviews (NGER) in Egypt Presented by: Ministry of Industry, Trade & SMEs	Agriculture, Trade, Industry, Water & Energy	There is a need for policy tools to measure progress towards a green economy and towards the creation of sustainable communities. There is also a need to explore cross-sectoral linkages. This project aims to build on several national studies that assessed Egypt's potential to transfer to a green economy but with detailed sectoral focus. A form of reality check to continuously monitor progress to reach this goal in light of Egypt's Sustainable Development Strategy taking into consideration international experience in different sectors.

3	Mainstreaming Green & Sustainable Public Procurement in Egypt Presented by: Ministry of Environment & CEDARE	Agriculture, Trade, Industry, Water & Energy	This project aims to introduce policy instruments that could influence regulating and creating demand for green products and clean technologies in public and government institutions. The project supports the gradual adoption of sustainable public procurement practices including tendering procedures and the required law amendments. A form of encouraging sustainable consumption and production on a national level through push strategies, sustainable public procurement is a significant catalyst that could accelerate the formation and the continuation of integrated sustainable communities.
4	Setting-Up a Renewable Energy & Energy Efficiency Fund Presented by: Ministry of Industry, Trade & SMEs	Industry& Energy	This Fund aims at contributing to the reduction of Egypt›s energy deficit through promoting the local manufacturing and application of Renewable Energy.
5	Land Allocation for Renewable Energy Projects: Strategic Environmental and Social Assessments Presented by: Ministry of Energy and Electricity (MoEE)/New and Renewable Energy Agency (NREA), Ministry of Local Development	Renewable Energy & Environment	This project is an essential policy requirement for appropriate decision making to evaluate the potential environmental and social (E&S) impact from wind and solar energy developments on the natural, environmental resources, resident people and their lives and their well-being.
6	Eco-innovation in Small and Medium-sized Enterprises in Egypt Presented by: Egypt National Cleaner Production Centre (ENCPC)	Agriculture, Industry, & Energy	Eco-innovation is the development and application of a new or significantly improved product (good/service) or process, a new organization method or a new business practice that will lead to improved economic and environmental performance. Introducing Eco-innovation to the Egyptian industrial sector translates to the creation of green industries a component of sustainable communities.

2: SCP Integrated Community Development

With the overarching goal of gradually creating sustainable communities through SCP policies and applications, two projects were submitted to represent a form of prototype on how these communities could be and how can they be sustainably operable.

7	Productive Low cost Environmentally Friendly Village (PLEV) Presented by: Housing and Building National Research Center	Water, Waste, Energy, Construction, Transportation, Agriculture, & Industry	The purpose of this project is to establish a pilot model of a sustainable community based on the existing potentials of one specific site (currently in Fayoum governorate which is the poorest and least developed in Egypt and another proposed location in Minya Governorate in upper Egypt where 850.000 Feddan will be cultivated out of the 1.5 million feddan National Project). Such model can be documented, assessed, evaluated, and then advocated and promoted for replication to cover the current allocated sites for 400 new communities in desert remote villages as well as the communities will be established around the 1.5 million feddan National Project.

3: SCP Sustainable Agriculture

This third component is especially important as it tackles both of Egypt's food and water security challenges and it also represent the life-line of agriculture, which could be the building block for many new sustainable agrarian and rural communities. This is particularly relevant in light of on-going national planning for mega agricultural projects.

8	Renewable Energy Applications for Improving on-farm Irrigation systems Presented by: ENCPC team and Olive Oil Council & Ministry of Agriculture	Agriculture, Water & Energy	Typical irrigation systems consume a great amount of conventional energy through the use of electric motors. Sustainable energy can find many applications in agriculture to empower rural sustainable communities directly engaged in agricultural activities. One application of clean energy is in water pumping for agricultural irrigation purposes. The combination of PVWP technology with water saving irrigation techniques and sustainable management of groundwater resources can lead to several benefits. This includes the enhancing land productivity, halting erosion, providing higher incomes and better living conditions for farmers, thus promoting sustainable communities.

9	Promoting Sustainable Agricultural Production by Optimizing Water and Fertilizers use in Desert Lands Presented by: Soils, Water and Environment Research Institute, (SWERI) Agricultural Research Centre & Climate Change Information Centre	Water & Agriculture	This project aims to introduce sustainable agriculture practices in newly reclaimed lands. As envisioned by the government around this newly reclaimed land rural sustainable communities will gradually form.
10	Utilizing Solar Energy for Drying Agriculture Products in Egyptian Rural Areas Presented by: NREA Team, Ministry of Agriculture	Energy & Agriculture	Another important clean technology application that could contribute to transforming the agriculture sector into a more sustainable mode.
11	Promoting Agricultural Waste Recycling in Egypt's Governorates Presented by: Agriculture Economic Research Institute (AERI)	Waste, Energy & Agriculture	Another source of clean energy generation is the use of agricultural waste for the production of biogas and for agriculture through compost, fertilizers and animal fodder. In many cases farmers leave residues on the banks of canals and drains where they may be dumped into the irrigation system, creating obstacles to water flow and endangering water quality.

4: SCP Integrated Sustainable Water Management

This component could be an entry point to the necessity of integrated water management and directly linking it to SCP applications and policies. It includes wastewater reuse as important applications that could be a solution to the limitations of Egypt's conventional water supply. Another project promote the need of water efficiency strategies that goes hand in hand with the use of non-conventional water resources.

12	A Modified Wastewater Reuse Code Presented by: CEDARE, Ministry of Water Resources and Irrigation - HCWW - Ministry of Agriculture and Land Reclamation	Water	Wastewater reuse schemes including codes are with economic, environmental and health-related benefits and used as policy tools to promote, sustain and enforce wastewater treatment and its re-use applications especially in agriculture.

13	Integrated Waste Water Reuse Pilot Project Presented by: CEDARE- Ministry of Water Resources and Irrigation - HCWW - Ministry of Agriculture and Land Reclamation	Water & Agriculture	Promoting sustainable agriculture production using the potential secondary treated wastewater to reclaim land for cultivation, while using non-conventional generation methods for water supply needed for irrigation purposes.
14	Sustainable Water Production and Consumption Model for Sustainable Communities Presented by: CEDARE- Ministry of Water Resources and Irrigation - HCWW - Ministry of Agriculture and Land Reclamation	Water, Industry,& Agriculture, Energy	Intended as an optimal model for the allocation and use of conventional and non-conventional water resources in a sustainable desert community. It could be used a guiding project to be up scaled and endorsed by relevant public and private institutions for Agricultural, Industrial, Urban Development in the Western Desert.
15	Siwa Sustainable Consumption and Production Water Strategy Presented by: CEDARE) - Ministry of Water Resources and Irrigation - HCWW - Ministry of Agriculture and Land Reclamation	Water	Area specific SCP water strategies are byproducts of well-organized public planning and institutional governance, a needed planning tool to manage sustainable communities.
16	Development of Water Strategy to Raise Water Use Efficiency in Fayoum Governorate Presented by: Arab Water Council	Agriculture & Water	The proposed project is aiming at developing a water strategy for Fayoum governorate that shall work on raising the water use efficiency in the governorate taking into account the local conditions and using participatory approach. The approach and the methodology used can be applied and replicated in other areas in the country and in the Arab region making use of lessons learned and experience gained.

17	Improving Water Quality in Lake Manzala Engineered Wetland (LMEW) Presented by: Arab Water Council	Water & Agriculture	The proposed project to treat drainage water applying low-cost techniques in constructed wetlands to be carried out in Lake Manzala Engineered Wetland (LMEW) located in the Eastern Delta. The objectives of the project are: to demonstrate the effectiveness of wetland technology in wastewater treatment; to present alternative uses of treated water (irrigated agric. & fish farming), to conserve Manzala Lake environment, and to investigate the impact of water treatment on the community of farmers and fishermen in the project area.
18	Supporting Best Practices in Decision support system is for Sustainable Water Resources Planning Strategies Presented by: MWRI	Water Resources & Climate Change	This projects aims at supporting the Ministry of Water Resources and Irrigation to develop its research capacity to identify and adopt informed decision making for sustainable water resources management. The project comes in line with Egypt's National Water Resources Strategy with a specific focus on Framework 2: Protection of Agricultural Land, and Framework 4: Providing an appropriate environment for implementation of the NWRP.

5: SCP Sustainable and Renewable Energy Applications

What is being proposed is to develop Egypt's sustainable and renewable energy applications for the use of different economic sectors, particularly for industrial application or reducing the need for fuels to power generation needed for production. One key element of this component ill be the willingness to adopt technologies and develop locally growth innovations. Another element will be the development by the Government of appropriate policies and frameworks that would encourage and guide the private sector to adopt these applications in different economic sectors.

19	Biogas Digesters to generate energy to commercial establishments Presented by: NSWMP	Waste & Energy	Part and parcel of a sustainable community is to adopt waste to energy applications. Once generated and stored, biogas is primarily used for cooking and heating at the home scale, but it also has many other important applications both domestically and industrially. It is used as a fuel to power electric generators and could be used to fuel transportation as well. Using organic, agricultural waste the production of gas results from a natural anaerobic decomposition of organic material. Hence it promotes an efficient zero waste strategy.
20	Biogas Production from Sewage Sludge Presented by: NSWMP	Water, Waste, & Energy	Promotes the safe treatment and disposal of municipal sewage water could be consistent with the rapid growth of sustainable communities. However, facilities for municipal sludge are needed. Biogas production through sewage sludge reduces the associated health problems and optimization of sewage sludge treatment. It is another process linked to zero waste policy and the production of clean energy.
21	Utilizing Solar Energy for Heating purposes in Egyptian hotels & hospitals sectors Presented by: New and Renewable Energy Agency (NREA)	Energy, Health, Tourism	The use of clean energy in the tourism and health sectors would lead to significant energy saving and if successful would represent a successful model that could be replicated in other similar sectors such as schools.

22	Utilizing Solar Energy Cooking & Heating in Egypt's Rural Areas Presented by: Ministry of Energy and Electricity (MoEE)/New and Renewable Energy Agency (NREA) & ENCPC	Energy	Promoting sustainable lifestyle, clean energy and consumption behavioral change, especially in rural areas, where poverty incidence is high could lead to a significant improvement of quality of life and contribute to integrating new patterns sustainable consumption.
23	Industrial Electrical Motor Driven Systems (EMDS) Efficiency Program in Egypt Presented by: ENCPC	Industry & Energy	The theme of the project contributes to energy saving applications and efforts in the industrial sector as an integral step for promoting cleaner production processes. This is especially valid since electric motors and the systems they drive are the single largest electrical end use, consuming more than twice as much as lighting.
24	Promoting Energy Efficiency for Boilers & Utilizing Solar Energy for Industrial Process Heat in Food, Chemicals and Textiles Sectors Presented by: ENCPC & MoEE	Industry & Energy	Demonstrating the potential use of clean energy, renewable energy specifically, to power industrial heating processes to improve the energy efficiency and promotion of solar thermal technologies manufacturing in Egypt. A significant share of the heat consumed in the industrial sector is in the low and medium temperature range. This makes the industrial sector a promising and suitable application for solar thermal energy.

6: SCP Solid Waste Management

The volume of waste being generated continues to increase at a faster rate than the expansion of solid waste management measures and ability of the municipal authorities to improve on the financial and technical resources needed to parallel this growth, this component provide a select of projects to address different sides of one of Egypt's perpetual challenges. Solid waste should be managed through a number of activities—waste prevention, recycling, composting, controlled burning, or landfilling. Using a combination of these activities together in a way that best protects community and the local environment.

25	Reducing Plastic bag consumption Presented by: NSWMP	Municipal Solid Waste	This project stresses the importance of effective government policy in shaping consumer behavior. Placing a value on single use plastic bags could dramatically reduce plastic bags consumption and protect the environment from their adverse effects. If successful similar models could be promoted to support other changes in unsustainable consumption trends through policy instruments and regulation.

26	Egypt's Marine Litter Extraction Project Presented by: NSWMP	Municipal Solid Waste	Plastic litter has been a major polluting source for open sea and coastal cities, which has impacted tourism. This has a health and economic adverse impact on surrounding communities. There is an urgent need for raising awareness of the public and other stakeholders on the importance of combating marine litter in Egypt.
27	Extended Producer Responsibility Pilot- E-Hub Project Presented by: NSWMP	Waste	Producers of electronic goods need to assume full responsibility for the lifecycle of their products, including the post consumption phase. Engaging producers (importers and manufacturers) of electronic goods in Egypt to ensure environmentally sound collection and recycling of their products could be a game changer that would signal the application of EPR for other sectors.
28	Green Growth: Industrial Waste Management and SME Entrepreneurship Hub in Egypt Presented by: ENCPC	Industry & Waste	Being able to use industrial waste in support of a zero waste policy and support a flourishing recycling market is directly linked to the promotion of both sustainable consumption and production. This process is envisioned to contribute towards the formation of sustainable communities and juxtaposed to the current prevailing industrial production procedures.

In addition to the demonstration projects in the priority sectors, the national sustainable consumption and production action plan for Egypt will put special emphasis on the following Priority Actions to be undertaken by the Government to facilitate SCP across sectors:

- Create a coordinating mechanism to be attached to the Prime Minister›s Office to ensure proper coordination between different sectoral ministries, monitor implementation of strategies and action plans, evaluate outcomes, and introduce corrective actions as appropriate.
- Undertake a review of existing laws and regulations as well as market incentives, assess their impact on SCP and introduce a package of regulatory reforms supported by incentive measures that can promote SCP across sectors.
- Initiate a national process for integrating SCP considerations in sectoral strategies, action plans and programmes.
- Institute in law the requirement for government bodies to purchase equipment, supplies and services that are produced in an environmentally sustainable manner.
- Initiate a national process for integrating SCP considerations in sectoral strategies, action plans and programmes.
- Launch a public awareness campaign using conventional media, including television, radio and newspapers as well as non-conventional means such at mobile phones, through mosques and churches, identifying public figures as goodwill ambassadors for SCP to communicate the importance and benefits of adopting an SCP approach for different target groups and from the perspective of each sector.
- Develop a long-term research and development (R&D) agenda to support a transition to a green economy and SCP across sectors.
- Develop a capacity development programme to include training courses and on the job training to promote SCP in the different sectors.
- Ensure the integration of SCP and green economy concept in the education curricula of the different disciplines, and consider awarding academic degrees in this field.
- Provide a package of incentive measures that can promote the engagement of the private sector in investing in projects that support SCP, including PPP.
- Design trade policies that encourage the import and export of environment-friendly technologies and equipment.
- Direct financial institutions to fund projects and investments, particularly by SMEs in the field of SCP and green economy.

3.4. Possible Policy Instruments to Support Implementation

Instruments	Types
Regulatory	Standards, codes, penalties, labeling, equipment specifications, import restrictions, and trade barriers
Economic	Taxations, fees, subsidies, cash backs, and low interest credit facilities
Informational	Seminars, workshops, media campaigns, flyers, booklets, help desks, hot lines, access to product information, and information portals
Human Centered	Capacity building and training programmes, provided to civil servants, decision makers, government officials, educators, community leaders, and concerned citizens, etc.
Institutional	Specialized institutions, committees, councils, and centers to lead compliance and supervision processes and synergize policies
Voluntary	Green procurement, certifications, environment management systems, corporate sustainability reporting, life cycle assessments, extended producer responsibility, based on companies own initiatives

3.5. Integration with National Strategies

Due to its cross-cutting nature, the national SCP has a major part to play in achieving national economic, environmental and social objectives, adopted in different strategies.

Common objectives include job creation, environmental conservation, energy security, poverty reduction, and social justice. Likewise, considerable effort was injected while crafting this action plan, including suggested projects to be conceptually in line with Egypt's track record of related strategies notwithstanding attempting to scaffold the attainment of common objectives.

National[3]		
Strategy/Action Plan	**Entity/ Organization**	**Year**
National Strategy and Action Plan for Biodiversity Conversation	Ministry of Environment	1998
The National Strategy for Integrated Municipal Solid Waste Management - A Framework for Action.	Egyptian Environmental Policy Program - Program Support Unit	2000
The National Environmental Action Plan of Egypt 2002/17	Ministry of Environment	2001
Strategy and Action Plan for Cleaner Production in Egyptian Industry	Ministry of Environment	2004
National Strategy for Environmental Communication	Ministry of Environment	2005
Integrated Water Resources Management Plan	Ministry of Water Resources And Irrigationz	2005
National Water Resources Plan for 2017	Ministry of Water Resources and Irrigation	2005
Industrial Development Strategy	Ministry of Trade and Industry	2008
Sustainable Consumption and Production Programme for Cairo City	Cleaner Production Center/Ministry of Environment	2008
Sustainable Agricultural Development Strategy towards 2030	Ministry of Agriculture	2009
Egyptian Green ICT Strategy	Ministry of Communication	2010
National Strategy for Adaptation to Climate Change and Disaster Risk Reduction	Cabinet Information and Decision Support Centre (IDSC)	2011
Strategic Framework for Economic and Social Development Plan	Ministry of Planning	2012
National Energy Efficiency Action Plan (NEEAP) of Electricity Sector (2012 - 2015)	Ministry of Electricity	2012
2030 Strategic Vision for Treated Wastewater Reuse in Egypt	CEDARE	2014
Solid Waste Strategy for Egypt	NSWMP & Ministry of Environment	2014
Egypt Sustainable Development Strategy 2030	Ministry of Planning	2015

3.6. Required Governance to Implement the Action Plan

The institution responsible for the coordination of the activities performed within this Action Plan shall be the Egyptian Ministry of Environment. The Ministry can mandate the establishment an inter-ministerial committee, appointed for the implementation with the participation of representatives of other ministries and institutions, engaged in the implementation of the Action Plan. Meetings of the group shall be held on a quarterly basis.

3.7. Monitoring and Evaluation

As part of overseeing the implementation of the SCP National Action Plan, the Egyptian Ministry of Environment shall develop a full M&E evaluation plan relevant to sustainable consumption and production in each of the 4 targeted sectors. The M&E plan should achieve focus through the development of a set of indicators:

- Efficiency
- Effectiveness
- Impact

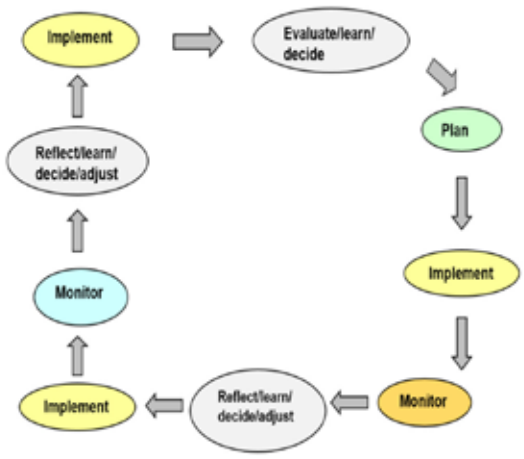
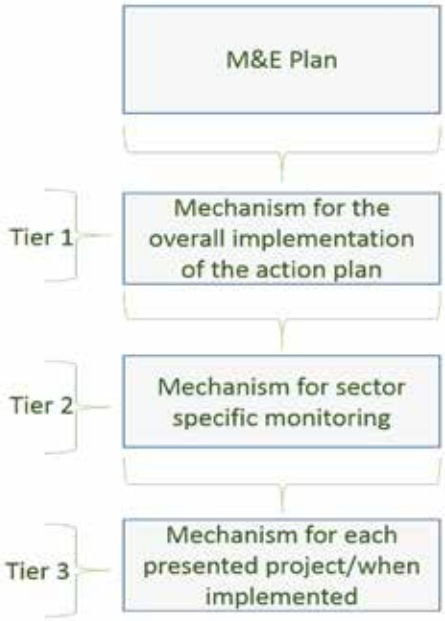


Figure 4: M&E Process

The M&E is essential for the continuous validation of the action plan and the prospect of having several revised versions that are customized to adapt arising new policies and changes (figure 4).

It should be three-tiered M&E plan for the overall implementation of the sustainable production and consumption results relevant to the overall action plan. In addition, there should be a specific M&E mechanism for each sector that has been tackled through the action plan with specific sector-related indicators reflective of sustainable consumption and production activities and results; finally, there should be an independent mechanism for each suggested project concept, when implemented. (Figure 5)

Figure 5: SCP M&E Plan



Measurable sustainable consumption and production (SCP) indicators are used to support and facilitate the process of monitoring and evaluation. Indicators have

been mentioned for each of the presented projects. Here zan M&E mechanism in general:

- periodic surveys and other data collection tools for quantitative and qualitative indicators;
- analyzing collected data;
- supportive supervision and data auditing, and
- Evaluating results.

Below are a set of suggested indicators that could be assimilated into the overall M&E plan for the SCP national action plan:

National SCP Action Plan for Egypt: M&E Indicators

Short- Medium term Implementation Indicators

- Number of Funding opportunities provided to presented projects
- Value of private sector investments inflows to initiate presented projects
- Number of Projects initiated
- Number of training programmes held per year
- Number of trainees receiving capacity building related to SCP
- Number of incentives and new policies introduced by the Government for enabling
- Rate of enforcement of policy instruments and incentives
- Number of awareness raising campaigns, workshops and seminars provided for information dissemination
- Count of developed content, materials, toolkits, and publications to support capacity building and public awareness
- The rate of replicating and upscaling the presented demonstration project
- Number of companies/enterprises established and participating

Mid-long Term Impact Indicators: To encourage the prospect of endorsing the SDGs4, experts and convening members of the consultation process participants, elected the usage of SCP inspired indicators, embedded in the SDGs as possible indicators that could be used to monitor the long-term impacts of the action plan and as a form of a driving force to continuously revise the action plan, having the SDGs in mind, especially after Egypt commits to them.

SDG Goal 12: Ensure Sustainable Consumption and Production Patterns5

1. The level of mainstreaming SCP related policies into national policies, poverty reduction strategies, development and/or sustainable development strategies.
2. Rate of Egypt's engagement in regional and international 10 (10YFP) Year Framework of Programmes on Sustainable Consumption and Production.
3. Introduce per capita food losses and waste (Kg/year) as a measure to encourage and monitor losses along food supply chain and re-direct food consumption patterns.
4. Reduce release of hazardous chemicals to air, soil, water through meeting obligations under multilateral environmental agreements on hazardous chemicals and waste in addition to measuring contaminants from industry, agriculture and other economic activities.
5. Adopt zero waste policy by prevention, reduction, recycling and reuse through measuring annual waste quantities, national recycling rate per materials and sectors in addition to measuring the rate of reuse and identifying its application.
6. Obliging industries to adopt a life cycle approach as part of production processes through the number of conducted life cycle assessments, certifications, sustainability reporting, and legal environmental compliance.
7. Introducing green public procurement and measuring through the number of regulations introduced to support it, measuring the percentage of green procurement to total public procurement, and measuring reduction in emissions due to green public procurement.
8. The development of sustainable community clusters by measuring the number of emerging clusters, national legislation mandating cities and other human settlements to adopt integrated development strategies.
9. Strengthen R&D in clean technologies by measuring the rate of local investments, patents, and scientific papers.
10. Promote sustainable agriculture practices by measuring the irrigation water savings, quantity of land cultivated organically and the number of farms using renewable energy applications and mechanisms.
11. Promote water saving processes and generation from non-conventional methods through measuring the rate of waste water treatment and reuse; enhance the rate of investments in related infrastructure, number of public-private partnerships and similar processes for desalination.
12. Monitoring the increase in utilizing renewable energy through measuring the share of renewable energy to total energy mix, share of renewable energy per capita, FDI investments, development of local companies working in the field, number of public private partnerships, and the level of enforcement of related regulations and standards.
13. Improve energy efficiency practices by measuring the rate of investment in infrastructure, building regulations, and retrofitting.

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(Endnotes)

1 The statement was given on September 23, 2014.

2 Ibid

3 The mentioned list is meant as a representation of existing strategies rather than being an exhaustive one.

4Consultation process participants have emphasized the importance of linking the action plan to the SDGs.

5 Sustainable Consumption and Production Indicators for the Future SDGs, UNEP, 2015.

Developing National Action Plans (NAP) for Sustainable Consumption and Production (SCP) contributes to poverty alleviation, environmental sustainability and the development of a green economy. National SCP-NAPs are considered the first step in a country's response to the 2015 adopted Sustainable Development Goals (SDGs) and in particular Goal 12: Responsible consumption and production.

The SCP-NAP process in Egypt is based on the 2013 "Green Economy Scoping Study" that assessed the potential for Egypt's transition to a green economy and sustainable development. This study focused on water, agriculture, energy and municipal solid waste.

The action plan focuses on demonstrating the importance of creating Sustainable Integrated communities in Egypt with focus on four priority strategic sectors. These include: Water, Agriculture, Energy, and Municipal Solid Waste. These sectors were identified on the basis of the extent of their significance to creating sustainable communities that supports resources efficiency efforts, promotes competitiveness, creates jobs, and promotes environmental conservation, human health and welfare.

Within the overarching direction to support the development of 'Integrated Sustainable Communities", the National Action Plan aims at supporting Egypt's development efforts in achieving sustainable development. The action plan aims to do so by promoting the efficient allocation and use of water and energy resources, promote sustainable agriculture development, as well as waste management including prevention, reduction, recycling, reuse, and recovery.

UNEP-DTIE as coordinator of the national SCP policy component of the EU-funded SwitchMed program provided advisory services and technical assistance to the national SCP-NAP process in Egypt.

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