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**Egypt
National
Climate
Change
Strategy**



SUMMARY FOR POLICYMAKERS

Egypt National Climate Change Strategy (NCCS)

2050

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1 INTRODUCTION

In light of various scientific reports, particularly those from the Intergovernmental Panel on Climate Change, regarding the magnitude of climate change impacts and their projected scenarios, the Paris Agreement was adopted to advance global action to address climate change under the United Nations Framework Convention on Climate Change. The agreement entered into force on November 4th, 2016, and the Egyptian parliament ratified it in 2017.

Egypt is committed to deliver its fair share of climate action as part of global action to address climate change. However, given Egypt's high vulnerability to climate change, adapting to the adverse impacts of climate change is an imperative necessity. From this standpoint, Egypt prepared its first National Strategy for Climate Change Adaptation and Disaster Risk Reduction in 2011, and a Low Emission Development Strategy (LEDS) was issued in 2018, which was prepared to be in line with the Sustainable Development Strategy SDS - Egypt Vision 2030. Despite this, there was still a gap to consolidate all aspects of climate change in one document to be a basic reference that ensures the integration of climate change dimension into general planning of all sectors in the country. Hence, the National Council for Climate Change (NCCC) has requested the development of the first comprehensive National Climate Change Strategy for Egypt until 2050.

The National Climate Change Strategy can be viewed as a roadmap for achieving "Objective 3.1: Meeting the challenges of climate change" within the framework of the updated Egypt Vision 2030. The strategy will enable Egypt to plan and manage climate change at different levels in a way that supports the achievement of the country's desired economic and development goals, following a low-emissions approach.

The National Climate Change Strategy places the quality of life of the Egyptian citizen as a priority, which is in line with the first strategic objective within Egypt's sustainable development strategy SD 2030, where the vision of the National Climate Change Strategy is:

Effectively addressing the impacts of climate change, which contributes to improving the quality of life for the Egyptian citizen, achieving sustainable development and sustainable economic growth, preserving natural resources and ecosystems, and strengthening

Egypt's leadership at the international level in the field of climate change.

It is worth noting that the implementation of the national strategy for climate change in Egypt requires the participation of all sectors of society, including NGOs and civil society, not just government agencies. The updated Egypt Vision 2030 emphasized the vital role of NGOs in raising awareness among citizens of important issues. Therefore, non-governmental organizations and civil society can contribute effectively to achieving the objectives of the strategy by raising awareness about climate action and promoting the values of volunteer work. For example, but not limited to, some civil society organizations undertake afforestation, environmental awareness that can integrate the dimension of climate change, and other related initiatives.

2 METHODOLOGY

A comprehensive and consultative approach has been adopted in preparing the draft strategy, as outlined in the full document. Figure 2-1 sums up the methodology for preparing the NCCS.

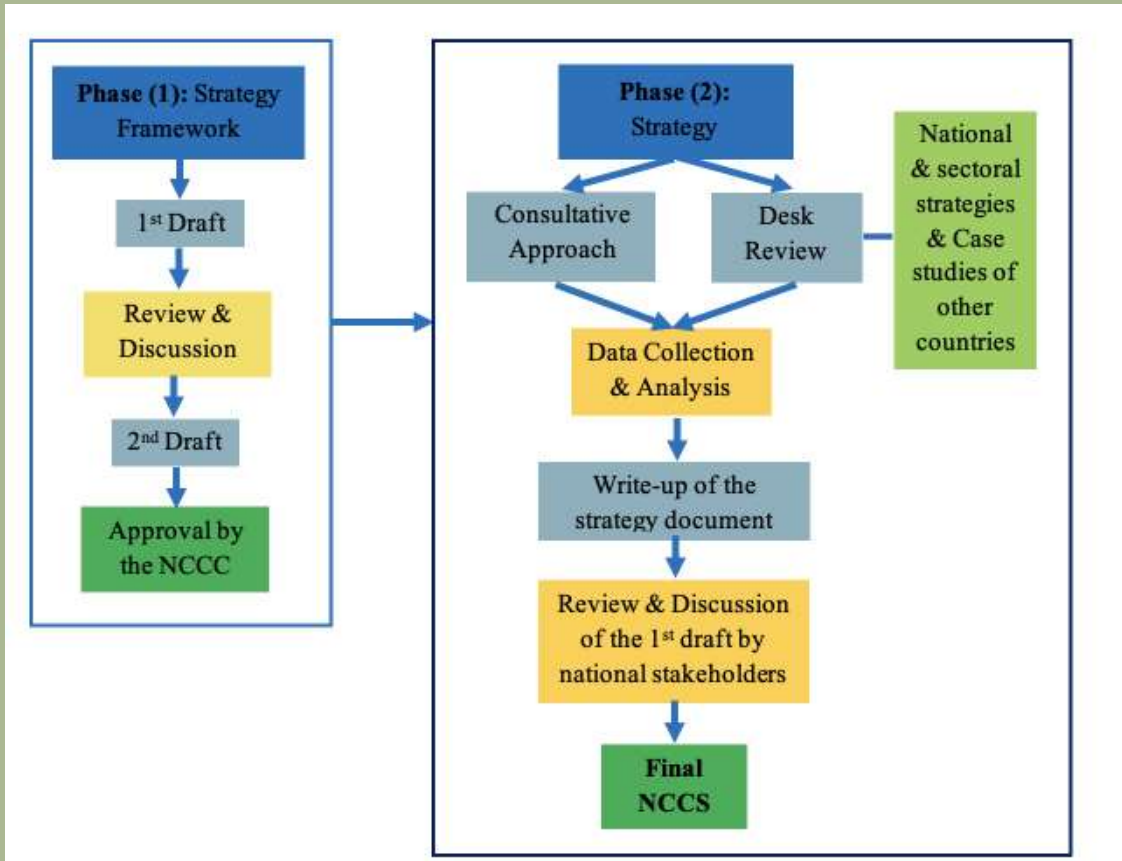


Figure 2- 1: Methodology for NCCS preparation

In order to determine the goals and objectives of the NCCS, an integrative approach that depended on four main elements was followed as depicted in Figure 2- 2.

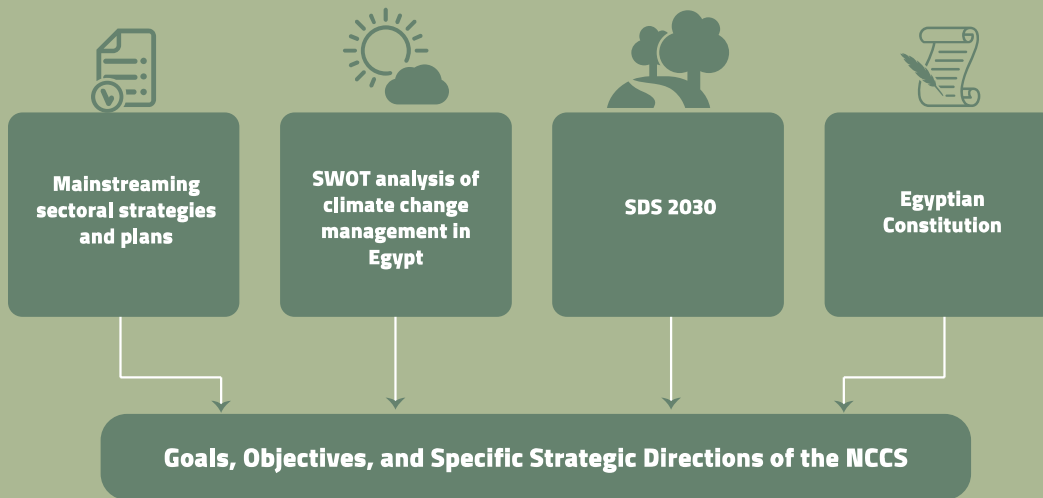


Figure 2- 2: Methodology for determining NCCS goals and objectives

Five main objectives have been identified, with goals 1 and 2 formulated as the main ones that require the most interventions in the different sectors. They also have the greatest impact on mitigating greenhouse gas emissions and adapting to aspects of climate change. The first two goals are supported by three other goals, which act as enablers towards achieving goals 1 and 2. A general SWOT analysis of climate change management in Egypt helped formulate these five strategic goals. Figure 2- 3 and Figure 2- 4 illustrate some examples of SWOT analysis to elicit strategy goals.

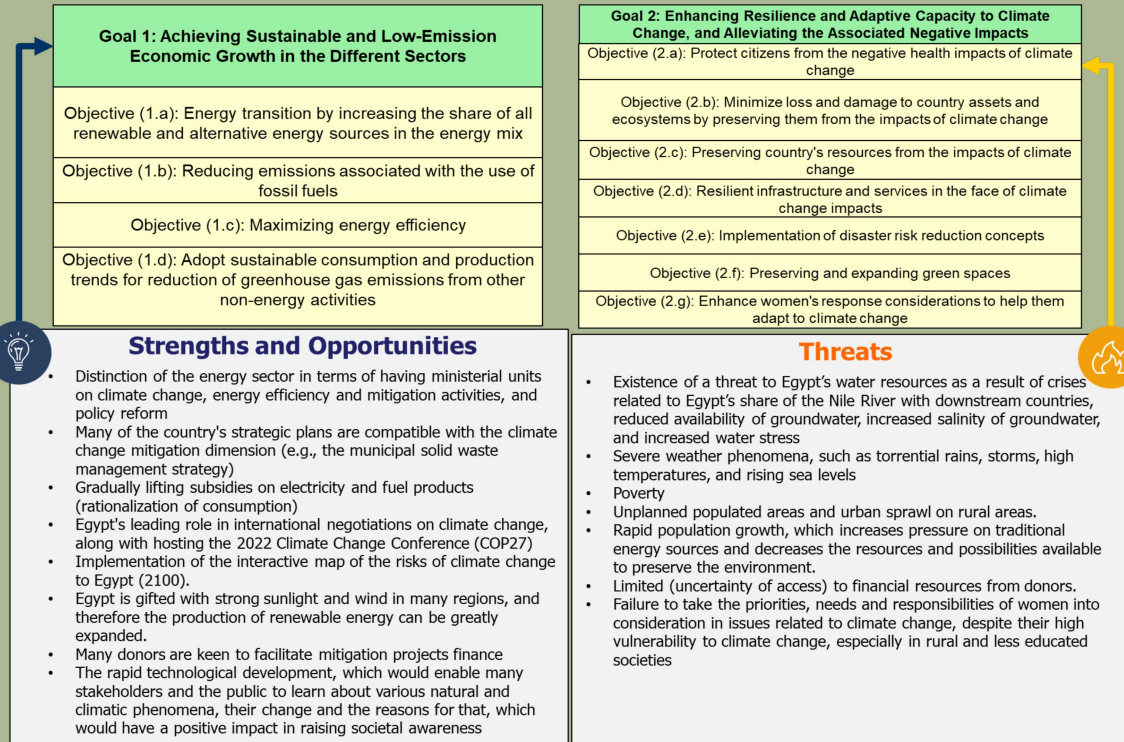


Figure 2- 3: Derivation of Goals 1 and 2 of the NCCS from the Strengths, opportunities and threats of a general SWOT analysis of the climate change management landscape in Egypt

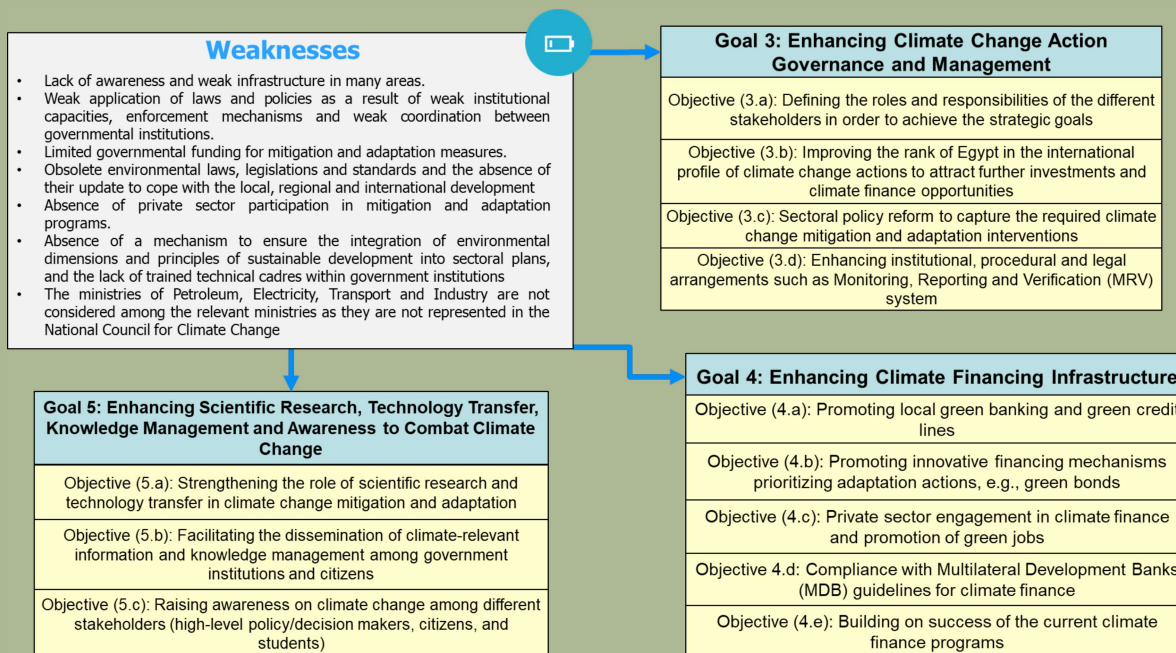


Figure 2 -4: Derivation of Goals 3, 4 and 5 of the NCCS from the challenges of the general SWOT analysis of the climate change management landscape in Egypt

3 GOALS AND OBJECTIVES

Five main goals have been identified, including twenty-two objectives, each containing a number of directions that will contribute to achieving the objectives. The goals have been prepared so that Goals 1 and 2 are the two main goals that require most of the interventions in different sectors. They also have the greatest impact on the mitigation of greenhouse gas emissions and adaptation to climate changes aspects. This is mainly due to their paramount importance and that they are two synergistic processes that must be achieved together to ensure the alleviation of climate change impacts. Climate change affects the country, especially the poorest and most vulnerable areas. The first two goals are followed by three other goals, which are of the same importance in implementation, as they are basic and significant elements towards achieving the first and second goals.

The current status of each strategic goal as well as the action areas and enabling policies for each goal were determined by conducting a SWOT analysis for each goal separately. These SWOT analyses are included Annex 1 of the Strategy.

This section reviews the main goals that Egypt seeks to achieve:

3.1 Goal 1: Achieving Sustainable Economic Growth and Low-Emission Development in Various Sectors

Objective (1.a): Energy transition by increasing the share of all renewable and alternative energy sources in the energy mix

The energy field is one of the largest contributors to greenhouse gas emissions and represents about 64.5 of the total greenhouse gas emissions, according to the biennially updated report that was prepared in 2018. These emissions result from burning natural gas and petroleum products to produce energy, and power plants in Egypt depend mainly on natural gas, due to their self-sufficiency after recent discoveries. However, the contribution of new and renewable energy sources in the production of electrical energy amounted to 4.4% in 2019/2020, with an increase of more than two thousand megawatts compared to the 2015/2016 rates, through a mixture of electricity generating stations using wind energy, and solar energy (represented in photovoltaic cells and concentrated solar cells), in

addition to the contribution of water sources, especially the High Dam, which represents another 7.6% of the generated electricity mixture.

The Ministry of Electricity and Renewable Energy has taken several measures aimed at increasing the contribution of new and renewable energy, which is planned to reach 42% of the total electrical energy produced in 2035.

The following directions contribute to achieving this objective:

- Deployment of centralized systems of renewable energy on a large scale, such as wind farms, concentrated solar power (CSP), solar photovoltaic plants, as well as bioenergy plants
- Promoting small-scale decentralized systems including waste, bioenergy, rooftop photovoltaic solar cells and solar water heaters
- Developing new technologies to accommodate the use of renewable energy sources, such as intelligent control systems
- Optimizing the use of renewable energy in off-grid applications
- Take advantage of energy storage technologies, such as batteries, molten salt and pumped storage
- Inclusion of new alternative energy sources, such as green hydrogen, blue hydrogen and nuclear energy
- Increasing the use of renewable energy to generate electricity within industrial facilities and the applications of solar thermal energy in industrial processes
- Phasing out coal and switching to low carbon fuels
- Stimulating the increased production and use of biofuels as an alternative to fossil fuels
- Equitable transformation that takes into account the workforce in fossil fuel-based facilities

Objective (1.b): Reducing emissions associated with the use of fossil fuels

In the context of reducing emissions from the energy sector, focus should also be placed on the possibility of using low-carbon fuel alternatives, especially in areas where fuel cannot be dispensed with as part of the operation process, and the effectiveness of this goal has increased due to the availability of alternatives that achieve lower emissions of greenhouse

gases, such as Natural gas, which Egypt achieved a surplus of its production in past years. Indeed, the use of natural gas in power stations reached 94.1% during 2019/2020, while reducing the consumption of Mazut and Diesel compared to the previous year. The objective looks forward to spreading this culture in various sectors.

The following directions contribute to achieving this objective:

- Converting cars to run on compressed natural gas instead of gasoline
- Raising the efficiency of road infrastructure, which would reduce periods of traffic congestion
- Expansion of mass transit networks based on electricity, such as metro networks, electric trains and buses
- Encouraging the conversion of ships to operate on natural gas and liquefied natural gas
- Explore the possibilities of using carbon capture, utilization and storage technologies
- Developing the freight train network and increasing its capacity to be an alternative to transportation vehicles
- Promote consumer transformation to non-motorized transportation (e.g., bicycles)
- Petroleum Energy Subsidy Reform Program
- Delivering natural gas to homes as an alternative to using butane
- Recovery of associated petroleum gases and methane
- Encouraging transition activities to a green economy

Objective (1.c): Maximizing energy efficiency

In an effort to complete the energy-related axes, energy efficiency is one of the most important axes of work, as it ensures increased utilization of resources, whether in their primary form as fuel or through produced electric energy. This consequently leads to the availability of resources for other developmental uses, and thus achieves the main objective of sustainable economic development through lower emissions.

The following directions contribute to achieving this objective:

- Improving the efficiency of thermal power plants, transmission and distribution networks
- Implementing energy efficiency projects and measures in oil and gas sector

companies

- Improving the energy efficiency of electrical appliances and equipment
- Promoting energy management systems at all levels (systems and institutions)
- Improving the energy efficiency of different modes of transportation
- Improving energy efficiency in buildings, and adopting and implementing the National Green Building Code for new and existing buildings and communities
- Enhancing the energy efficiency of industrial processes in all industries
- Promoting the shift towards increasing energy efficiency in tourist, commercial, industrial and residential facilities
- Encouraging the trend towards establishing smart cities and digital transformation that contributes to reducing energy consumption in addition to providing a sustainable environment

Objective (1.d): Adopt sustainable consumption and production trends for reduction of greenhouse gas emissions from other non-energy activities

Sectors such as agriculture and waste also represent significant contributing percentages to the of total greenhouse gases, as the contribution of each of them amounted to about 9% of the 2018 rates. The agricultural sector is one of the most sensitive sectors to climate changes, as it directly or indirectly affects the efficiency of the sector, which threatens the achievements of food security, and therefore economic growth. Given the sensitivity of the agricultural sector and its direct impact on the economy, the expected contribution seeks to increase productivity while maintaining emissions levels more than reducing them, unlike the waste sector, which has the capabilities to reduce emissions significantly, as the government is working to develop the waste management system.

The following directions contribute to achieving this objective:

- Reducing greenhouse gas emissions from agricultural activities, such as animal production activities, through the use of modern technologies and various feeding systems and the use of crops with low water needs
- Promote the concept of the <4Rs> which is to reduce, reuse, recycle and recover municipal and agricultural waste
- Safe and proper disposal of solid waste in suitable landfills and collection of gases

resulting from those landfills

- Encouraging supportive policies to reduce waste from the source, such as limiting the use of single-use plastic and using fewer or reusable packaging materials.

3.1.1 Performance Indicators for Goal #1

The performance indicators can be divided into two levels: the first level aims to measure the effectiveness of the goal as a whole and requires the participation of all sectors of the country with information on their performance and what has been achieved periodically. The second level represents specific sectorial indicators and is used to determine the extent to which the actions taken on the ground conform to the goals to be achieved. The general indicators of the goal are shown in Figure 3 2. As for the specific sectorial indicators, they can be summarized as follows:

- Percentage of contribution of new and renewable energy to the total electricity production (increase)
- Percentage of the contribution of new and renewable energy from the production of electric and thermal energy in the industrial sector (increase)
- Percentage of contribution of biofuels in the transportation sector (increase)
- Number of cars converted to work with natural gas (increase)
- Number of car conversion centers to work with natural gas (increase)
- The amount of energy consumption per sector compared to the baseline scenario (reduction)
- Lengths of metro/electric train networks (increase)
- Percentage of electric buses out of the total public transport buses (increase)
- Percentage increase in the number of mass transit users (increase)
- Quantity of goods transported using the railway network (increase)
- Quantities of waste disposed of in landfills (reduced)
- Quantities of waste that are recycled (increase)
- Ratio of raising the efficiency of power plants (increase)
- Electricity transmission line efficiency ratio (increase)
- Percentage of reduction in energy consumption in the tourism sector (reduction)
- Number of facilities that have obtained international certificates for energy management (increase)

3.1.2 Enabling Policies and Tools

In order to achieve the various mitigation objectives, a number of enabling policies and tools must be used to facilitate continuous development. The policies are divided into existing policies that can be used and built upon, and suggested policies that must be developed and adopted. Existing enabling policies and tools are detailed in the full document.

Examples of the proposed enabling policies and tools to serve the goal:

- Developing additional incentive policies to expand the use of electric cars and expanding the establishment of charging stations for electric car batteries, with the expansion of the production of such batteries locally
- Providing facilitations to the private sector in establishing a power plant for self-use within the space, provided that they are high-efficiency co-generation plants or renewable energy plants
- Expanding the use of natural gas in the petrochemical industry to maximize its value and to provide facilitations for the use of solar thermal energy as an alternative in the industrial sector.
- Adopting and activating the local and global green building codes
- Developing incentive policies to encourage the use of biofuels in the transport sector
- Reassessing all studies and plans for improving energy efficiency in the industrial sector and operationalizing what will be approved of them
- The National Council for Climate Change (NCCC) to study various ways to encourage the local manufacture of renewable energy equipment (focusing on solar thermal energy and photovoltaic cells) in all parts of the value chain.
- Encouraging civil society institutions to calculate carbon emissions for various activities and allocating appropriate support to reduce these emissions
- Enabling smart applications and systems in various sectors such as the energy sector by supporting, financing and incubating emerging companies to provide smart solutions in those sectors that would rationalize the use of electricity, increase its efficiency and increase its productivity.
- Studying the possibility of adopting green procurement standards

3.2 Goal 2: Enhancing Adaptive Capacity and Resilience to Climate Change and Alleviating the Associated Negative Impacts

Objective (2.a): Protect citizens from the negative health impacts of climate change

The updated Egypt Vision 2030 states that the human being is the main focus of development as one of the governing principles of the strategy. Based on this principle, the importance of protecting citizens from the negative health impacts of climate change, especially at the cusp of the Covid-19 pandemic, is evident. This showed how important it is to prepare well for emergency health variables and join efforts in the various relevant sectors to try to manage the crisis well and limit the negative impacts on citizens.

The following directions contribute to achieving this objective:

- Improving health services and increasing the health sector's preparedness to face diseases caused by climate change
- Studying the impact of climate change on the kinds and activities of bacteria, parasites, fungi and viruses currently present
- Availability of an appropriate infrastructure that can provide health care to targeted individuals and communities
- Availability of health teams with sufficient skills and capabilities to provide the required care, and training the health sector on the health risks posed by the impacts of climate change such as heat stroke
- Developing and supporting preventive services, especially those related to vaccination and immunization against infection
- Establishing an effective early warning system and control programs for the related health effects
- Directing special attention to citizens with special risk factors, such as women, especially pregnant and lactating women, children, people with special needs, the elderly and the sick.
- Awareness of citizens about the health risks posed by climate change, with a focus on the most vulnerable groups, such as women and children
- Developing support programs for the affected groups and emphasizing the finding of alternative livelihoods, especially for women in the poorest areas and those least

- able to search for alternative livelihoods
- Providing sources of proper nutrition in the poorest areas with a focus on vulnerable groups, such as women, especially pregnant and lactating women, children, people with special needs, the elderly and the sick.
- Epidemiological forecasting or proactive surveillance of emergencies related to climate change
- Strengthening Monitoring, Reporting and Verification (MRV) mechanisms to all types of traditional, emerging and unfamiliar infections expected, and limiting the spread of any of them in the air, water, soil, food and waste
- Making a health map for diseases related to climate change
- Ensuring the availability of health services to all citizens without gender discrimination
- Enhancing work on applying some structural mitigation measures to reduce temperature and its impacts on citizens, as it is possible to paint the facades of houses and roofs with a white color that reflects rays and helps reduce heat

Objective (2.b): Minimize loss and damage to country assets and ecosystems by preserving them from the impacts of climate change

Preserving state assets, such as infrastructure and historical heritage monuments from the impacts of climate change is one of the most important strategic goals due to its great social, economic and cultural dimensions. The preservation of ecosystems is also of paramount importance to maintain the ecological balance and prevent negative social, health and economic impacts that may result from a disturbance in that balance.

The following directions contribute to achieving this objective:

- Determining the priorities of the proposed adaptation measures for all concerned sectors, and identifying the technological areas to be supported and developed through transfer of expertise from the international community
- Improving the adaptive capacity of ecosystems
- Promoting a coherent approach to address biodiversity loss, climate change and land and ecosystem degradation
- Preserving reserves and endemic species

- Preserving the historical and cultural heritage from the negative impacts of climate change
- Choosing the locations of new development communities away from hotspots most vulnerable to the impacts of climate change using mathematical modeling

Objective (2.c): Preserving the country's resources from the impacts of climate change

Preserving natural resources is an essential part of achieving sustainability in general. Natural resources are the main source of economic development and are the source of food and raw materials for various industries. They are also the lands on which various development projects are developed. Therefore, it is necessary to preserve them from the threats of climate change and maximize their utilization as much as possible.

The following directions contribute to achieving this objective:

- Determining the priorities of the proposed adaptation measures for all concerned sectors, and identifying the technological areas to be supported and developed through the transfer of expertise from the international community
- Develop policies to reduce waste and raise the efficiency of water resource use
- Using more efficient technologies to rationalize water and energy consumption and reduce food waste
- Development of water harvesting and rainwater collecting systems
- Raising awareness about the conservation of water, energy and land resources
- Encouraging and implementing flood water harvesting systems and its utilization
- Use more efficient irrigation systems
- Increasing the coverage of sewage treatment plants and industrial wastewater in different areas to recycle water, maintain its quality and maximize its use
- Carrying out maintenance and disinfection work for fresh water sources (canals and drains) on an ongoing basis and to cover as many of them as possible
- Ensuring that services cover the poorest rural areas in order to reduce the effort made, especially by women, to obtain resources such as fresh water and improve the efficiency of resource access
- Developing non-conventional water resources
- Preserving agricultural land and water resources by maintaining the fertility of

agricultural soil continuously

- Develop different varieties and hybrids of strategic crops that are highly productive and tolerant to adverse weather conditions (high temperatures, salinity and drought) and have low water consumption, to counter the negative impacts of climate change.
- Allocating new agricultural lands to increase the agricultural area
- Rationalizing water consumption in agriculture and reuse of agricultural wastewater
- Improving crop management systems
- Protection of fisheries
- Identify ways and means to integrate biodiversity considerations into assessments of impacts, vulnerability, and climate change adaptation.
- Encouraging local production for the production of sanitary ware and fixtures that apply international water saving standards
- Strengthen supply chains and logistics systems to reduce wastage during shipping and handling

Objective (2.d): Resilient infrastructure and services in the face of climate change impacts

Among the basic services that will create a decent life for citizens and raise the standard of living are infrastructure services, such as road networks, water, sewage and electricity and natural gas distribution network in cities and villages and various residential projects as well as infrastructure serving agricultural and industrial projects. Given the importance of these services, it must be ensured that they are ready to deal with the various impacts expected from climate changes, such as sea level rise, precipitation concentration and temperature increase.

The following directions contribute to achieving this objective:

- Determining the priorities of the proposed adaptation measures for all concerned sectors, and identifying the technological areas to be supported and developed through transfer of expertise from the international community including the civil aviation sector and airports, especially coastal airports, that are vulnerable to damage as a result of the impacts of climate change
- Protecting coastal lowland and implementing integrated coastal zone management

- Implementing flood protection systems in areas prone to the phenomenon
- Strengthening sewage and rain drainage systems in cities and villages
- Improving water and sanitation systems and services, particularly in hotspots and underserved areas most vulnerable to the impacts of climate change and establishing of environmentally compatible sewage stations in the Nile Marinas
- Improving roads to be more resilient to the impacts of climate change such as high temperatures, floods and sea level rise
- Ensuring that the impacts of climate change are included as part of the planning and design of large agricultural projects, such as the New Delta project, greenhouses, fish farms, poultry and livestock production projects
- Developing infrastructure in rural communities including water and irrigation infrastructure (example: expansion in rehabilitation and lining of canals and private canals, development and modernization of irrigation and agricultural systems and management of the agricultural process)
- Infrastructure development for healthcare facilities

Objective (2.e): Implementation of disaster risk reduction concepts

The readiness to deal with potential risks is one of the most important factors that will reduce the expected and unexpected impacts in general. Taking into account the extent of the impact of climate change and Egypt’s status as one of the most affected countries, the aim of the objective is to ensure that there are means of forecasting and warning followed by actions taken on the ground to address these risks.

The following directions contribute to achieving this objective:

- Establishing early warning systems for all sectors by developing a unified database. The database can be established by activating the role of climate change information centers affiliated with various ministries. These centers have information and maps related to climate change and its impacts on the sector. Thus, they can issue recommendations dedicated to the sector, such as providing specific measures for farmers to take action like preventative irrigation or spraying measures for pests and diseases through the Department of Agriculture’s Climate Change Center.
- Establishing regular monitoring systems

- Studies to determine the impacts, benefits and potential benefits of adaptation activities related to biological diversity, especially in areas exposed to the risk of floods and rains.
- Raising awareness and efficiency of personnel working in the sectors concerned with addressing the risks of climate change
- Raising societal awareness of the potential risks of climate change and means of dealing with them, with a focus on spreading awareness among vulnerable groups of women and children
- Emphasizing the importance of community participation from all groups and equality among all during the development of crisis management plans
- Strengthening and developing channels and funds for social protection, compensation and insurance against natural disasters

Objective (2.f): Preserving and expanding green spaces

Afforestation and the increase of green spaces contribute to the absorption of carbon dioxide from the atmosphere and reduction of thermal stress, especially with the rise in temperatures as a result of climate change. Accordingly, preserving and expanding green spaces contribute to the reduction of GHG emissions and are an adaptation to the negative impacts of rising temperatures.

The following directions contribute to achieving this objective:

- Increasing the area of green spaces and afforestation in all new urban cities
- Increasing the rate of afforestation in all cities, especially densely populated areas and high temperature areas

Spreading the culture of urban agriculture and rooftop farming as a means of climate change impacts mitigation.

Objective (2.g): Strengthening women's response considerations to help them adapt to climate change

The considerations of women's response are an important factor in the considerations of combating climate change, given the importance of the role of women in the Egyptian

society and being more vulnerable to climate change, especially in rural and less educated societies.

The following directions contribute to achieving this objective:

- Taking into account the needs, priorities and responsibilities of women in the advanced technology related to climate change
- Providing flexible financing mechanisms that reflect women's needs, priorities and responsibilities related to climate change mitigation and adaptation
- Taking into account the gender difference in mitigation and adaptation programs, technology transfer and capacity building
- Achieving gender equality by providing equal access to credit and access to training for projects related to climate change mitigation and adaptation

3.2.1 Performance Indicators for Goal#2

The performance indicators for this goal will also be divided into two levels. The first is general indicators that measure the extent to which the goal has been achieved as a whole at the level of all sectors. The second level contains specific sectorial indicators that will determine the implementation of directions and their compliance with the aim of the goal, which is to increase preparedness and resilience to face the impacts of climate change on different sectors. The general indicators of the target are shown in Figure 3 2. As for the specific sectorial indicators, they can be summarized as follows:

- Percentage of health sector teams trained on health risks posed by climate change impacts (increase)
- Number of hospital beds available for each citizen (increase)
- Percentage of the Development of infrastructure in health facilities (increase)
- Number of educational seminars on climate change and its impact on health (increase)
- Development rate in water networks (increase)
- Percentage of sewage stations coverage (increase)
- Amount of industrial and sewage water recycled (increase)
- Length of lined canals and channels (increase)
- The area of the agricultural lands (increase)

- The amount of water consumed per feddan of agricultural land (reduced)
- Amount of collected water from flash floods (increase)
- Length of road networks equipped for climate change (increase)
- Percentage of personnel whose efficiency has been raised in the field of climate change (increase)
- Number of infrastructure development projects related to education, digital transformation and distance education technologies (increase)
- Number of opinion surveys to assess the percentage of women's satisfaction with the technology used in initiatives related to climate change (increase)
- Number of research collecting and using gender-disaggregated data (increase)
- Percentage of policies that take into account the active participation of women in setting financing criteria and allocating resources for climate change initiatives (increase)
- Percentage of national policies and action plans that include women-specific aspects (increase)
- Percentage of women's access to financing, credit and training opportunities in projects related to mitigation and adaptation to climate change (increase)

3.2.2 Enabling Policies and Tools

To enable the implementation of the goal of adaptation to the impacts of climate change, there are existing policies to be used and built upon. There are some policies and tools that are proposed and should be developed and approved.

Examples of the proposed enabling policies and tools to serve the goal:

- Activating the project of creating and using interactive maps to study the expected impacts of climate change on regions and new projects and hence various sectors and updating interactive maps every five years as part of climate change adaptation measures, according to new data and methodologies
- The Ministry of Health and Population will study the expected health impacts as a result of climate change, and then develop and adopt a plan to address these impacts effectively.
- Study different solutions to adapt to sea level rise and protect coasts and coastal

cities such as construction and architectural interventions, including traditional and non-conventional engineering protection works

- The Ministry of Planning giving priority to projects that raise the efficiency of infrastructure, especially very old ones, and increasing the coverage of services such as sewage treatment plants for the most vulnerable areas.
- Building on the policies related to the water resources development and management strategy 2050 issued by the Ministry of Environmental Resources and Irrigation to prepare an action plan with a timetable to maximize the treatment and recycling of wastewater, industrial and agricultural
- Developing programs and policies to support the development of rural communities to enhance their resilience to the impacts of climate change, especially land use change, plant and animal production, and the impact of migration to urban areas.
- Disseminating climate change strategies similar to the Giza governorate strategy in a more comprehensive manner at the governorate level with the aim of localizing climate change issues at the local level during the regional planning and project implementation processes
- Using the climate risk insurance tool as one of the financial mechanisms that increase the ability of societies to overcome the risks of climate change.
- Establishing a mechanism for coordination with civil society to implement pilot projects, and coordination between NGOs to benefit from experiences and applied models for dissemination in society
- Exploiting the use of artificial intelligence to provide solutions to challenges facing farmers such as climate change, pest outbreaks and the spread of weeds that reduce yields
- Coordinating with the Remote Sensing Authority to benefit from its applications in climate change studies
- Creating policies that ensure the effective participation of women in setting financing standards and allocating resources for climate change initiatives
- Developing policies that encourage a systematic analysis of gender equality, based on the collection and use of data disaggregated by gender, the development of gender-sensitive standards and indicators, and opinion surveys to assess the level of women's satisfaction in different governorates with the technology used in climate change initiatives

- Ensure participation and consultation of women in climate change initiatives by integrating women-specific aspects of national policies and action plans

3.3 Goal 3: Enhancing Climate Change Action Governance

Objective (3.a): Defining the roles and responsibilities of the different stakeholders in order to achieve the strategic goals

The synergy of various efforts is a key factor in the success of achieving strategic goals. The importance of institutional integration between different sectors and ministries is increasing to deal with a complex issue like climate change. Therefore, objective 3.a sheds light to defining and distributing roles in a manner that commensurate with the current situation of conducting tasks and integrating with it.

The following directions contribute to achieving this objective:

- Completing the establishment and development of the climate change units entrusted with dealing with the climate change file within all relevant ministries
- Exploiting support for the preparation of reports related to the Paris Agreement, such as national reports, to support the implementation of the required capacity development programs
- Determining the actions to be implemented through the various ministries and the performance indicators associated with them
- Localizing climate change issues in different governorates and determining the role of the governorates in planning and implementing adaptation and mitigation projects and developing their capabilities
- Developing a mechanism to share information on what has been achieved periodically in a way that ensures the integration of efforts among the different sectors
- Determining the data required to be available from each ministry in order to ensure the clear availability of information
- Working to establish risk management units at the level of some villages and remote areas in the governorates
- Emphasizing the importance of sectoral consultation during the development of strategic objectives

- Encouraging the civil sector entrusted with environmental activities to play its supervisory and technical role in improving the governance and management of work in the field of climate change.

Objective (3.b): Improving the rank of Egypt in the international profile of climate change actions to attract further investments and climate finance opportunities

To implement the proposed projects and develop monitoring and control systems in the various sectors as well as at the state level, the necessary funding must be provided to support development at all levels. This comes through international grants and loans that support mitigation and adaptation projects, or through internal financing when sources of income are available. There are some bodies that measure climate action indicators at the global level (e.g., CCPI) and these results are taken into account by some international donors. Attracting supportive investments remains one of the most important sources of funding that can achieve effective results on the ground. Therefore, it is necessary to emphasize Egypt's interest in the issue of climate change and to highlight the efforts made in this regard.

The following directions contribute to achieving this objective:

- Reviewing the work plans of each ministry and identifying the listed mitigation and adaptation projects to ensure coordination of efforts made on the issue of climate change
- Each ministry should report on the technical and financial progress of each of the projects identified above, and include all those projects in the biennially updated report for Egypt.

Objective (3.c): Sectoral policy reform to capture the required climate change mitigation and adaptation interventions

In order to support the effective implementation of the proposed sectoral measures, the necessary sectoral policies should be developed and reformed to ensure the involvement of the private sector and all relevant groups. The policies of the Ministry of Electricity and Energy to implement solar energy projects through the inclusion of various means (such as feed-in tariffs, public auction and net metering system) is a successful example of

encouraging the inclusion of the private sector in the implementation of mitigation projects.

The following directions contribute to achieving this objective:

- Ensure that a clear implementation mechanism is in place for existing policies
- Discuss the proposed policies to implement the priority measures and adopting what has been agreed upon
- Involve the private sector and relevant groups in discussing the proposed policies to ensure their effective implementation
- Develop a mechanism for reviewing and updating the policies set to cope with the influencing economic changes

Objective (3.d): Enhancing institutional, procedural and legal arrangements such as Monitoring, Reporting and Verification (MRV) system

Monitoring, reporting and verification system is a major axis in measuring the effectiveness of the specific strategic objectives. It is also one of the most effective tools in enhancing Egypt's rank in the international profile of climate change actions to attract further investments and climate finance opportunities. With the existence of the NCCC and its effective role at the political level, the importance of extending institutional arrangements to include all levels and in the various relevant sectors must be emphasized.

The following directions contribute to achieving this objective:

- Operationalizing the climate change MRV system, which was approved by the NCCC and included in the updated biennial report for Egypt (2018)
- Updating the statistical data collected by the Central Agency for Public Mobilization and Statistics (CAPMAS), to include more data related to climate change.
- Developing a number of institutional structures in the future, such as establishing an emission inventory system centrally in Egypt or a regulatory body for carbon markets if it is decided to establish them in Egypt

3.3.1 Performance Indicators for the Third Goal

Given the nature of the third goal which is centered on institutional developments, the performance indicators will be general indicators that measure the extent to which the

goal has been achieved as a whole. These indicators are shown in Figure 3-2.

3.3.2 Enabling Policies and Tools

The possible policies for the third goal are based on institutional procedures that coordinate efforts, and the availability and circulation of information as a basis for proper implementation.

The proposed enabling policies and tools for this goal are:

- Issuing of a Prime-minister decision to form a committee within each of the ministries relevant to climate change to be responsible for managing this file in light of the guidelines of the NCCC
- Providing training and raising the technical capabilities of employees in ministries, especially with regard to concepts and calculations related to climate change
- Each governorate to determine the training needs required for members of the risk management department, and the CCCD prepares the required plan to implement such trainings
- Issuing a clear mandate from the NCCC for each of the relevant ministries clarifying all roles and responsibilities, including coordination with the governorates
- Preparing forms and templates for annual reports and biennial reports that are required to be filled out by the relevant ministries to summarize the progress of technical and financial work related to mitigation and adaptation projects
- Enacting laws and regulations to address climate change

3.4 Goal 4: Enhancing Climate Financing Infrastructure

Objective (4.a): Promoting local green banking and green credit lines

The banking sector is one of the most important sources of project financing in the private and public sectors. The banking entity sets a set of requirements that the recipient of support must comply with before approving the financing. Those set of requirements can include environmental and social aspects to turn those investments into green ones. Following the example of the international banking community, such as The World Bank and other international sources of financing, giving adequate attention to micro, small and

medium enterprises (MSMEs) to benefit from financing opportunities.

The following directions contribute to achieving this objective:

- Developing a comprehensive national strategic plan for climate finance that detail the mechanisms to be used
- Encouraging the increase in environmental and social requirements in financing requirements such as climate risk assessments, environmental impact assessments, and sustainability feasibility studies
- Ensuring the presence of the required competencies in the banking sector to follow up on the existence and implementation of the financing requirements
- Benefiting from international financing programs to provide lending programs in a manner that fulfills the conditions of the lenders
- Studying increasing facilitations to climate change projects

Objective (4.b): Promoting innovative financing mechanisms prioritizing adaptation actions, e.g., green bonds

During the second half of 2020, Egypt issued its first green bond offering with a value of 750 million dollars. Thus, Egypt was the pioneer in issuing these bonds at the level of the Middle East and Africa. Green bonds aim to attract investors who are working on sustainable projects as they are intended for projects related to the environment and climate. Through green bonds, projects can be financed such as those related to renewable energy, energy efficiency, waste management, clean transportation, climate change adaptation and other projects of environmental, social and governance-related importance.

The following directions contribute to achieving this objective:

- Encouraging the development of green bonds to cover sectors that have not yet been operated
- Encouraging the development of innovative financing mechanisms such as “results-based financing” which reduce the risk of lenders
- Providing green financing opportunities to micro, small and medium enterprises
- Encouraging interest in financing projects in the most vulnerable areas in a manner that encourages empowering women to access funding sources
- Seeking to provide technical and financial support, especially to small and micro

projects, in order to raise the efficiency of the affected groups through developing projects eligible for financing.

- Benefiting from some international experiences in innovative financing mechanisms for small projects, where easy terms are offered for the loan in exchange for a specific training program that reduces the risks of the financing entity
- Assessing of the effects of innovative financing for climate change on economic activity and areas of foreign direct investment

Objective (4.c): Private sector engagement in climate finance and promotion of green jobs

The private sector is generally characterized by flexibility in dealing with rapid changes that affect the investment climate in general. This has been evident during the Covid-19 crisis, which greatly affected the global economy and global trade movement. Due to the pandemic crisis, unemployment rates rose in different countries. The Egyptian state has shown good handling of the crisis as a whole, but due to the ease of making rapid changes, the private sector has contributed to facing the challenges of the crisis. This shows the importance of the sector's participation in financing climate activities.

The following directions contribute to achieving this objective:

- Reaching an agreement that enables the private sector to obtain tax facilitations, for example, or other advantages, such as adopting environmental standards and including these standards in export support packages, providing credit guarantees to enhance private investments in green fields, and strengthening public-private partnerships in this framework.
- Raising awareness in the private sector about climate finance and its difference from investment finance
- Directing the private sector so that its Corporate Social Responsibility (CSR) activities include adaptation projects in partnership with civil society organizations responsible for environmental activities

Objective 4.d: Compliance with Multilateral Development Banks (MDB) guidelines for climate finance

The Multi-lateral Development Banks (MDB) have added a number of requirements related to climate activities to fund projects. These requirements must be taken into account to facilitate obtaining the funding required to support the work planned to be achieved with high efficiency to ensure continuous improvement in procedures. These requirements include the dimensions of mitigation and adaptation.

The following directions contribute to achieving this objective:

- Analyzing MDB guidelines requirements for climate activities
- Making a detailed gap analysis that shows the current situation and the actions required for compliance
- Giving priority to projects and programs compatible with the new requirements in submitting offers for obtaining financing from the relevant banks.

Objective (4.e): Building on success of the current climate finance programs

According to the above mentioned, Egypt has already achieved successes in the field of financing climate activities, by offering green bonds, for example, and by implementing policies to involve the private sector in projects for financing solar power plants, such as the Benban plant, which is currently the largest solar power plant using solar energy (Photovoltaic cells) and other projects. That is why it is necessary to learn from previous successes to repeat them and to know the obstacles that were faced in order to avoid them.

The following directions contribute to achieving this objective:

- Studying successful projects that have been implemented on the ground to know the strengths and weaknesses that can be benefited from in the future
- Developing a number of plans based on these projects to serve as guidelines for the financing programs under construction
- Encouraging the development of financing policies similar to those whose effectiveness has been proven and disseminated in the various sectors in accordance with the nature of each sector

3.4.1 Performance Indicators for the Fourth Goal

The fourth goal is mainly concerned with funding sources. Therefore, general performance indicators have been developed that measure the extent to which the goal has been achieved as a whole. These indicators are shown in Figure 3-2.

3.4.2 Enabling Policies and Tools

The enabling policies for the fourth goal aim to increase sources of funding and thus increase the readiness and preparedness required to properly manage funding. The proposed policies include:

- The NCCC to coordinate with the banking sector, regarding the study of increasing facilitations to climate change projects.
- The NCCC to identify priority adaptation and mitigation programs for inclusion in the Green Bond Plan
- The NCCC to study the requirements of the guidelines for MDBs, making a clear plan with a time-limit to comply with them, and directing each ministry to the most appropriate funding bodies.
- Building on Law No. 152 of 2020 regarding the development of MSMEs, especially with the most affected groups, such as women in the poorest areas

3.5 Goal 5: Enhancing Scientific Research, Technology Transfer, Knowledge Management and Awareness to Combat Climate Change

Scientific research represents an important element of preparedness to address the consequences of climate change as well as benefiting from global experiences. This part discusses the various objectives and specific strategic directions that will lead to the achievement of the objective. Then, performance indicators and policies, whether currently used or required to be adopted to achieve the goal, are presented.

Objective (5.a): Strengthening the role of scientific research and technology transfer in climate change mitigation and adaptation

Scientific research can contribute to a number of areas related to climate change, such as analyzing climate phenomena, predicting expected changes and developing plans to

address them, whether with various mitigation or adaptation measures, after studying the effects of plans in detail. The transfer of technology complements the goal by ensuring that research results are implemented on the ground, as well as benefiting from the experiences of others in the same field and developing what has been reached.

The following directions contribute to achieving this objective:

- Establish a national entity to coordinate interdisciplinary research efforts aimed at improving understanding of and response to climate change.
- Activating the role of scientific research in long-term planning for disaster prediction and emergency response and prediction and early warning of climatic elements until 2050 and the expected impacts on different sectors
- Conducting research to find out and explain abnormal phenomena
- Encouraging an increase in climate change-related programs in universities
- Increasing funding opportunities for research projects in the field of climate change
- Giving funding priority to research projects related to climate change
- Benefiting from partnerships with foreign research bodies to increase cooperation in forecasting and emergency response research
- Promoting cooperation between different research bodies and encouraging the creation of research teams composed of different fields (multidisciplinary) to enhance the benefit of research

Objective (5.b): Facilitating the dissemination of climate-relevant information and knowledge management among government institutions and citizens

In the past years, the circulation of information has become of paramount importance in accelerating the pace of scientific research. It has become a key partner factor supporting technological development, helped by the presence of helpful and open platforms for specialists and those interested in various fields. Egypt has a good infrastructure in the field of communications that enabled it to benefit from the global openness of knowledge. There are a number of important scientific and research tools for every knowledge student, such as the Egyptian Knowledge Bank, which contains many books, references and practical research available to all Egyptian students. In order to maximize the benefit from the efforts, the strategy emphasizes the need to encourage coordination and communication between research and government agencies and decision makers.

The following directions contribute to achieving this objective:

- Establishing a unified database for the exchange of research efforts between ministries, universities and various research institutes
- Encouraging coordination between various research bodies such as institutes, universities and centers and exchanging experiences and research results
- Reducing the gap between scientific research bodies, government agencies and decision makers

Objective (5.c): Raising awareness on climate change among different stakeholders (high-level policy/decision makers, citizens, and students)

Increasing awareness contributes to achieving readiness to deal with any potential threat in a correct manner. It also produces a generation that has sufficient awareness of the dimensions of the issue and thus can increase the effectiveness of the mechanisms required to address the impacts of climate change. As a result, it increases the possibility of their participation as an active part in the green economy and their awareness of the importance of projects established to mitigate the impacts of climate change, as well as adapting, especially with the expectation of increased risks in the future.

The following directions contribute to achieving this objective:

- Preparing specialized training programs for policy makers on climate change
- Increasing national campaigns aimed at raising awareness among different segments of society about the importance of preserving the environment and natural resources, and modifying citizens' behavior towards the various elements of the environment.
- Preparing awareness campaigns for citizens about the dangers of climate change and the effects that may accompany it and the efforts made to address it with the participation and cooperation of all relevant institutions and stakeholders (schools, universities, all educational institutions, mosques, churches, media of all kinds, especially dramas and cinemas) and civil society, taking into account clearly defining roles where the media implements the mechanisms of a comprehensive national plan to educate society about the risks and negative impacts resulting from climate changes and related to various matters, including water provision, unemployment,

- food security and the citizen's positive role to reduce these risks
- Focusing on increasing projects working on preparing educational packages for climate change concepts targeting school students to encourage schools to adopt them.
- Maximizing the use of modern means of communication to raise the required awareness for all groups and ages.

3.5.1 Performance Indicators for the Fifth Goal

Since the fifth goal is related to the field of scientific research and technology transfer, its performance indicators will be general indicators that measure the extent to which the goal has been achieved as a whole. These indicators are shown in Figure 3-2.

3.5.2 Enabling Policies and Tools

Enabling policies for the fifth goal focuses on the importance of including climate change issues as part of the educational process, scientific research, technology transfer and awareness.

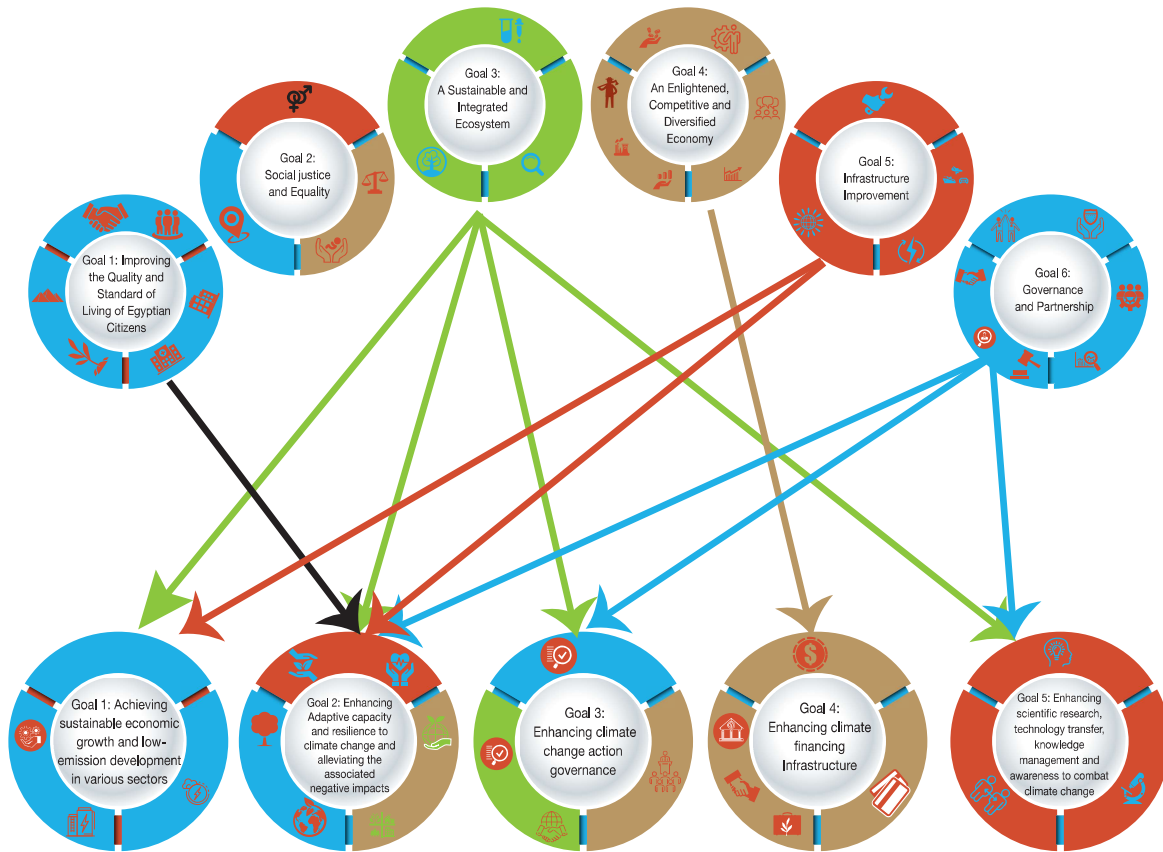
Examples of some of the proposed policies are:

- Ministry of Education to put climate change issues and raising awareness of its effects as an essential part of school education programs
- Ministry of Higher Education and Scientific Research to include the field of climate change in university studies and postgraduate programs
- Encouraging the establishment of more research institutes and centers specialized in climate change issues, whether at the sectoral level or from multidisciplinary research groups
- The NCCS to develop a system that regulates communication between research centers and ministries so as to share research results until they are converted into projects ready for implementation.
- The Ministry of Environment, in cooperation with the Ministry of Social Solidarity, prepares awareness materials for all ages about climate change, and uses all means of communication to ensure that information reaches all citizens

Figure 3-1 shows a summary of the inter-linkages between the goals related to climate change in Egypt's Sustainable Development Strategy and the main goals and objectives of the NCCS, while Figure 3-2 summarizes the key performance indicators (KPIs) of the NCCS goals.

Sustainable Development Strategy Goals

SDS 2030



Egypt National Climate Change Strategy Goals

NCCS

Sustainable Development Strategy (SDS 2030) Objectives (The white icons in the figure)

-  1.3: Providing healthcare services
-  1.4: Availability and improvement of housing
-  1.5: Food Security
-  3.1: Facing the challenges of climate change
-  3.2: Sustainability of natural resources
-  3.3: Preserving biodiversity and the environment
-  4.2: Enhancing the business environment and competitiveness
-  4.7: Achieving financial sustainability
-  5.1: Providing basic and adequate services
-  5.2: Providing safe and sustainable transportation
-  5.3: Promoting sustainable energy resources and systems
-  6.1: Administrative reform
-  6.7: Maintaining stability and security

National Climate Change Strategy (NC:C:S) Objectives





















-  Objective (1.A)
-  Objective (1.B)
-  Objective (1.C)
-  Objective (1.D)
-  Objective (2.A)
-  Objective (2.B)
-  Objective (2.C)
-  Objective (2.D)
-  Objective (2.E)
-  Objective (2.F)
-  Objective (3.A)
-  Objective (3.B)
-  Objective (3.C)
-  Objective (3.D)
-  Objective (4.A)
-  Objective (4.B)
-  Objective (4.C)
-  Objective (4.D)
-  Objective (4.E)
-  Objective (5.A)
-  Objective (5.B)
-  Objective (5.C)

Figure 3 - 1: Interlinkage between the goals related to climate change in Egypt's Updated Sustainable Development Strategy and the main goals and objectives of the NCCS

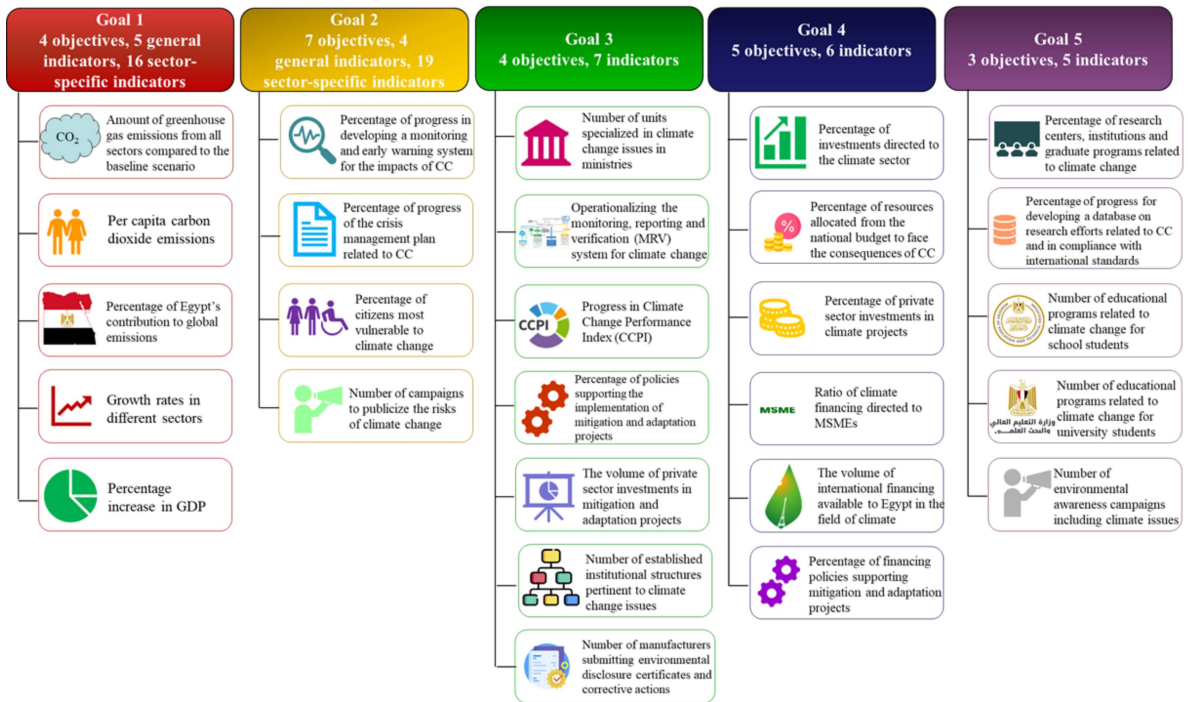


Figure 3 - 2: Key performance indicators for the NCCS goals

4 GENERAL DIRECTIONS

The government of Egypt must adopt various general cross-cutting directions that can underpin the achievement of the abovementioned goals and objectives. This is to enhance Egypt's leading role in the field of climate action at the regional and international levels in light of the Paris Agreement and the Sustainable Development Goals. This is due to the strategic opportunity that the climate action represents to consolidate the state's position, aiming to strengthen Egypt's leading role in the field of mitigating emissions and adapting to the impacts of climate change. These directions are summarized as follows:

- **Direction 1:** Ensuring integrated planning between the different national and sectoral strategies (e.g., Sustainable Development Strategy – Egypt Vision 2030, Green Economy Strategy, National Strategy for Disaster Risk Reduction, Low Emissions Development Strategy, sectoral strategies like Sustainable Agriculture Strategy, etc.)
- **Direction 2:** Mainstreaming climate actions into national planning
- **Direction 3:** Integrating sustainability criteria and green recovery into national planning and budgeting
- **Direction 4:** Integrating climate adaptation and resilience in infrastructure projects
- **Direction 5:** Utilizing financing opportunities under UNFCCC, Paris Agreement, and other climate related sources
- **Direction 6:** Capitalizing on existing infrastructure to implement new projects related to climate change, e.g., utilizing the existing modernized and enlarged electricity grid for powering electric vehicles
- **Direction 7:** Fostering market competitiveness and economic diversity, as well as creating green jobs
- **Direction 8:** Strengthening bilateral and multilateral cooperation with other countries, international financial institutions and specialized agencies in areas of common interest, such as the Nile Basin countries and others.

5 PROPOSED SOURCES OF FINANCING

There are several sources of finance that can help provide the necessary funding to achieve the objectives of the NCCS. For example, the Ministry of International Cooperation has provided development financing amounting to 260 million dollars to the environment sector to implement 4 projects, including solid waste management and control of industrial pollutants, to which development partners contributed: the World Bank, the European Investment Bank, the French Development Agency, the European Union and Italy. It also provided financing a development plan of \$365 million to achieve Goal 13 of the Sustainable Development Goals, which is climate action. Figure 5-1- presents a summary of the different funding sources.



Figure 5-1: Summary of the different sources of climate finance

6 COST OF MITIGATION AND ADAPTATION PROGRAMS IN DIFFERENT SECTORS

This section presents a summary of the cost of mitigation and adaptation programs in the different sectors attached to the National Climate Change Strategy in detail.

Mitigation programs

Table 6.1: Summary of the Mitigation Programs Cost

Sector	Cost (million USD)	Time frame
Industry	130.3	2022/2035
Electricity	144153	2021/2035
Petroleum	1688.51	2023/2030
Transport	57477.45	2020/2030
Civil Aviation	25	2022/2030
Housing and Utilities	31	2022/2024
Waste	7627.4	2021/2035
Total	USD 211132.4 million = USD 211 billion	
	*(Out of a total of about \$211 billion for mitigation programs, there is about \$57.6 billion in funding, so the funding gap is about \$153.6 billion)	

Adaptation Programs

Table 6.2: Summary of the Adaptation Programs Cost

Sector	Cost (million USD)	Time frame
Agriculture	52400	2022/2050
Transport	1273	2021/2023
Civil Aviation	9.1	2022/2024
Irrigation and Water Resources	59108.3	2022/2037
Biodiversity	199.1	2020/2030
Total	million dollars = 113 billion dollars approximately 112990.4	
*(Out of a total of about \$113 billion for adaptation programs, there is about \$18.3 billion in funding, so the funding gap is about \$94.7 billion)		

7 INSTITUTIONAL FRAMEWORK, MONITORING AND EVALUATION OF THE NATIONAL CLIMATE CHANGE STRATEGY

Having an effective monitoring and evaluation component in the strategy is critical to determining the extent to which Egypt stands in achieving the goals and sub-targets of the National Climate Change Strategy. An effective M&E system helps in shedding the light on areas that need intervention and improvement, and accordingly, defining specific actions to enhance the implementation of the strategy.

7.1 Institutional Framework

7.1.1 Existing Institutional Framework for Managing Climate Change Aspects in Egypt

- The National Climate Change Council (NCCC), which plays a supervisory role for steering climate change activities and integrating climate change into national development planning and is headed by the prime minister.
- The NCCC mandates include but are not limited to identifying the relevant policies, developing strategies and action plans and mainstreaming them with the national SDS and the sectoral plans.
- National Coordination Committee to include a supreme committee, an executive bureau, and technical working groups.
- The Supreme Committee of the National Climate Change Council is formed with the membership of: the Minister of Foreign Affairs, the Minister of Investment and International Cooperation, the Minister of Water Resources and Irrigation, the Minister of Planning, Follow-up and Administrative Reform, the Minister of Finance, the Minister of Environment, the Minister of Agriculture and Land Reclamation, a representative of the Ministry of Defense, and the Rapporteur of the Ministerial Group for Services .
- Executive Bureau is responsible for presiding over the technical working groups of the Council, as well as forming the link between such groups and the higher committee. The Executive Bureau will be reviewing the results of the technical groups' work from informational, security and political aspects.
- The technical working groups are specialized in looking over the topics presented to the Council. They will prepare and submit necessary technical studies and reports to the council's Executive Bureau to take the necessary decision regarding them

7.1.2 Existing Institutional Framework for the National Climate Change Measuring, Reporting and Verification (MRV) System

As shown in Figure 7 -1, the national MRV system is headed by NCCC which also acts as the national focal point to UNFCCC. The CCCD acts as the national coordinating entity which coordinates the relevant aspects with the relevant ministries and CAPMAS. The MRV system for data flow has four tracks; GHG Inventory MRV, Mitigation Policies and Actions MRV, Adaptation Policies and Actions MRV in addition to the Support Received MRV. The Quality Assurance Working Group (QA-WG) provides support to the CCCD, and the Technical Support Working Group (TS-WG) provides the necessary support to both the CCCD and the ministries.

According to such system, the MRV units in the different ministries are responsible for reporting on the progress of both mitigation and adaptation actions to the CCCD. Some ministries have already established such units under the name of "Climate change and energy efficiency units" such as MoERE and Ministry of Petroleum (MoP). There is also a tendency to establish sustainable development units in the ministries that focus on achieving the sustainable development goals as a whole.

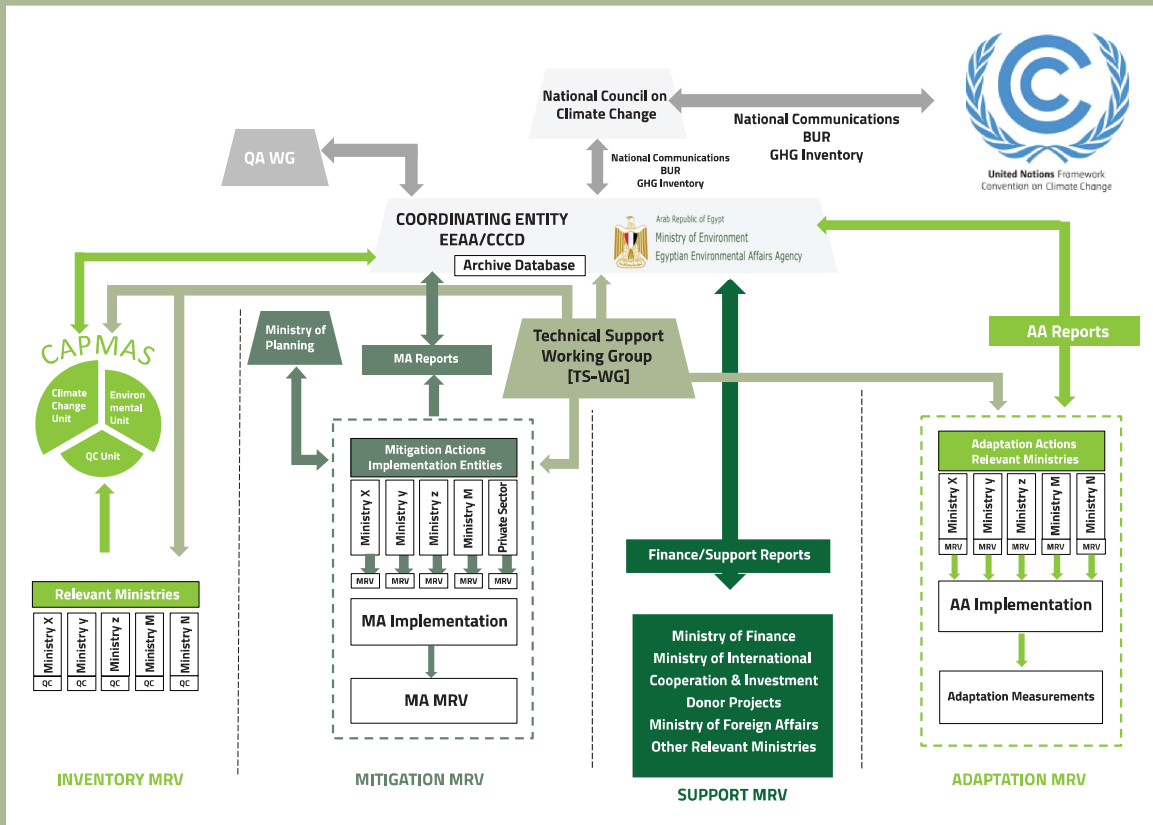


Figure 7 -1: National MRV structure (Source: National First Biennial Update Report)

7.1.3 Proposed Approach for the NCCS M&E Institutional Framework

The institutional framework for the NCCS M&E should build on the existing national climate change institutional setup.

7.2 Mechanism for Follow-up and Evaluation of NCCS Implementation

The following figure illustrates the mechanism of follow-up on the implementation of the strategy and the relationship between different stakeholders, as will be further illustrated in the following subsections.

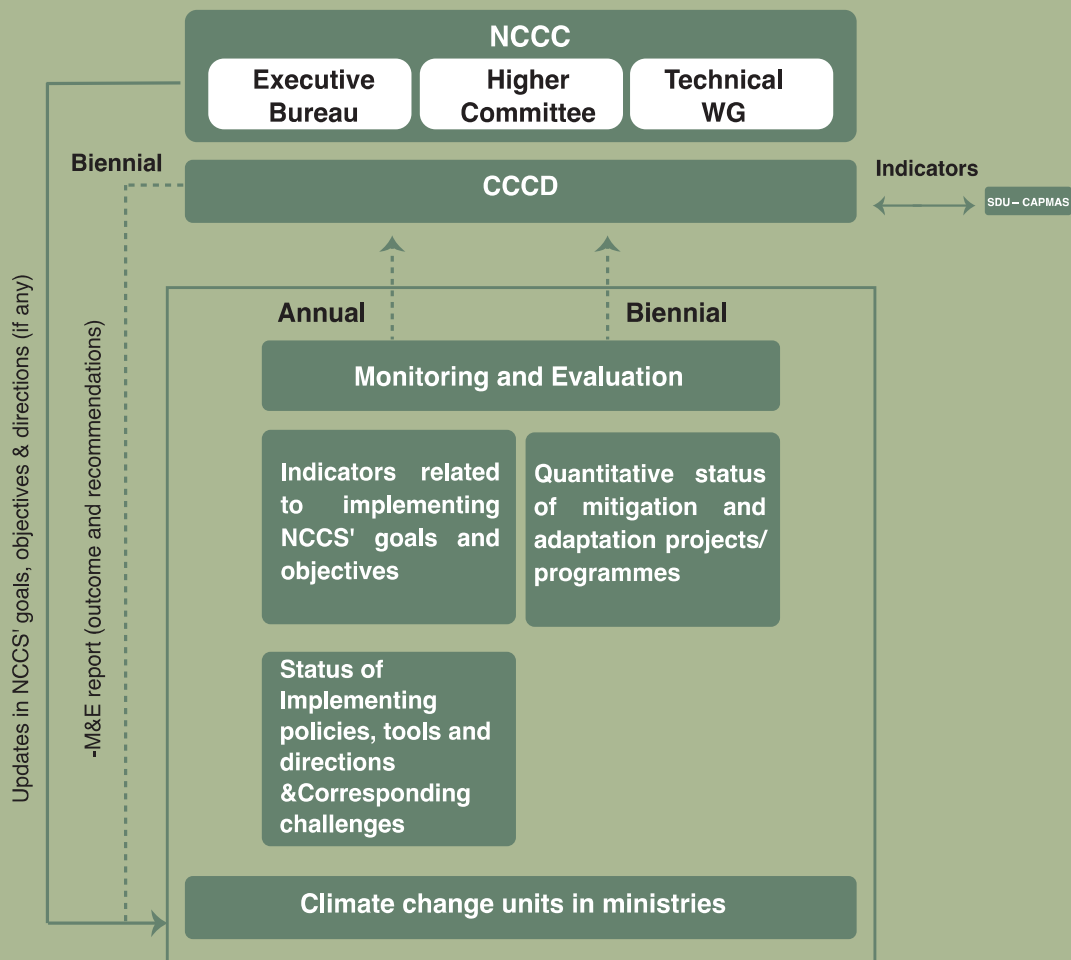


Figure 7 -2: Mechanism for follow-up and evaluation of strategy implementation

7.2.1 Annual M&E Components

- It is proposed that each ministry, on an annual basis, will prepare an overview report covering where the ministry stands against achieving the specified goals and objectives, what was helpful and what are the main challenges encountered.
- To ensure systematic and consistent reporting between the ministries, each ministry shall report on the status of implementing the policies, tools and directions that were covered in section 5 of the NCCS, and shall also propose new ones if needed.
- It is proposed that the CCCD which acts as the technical secretariat of the NCCC will be responsible for collecting such annual reports from the ministries. The NCCC's Executive Bureau will then assign a technical working group to analyze such reports, and develop a compiled presentation that will be presented in the NCCC annual

meeting. **Such compiled M&E presentation will include the following:**

- » Any updates that are needed to the NCCS' objectives, policies, tools or directions to cope with the social, economic, political and technological changes
 - » The values of the different indicators, and an evaluation of the implementation status compared to the targets.
 - » The challenges and needs of each ministry in order to achieve the strategic goals and objectives
 - » The best practices and lessons learned from the M&E process and the main recommendations to encourage moving forward
- In case the NCCC adopted any changes to the strategic goals, objectives or directions, the ministries will be officially communicated with the updates to consider them in the M&E report of the following year.

7.2.2 Biennial M&E Components

- On a biennial basis, ministries will be responsible for reporting on the status of implementing the identified mitigation and adaptation actions and providing update for the new ones.
- To ensure the consistency and quality control of the calculated GHG emission reduction, Table 7-1 contains a quantitative reporting template on mitigation actions tailored from Egypt's first Biennial Update Report (BUR).
- For adaptation actions, ministries will report on the programs/projects implemented, status of implementation and the key outcomes.
- To ensure consistency among the different ministries, Table 7-2 contains a proposed standardized quantitative reporting template on adaptation actions

Table 7.1: Mitigation Actions Reporting Template

Sector X Mitigation Action	
Strategic NCCS Goal	
Strategic NCCS Objective	
Strategic NCCS Direction	
Corresponding SDS 2030 Goal	
Corresponding SDGs	

Subsector	Implementing entity(ies)	Percent completion	Spent budget	Remaining budget	Financing Source	Estimated GHG Reductions (tCO2e)	Duration
Main Objective(s)							
Description of the Mitigation Action							
Methodologies and Assumptions							
Progress Achieved							
Key Indicator(s)							
Social and economic opportunities and risks							

Table 7.2: Adaptation Actions Reporting Template

Sector X Adaptation Action	
Strategic NCCS Goal	
Strategic NCCS Objective	
Strategic NCCS Direction	
Corresponding SDS 2030 Goal	
Corresponding SDGs	

Subsector	Implementing entity(ies)	Percent completion	Spent budget	Remaining budget	Financing Source	Duration
Main Objective(s)						
Description of the Adaptation Action						
Progress Achieved						
Key Indicator(s)						
Social and economic opportunities and risks						

As is the case in the annual M&E report, the CCCD will be responsible for collecting the biennial M&E reports from the ministries. The NCCC's executive bureau will then assign a technical working group to analyze such reports, and develop a compiled presentation that will be presented in the NCCC annual meeting (once every 2 years). Such compiled M&E presentation will include the following:

- The progress achieved per each strategic goal and objective
- The share of each financing source in the implemented projects/programs in both mitigation and adaptation tracks
- The challenges facing the under-utilized financing sources and the required interventions from the higher committee
- The strategic directions that are not effectively utilized, challenges facing them, and the required interventions from the higher committee
- The status of national and sectoral GHG emission reductions compared to the target
- The best practices and lessons learned from the M&E process and the main recommendations to encourage moving forward

Based on the outcomes of the NCCC after such presentation, the CCCD will develop a biennial report to be sent to the ministries highlighting the main M&E outcomes, NCCC decisions and recommendations on the way forward.

7.2.3 Monitoring of indicators

7.2.3.1 Indicators related to the implementation of NCCS goals and objectives

Section 4 of the NCCS determined the indicators related to the goals and objectives of the strategy. As mentioned in section 7.2.1, the ministries will report to CCCD on an annual basis the results of measuring their indicators, and this will be presented in the NCCC annual meetings.

It is important to make sure that indicators are monitored with high level of accuracy and to ensure the consistency of indicators that will be reported from different ministries. Accordingly, Table 7.37-3 presents the proposed template to be used by the ministries for reporting on different indicators.

Table 7.4 provides guidance on how to fill in the different details of the template to avoid any confusion that might appear during the M&E.

Table 7.3: Template to be used by the ministries to report on the different indicators

Name of indicator			
Responsible personnel			
The strategic goal and objective related to the indicator			
Corresponding SDS 2030 Goal			
Corresponding SDGs			
Frequency of monitoring	Unit	Value	Date
Methodologies and assumptions			

Table 7.4: Guidance on filling in the indicators' template

Indicator Component	Corresponding Guidance
The strategic goal and objective related to the indicator	What goals and objectives under the NCCS do this indicator represent?
The responsible personnel for measuring the indicator	The position(s) in the ministry who is responsible for the collection of data needed to measure the indicator
Source of data	The different entities, websites, publications from which data was collected to measure the indicator.
Assumptions and methodology	Identify the way the indicator was measured or calculated (e.g., mathematical equations).
Unit	The unit of the indicator (e.g., percentage, number, hour, etc.,)
Monitoring frequency	e.g., weekly, monthly, quarterly..
The value of indicator	The most updated value of indicator and date of determining this value.

