Food and Agriculture Organization of the United Nations

FEBRUARY 2023

SCALING UP CLIMATE AMBITION ON LAND USE AND AGRICULTURE THROUGH NDCS AND NAPS (SCALA)

Inception Report | EGYPT

ACKNOWLEDGEMENTS

This report was prepared by FAO and UNDP focal points: Saber Osman (consultant), Mohammed Bayoumi (UNDP), Mohamed Ayoub (FAO) and Fatima Elzahraa Abouzeid (FAO). It summarizes the inception phase and launch of the Support Programme on Scaling up Climate Ambition on Land Use and Agriculture through NDCs and NAPs (SCALA) SCALA Programme in Egypt. SCALA is jointly supported by UNDP and FAO and is a five-year programme funded by Germany's Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) through its International Climate Initiative (IKI).

The inception phase was characterized by multi-stakeholder consultation, including: FAO and UNDP technical officers and representatives from key stakeholder groups involved in climate change, environment, agriculture, risk disaster management and water resources & irrigation in Egypt; including government Ministries and agriculture and water research centers (Ministry of Agriculture and Land Reclamation (MALR), Ministry of Water Resources and Irrigation (MWRI), Ministry of Environment (MoEnv), Information and Decision Support Center (IDSC), Research institutions (Agriculture Research Center (ARC) and National Water Research Center (NWRC), UN agencies (UNESCO and WFP); Non-government organizations and Civil Society; Academia (Cairo University, Heliopolis University and Al-Azhar University); and private sector (SEKEM and PEPSICO).

The SCALA team is grateful for all the comments and suggestions received from the sector stakeholders. Their contributions remain invaluable and will guide SCALA programme implementation in Egypt.

CONTENTS

ACKNOWLEDGEMENTS....2
CONTENTS....3
FIGURES....4
TABLES....4
ABBREVIATIONS AND ACRONYMS....5
1. INTRODUCTION....7
1.1 PURPOSE OF THIS REPORT....7
1.2 OVERVIEW OF THE GLOBAL PROGRAMME....7
1.3 INCEPTION PHASE PROCESS....8
2. CONTEXT…….....10
2.1 COUNTRY PROFILE....10
2.2 CLIMATE CHANGE RISKS AND VULNERABILITIES....13
2.3 CLIMATE CHANGE PLANNING AND IMPLEMENTATION....15
2.4 KEY POLICIES AND FRAMEWORKS....17
2.5 CHALLENGES FACING CLIMATE ACTION IN LAND USE AND AGRICULTURE SECTORS....20
2.6 RELEVANT PROJECTS AND PROGRAMMES....21
3. REVIEW OF CLIMATE ACTIONS....23
3.1 APPROACH FOLLOWED IN EGYPT....23
4. IMPLEMENTATION OF TRANSFORMATIVE CLIMATE ACTION IN AFOLU....24
4.1 INCEPTION WORKSHOP....24
5. EGYPT SCALA THEORY OF TRANSFORMATIVE CHANGE....25
5.1.1. SCOPING THE SYSTEMS: AREAS OF FOCUS FOR SCALA IMPLEMENTATION....25
5.1.2. THEORY OF TRANSFORMATIVE CHANGE....28
6. WORK PLAN…......29
6.1 OUTCOME 1....29
6.2 OUTCOME 2....29
6.3 OUTCOME 3....29
7. STAKEHOLDER MAPPING....30
8. OPERATIONS…....32
8.1 IMPLEMENTATION ARRANGEMENT....32
8.2 MONITORING, EVALUATION AND REPORTING....33
8.3 KNOWLEDGE MANAGEMENT AND COMMUNICATIONS....34
9. BIBLIOGRAPHY....35
10. ANNEXES…….....37

FIGURES

Figure 1	Step-by-step flow of the inception activities
Figure 2	Sectoral contribution to Egypt's GDP for the year 2020-2021
Figure 3	Emissions per category for the AFLOU sector (2015)
Figure 4	National Committee for Climate Change structure as per Decree number 1192 of 2019
Figure 5	Proposed measurement, reporting and verification institutional setup
Figure 6	Illustration flow of the Theory of Transformative Change
Figure 7	Implementation arrangement structure

TABLES

Table 1	Changes in productivity due to climate change effects in Egypt, projected by 2050
Table 2	Estimated cost of mitigation and adaptation programs and projects in Egypt by 2050
Table 3	Summary of key national frameworks and plans for climate change planning and action
Table 4	Existing and planned projects and programmes

ABBREVIATIONS AND ACRONYMS

AFOLU	Agriculture, Forestry and Other Land Use Sectors
AR5	Fifth Assessment Report
ARC	Agriculture Research Center
BMUV	Germany's Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection
CAPMAS	Central Agency for Public Mobilization and Statistics
CCCD	Climate Change Central Department
CSA	Climate-smart agriculture
EEAA	Egyptian Environmental Affairs Agency
EED	Emergency Event Database
EMA	Egyptian Meteorological Authority
FAO	Food and Agriculture Organization of the United Nations
FGDs	Focus Group Discussions
GCF	Green Climate Fund
GCM	Global Climate Models
GDP	gross domestic product
Gg CO2e	Giga-gram CO2 Equivalent
GHG	greenhouse gas
GOE	Government of Egypt
GOPP	General Authority for Urban Planning
IKI	International Climate Initiative
IDSC	Information and Decision Support Center, Cabinet of Ministries
IFAD	International Fund for Agricultural Development
INC	Initial National Communication Report
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
M&E	monitoring and evaluation
MALR	Ministry of Agriculture and Land Reclamation
MoEnv	Ministry of Environment
MoPED	The Ministry of Planning and Economic Development
MRV	measuring, reporting and verification
MWRI	Ministry of Water Resources and Irrigation
NAP	National Adaptation Plan
NAP-Ag	Integrating Agriculture in National Adaptation Plans (Programme)
NAS	National Adaptation Strategy

NC4	Fourth National Communication Report
NCW	National Council for Women
NDC	nationally determined contribution
NGO	non-governmental organization
SCALA	Scaling Up Climate Ambition on Land Use and Agriculture through nationally determined contributions and National Adaptation Plans
SDG	Sustainable Development Goals
SNC	Second National Communication Report
TAG	Technical Advisory Group
TNC	Third National Communication Report
ToC	Theory of Change
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention for Climate Change
WFP	World Food Programme

1. INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This Inception Report complements SCALA Egypt project documentation with the outcomes of the inception activities. It specifies the SCALA inception activities undertaken by UNDP and FAO, in close collaboration with the Ministry of Environment (MoEnv), Ministry of Agriculture and Land Reclamation (MALR) and Ministry of Water and Irrigation (MWRI) to determine the scope and areas of SCALA programme implementation in Egypt. The report highlights in-country consultations that were conducted to take stock of existing data availability, institutional and technical expertise, national and sector development and climate change strategies and plans, to determine country priorities and needs. The inception report also defines the theory of transformative change that describes a process by which implementation of the identified priority actions will contribute to transformative change in Egypt's fruits and horticulture subsector and in the agriculture and land use sectors in general.

1.2 OVERVIEW OF THE GLOBAL PROGRAMME

The Support Programme on Scaling up Climate Ambition on Land Use and Agriculture through nationally determined contributions (NDCs) and National Adaptation Plans (NAPs) (SCALA) is a multi-year initiative funded by Germany's Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) through its International Climate Initiative (IKI). The programme is designed to support transformative climate action in the land use and agriculture sectors to reduce greenhouse gas (GHG) emissions and/or enhance removals, as well as strengthen resilience and adaptive capacity to climate change in participant countries. Its specific objective is for countries to have translated their NDC and/or NAPs into actionable and transformative climate solutions in land use and agriculture with multi-stakeholder engagement. It emphasizes collaboration between the public and private sectors to drive implementation.

This will be achieved through three outcomes:

- Outcome 1: Information and assessments used by national stakeholders to identify and appraise transformative climate actions to advance NDC/NAP priorities in land use and agriculture.
- Outcome 2: Climate risk-informed land use and agriculture sector priorities integrated into national and sectoral planning, budgeting and monitoring.
- Outcome 3: Private sector engagement in climate action in land use and agriculture increased.

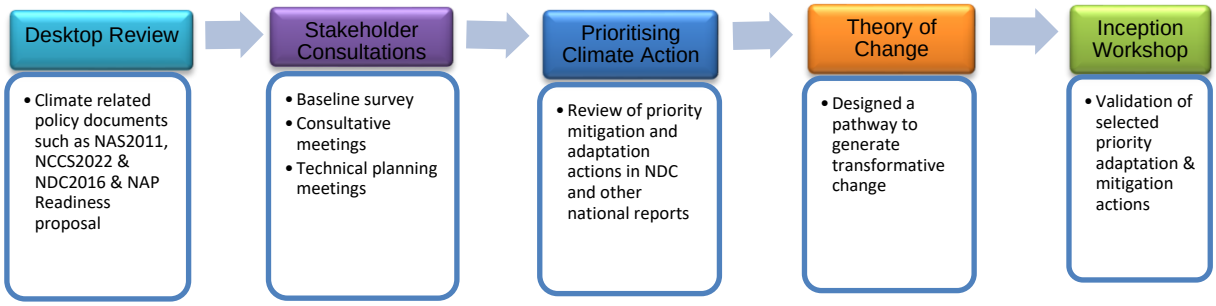
SCALA supports 12 countries in Africa, Asia, and Latin America (Argentina, Cambodia, Colombia, Costa Rica, Cote d'Ivoire, Egypt, Ethiopia, Mongolia, Nepal, Senegal, Thailand, and Egypt). It works directly with key government stakeholders (for example, Ministries of Agriculture, Environment, Finance and Planning and Climate Change Coordination bodies), as well as representatives of civil society organizations, private sector, research, and academia. To reach a wider selection of countries, it also promotes sharing knowledge and lessons learned through a technical facility set up under the programme focused on private sector engagement and public-private collaboration.

SCALA is co-led by the Food and Agriculture Organization (FAO) and the United Nations Development Programme (UNDP), building on lessons learned from the IKI-funded Integrating Agriculture in National Adaptation Plans (NAP-Ag) Programme. SCALA taps into the technical knowledge and experience of both agencies, working through the respective regional offices, regional centers of expertise and country offices in support of country programming frameworks. Both agencies have sub regional and national initiatives which is leveraged for knowledge exchange and complementary activities.

1.3 INCEPTION PHASE PROCESS

The inception process followed 5 steps (Figure 1): desktop review; stakeholder consultations; selecting and prioritizing climate actions, designing theory of transformative change and validation inception workshop. The inception process led to the identification of potential climate actions that SCALA will work on in Egypt. These are the focus of the workplan activities that will jointly be implemented by FAO and UNDP in partnership with the line ministries, other United Nations (UN) agencies such as UNESCO and WFP, research centers, private sector and development partners.

Figure 1. Step-by-Step flow of the inception activities



Source: Authors

- **Step 1: Desktop review of background research and existing documents,** such as NAP project proposal, National Climate Change Strategy for Adaptation and Disaster Risk Reduction (NAS2011), Egypt's NDC, Egypt's Sustainable Agriculture Strategy 2030, NAtComs (INC, SNC & TNC) and first updated NDC among others to provide baseline information to support selection and prioritization of climate action to be implemented under SCALA programme in Egypt.

- **Step 2: Consultations with key stakeholders** through a baseline survey involving 50 purposively selected stakeholders from SCALA participating Ministries, FAO and UNDP Country Officers, as well as civil society organizations, experts and private sector actors to inform identification of priority transformative climate actions. This was complemented by a one-day multi-stakeholder technical planning focus group meeting convened to gather inputs from key stakeholders on the proposed SCALA programme priorities of focus in Egypt.

- **Step 3: Identifying climate actions**. Prioritization and selection from the adaptation and mitigation actions identified during the desktop review and consultative meetings was done to come up with priority areas of focus for SCALA workplan and implementation.

- **Step 4: Designing Theory of Change (ToC)**. A theory of change was designed to demonstrate how agricultural systems transformation will occur in Egypt's agriculture sub sectors, in particular horticulture. It outlines a narrative around transformative pathways and provides a rationale behind SCALA's planned activities. The ToC considers the interconnected drivers, risks and outcomes that will be considered and addressed in the agriculture sub sectors with a focus on early warning and monitoring reporting and verification (MRV) systems, including the underlying vulnerabilities and impacts of climate change on smallholders and socially marginalized groups. The theory of change offers an overarching narrative that ties together workplan activities as mechanisms of transformation. In terms of the programme-specific objective, the Egypt SCALA Programme aims to support the incorporation of actionable and transformative climate actions in agriculture, water and land use sectors into its NAP with multi-stakeholder engagement.

- **Step 5: Inception Workshop** was organized to present the SCALA Programme baseline assessment, Theory of Change and multi-annual work plan for stakeholder validation and finalization. It also offered space for the participating multi-stakeholders to make contributions into these draft SCALA Egypt documents.

2. CONTEXT

2.1 COUNTRY PROFILE

Geography and climate

Located in northeastern Africa, the Arab Republic of Egypt bridges Africa and the Middle East.[1] Egypt covers a total area of around 1 million km^2 and has coastlines on the Mediterranean Sea and Red Sea. The services sector contributes 48 percent to national GDP in 2021, followed by the industry and agricultural (12.4 percent) sectors. Egypt is one of the most populous countries in the world and its population has significantly increased in recent years, posing pressures on the economy and environment, especially considering the limited availability of natural resources.[2]

Egypt's climate is characterized by arid and semi-arid conditions.[3] There are two main seasons: a mild winter from November to April and a hot summer from May to October.[4] Egypt is among the five most vulnerable countries expected to be seriously impacted by sea level rise.[5] This poses a particularly significant threat to more than 50 percent of the population living in the Nile Delta.[6] Climate change is expected to cause increasing temperatures, sea level rise and significant fluctuations in the River Nile, which could lead to reduced water supplies and loss of agricultural land (12-15 percent of the most fertile land is in the Nile Delta).[7] Moreover, climate change also has health effects including the spread/prevalence of diarrheal diseases and vector-borne diseases such as malaria and dengue fever, causes heat stress, and threatens food and water security and livelihoods.[8]

Demography and economy

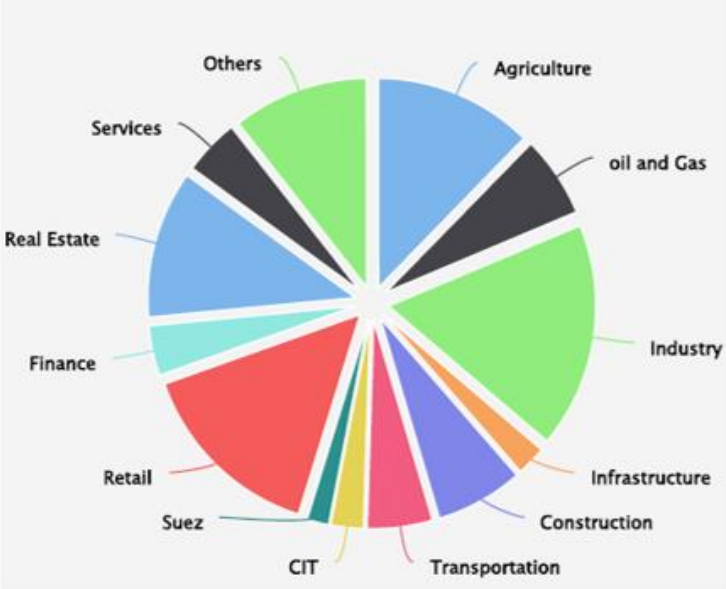
Egypt's population at home reached 102 million in 2021 with an average increase of 3,636 people per day (CAPMAS, 2021). With the existing annual population growth rate at around 2 percent, Egypt's total population is projected to increase to around 225 million by the end of 21st century (Populationpyramid, 2022). About 95 percent of the population lives in the Nile Valley and Delta on 4 percent of Egypt's total land area. Most of the population lives in rural settings practicing small holder agriculture. About 10 percent of Egypt's total population is located in the Greater Cairo region (with approximately 9.908 million inhabitants) 5 percent in Alexandria city (with about 5.366 million inhabitants) in 2020. According to the 'Egypt population in Figures' report, internal migration, primarily by young men, takes place to megacities searching for better job opportunities and a higher standard of living, despite government efforts to encourage youth relocation to newly reclaimed desert areas (CAPMAS, 2020).

In recent years, macroeconomic reforms have helped to stabilize the economy, allowing the government to face the COVID-19 crisis with better fiscal accounts and significant foreign reserves. Energy sector changes aided in increasing both power supply and gas exports, as well as opening the energy market to private enterprise and incentivizing renewable energy investments. However, the pandemic's negative consequences have thrown a spotlight on long-standing issues such as the sluggish private sector participation including their investments in climate change solutions in the most vulnerable sectors, and the underperforming non-oil exports including the agricultural products exports.

[1] Climate Change Knowledge Portal: Egypt. World Bank; 2020. (https://climateknowledgeportal.worldbank.org/country/egypt, accessed 7 June 2022).
2 Egypt Third National Communication. Egyptian Environmental Affairs Agency; 2016. Cairo.
3 Climate Change Impacts: The Middle East and Iraq in Focus. Adamo, N., & Al-Ansari, N; 2018.
4 Egypt Third National Communication. Egyptian Environmental Affairs Agency; 2016. Cairo.
5 Adaptation of sea level rise in Nile Delta due to climate change. Batisha, A. F; 2012. Earth Science and Climate Change, 3(2).
6 Towards Sustainable Development of Delta's, Estuaries and Coastal Zones: Trends and Responses: Executive Summary. Deltares. van der Most, H., Marchand, M., Bucx, T., Nauta, T., & van Staveren, M; 2009.
7 Egyptian Intended Nationally Determined Contribution. Republic of Egypt; 2015.
[8] Egypt Third National Communication. Egyptian Environmental Affairs Agency; 2016. Cairo.

The total GDP estimated was about USD 406,6 billion in 2020/2021 with real growth rate at 3.3 percent compared to USD 336 billion for the year 2014/2015. The industry sector was the highest contributor to GDP with about 17.5 percent, followed by retail (14.8 percent), and agriculture (12.4 percent) for the year 2020-2021, as shown in figure 2 (CAPMAS, 2021).

Figure 2. Sectoral contribution to Egypt's GDP for the year 2020-2021



Source: **Central Agency for Public Mobilization and Statistics** (CAPMAS). 2021. Sectoral contribution to Egypt's GDP. https://www.capmas.gov.eg/.(Accessed in November 2022).

According to the World Bank report and the Central Agency for Public Mobilization and Statistics, poverty rates in Egypt decreased by 2.8 percent to 29.7percent in fiscal year 2019/2020, down from 32.57 percent in fiscal year 2017/2018 (CAPMAS, 2022). The adverse impact of COVID-19 pandemic on economic activity and incomes warrants intensification of poverty-reduction efforts. Egypt has strengthened social protection through expansion of the existing programs and introduction of temporary mitigation measures at the outset of the COVID-19 crisis, notably targeting irregular workers. The country faces the dual challenge of pursuing fiscal consolidation while simultaneously trying to increase spending on social protection, health, education, and infrastructure to improve human and physical capital for its (largely youthful) population (World Bank, 2022).

Agriculture and land use sectors

Egyptian agricultural land can be classified into: "Old-land" comprising the lands of the Nile Valley and the Nile Delta which have been irrigated and intensively cultivated since ancient times. The Old-land represent about 80 percent of the cultivated area; "New-land" entailing lands that have been reclaimed recently or are in the process of being reclaimed now, representing about 20 percent of the cultivated area. The cultivated land base of Egypt is about 3.5 million hectares (SADS, 2010). Due to difference in soil types, availability and quality of water, as well as climate characteristics, there are two primary cropping seasons per year: winter (November to April) and summer (May to October) cultivation seasons. In some areas, farmers can cultivate a third crop during the period between summer and winter. Fruit trees are the country's most important perennial crops. Cultivated field crops include maize, rice, cotton, and sugarcane in the summer, and alfalfa, wheat, barley, green bean, clover, and sugar beet in the winter. The actual and potential impacts of climate change on crop productivity and crop water use in different agro-climatic zones in Egypt as observed by different studies: for instance IFPRI, (2021) report on climate change and Egypt's agriculture reports that on average, yields for food crops are projected to decline by 10 percent by 2050 as a result of heat stress (4.9 percent), water stress (4.1 percent), and salinity (1.6 percent) (also see table 1). The highest estimated biophysical yield declines are

for maize, sugar crops, fruits and vegetables. However, there is no sufficient information for some sub-sectors such as Livestock, based on the review of literature and from stakeholders' consultations.

Table 1. Changes in productivity due to climate change effects in Egypt, projected by 2050

Commodities	Biophysical effects, Egypt				Combined Biophysical and Economic Effects	
	Heat Stress	Water Stress	Salinity	Cumulative Effects	Egypt	Rest of World
% change from a no climate change scenario						
All food crops	-4.94	-4.14	-1.55	-10.29	-6.17	-5.24
All cereals	-4.66	-2.57	-1.59	-8.59	-10.36	-7.74
Maize	-12.86	-2.46	-1.36	-16.16	-19.54	-17.66
Rice	-5.81	-1.59	-1.58	-8.78	-8.53	-5.61
Wheat	2.27	-3.25	-1.78	-2.81	-0.56	0.82
Fruits & vegetables	-4.73	-5.88	-1.48	-11.66	-8.28	-1.95
Oilseeds	-6.98	-3.18	-1.53	-11.31	-12.08	-6.69
Pulses	-5.46	0.04	-1.57	-6.92	-9.98	0.01
Roots & tubers	2.61	-0.29	-1.79	0.47	3.56	-4.58
Sugar crops	-6.66	-4.19	-1.56	-11.96	-13.28	-10.39

Source: **Perez, N.D., Kassim, Y., Ringler, C., Thomas, T.S., & ElDidi, H. 2021.** Climate change and Egypt's agriculture. MENA Policy Note 17. Washington, DC: International Food Policy Research Institute (IFPRI). Available at: https://doi.org/10.2499/p15738coll2.134318

**Estimates are from IMPACT results. The values are averages of three general circulation models: GFDL = General Fluid Dynamics Laboratory model; HGEM = Hadley Centre Global Environmental Model; IPSL = Institute Pierre-Simon Laplace model; All are based on RCP 8.5 and SSP2.*

GHG emissions from the agriculture sector have a contribution of 39,446 Gg. Agricultural soil is the main source of GHG emissions from the agriculture sector, contributing 50.75 percent in 2005. Enteric fermentation is the second important source, contributing 22.8 percent of emissions in 2005 followed by rice cultivation contributing 12 percent. These are followed by manure management contributing 10.18 percent and finally, the field burning of agricultural residue contributing 4.43 percent in 2005.And yet, the agriculture, land use, water and energy sectors are the most vulnerable to climate change and yet they are the main contributors to the greenhouse gases emission. The First Updated Nationally Determined Contribution (FUNDC) of Egypt seeks to mitigate its greenhouse gas emissions through the development of low carbon energy systems. This involves promoting more efficient energy use, increasing the use of renewable energy, and using more efficient fossil fuel technologies. Egypt's FUNDC presents adaptation action packages focused on a range of sectors, including coastal zones, water resources and irrigation, agriculture, tourism, energy and health.[9] Specifically for the agriculture sector, the MALR has proposed agricultural initiatives that would enhance the agriculture sector to adapt to the effect of climate change. These initiatives include, enhancing agricultural production for adaptation to climate change in the Valley and Nile Delta regions; Rehabilitation of Agricultural Areas in Northern Delta Affected by the Repercussions of Sea-Level Rise; Increasing the resilience of climatically vulnerable areas through combating desertification, water harvesting and rehabilitating degraded pastures in marginal areas; and Development of on-farm Irrigation in the old Valley and the Delta.

[9] Egyptian First Updated Nationally Determined Contribution. Republic of Egypt; 2022.

2.2 CLIMATE CHANGE RISKS AND VULNERABILITIES

Temperature

Observed**:** Throughout Egypt, days are commonly warm or hot, and nights are cool. Egypt has only two seasons: a mild winter from November to April and a hot summer from May to October. The only differences between the seasons are variations in daytime temperatures and changes in prevailing winds. In the coastal regions, temperatures range between an average minimum of 14 °C in winter and an average maximum of 30 °C in summer. Temperatures vary widely in the inland desert areas, especially in summer, when they may range from 7 °C at night to 43 °C during the day. During winter, temperatures in the desert fluctuate less dramatically, but they can be as low as 0 °C at night and as high as 18 °C during the day.[10]

Projected**:** According to analysis from the German Climate Service Center (GERICS) of 32 Global Climate Models (GCMs), Egypt is expected to experience a change in annual mean temperature from 1.8 °C to 5.2 °C by the 2080s. Maximum temperatures are expected to increase by 2.1 °C to 5.7 °C by the 2080s, with minimum temperatures increasing by 1.5 °C to 4.6 °C, over the same period. Heat waves will also increase significantly in their severity, frequency and duration, with heat waves expected to last between 9 – 77 additional days; cold spells will decrease. By mid-century, temperatures are expected to increase between 2 °C to 3 °C, with the highest increases occurring in the summer months of July to September, with more rapid increases experienced across the country's interior regions. Under a high-emission scenario, average temperatures will increase rapidly by mid-century. Across the seasonal cycle, temperature increases will be felt from October to April. Increased heat and extreme heat conditions will result in significant implications for human and animal health, agriculture, water resources, and ecosystems.[11]

Precipitation / rainfall

Observed: Egypt receives fewer than eighty millimeters of precipitation annually in most areas. Most rain falls along the coast, but even the wettest area, around Alexandria, receives only about 200 millimeters of precipitation per year. Alexandria has relatively high humidity, but sea breezes help keep the moisture down to a comfortable level. Moving southward, the amount of precipitation decreases as Cairo receives a little more than one centimeter of precipitation each year. The city, however, reports humidity as high as 77 percent during the summer. But during the rest of the year, humidity is low. The areas south of Cairo receive only traces of rainfall. Some areas will go years without rain and then experience sudden downpours that result in flash floods. Sinai receives somewhat more rainfall (about twelve centimeters annually in the north) than the other desert areas, and the region is dotted by numerous wells and oases, which support small population centers that formerly were focal points on trade routes. Water drainage toward the Mediterranean Sea from the main plateau supplies sufficient moisture to permit some agriculture in the coastal area, particularly near Al Arish. Most of Egypt's rain falls in the winter months. South of Cairo, rainfall averages only around 2 to 5 mm (0.1 to 0.2 in) per year and at intervals of many years. On a very thin strip of the northern coast the rainfall can be as high as 410 mm (16.1 in), mostly between October and March. Snow falls on Sinai's mountains and some of the north coastal cities such as Damietta, Baltim, SidiBarrany, and so on. and rarely in Alexandria. A very small amount of snow fell on Cairo on 13 December 2013, the first time Cairo received snowfall in many decades. Frost is also known in mid-Sinai and mid-Egypt. Egypt is the driest and the sunniest country in the world, and most of its land surface is desert[12].

Projected: Rainfall trends in Egypt are highly variable. Analysis from the German Climate Service Center (GERICS 2019)[13] global climate models (GCMs) indicates that the reduction in precipitation observed over the

[10] TNC

[11] WB

12 TNC

13 GERICS (2019). Climate Fact Sheet – Egypt. URL: https://www.climate-

past 30 years is expected to continue by the end of the century, with projections indicating a trend of even longer dry spells and the possibility of dry spells to increase by 75 days by the 2080s. Reduced precipitation and increased temperature are expected to impact evaporation, water balance as well as drought conditions. While overall, annual mean precipitation is expected to decrease, the intensity of heavy rain events is expected to increase by the 2080s. As already mentioned in the above section, annual average precipitation is low and is expected to decrease slightly by the end of the century under a high emissions scenario of RCP8.5.[14]

Climate hazards

Egypt has a high degree of risk to natural hazards and is highly vulnerable to climate change impacts. Egypt's Nile Delta is recognized as one of the world's three 'extreme' vulnerability hotspots. Future projections indicate Egypt will suffer from sea level rise, water scarcities and deficits, as well as an increase in the frequency and intensity of extreme weather events such as heat waves, sand and dust storms, flash floods, rockslides and heavy rains. The country is expected to become generally hotter and drier under a projected future climate. Egypt is already severely impacted by and susceptible to droughts, which are expected to be more frequent and pronounced. Additionally, sea level rise is projected to lead to the loss of a sizable proportion of the northern part of the Nile Delta due to a combination of inundation and erosion, with consequential loss of agricultural land, infrastructure and urban areas. Key sectors impacted include water resources, agriculture, fisheries, health, housing, biodiversity, telecommunications, energy, tourism, and coastal zones. Over the last 20 years, natural hazards have killed nearly 1,500 people, with estimated economic damages resulting in USD 346.7 million. In 2009, a rockslide buried an informal settlement south of Cairo, causing severe damage to infrastructure and significant loss of life. In 2010, heavy flooding displaced thousands of people and over 4,000 houses were damaged or completely destroyed. Climate change is expected to increase the potential impact of hazards for Egypt.

Emergency data from the Emergency Event Database (EED) shows that the country has endured various natural hazards, including floods, landslides, epidemic diseases, and storms. Egypt's agricultural sector, located primarily along the coastline, is particularly vulnerable to climate change due to its dependence on the Nile River as the primary water source, its large traditional agricultural base as well as the intensifying development and erosion along coastal areas. The country's water scarcity, dependence on the Nile River and high temperatures make agriculture productivity increasingly vulnerable to climate variability and future projected climate change trends. An estimated 55 percent of the labor force is engaged in agricultural activities, a sector which consumes about 80 percent of the freshwater resources and contributes about 12.4 percent of GDP in 2012. Just 2.8 percent of Egypt's land is arable, largely located along the Nile and some oases in the Sinai Peninsula. The country's agriculture is predominantly irrigated and almost entirely dependent upon the flow of the Nile River.

Greenhouse gas emissions

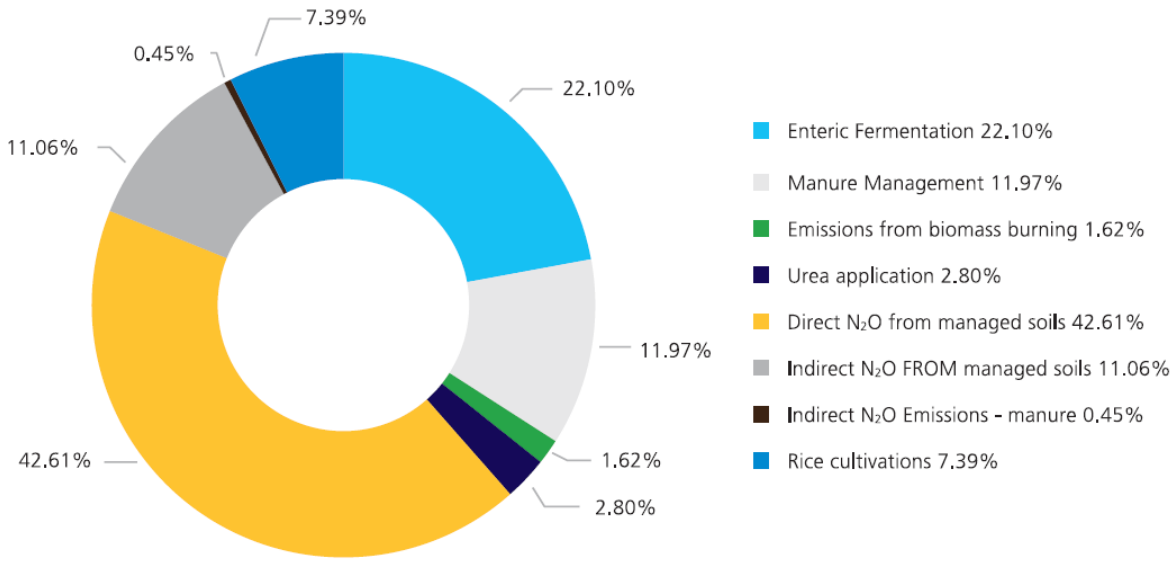
The latest emissions inventory, in 2015 report Egypt's total emissions estimated at 325,614 Gg CO2e. The AFOLU sector contributed 14.9 percent of national GHG emissions in 2015. Sector emissions resulted from 1) enteric fermentation, 2) manure management, 3) field residuals burning, 4) agriculture soil, and 5) rice cultivation. The largest contributor to the total GHG emissions is aggregate sources and non-CO2 emissions sources on land (66 percent) followed by livestock (34 percent). Uncertainty analysis for activity data was conducted based on expert judgment and is ranged between ± 15 percent, while uncertainty of the emission factors is ± 50 percent.[15]

servicecenter.de/products_and_publications/fact_sheets/climate_fact_sheets/index.php.en

14 World Bank Climate Change Knowledge Portal (CCKP)

15 Egypt's First Biennial Update Report 2018

Figure 3. Emissions per category for the AFLOU sector (2015)



Source: **Ministry of Environment, Egyptian Environmental Affairs Agency**. 2018. *Egypt's First Biennial Update Report to the United Nations Framework Convention on Climate Change*. Cairo. https://unfccc.int/sites/default/files/resource/BUR%20Egypt%20EN.pdf. (Accessed in September 2022).

2.3 CLIMATE CHANGE PLANNING AND IMPLEMENTATION

Intended Nationally Determined Contribution and National Adaptation Plan

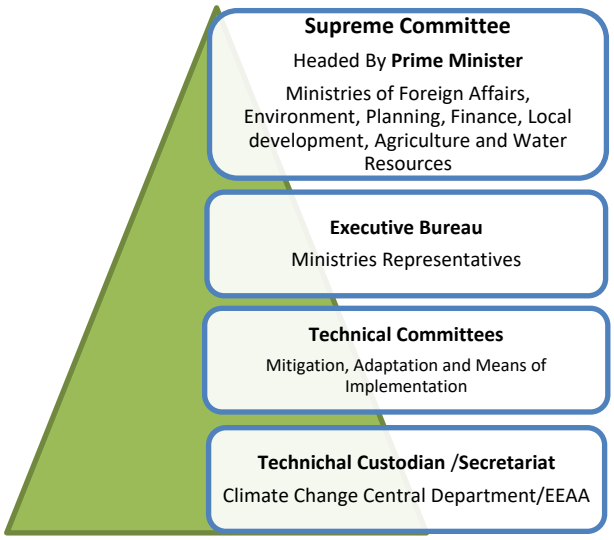
In 2015, Egypt submitted its Intended Nationally Determined Contributions (INDC) towards achieving the objectives of the United Nation Framework Convention on Climate Change (UNFCCC) in accordance with Decisions 1/CP.19 and 1/CP.20. The submitted INDC, articulated the vulnerability of the agriculture, coastal zones, water resources and irrigation sectors among others. The INDC included Egypt's intended actions to promote resilience in these vulnerable sectors and additional adaptation policies and measures. Additional adaptation policies and measures included enforcing environmental regulations, building capacities for using regional water circulation models, and increasing stakeholders' awareness of efficient energy and water utilization and sustainable land use planning. Regarding National Adaptation Plans, Egypt does not yet have a NAP: In 2021, the Ministry of Environment received a readiness and preparatory financial support from the Green Climate Fund (GCF) to support the formulation and advancement of the NAP process of Egypt. This process technically supported by UNDP and is coordinated by the National Council for Climate Change (NCCC).

Institutional arrangements supporting climate change planning and implementation

The institutional framework for climate change in Egypt has evolved from a national committee for climate change headed by the CEO of Egyptian Environmental Affairs Agency (EEAA) in 1997 to a National Council for Climate Change (NCCC) headed by the Prime Minister according to Decree #1192 in 2019. NCCC consists of members representing sector ministries with input from national experts (scientists, practitioners, and academic researchers), civil society (NGOs and union representatives), and the private sector. According to Decree#1192 the NCCC has responsibility for organizing, securing funding for, and overseeing implementation of national research efforts on climate change and projects to reduce emissions and adapt to climate change risks. The Council also has the mandate to develop and update national and sectoral climate change plans and mainstream them with the country's sustainable development strategy. The NCCC monitors climate change budget allocations to ministries involved in climate change action and is responsible for raising

awareness of officials and decision-makers on climate change and how it relates to their specific areas of work - all with the goal of building institutional and individual capacities to deal with climate change.

Figure 4. National Committee for Climate Change (NCCC) structure as per Decree number 1192 of 2019

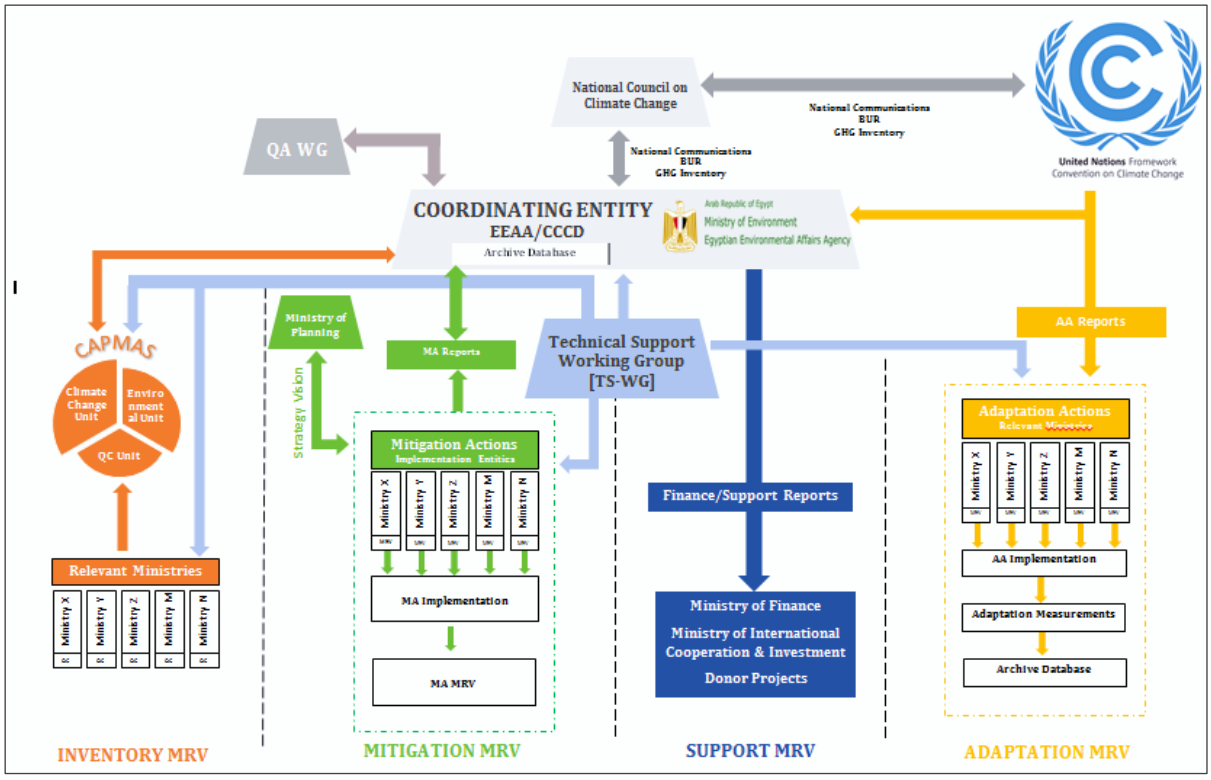


Source: Adopted from **Ministry of Environment in Egypt**. 2020. *National Climate Change Strategy 2050*. Cairo.

The structure of the NCCC is designed to increase its efficacy in facilitating the transformation of the country's economy towards sustainability, low carbon, resilient development with improved adaptation capacity (Figure 4). The **Supreme Committee,** chaired by the Prime Minister and consisting of the Ministers of Foreign Affairs, Investment and International Cooperation, Planning, Finance, Environment, Local Development, Water Resources & Irrigation and Agriculture & Land Reclamation, in addition to a member of the Ministry of Defense and a representative from the Ministerial Group of Services, is responsible for issuing laws and policies. The **Executive Bureau** is chaired by the Executive Chairman of the Egyptian Environmental Affairs Agency (EEAA) and includes representatives from the Ministries of Defense, Foreign Affairs, Planning, Finance, Local Development, Interior, Water Resources & Irrigation, Agriculture & Land Reclamation, The Central Agency for Public Mobilization and Statistics, the Cabinet Information and Decision Support Center, the Green Climate Fund focal point, and the UNFCCC&IPCC focal point. Its mandate is to chair and review the work of the technical working groups of the Council and is the link between the technical groups and the Supreme Committee. The **Technical Committees** regularly conduct the required technical studies, develop recommendations and formulation of decrees, policies and laws, and so on. with input from experts, academia, research centers, private sector and NGOs. And the **Technical Custodian /Secretariat is** responsible for keeping all data, carrying out and oversees all the technical work that support the NCCC. It consists of staff from the Climate Change Central Department (CCCD) in the EEAA.

Though the NCCC provides strategic directives and technical inputs to climate change issues at the national level, it is not equipped to provide day-to-day or detailed implementation support to climate change projects. However, Article 11 of this 2019 decree designated the member ministries under the NCCC to "entrust one of their relevant units to work on climate change issues in order to provide the required data, implementation, and follow-up of plans and programs to reduce the effects of climate change". These units under ministries are also responsible for improving Egypt's position in the international arrangement on climate change actions to attract more investment and climate finance opportunities, reforming sectoral policies needed to accommodate the interventions required to mitigate and adapt to climate change, and strengthening institutional arrangements procedural and legal systems such as the monitoring, reporting and verification (MRV) system.

Figure 5. Proposed measurement, reporting and verification institutional setup



Source: Source: **Ministry of Environment, Egyptian Environmental Affairs Agency**. 2018. *Egypt's First Biennial Update Report to the United Nations Framework Convention on Climate Change*. Cairo. https://unfccc.int/sites/default/files/resource/BUR%20Egypt%20EN.pdf. (Accessed in September 2022).

2.4 KEY POLICIES AND FRAMEWORKS

Egypt ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1994 as a member of the non-Annex I Parties (developing countries) and signed the Paris Agreement in April 2015, which was ratified by the Egyptian Parliament in June 2017. In 1996, the Climate Change Unit was established at EEAA and was upgraded to a Central Department (CCCD) in 2009, to strengthen the climate change institutional structure at the national level.

Egypt has developed a policy framework to address climate change risks underpinned by the 2011 National Adaptation Strategy (NAS), which recently in 2021 was updated and become part of Egypt's National Strategy for climate change. In addition, Egypt has established a high-level political institution that is mandated to implement the country climate change policy framework.

In May 2022, Egypt launched its Climate Change National Strategy 2050. The strategy will enable Egypt to plan for facing and managing climate change at different levels, besides enhancing efforts to achieve the sustainable development goals in line with Egypt Vision 2030 (also known as Sustainable Development Strategy 2030 [SDS]). The SDS 2030 encompasses the economic, social and environmental dimensions of development and is an umbrella under which development plans in Egypt are guided by the Sustainable Development Goals.

In addition, Egypt updated its NDC and published it in July 2022 with great focus on Agriculture and Water resources actions to increase the resilience in both sectors since both are still the most vulnerable sectors to climate change impacts, according to Egypt's national communications. According to Egypt's 2016 NDC, the

initial total estimated cost of implementing adaptation measures aiming at mitigating the negative impacts of climate change and contribute to the efforts made by the international community to reduce GHG emissions during the period 2020-2030 is estimated at USD 73 billion. Additionally, the recently launched Egyptian government climate change strategy 2050 estimated USD 324 billion as the cost of reducing GHGs and adapt to climate change impacts (also see, Tables 2) and highlighted a financing gap of 248.1Bn USD, (NCCC).

Table 2. Estimated cost of mitigation and adaptation programs and projects in Egypt by 2050

Mitigation (GHGs Reduction) Programs & Projects			**Adaptation Programs and Projects**		
Sector	**Cost (Billion USD)**	**Time Frame**	**Sector**	**Cost (Billion USD**	**Time Frame**
Industry	0.13	2022/2035	Agriculture	52.4	2022/2050
Electricity	144.2	2021/2035	Transportation	1.27	2021/2024
Petroleum	1.69	2021/2030	Aviation	0.1	2022/2024
Transportation	57.5	2020/2030	Water Resources & Irrigation	59.1	2022/2037
Aviation	0.1	2022/2030	Biodiversity	0.2	2022/2030
Housing & Infrastructure	0.1	2022/2024	**Total 113 billion dollars**		
Waste	7.6	2021/2035	**The financing gap is about 94.7 billion dollars**		
Total 211 billion Dollars					
***The financing gap is about 153.4 billion dollars**					

Source: **Ministry of Environment in Egypt**. 2020. *National Climate Change Strategy 2050*. Cairo.

Table 3. Summary of key national frameworks and plans for climate change planning and action

Policy / Strategies	Goal / Objective
1-Climate Change National Strategy 2050	The strategy enables Egypt to plan and manage climate change at all levels through supporting economic and developmental goals including reducing emissions. The five-point strategy tackles achieving sustainable economic growth by reducing CO_2 emissions; adapting to climate changes with the country's ability to address this issue; governance framework of the state and society; improving the financial infrastructure; and improving scientific research and technology management.
2-Egypt Vision 2030	Egypt Vision 2030 forms the basis of Egypt's NDC and adaptation priorities which should regularly be updated to reflect situational climate change trends. It highlights the need to have a National Adaptation Plan (NAP), with specific adaptation needs and possible specific funding opportunities to enable investment in adaptation options.

Policy / Strategies	Goal / Objective
3-National Strategy for Adaptation to Climate Change and Disaster Risk Reduction (2011)	The overarching goal of this Strategy (also referred to as the National Adaptation Strategy [NAS]) is to increase Egypt's adaptive capacity and flexibility in dealing with climate change risks and disasters as well as the Egyptian Community's "ability to absorb, contain and reduce such risks and disasters" across different sectors. The Strategy evaluated the by then situation and risks across key sectors - namely water resources and irrigation, agriculture, health, urban, housing, roads, and tourism. It recommended as follows (i) integration of sector specific adaptation plans with each five-year plan and national development programmes; (ii) enhancing community participation and building a "Safety First" culture; (iii) promoting regional and international co-operation; and (iv) engaging in continuous monitoring of progress. The strategy is regularly updated based on evidence from scientific advances and government commissioned study findings. The strategy was modified in October 2015 by adding vulnerability and readiness indices to improve assessment of the current situation and potential for future impacts.
4-Initial, Second & Third National Communications to UNFCCC (INC, SNC, and TNC)	Following the INC of 1999 which is considered as the baseline for climate change in Egypt, Egypt's SNC (2010) addressed the vulnerability and adaptation of various sectors in Egypt to potential impacts of climatic changes. The TNC (2016) subsequently addressed some of the gaps in the SNC by updating assessments of vulnerability and adaptation according to the most recently published literature, including detailed potential impacts of climate change on health, tourism and biodiversity. However, these sector-based climate vulnerability analyses are not complete (for example, the agriculture assessment detailed in the national communications has only focused on crops and yields rather than the systemic nature of climate impacts on entire value chains).
5-Intended Nationally Determined Contribution (INDC) 2015 ,NDC 2017and First Updated NDC 2022	Egypt's INDC, submitted in 2015, NDC submitted in 2017 and First Updated NDC submitted in 2022 highlight the agriculture, coastal zones, and water resources and irrigation sectors as the most vulnerability sectors. The reports include Egypt's intended actions to promote resilience in various sectors and additional adaptation policies and measures. Additional adaptation policies and measures include enforcing environmental regulations, building capacities for using regional water circulation models, and increasing stakeholders' awareness of efficient energy and water utilization. The INDC makes it clear that implementation of adaptation measures will require international financial support.

Policy / Strategies	Goal / Objective
6-National Strategy for Mainstreaming Gender in Climate Change 2011	This strategy has been developed based on an analysis of the national priorities concerning climate change and prioritized with regards to vulnerability, according to the INC and the SNC by the Government of Egypt (GoE). The strategy mentions eight (8) priority focus areas, each comprising sub-sections on women as agents of change, a situation analysis and the state of gender, a set of recommendations and examples of selected action on implementation in different sectors such as: Integrated Coastal Management, Agriculture, Water, Tourism, Health, Energy and Transport, Urbanization, and Waste Management. The implementation of the strategy includes awareness raising workshops with girls schools and local sectoral personnel, trainings targeted towards empowering women employees in climate resilient livelihoods, and national level provisions to "ensure that gender issues are incorporated into the development of projects and programs associated with climate change in Egypt." This includes the goal of utilizing the National Communications process as well as other projects (such as the NAP readiness process) as tools to mainstream gender in climate policy and plans.

Source: Authors

2.5 CHALLENGES FACING CLIMATE ACTION IN LAND USE AND AGRICULTURE SECTORS

Coordinating actors for climate change planning and implementation: Egypt is highly vulnerable to climate change impacts. High population density, high population growth, and the rapid spread of unplanned urbanization place considerable pressures on the country's land and water resources. In addition, Egypt already suffers from low technical capacity at the government level to plan for climate change and there is limited community resilience to cope with extreme weather events. Though Egypt is a middle-income country, nearly 28 percent of residents live below the national poverty line (as of 2015), and that number is growing[16]. Institutional coordination and capacity to undertake climate change adaptation planning and implementation are limited. Policy makers and technical practitioners in most ministries, including MALR and MoEnv, still lack broad-based understanding of climate change impacts and the technical skills necessary to craft and implement appropriate CCA/M interventions. Gaps in capacity can hinder not only implementation of national strategies, programmes and projects but also future long term CCM/A planning. In addition, there is limited cross-sector coordination on climate risk management. Relevant information is not routinely shared between sector ministries, frequently challenging collaboration and leading to duplication of work. Although Egypt's Sustainable Development Strategy "Vision 2030" highlights environmental needs, the lack of understanding on behalf of policy makers and practitioners, persistent coordination challenges, and a lack of institutional processes for CCM/A mean that so far climate change issues are not comprehensively mainstreamed and linked with the other sustainable development initiatives.

There is lack of a holistic approach to climate change Mitigation and adaptation planning. Addressing climate change vulnerability and adaptation efforts in Egypt to date has been focused on specific sectors, particularly agriculture, water resources and coastal zones. In the past, some regions (particularly north coast and the Delta "Mediterranean Region") have received more funding attention than other regions, because of the threat of sea level rise, and the fact that these areas have been hit by extreme weather events (therefore having visible vulnerability). This means that to date most vulnerability assessments and adaptation studies have been conducted for these regions. However, recorded damage and economic losses due to extreme weather events throughout the country have revealed the weaknesses of local authorities in handling climate change impacts and the need to address extreme weather events, exacerbated by climate change, in a more

[16] https://data.worldbank.org/country/egypt-arab-rep

comprehensive manner country wide. There remains a lack of government capacity, weak response efforts, and limited early warning systems infrastructure in many areas.

Availability and accuracy of climate change information and risk assessments is limited. Although there are some assessments on climate vulnerability and climate change impacts previously conducted, these date back in the early 2000, are general- at national scale, few are sector-specific, do not include those climate risks that may be inter-sectoral in nature and particularly for the agriculture sector, the sub-sectors are not all assessed. The quantity of climate risk data / information is not sufficient to adequately support planning and track climate change impacts in Egypt. In addition, data discrepancies are common between government ministries implying that the data that exists may not be reliable. Therefore, in-depth assessments including assessments of the social and economic impacts associated with climatic changes are necessary to support understanding climate change vulnerability and prioritizing CCA interventions. In addition, there need for establishing future climate changes scenarios and generate information to support NAP preparation and CCM/A planning in Egypt.

Inadequate private sector investments in climate actions, and insufficient financial resources and budget allocations exist for adaptation planning and implementation. In the past the funding for climate action has not clearly been identified and public sources have been misaligned. There is low level of mainstreaming climate change into sectoral and sub-national development plans and budgets. There is limited climate information to draw rationale for identification of priority actions for CCA funding. There is also low level of private sector participation and investments in climate actions particularly in the agriculture and water sectors.

2.6 RELEVANT PROJECTS AND PROGRAMMES

Table 4. Existing and planned projects and programmes

Project title	Action focus	Areas of complementarity	Location	Project status
GCF NAP Readiness Project	This project aims to support the formulation and advancement of the National Adaptation Plans process of Egypt. It is coordinated by MoEnv and is technically supported by UNDP.	National Adaptation Planning	Cairo, Egypt	Active
Egypt's Climate Change Interactive Vulnerability Map project.	This project commenced in May 2018 and is coordinated by the Ministry of Environment. It aims to create an offline web application that provides an interactive climate vulnerability map using downscaled climate models and IPCC scenarios up to 2100.This project focuses on providing key hydro meteorological data (temperature, precipitation, wind, humidity, and so on.) in an interactive geographic information system mapping format, including flood inundation maps of the coastal areas. This mapping platform will be a key tool to layer with other data sources (such as agricultural information and infrastructure details) to help facilitate further assessments of climate risks to key sectors including agriculture. The downscaled data will help inform the integrated climate risk assessment proposed as part of this project, as well as future sub-national climate adaptation plans. The first version of this map application was launched by the minister of Environment in September 2021.	Assess the frequency and intensity of extreme weather events and its impacts on Agriculture sector	Cairo, Egypt	Active
Sustainable Agriculture Investments & Livelihoods	This project is designed to enable vulnerable smallholder farmers to increase their incomes and profitability and diversifying their livelihoods. The project is funded by the GEF and IFAD and is	Climate change Adaptation options	Delta, Egypt	Active

Project title	Action focus	Areas of complementarity	Location	Project status
Project (SAIL) (2014-2023).	implemented by the MALR.			
Enhance Climate Change Adaptation in the North Coast and Nile Delta Regions in Egypt (2018-2024).	This UNDP-supported and GCF funded project aims to enhance climate change adaptation in the North Coast and Nile Delta Regions in Egypt (2018-2024). This project builds on the GEF coastal zone management project that ended in 2018.	Assess the implemented adaptation measures for protecting hot spot areas on fertile lands in the Delta	Delta, Egypt	Active

Source: Authors

3. REVIEW OF CLIMATE ACTIONS

3.1 APPROACH FOLLOWED IN EGYPT

Egypt did not adopt the Climate Action Review Matrix developed by the SCALA programme to assess climate actions in land use and agriculture sectors. This is because the national level climate plans, such as NDC and NAP, to be benchmarked for such review, were being updated and not yet in place, respectively. As such, priority climate actions to be focused on for SCALA implementation were identified through baseline survey and consultative discussions with line ministries including MALR, MoEnv, MWRI.

Baseline survey: The baseline study was done through desk review of relevant national climate change frameworks and, sectoral climate change strategies / plans, including those mentioned in table 3, for instance the NAP-PD 2019, BUR 2019 National Climate Change Strategy 2022, Egypt vision 2030, Egypt Climate Change Adaptation and Risk Disaster Strategy 2011, National Communications reports (INC 1999, SNC 2010 and TNC 2016), among other documents. Additionally, consultative meetings with key technical points at key ministries including MALR, MoEnv, MWRI were held, and their inputs validated the information obtained from desk review. The baseline study established the following: The current evidence related to climate risks and vulnerabilities, as well as the climate projections and impacts need to be updated and linked to the results of Egypt interactive vulnerability map developed through MoEnv project mentioned in table 4, so as to provide land use and agriculture sectoral evidence necessary to support the identification and/or development of transformative climate actions to advance the NAP preparation process; The measuring, reporting and verification (MRV) approach which includes monitoring and evaluation (M&E) system was suggested in Egypt's 1st BUR submitted to UNFCCC in 2019 but it is not yet operational. Implying that there is no functional MRV system for monitoring and reporting on mitigation in land use and agriculture sectors: in terms of institutional set-up to coordinate MRV and reporting processes, there is National Council for Climate Change (NCCC) headed by the prime minister, however, this body needs capacity building in terms of training, equipment and financial resources to support effective coordination of multi-sectoral stakeholders involved in climate actions; there remains weak government response efforts in the event of climate related extreme events and disasters, and there is limited early warning systems infrastructure in many areas; and that there is low level of private sector involvement and few investment towards acceleration of the implementation of the Egypt National Climate Change Strategy 2050 and achievement of both mitigation and adaptation targets entailed in the (updated) Nationally Determined Contributions (NDC) 2030.

Consultative meetings with ministries' technical personnel validated the above identified priority actions and further mentioned the need to focus on the following: need for developing knowledge base through conducting studies on the impacts of climate change on the agriculture and water sector as well as identifying the sectoral and sub-sectoral adaptation measures and needs so as to advance the NAP preparation process; support institutional and technical capacity building with aim to strengthen coherence and effective coordination during NDC implementation, monitoring and reporting; develop and update the early warning systems particularly targeting information flow to smallholder farmers; and create an enabling environment for private investment towards the implementation of the NDC.

Synthesis from the baseline study and consultative discussion outputs informed the priority areas of focus for SCALA implementation in Egypt. Relatedly, a draft workplan was prepared which was presented and validated during the national stakeholder's inception workshop. Additionally, a draft theory of transformative change, an overarching narrative describing the pathway throughwhich the prioritized climate actions would contribute to the national agriculture system transformation in Egypt was presented. This also set the basis for the types of system-level assessment to take place under Activity 1.1.2. and what to focus on for private sector engagement and concept note development under Activities 3.1.1 and 3.1.2.

4. IMPLEMENTATION OF TRANSFORMATIVE CLIMATE ACTION IN AFOLU

4.1 INCEPTION WORKSHOP

The Inception meeting was held on 31st May 2022. It was participatory and ensured facilitation of open exchange of ideas, opinions and suggestions amongst participants and organizers. Participants included FAO and UNDP technical officers and representatives from key stakeholder groups involved in climate change, environment, agriculture, land and rural development planning in Egypt: these included government representatives from different line ministries at central level, non-government organizations, civil society organizations, research and academia and the private sector. The purpose of the workshop was to convene and share SCALA Programme baseline information, and the draft work plan for stakeholder validation and finalization. The overall objective was to ensure that SCALA programme's design and implementation respond to the country's climate change adaptation and mitigation priorities and needs in the agriculture and land use sectors, and in line with national development objectives. The insights and recommendations gathered during the inception workshop helped to finalize the Egypt SCALA program baseline information, Theory of Change and further refining of the work plan.

The **specific objectives** of the inception workshop were:

- To introduce the SCALA programme, including the objectives, approach and expected results.
- To present for validation the initial findings of the SCALA baseline survey results, the programmeTheory of Change and proposed workplan activities.

The following **outputs** were generated:

- Participants gained an understanding of the SCALA programme's approach and expected results.
- Participants gained understanding of the existing climate change planning and implementation gaps identified during the baseline survey: which included gaps related to current climate data and information, local-to-national planning and reporting mechanisms, gender and social inclusion and private sector engagement.
- Participants were made aware of the priority climate actions of focus for SCALA implementation, and participants validated the proposed programme workplan activities.
- Participants discussed the SCALA programme Theory of Change in Egypt.

5. EGYPT SCALA THEORY OF TRANSFORMATIVE CHANGE

5.1.1. SCOPING THE SYSTEMS: AREAS OF FOCUS FOR SCALA IMPLEMENTATION

System selection / areas of focus for SCALA implementation

From the baseline survey and discussion outputs from the consultative meetings, SCALA implementation will focus on institutional systems that are essential for supporting adaptation in all agriculture sub-sectors across Egypt. These include the national-scale Early Warning System (EWS) of extreme weather events for the agriculture sector and the National MRV/M&E system for monitoring and reporting climate change mitigation / adaptation measures in agriculture and water sectors. The aim will be to establish and enhance the functioning of these institutional systems for sustainable water resources - irrigation water management and improved adaptive capacity of the agriculture production systems, with particular focus on the (fruits) horticulture production systems. These institutional systems will allow the vertical connection of Egyptian governorates, which cover the country's total agricultural land area and thus link about 24 million people working in the agriculture sector to the regional and central institutional levels including ministry, departments and agencies (MDAs). This would enhance coordination and management mechanisms at all government levels for climate change adaptation planning and implementation.

Driver Analysis

Generally, in Egypt climate change is expected to cause temperature increase, sea level rise and significant water fluctuations in the River Nile, which could lead to reduced water supplies and loss of agricultural land - given that 12-15 percent of the arable fertile land is in the Nile Delta.[17] For instance, future projections show likely scenario of 0.5 to 1 meter rise in sea levels along the Nile River Delta coast by 2100.[18] The agriculture, water and land use sectors are projected to continue at risks and facing the negative impacts of climate change due to their level of vulnerability. One of the major concerns is the projected sea level rise, which would impact the low-lying coastal areas and lead to saltwater intrusion, reduced fresh water supplies and loss of fertile agricultural land thereby negatively impacting food security, as well as human settlement. And yet about 90 million Egyptians who live in/near the Nile River Delta and in the Lower Nile Valley have for centuries depended on the nutrient-rich soil of the Nile River Delta for food production[19]. With a population expected to double in the next 50 years, Egypt is projected to have critical countrywide fresh water and food shortages by 2025. As such, in its development plan – Egypt Vision 2030 and its Climate Change National Strategy 2050, the country highlights the need to have a National Adaptation Plan (NAP), with sectoral specific adaptation needs and possible specific funding opportunities to enable investment in adaptation options. The plan and the strategy further mention that the prepared NAP should guide to reduce the climate change risk impacts of climate change in mid-and long-term and facilitate the integration of adaptation into all levels of development planning with much focus on the most vulnerable sectors – the agriculture, water and land use sectors.

Building on policy and institutional set up already described in section 2.3 and 2.4, the Government of Egypt embarked on a National Adaptation Planning (NAP) process aiming to prepare a National Adaptation Plan Framework document and further implement it in all sectors. Preparation and implementation of the NAP is to be informed by current and predicted future sectoral and sub-sectoral climate change climate risks and

[17] Egyptian Intended Nationally Determined Contribution. Republic of Egypt; 2015.
[18] Stanley, JD & Clemente, PL (2017). Increased Land Subsidence and Sea-Level Rise are Submerging Egypt's Nile Delta Coastal Margin. https://doi.org/10.1130/GSATG312A.1

vulnerability levels, is to be underpinned by strong institutional and human capacities to coordinate and manage planning and implementation and is to be supported by functional MRV and M&E systems.

Barrier analysis

Although there is already a policy framework to address climate change impacts, underpinned by the 2011 National Adaptation Strategy (NAS) and the Climate Change National Strategy 2050, and already an established high-level political/institutional arrangement - the NCCC- mandated to guide the implementation of these climate strategies, there are still some gaps and challenges. The main issues include limited availability of data and evidence base to support mitigation and adaptation planning in most sectors and sub-sectors, insufficient capacity for integrated and whole-of-government planning and implementation, including mechanisms for effective cross-sectoral coordination, and no mechanisms to monitor, measure and evaluate effectiveness of national adaptation strategies and climate action plans on an ongoing basis. Furthermore, there is insufficient financial resources and budgets allocated for climate action (mitigation and adaptation) and, there is weak engagement of the private sector and low level of private sector-led investments in climate action in the agriculture, water and land use sectors.

Expected outcomes

Availability of information and knowledge on the current and future climate change risks, vulnerability levels, potential impacts, as well as on the possible adaptation options for different sectors and their sub-sectors is essential for the preparation of a NAP framework and provides important evidence base essential for effective long-term adaptation planning and implementation. Additionally, established and functional institutional systems such as the MRV and M&E systems play an important role in helping to track, adjust/revise and report on adaptation implementation, and the EWS act to provide timely and actionable information to improve preparedness and response to climate change related hazards and disasters. Adaptation planning is a key tool for progressing action on reducing vulnerability to climate impacts. Therefore, SCALA programme will - in alignment with the ongoing NAP preparation process - contribute to a systematic assessment of vulnerabilities, gaps, barriers and opportunities for the agriculture sub-sectors and generate information to support adaptation planning process; support capacitation in the agriculture sector to contribute to a national system for climate change MRV and M&E for mitigation and adaptation, as well support the designing of a national scale EWS to support smallholder farming; and develop project concepts to leverage private sector investment in gender-responsive and inclusive climate action in the horticulture sub-sector.

Leverage points

- Align with the already started National adaptation planning process and the existing general frameworks for climate change interventions.
- Enhance national M&E and MRV systems in the agriculture, water and land use sectors.
- Improve institutional arrangements and coordination capacities for whole-of-government adaptation planning: work with the NCCC and its adaptation task force as the institutional anchor for coordinating adaptation planning.
- Strengthen public-private partnerships and financial de-risking measures that include integrating climate risks into private sector investment.
- Promote an integrated early warning that collects and disseminates timely and actionable data that support smallholder farming particularly in the horticulture sub-sector.

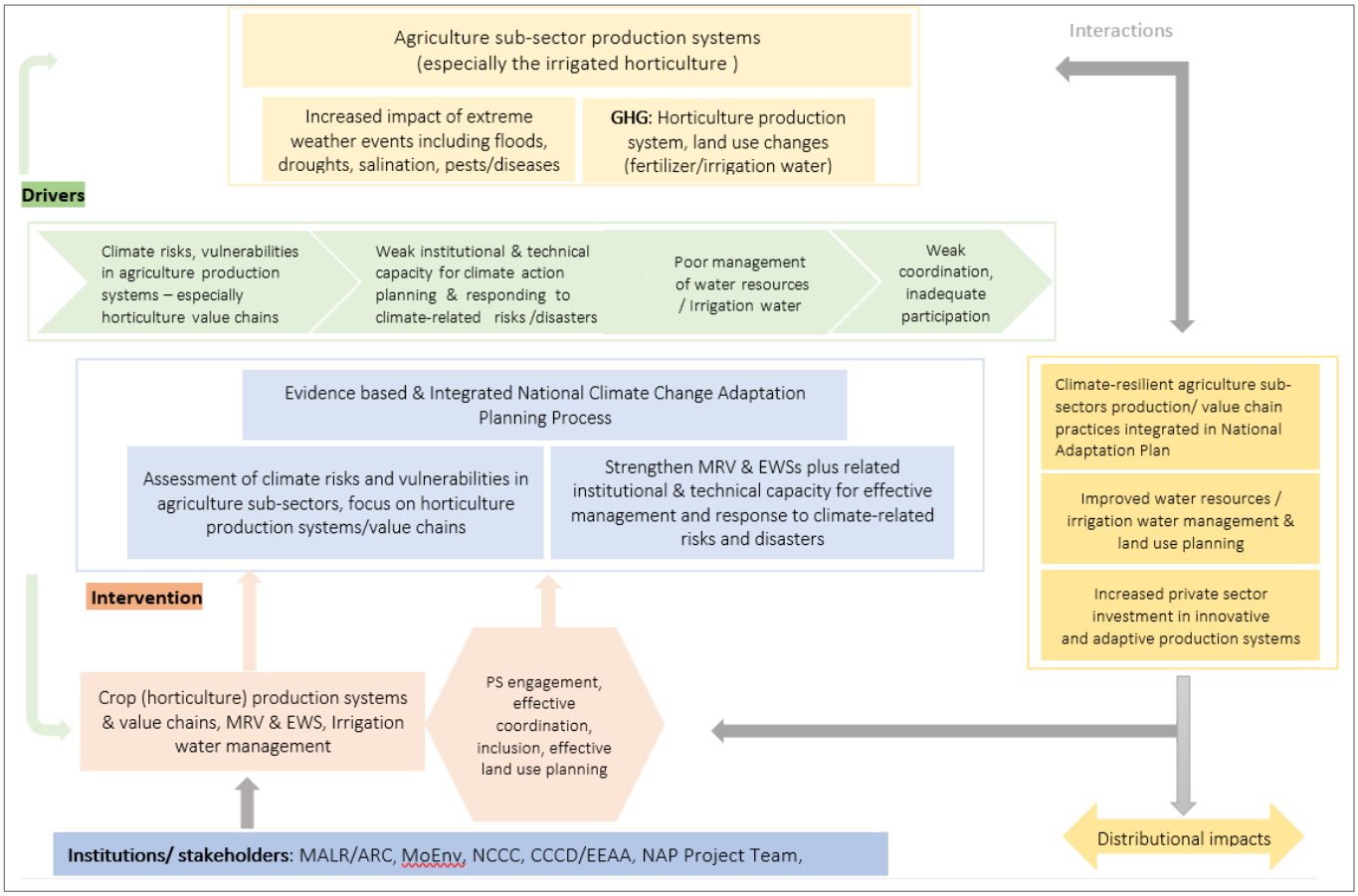
Actors of change

- National Council for Climate Change (NCCC) - The coordination governmental and local development body play a critical role in adopting strategies and policies related to reducing GHGs emissions and adaptation to climate change impacts;
- Cabinet of Ministries/Information and Decision Support Center (IDSC) under the Cabinet of Ministries – The national Focal Point for UNISDRR (for example EWS);

- The Ministry of Agriculture and Land Reclamation (MALR)/Agriculture Research Center (ARC);
- Ministry of Environment / Egyptian Environmental Affairs Agency/Climate Change Central Department (CCCD) - The coordination Focal Point for UNFCCC and IPCC;
- The Ministry of Finance – domestic budgeting;
- The Ministry of Planning and Economic Development (MoPED)- to ensure that national, sectoral and district budgets and indicative planning figures integrate climate change;
- National Council for Women (NCW) - gender integration;
- NGOs, CSOs, Cooperatives and Agricultural Associations.

5.1.2. THEORY OF TRANSFORMATIVE CHANGE

Figure 6. Illustration flow of the Theory of Transformative Change



Source: Authors

6. WORK PLAN

1.1 OUTCOME 1

Through desk review of the first updated NDC and the national climate change strategy, and through participatory consultations involving line ministries, relevant civil society and private sector actors, generation of evidence to support NAP preparation process and the establishment of institutional systems in relation to M&E, MRV and EWS been identified as areas of focus for SCALA programme implementation. Under this outcome, system-level assessment will be conducted for agriculture sub-sectors to understand the vulnerability level, the existing gaps, barriers and opportunities for transformative adaptation planning and implementation. Also, various actors in climate actions will be mapped. The assessment will be supported by multi-sectoral consultations on climate change adaptation practices with transformative and inclusive potential in the agriculture, water and land use sectors. An assessment report will be produced using disaggregated data and entailing both qualitative and quantitative status in relation to climate vulnerability and risks, a set of proposed interventions and pathway recommendations in terms of adaptation, resilience and GHG emission reductions, which will contribute to the NAP preparation process. Also, the generated information will inform and guide agriculture authorities level planning for transformative adaptation in the agriculture sector, with focus on the horticulture subsector.

1.2 OUTCOME 2

Egypt has an updated NDC and proposed MRV system in its BUR 2019 which should be implemented across sectors and across different administrative levels. SCALA programme in Egypt will aim to support the establishment of this proposes MRV systems and support capacity building on its use. More so, activities are planned to improve multi-stakeholder coordination and institutional capacities for the translation and integration of the (most) transformative climate actions entailed in the updated NDC into the agriculture sub sector level adaptation plans and budgets for the governorate agriculture authorities. Key planned activities to be implemented with collaboration from other UN agencies, including WFP and UNESCO, include (1) Designing national MRV and M&E systems for climate change adaptation measures in water resources and irrigation water management and mitigation and/or adaptation in land use and agriculture, including collection of gender disaggregated data, (2) Designing national scale Early Warning System to support Smallholder farming and (3) Organize training workshops for using Regional Circulation Modelling (RCM) in climate projections, assessing climate change impact on water resources and agriculture and climate change adaptation strategies for the water sector, and (4) Prepare a national climate related agriculture and water report based on the M&E indicators and train government staff on managing the M&E system.

1.3 OUTCOME 3

SCALA programme will support assessment of the agriculture sub-sectors to understand the challenges and opportunities for catalyzing private sector investments in climate actions. The assessment output will inform the preparation of private sector engagement plan. Also, the assessment output will provide information to support the development and appraisal of project concepts about business opportunities to leverage private sector investment in transformative, gender-responsive and inclusive climate action in the agriculture sub-sector, with focus on the horticulture sub-sector. The already mapped private sector actors in outcome 1, will be involved through public-private dialogues and partnership building sessions. These discussion sessions will also include the identification and discussion of de-risking solutions that would incentivize possible public-private partnership investments in climate actions in the horticulture sub-sector. Generally, SCALA programme will aim to catalyze increased engagement and private sector investments in transformative and innovative climate actions in the agriculture sector and the horticulture sub-sector.

7. STAKEHOLDER MAPPING

Programme implementation will be in close collaboration with the following stakeholders at national level.

Table 5. Potential stakeholders to be involved in programme implementation in Egypt

Type / role & responsibility in implementation	Institution / stakeholder
Government **Collaborate on integration of climate actions into planning, budgeting and monitoring; develop partnerships and implement**	EEAA
	CCCD (V&A Dept)
	Fourth National Communication Project team
	NDC Project team
	NAP Project team
	MALR/ARC
	Climate Change Information and Renewable Energy Center
	Animal Health Research Institute (AHRI)
	Cotton Research Institute (CRI)
	Agricultural Economics Research Institute (AERI)
	Agricultural Engineering Research Institute (AENRI)
	Agricultural Extension & Rural Development Research Institute (AERDRI)
	Agricultural Genetic Engineering Research Institute (AGERI)
	Animal Production Research Institute (APRI)
	Animal Reproduction Research Institute (ARRI)
	Field Crops Research Institute (FCRI)
	Food Technology Research Institute (FTRI)
	Horticulture Research Institute (HRI)
	Plant Pathology Research Institute (PPATHRI)
	Plant Protection Research Institute (PPRI)
	Soil, Water and Environment Research Institute (SWERI)
	Sugar Crops Research Institute (SCRI)
	Veterinary Serum and Vaccine Research Institute (VSVRI)
	Central Agricultural Pesticide Laboratory (CAPL)
	Central Laboratory for Agricultural Climate
	Central Laboratory for Agricultural Expert System (CLAES)
	Central Laboratory of Organic Agriculture (CLOA)
	Central Laboratory of Residue Analysis of Pesticides & Heavy Metals in Foods
	Nano Technology and Advanced Materials Central Lab
	National Gene Bank
	Extension Sector
	Agriculture Bank
	Faculty of Agriculture (Cairo, Azhar, Ain Shams)
	National Desert Center
	MWRI
International Organizations	UNDP
	FAO
	UNESCO
	WFP

Type / role & responsibility in implementation	Institution / stakeholder
Civil Society Partnerships for engagement & investments in climate actions in the AFOLU sectors	GEF Small Grants Programme
	CARE ; CEOSS ; Baseera ;
Private Sector	SEKEM ; PepsiCo Egypt

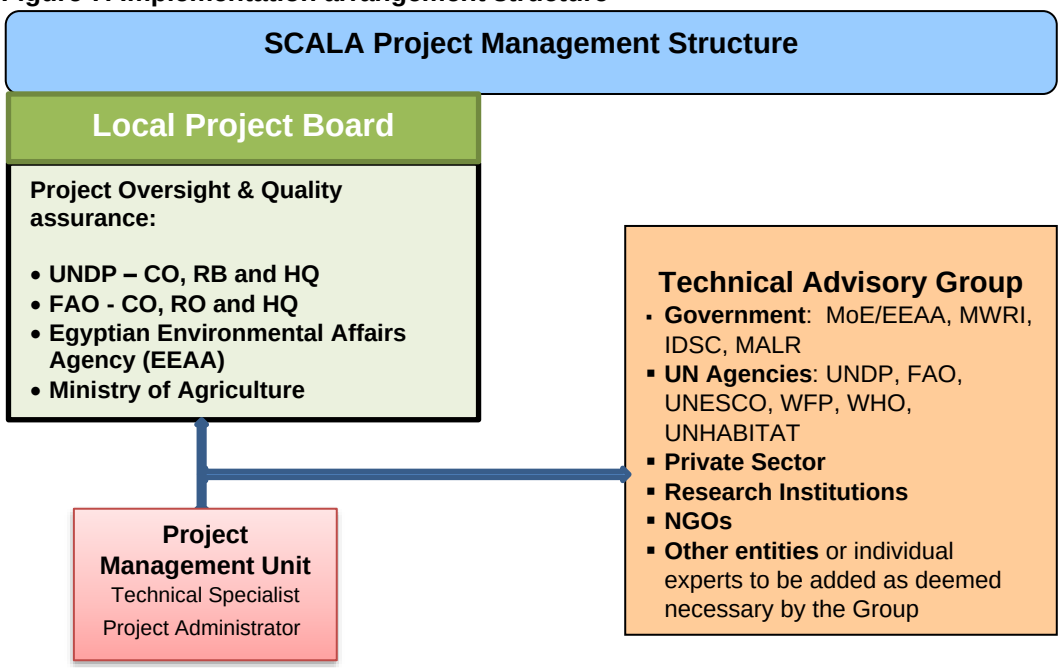
Source: Authors

8. OPERATIONS

8.1 IMPLEMENTATION ARRANGEMENT

Country and global team coordination: The coordination and implementation of SCALA programme in Egypt is interlinked through different layers (figure 7) and is guided by a team composed of specialized technical staffs from UNDP and FAO, and representatives from the Ministry of Agriculture and Land Reclamation (MALR), Ministry of Water Resources and Irrigation (MWRI) and Ministry of Environment (MoEnv), particularly from the climate change central department: a department coordinating the country's implementation of the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol (KP). Two country level technical specialists - one from FAO and the another from UNDP are responsible for the day-to-day delivery of the joint workplan. The joint work plan has clear specification of which agency leads implementation of each activity. The technical specialists are supported by three staffs (two from UNDP and one from FAO) on technical, operational and management aspects including building partnerships with other stakeholders. In addition, two staffs- each from MALR and MoEnv- are technically supporting implementation and linking the SCALA programme to other government implemented climate initiatives. There are two global team members, each from UNDP and FAO, offering technical backstopping and operational support, as well as linking with the respective regional and global offices for specialized technical support.

Figure 7. Implementation arrangement structure



Source: Authors

The Project Board will be the strategic decision-making body of the project and will specifically be responsible of the following:

- Provide overall guidance and direction to project implementation - review and endorse annual workplans, review progress reports, provide direction and recommendations to ensure the agreed deliverables are produced satisfactorily according to the work plan.
- Quality assurance while ensuring adherence and compliance with donor, FAO and UNDP guidelines, policies and procedures.
- Review the project progress and provide direction and recommendations to ensure that the agreed deliverables are produced satisfactorily according to plans; ensure that resources are committed exclusively to activities that relate to the achievement of approved project objective and outcomes and in line with approved annual work plans.
- Meets at least 2-3 times a year.

The Technical Advisory Group (TAG) will advise on technical aspects of the project. It will double as a TAG for the NAP readiness project. Specifically, the TAG will be responsible of the following:

- Ensure use of national and regional project results and priorities at the global level and disseminate as appropriate using the agencies' networks.
- Provide technical guidance to the Project Management Unit on methods, tools and techniques related to project implementation, including preparation of TORs, sourcing for national and international consultants, review of consultant's outputs, and so on.
- Promote and support the coherent implementation of climate change adaptation in line with 2030 Agenda and other relevant international initiatives such as Sendai Framework.
- Recommend strategic engagement and provide analytical input for project implementation.

Project management unit will be responsible for day-to-day management, coordination and delivery of the project planned activities. It will consist of two Technical Specialists, one from UNDP and another from FAO. They will coordinate implementation of a jointly prepared workplan.

8.2 MONITORING, EVALUATION AND REPORTING

The programme inception phase (about 10 months) allowed a baseline study, which involved desk review of the updated NDC and Climate Change National Strategy 2050. This led to identification of the existing gaps and challenges related to climate change action (mitigation and adaptation) particularly related to NDC implementation and adaptation planning in the agriculture, water and land use sectors. Through stakeholders' consultations, the identified gaps were discussed, and related actions formulated to constitute priority areas of focus for SCALA programme implementation. From the prioritized actions, related activities were formulated to constitute a draft multi-annual workplan. The draft multi-annual work plan, with its target outputs, activity deliverable indicators and means of verification were discussed and adopted during the programme inception workshop in May 2022. A programme results framework is in annex 1.

Quarterly and Annual reports: Implementation progress shall be monitored quarterly through quarterly updates on the technical and operational arrangements, delivery of planned activities and partnerships established. These quarterly reports shall be submitted to the SCALA global team and serve as a basis to tailored implementation support and guidance. If required, the quarterly update shall also be shared with the local project board to inform their guidance and support. Annual programme review will also be done to monitor implementation progress towards programme output delivery, and where necessary revisions of the workplan and budget shall be done. Lessons learned and good practices shall also be compiled and shared. In the last quarter of SCALA programme implementation, the country team will prepare a Terminal Report. This comprehensive report will summarize the results achieved (outputs and outcomes), lessons learned, challenges met and areas where results may not have been achieved as planned. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the programme results.

Mid- and End-term evaluation: It is expected that the programme will undergo an independent mid-term review at the mid-point of implementation. Though the review will be at global level, results from SCALA implementation in Egypt will contribute to the required documentation and global programme results. This review will determine progress being made towards the achievement of outputs and contribution to SCALA global outcomes and will identify course correction where necessary. It will focus on the effectiveness, efficiency and timeliness of programme implementation; will highlight issues requiring decisions and actions; and will present lessons learned about implementation and programme management. Findings of the mid-term review will be incorporated as recommendations for enhanced implementation during the final half of the programme's term.

A Final Terminal Evaluation will take place in the last quarter of programme implementation and will be undertaken in accordance with guidance from SCALA global team. It is expected that the final evaluation will focus on the delivery of the programme's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). Final evaluation will look at the contribution into NAP preparation process and the functioning of the institutional systems, as well as the sustainability of results, including the contribution to implementation of the updated NDC.

8.3 KNOWLEDGE MANAGEMENT AND COMMUNICATIONS

The following are knowledge and communication materials planned:

- Written reports on implementation progress, activities or assessments/studies.
- Policy and Technical Briefs and documented good practices.

9. BIBLIOGRAPHY

Adamo, N., & Al-Ansari, N. 2018. Climate Change Impacts: The Middle East and Egypt in Focus. *Reaserch Gate.* Available at: https://www.researchgate.net/publication/327690004_Climate_Change_Impacts_The_Middle_East_and_Iraq_in_Focus

Batisha, A. F. 2012. Adaptation of sea level rise in Nile Delta due to climate change. *Earth Science and Climate Change*,3(2). doi: 10.4172/2157-7617.1000114

GERICS. 2019. Climate Fact Sheet – Egypt. Available at: https://www.climate-servicecenter.de/products_and_publications/fact_sheets/climate_fact_sheets/index.php.en

Perez, N.D., Kassim, Y., Ringler, C., Thomas, T.S., & ElDidi, H. 2021. Climate change and Egypt's agriculture. MENA Policy Note 17. Washington, DC: International Food Policy Research Institute (IFPRI). Available at: https://doi.org/10.2499/p15738coll2.134318

Ministry of Environment in Egypt. 2010. *Egypt Second National Communication to the UNFCCC*. Cairo. Available at: https://unfccc.int/resource/docs/natc/egync2.pdf

Ministry of Environment in Egypt. 2015. *Egyptian Intended Nationally Determined Contribution.* Cairo.

Ministry of Environment in Egypt. 2016. *Egypt Third National Communication to the UNFCCC.* Cairo. Available at: https://unfccc.int/sites/default/files/resource/TNC%20report.pdf

Ministry of Environment in Egypt. 2018. *Egypt's First Biennial Update Report 2018*. Cairo. Available at: https://unfccc.int/sites/default/files/resource/BUR%20Egypt%20EN.pdf

Ministry of Environment in Egypt. 2022. *Egypt's First Updated Nationally Determined Contribution*. Cairo. Available at: ttps://unfccc.int/sites/default/files/NDC/2022-07/Egypt%20Updated%20NDC.pdf.pdf

Ministry of Environment in Egypt. 2022. *Egypt National Climate Change Strategy*. Cairo. Available at: https://www.eeaa.gov.eg/portals/0/eeaaReports/N-CC/EgyptNSCC-2050-Summary-En.pdf

Stanley, JD & Clemente, PL. 2017. Increased Land Subsidence and Sea-Level Rise are Submerging Egypt's Nile Delta Coastal Margin. *The Geological society of America*. Volume 27, Issue 5. https://doi.org/10.1130/GSATG312A.1

Van der Most, H., Marchand, M., Bucx, T., Nauta, Tjitte., & Van Staveren, M. 2009. Towards Sustainable Development of Delta's, Estuaries and Coastal Zones: Trends and Responses: executive summary. Netherlands. Available at: https://edepot.wur.nl/322989

World Bank Data Bank. 2020. World Bank Climate Change Knowledge Portal (CCKP). Available at: https://climateknowledgeportal.worldbank.org/country/egypt

World Bank Data Bank. 2021. Health Nutrition and Population Statistics: Population estimates and projections – Egypt. Available at: https://databank.worldbank.org/source/health-nutrition-and-population-statistics

World Bank Open Data. 2022. World Development Indicators for Egypt. Available at: https://databank.worldbank.org/reports.aspx?source=2&country=Egy

10. ANNEXES

ANNEX 1: PROGRAMME RESULTS FRAMEWORK AND BASELINE INFORMATION

RESULT CHAIN	ACTIVITY	INDICATOR	UNIT	BASELINE	TARGET
Outcome 1: *Information and assessments used by national stakeholders to identify and appraisetransformative climate actions to advance NDC/ NAP priorities in land use and agriculture*					
Output 1.1. Evidence base for implementationof transformative climate action in land use or agriculture strengthened	**Sub-activity 1.1.2.2:** Assessment of climate change impact in agriculture sub-sectors and on water resources and climate change adaptation strategies for the water sector using the tool - Regional Circulation Modelling (RCM) in climate projections.	Assessment conducted in the agriculture sub-sectors and information in relation to climate risks, vulnerability and adaptation options generated to support the NAP preparation process.	Assessment reports	There is limited climate information to support the NAP preparation process.	Assessment conducted and evidence base generated to support adaptation planning process.
Outcome 2: Climate risk-informed land use & agriculture sector priorities integrated into national & sectoralplanning, budgeting & monitoring					
Output 2.1. NDC and NAP priorities for land use and agriculture enhanced and integrated into sectoral planning and budgeting	**Sub-activity 2.1.1.1** Targeted capacity building for technical staffs in the agricultural subsectors on adaptation planning and budgeting. **Sub-activity 2.1.1.2:** Strengthen multi-stakeholder coordination and institutional capacities for the integration of NDC priorities in sectoral planning and budgeting process.	Number of institutions / staffs from the agriculture, water and land use sectors, with strengthened capacity on gender responsive adaptation planning, monitoring and budgeting, and also involved and supporting the NAP preparation process.	Capacity building reports.	There is low-capacity level for adaptation planning and budgeting; and there is less coordination for multi-stakeholder collaboration at (sub-) national and or sectoral levels for adaptation planning and implementation.	At least 2 institutions have adopted sectoral plans /Or budget submissions that (i) incorporate gender-responsive mitigation and adaptation actions.
	Sub-activity 2.1.2.1: Improve/develop national MRV and M&E systems to support the monitoring and reporting regarding mitigation and/or adaptation in land use and agriculture, including collection of gender disaggregated data.	Number of MRV and M&E systems operationalized at (sub-) national and/or sectoral level for monitoring and reporting on mitigation and/or adaptation in land-use and agriculture sectors.	Government's MRV & M&E databases, in place.	No functional MRV and M&E systemalready operational.	At least one MRV and/or M&E system, with gender disaggregated data is operationalized at national and/or sectoral level for monitoring and reporting on CCM/A in agriculture or water or land use sector.

RESULT CHAIN	ACTIVITY	INDICATOR	UNIT	BASELINE	TARGET
	Sub-activity 2.1.2.1 Support the designing of a national scale Early Warning System to support smallholder farming, & Conduct trainings on its application.	Guidelines, tools related to Early Warning System developed.	National guidelines and EWS in place.	No guidelines in place.	Guidelines and national EWS targeting smallholder farming developed.
	Sub-activity 2.1.2.2 Design tools for integration of climate change and environmental dimensions in spatial land use planning and Conduct training on the application of the developed tools.	Tool for climate change responsive land use planning in the agriculture sector.	Tool to support land use planning in the agriculture sector.	No tool in place.	A climate change responsive land use planning tool developed.
Outcome 3: Private sector engagement in climate action in land use and agriculture increased					
Output 3.1. Enabling environment and incentives enhanced for private sector engagement in NDCs and NAPs implementation	**Sub-activity 3.1.1.1:** Assess the agriculture sub-sectors and identify business opportunities, as well policy and financial de-risking measures to enhance private sector engagement and investments in climate actions.	Private sector engagement plan developed. Number of gender responsive de-risking strategies validated by existing institutional coalitions of public, & private sector.	Strategy documents, Workshop reports, Assessments reports.	No private sector engagement plan in place. Limited or no financial de-risking measures for private sector led business opportunities and climate action investments.	A private sector engagement plan in place. At least one de-risking strategies validated by existing institutional coalitions of public & private sector actors.
	Sub-activity 3.1.2.1: Develop project concept notes to leverage investment for transformative and inclusive action in partnership with the private sector.	Number of project concept notes developed for transformative and gender responsive climate action with public private partnerships.	Project concept notes, project documents.	Limited or no project concept notes for transformative and gender responsive climate action with public private partnerships.	At least one project/ business concept notes for transformative and gender-responsive climate action with public private partnerships Developed.

Source: Authors

ANNEX 2: INCEPTION WORKSHOP AGENDA

Egypt's Scaling Up Climate Ambition on Land Use and Agriculture Through NDCs And NAPs (SCALA) Project - 30 May 2022, Marriot Hotel, Zamalek, Cairo

Time	Topic/ Description	Speaker (Name/Title)
09:30 – 10:00	**Registration**	
10:00 – 10:30	**Opening Remarks**	
	Mr. Alessandro Fracassetti UNDP Resident Representative **Mr. Abdul Hakim Elwaer** Assistant Director General UN FAO Near East and North Africa **H.E. El-Sayed El-Qasir** Minister of Agriculture and Land Reclamation **H.E Dr Yasmine Fouad** Minister of Environment	
10:30 – 10:45	**Break**	
10:45-11:45	**Technical Session** (5 -7 Minutes per presenter/speaker)	
10:45-10:57	The state of knowledge on climate change impacts on agrifood systems	**Dr. Mohamed Abdel Monem** Senior Advisor, FAO
10:57-11:05	Background on SCALA and its linkages with NDC and NAP	**Ms. Theresa Wong** Natural Resources Officer, FAO
11:05-11:20	**SCALA work plan**	**Mr. Saber Osman** SCALA Consultant
11:20-11:40	**UNESCO** Egypt related activities to SCALA	**Dr Bisher Emam** Senior Programme Specialist, Regional Hydrologist for Arab States, UNESCO
	WFP Egypt related activities to SCALA	**Dr Amani Gamal El-Din** Head of Programme, WFP
	UNDP Egypt related activities to SCALA	**Dr. Mohamed Bayoumi** Assistant Resident Representative, UNDP
11:40-12:40	**Comments Governmental Organizations & Private Sector** • Ministry of Environment (**MoEnv**) • Ministry of Agriculture **(MALR)** • Ministry of Water Resources and Irrigation (**MWRI**) • General Authority for Physical Planning (**GOPP**) • Information Decision Support Center (**IDSC**) • Egyptian Meteorological Authority (**EMA**) • **PEPSICO** • **SEKEM**	
12:40-13:00	**Q&A session (**Written questions will be collected from participants and response to it will be managed by the rapporteur and the consultant)	
13:00-13:10	Wrap up and closing remarks	**Mr. Saber Osman**

Source: Authors

ANNEX 3: INCEPTION WORKSHOPS LIST OF PARTICIPANTS

44 participants attended the SCALA Egypt inception workshop, of which 27 were male and 17 were female participants.

No	Name	Title	Organization	Mobile	Gender	Email
1	Fatma Abouzeid	Climate Change Expert	FAO	01065450291	F	Fatmaelzahraa.abouzeid@fao.org
2	Mohamed Yacoub	AFAOR	FAO	01011173586	M	Mohamed.yacoub@fao.org
3	Mohamed Moussa	Com. Officer	FAO	01210776613	M	Mohamedali.moussa@fao.org
4	Cherine Moruad	Programme	FAO	01005440004	F	Cherine.moruad@fao.org
5	Naglaa Elbendozy	Project Coordinator	FAO	01227939271	F	Naglaa.elbendozy@fao.org
6	Hamada Soliman	Communicatio n	FAO	01159666900	M	Hamada.soliman@fao.org
7	Mohamed Abdel Monem	Senior Advisor	FAO		M	
8	Chris Balor	Programme Ind. Consultant	FAO		M	
9	Mohamed Bayoumi	Assistant Resident Representativ e	UNDP	01018852219	M	Mohamed.bayoumi@undp.org
10	Heba Helmy	UNDP Programme	UNDP	01094839419	F	Heba.helmy@undp.org
11	Samir Tantawi	Doctor	UNDP – NC4 Egypt	01226305025	M	Samir_tantawi@hotmail.com
12	Noran Said	UNDP Com. Coordinator	UNDP	01226330263	F	Noran.said@undp.org
13	Ahmed Abdelhamid	NAP Project Manager	UNDP	01001113545	M	Iczm_ahamid@yahoo.com
14	Khadija Hafez		UNDP	01221000243	F	Khadija.hafez@undp.org
15	Amani Gamal Eldin	Head of Programmes	WFP	01066696446	F	Amani.gamaleldin@wfp.org
16	Bisher Imam	Regional Hydrologist	UNESCO	01003751400	M	B.imam@unesco.org
17	Mohamed Khalifa	Doctor	Cabinet of Ministers	01120676767	M	Khalifa10721@yahoo.com
18	Khaled Tageldien	Vice President of Crisis and Disaster Management Sector	IDSC	01001421971	M	Khawad@idcs.net.eg
19	Nagwan Sheha	Expert	IDSC	01277002779	F	Nshieha@idsc.net.eg
20	Marwa Fawzi	International Coach – Acting Manager	IDSC	01223651568	F	Mfawzim@idcs.net.eg
21	Helmy Abouleish	CEO	SEKEM	01223999222	M	Helmy.abouleish@sekem.com
22	Mohammed Shaker	Sustainability Manager	PEPSICO	01141988222	M	Mohammed.shaker@pepsico.com
23	Raymon Nabieh	General Manager	CAPMAS	01228942743 01228942763	M	Raymon_andrawas@yahoo.com
24	Hassan Hamam	General Manager of Agriculture Statistics Sector	CAPMAS	01006951549	M	Hassan_h@CAPMAS.gmail
25	Khaled Abouzeid	Regional Water Director	CEDARE	01001551275	M	Kabuzei@cedare.int
26	Mohamed Magdy Abdelwahab	Professor	Cairo University	01224932141	M	Magdy@sci.cu.edu.eg

27	Ahmed Wagdy	Professor	Cairo University	01227669002	M	Awagdya@yahoo.com
28	Mohamed Nour El-Din	Professor	Ain Shams University	01227343751	M	Mhmdnour2@gmail.com
29	Samir Masoud	Professor	Al-Azhar University	01005379080	M	S_masoud_2006@azhar.edu.eg
30	Alaa Azouz		Ministry of Agriculture	01222152674	M	Alaazouz@hotmail.com
31	Shaker Aboelmaaty	Head of Central Lab for Agriculture Climate	Ministry of Agriculture	01005171960	M	
32	Tarek Shalaby	Manager	Ministry of Environment	01060230727	M	Trkshlby@gmail.com
33	Yasser Abdo	Deputy Institution for Guidance and Training	ARC	01006867716	M	Yaser_hemari@yahoo.com
34	Dalia Yassin	Director of FLW	ARC	01001200189	F	Dalia.yassin@hotmail.com
35	Ayman Ahmed	Senior Researcher	ARC	01005669913	M	Aymanelgizawee@gmail.com
36	Soad Sabry	Senior Researcher	ARC	01005043049	F	Goodweza2009@yahoo.com
37	Ahmed El-Kenawy		ARC	01067551816	M	Ahmed.elkenawy@arc.sci_eg
38	Amira Hassan		ARC	01066461398	F	Biotechamira2011@hotmail.com
39	Laila Hammad	Professor	ARC	01001979008	F	Lailashen@hotmail.com
40	Ahmed El-Behery	Doctor	AENRT	01001200092	M	Behery28@yahoo.com
41	Fatma Warda	Senior Researcher	VSVRI	01060384760	F	Dr_fa_fa@yahoo.com
42	Hajer Megdy	Specialist	AEC	01027613119	F	Hajer@aecegypt.com
43	Hadeer El-Hadary	Journalist	Scientific American	01126862993	F	Hadeerelhadary@gmail.com
44	Hayat Hussien	Journalist	Al-Shorouk - Attaqa	01016644886	F	Hayaa70@yahoo.com

Source: Authors

ANNEX 4: INCEPTION WORKSHOP PHOTOS

For more photos, please visit the following link.

©UNDP

©UNDP

©FAO

©FAO

Supported by:

Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

based on a decision of
the German Bundestag

IKI INTERNATIONAL CLIMATE INITIATIVE

This report has been developed under the “Scaling up Climate Ambition on Land use and Agriculture through NDCs and NAPs” (SCALA) programme, co-led by the Food and Agriculture Organization of the United Nations (FAO) and the United Nations Development Programme (UNDP), with funding from the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) through the International Climate Initiative (IKI).

Information
UNDP website
FAO website

© FAO, 2023
CC4378EN1/02.23