Country programme

Syrian Arab Republic

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GREEN CLIMATE FUND

Syrian Arab Republic

Ministry of Local Administration & Environment

Syria Country Programme

for the Green Climate Fund

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Introduction

A fundamental principle of the Green Climate Fund is that developing countries have ownership over the results of the projects and programmes financed using GCF resources (Country Ownership Principle). In this sense, each country must set its national priorities and present its strategy for engagement with the Fund through a Country Programme. The process of building a strategy for the GCF requires the engagement of many social stakeholders to subsidize the definition of national priorities, considering the views of the public sector, private sector, civil society and local communities.

The Syrian Arab republic developed this Green Climate Fund (GCF) Country Programme to provide an overview of the national scenario, the country's political framework and its plans and priorities for combating climate change. Syria's Country Programme sets out country priorities in relation to the GCF, as well as the current pipeline of investment and readiness projects. These priorities have been selected based on alignment with the GCF's results areas and investment criteria as well as through several stakeholder processes and consultations. The Country Programme is in alignment with the priorities, goals and targets outlined in the National Climate Change Policies such as: the Nationally Determined Contribution (NDC, 2017)[1], the National Action Plan and Strategy for Adaptation (NAPSA, 2010)[2], Initial National Communication to the UNFCCC (INC, 2010)[3], National Drought Management Strategy (NDMS, 2009)[4], National Integrated Water Resources Management Strategy (NIWRMS, 2009)[5], and the National Report of Syrian Arab Republic on Land Degradation Neutrality, Land Degradation Neutrality - Target Setting Programme (NLD-TSP, 2020)[6].

The Country Programme presents priority projects and programmes that can support Syria's transition to a low-carbon, climate-resilient development pathway. The Country Programme includes a pipeline of projects and programmes to be developed over the next five years. This includes project proposals with a focus on three main pillars: i) Agriculture and integrated landscape management, ii) Resilient cities and ecosystem-based adaptation of communities, iii) Sustainable infrastructure. These projects and programmes will be designed to meet GCF's investment criteria, reflect national priorities, and are intended to prompt a national paradigm shift.

Thus, this document was prepared under the coordination of the Directorate of Environmental Safety of the Ministry of Local Administration and Environment (MoLAE), Syria's National Designated Authority (NDA) to the GCF. This document is the result of a broad debate with the Syrian stakeholder during the stakeholder consultation workshop held on 30 May and 03 June 2021, which followed by four technical workshops that discussed and collected inputs, as well as two specific workshops involving the private sector and the Gender engagements. Additionally, the draft document went through a public consultation process on the NDA website: http://www.molae.gov.sy, hence reinforcing its collaborative character. It is worth mentioning that the inputs obtained during the process were systematized by the NDA and considered in the preparation of this Country Programme. Therefore, the objective of this Country Programme is to present the guidelines for the Fund's activities in Syria. The guidelines were developed in line with existing policies and strategies and according to national planning and climate change frameworks and policies. In this sense, this document seeks to present opportunities for the preparation of funding proposals to be submitted to the GCF that not only meet the Fund's criteria but are also aligned with national priorities, have economic feasibility and lead to transformational impact.

This Country Programme is designed to act as a flexible and continually updated programing framework. The programme is country-driven and is based on Syria's key national and sectoral priorities including the

1 Nationally Determined Contributions (NDC), 2017.
2 National Action Plan and Strategy for Adaptation (NAPSA), 2010.
3 Initial National Communication to the UNFCCC (INC), 2010.
4 National Drought Management Strategy (NDMS), 2009
5 National Integrated Water Resources Management Strategy (NIWRMS), 2009
6 National Report of Syrian Arab Republic on Land Degradation Neutrality, Land Degradation Neutrality - Target Setting Programme (NLD-TSP), 2020.

Nationally Determined Contribution and the National Action Plan and Strategy for Adaptation. The list of ideas for priority projects or programme is therefore subject to changes and updates as policy, strategy, and urgency of needs change in Syria. However, there is a need for more funding and technical assistance to enable Syria to prepare detailed strategies and action plans for each sector for better engagement with climate change adaptation and mitigation. Therefore, the programing plan included in this document is GCF-focused and includes the top priorities for which Syria will seek GCF funding during the next programing cycle 2024-2027. It will also assist the GCF Secretariat in providing support for the development of the GCF pipeline, reviewing project proposals, and informing the accreditation process. The Country Programme will be reviewed and updated annually to assess factors such as relevance, effectiveness, and impact.

Contents

Acronyms

AE	Accredited Entity
AF	Adaptation Fund
CC	Climate Change
CEPSD	Council for Environmental Protection and Sustainable Development
CIF	Climate Investment Fund
CFU	Climate Finance Unit
CSO	Civil Society Organization
DAE	Direct Access Entity
ESS	Environmental and Social Safeguard
GCF	Green Climate Fund
GCSAR	General Authority for Scientific Agricultural Research
GDMET	General Directorate of Meteorology of the Ministry of Defence
GEF	Global Environment Facility
GGGI	Global Green Growth Institute
GORS	General Organization of Remote Sensing
GoS	Government of Syrian Arab Republic
KfW	Kreditanstalt für Wiederaufbau
IBRD	International Bank for Reconstruction and Development
MoAAR	Ministry of Agriculture and Agrarian Reform
MoLAE	Ministry of Local Administration and Environment
MoED	Ministry of Education
MoEL	Ministry of Electricity
MoF	Ministry of Finance
MoFAE	Ministry of Foreign Affairs and Expatriates
MoPMR	Ministry of Petroleum and Mineral Resources
MoPWH	Ministry of Public Works and Housing
MoT	Ministry of Transport
MoWR	Ministry of Water Resources
NAMAs	Nationally Adapted Mitigation Actions
NAPAs	National Adaptation Programme of Action
NAPSA	National Action Plan and Strategy for Adaptation
NDA	National Designated Authority
NDCs	Nationally Determined Contributions
NERC	National Energy Research Centre
PPF	Project Preparation Facility
TNA	Technology Needs Assessment
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

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Chapter 1

CHAPTER 1

Country Profile

1. Country Profile

The Syrian Arab Republic (hereafter, Syria) is in the heart of the Middle East, on the eastern shores of the Mediterranean Sea between latitudes 32º 19 and 37º 25 degrees north, and longitudes 35º 43´ and 42º 25´ east. Syria is bordered in the north by Turkey, in the east by Iraq, in the south by Jordan and Palestine, and in the west by Lebanon and the Mediterranean. The Syrian Arab Republic's total area is 18,517,971 hectares, of which 6 million hectares consist of cultivated land, the remainder being steppe and Rocky Mountains. The Syrian steppe land is suitable for sheep and camel grazing, especially when rainfall is sufficient. Geographically, Syria may be divided into four regions:

- **The coastal region**: it lies between the mountains and the Mediterranean.
- **The mountainous regions**: they run from the north to the south of the country and include all mountains and hills parallel to the Mediterranean Sea.
- **The interior or plains region**: It includes the plains of Damascus, Homs, Hama, Aleppo, Hassakeh and Dera'a. All these plains are situated to the east of the mountainous region.
- **The desert region**: it consists of the desert plains situated in the south-eastern part of the country, along the Jordanian and Iraqi borders. The country falls into the hot and dry region of West Asia.

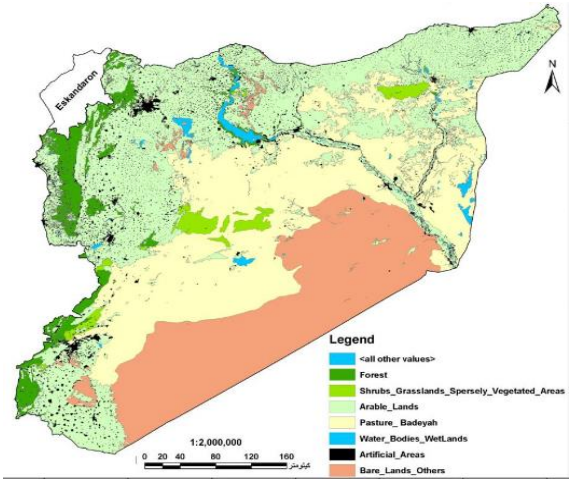


Figure 1: Land use map of Syrian Arab Republic (2015)

Table 1. Summary Country Profile

Syria - basic information	
Geographic Location	Western Asia, at the eastern end of the Mediterranean Sea.
Area	185,180 km^2
Population	18.2 million[7]
GDP per capita	US$ 2,807 (2010)[8]
Types of climates	Syria's climate is moderate, characterized by cold and rainy winters and hot and dry summers and relatively two short transitional seasons. Temperatures and rainfall are influenced and moderated by proximity to the sea and the mountains; therefore, each geographic region has specific climate characteristics. The annual average temperature is 18.1 °C on the coastal plain and 15.2 °C in the mountains.9 The mean maximum temperature in August (the hottest

7 UN-Habitat 2018, https://unhabitat.org/syrian-arab-republic
8 https://www.statista.com/statistics/326873/gross-domestic-product-gdp-per-capita-in-syria/
9 Initial National Communication on Climate Change of the Syrian Arabic Republic (2010), Ministry of State for Environment Affairs (MSEA), GEF and UNDP, April 2010, Damascus, Syria. (INC-SY, 2010). Available at: https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

	month) is 29.9 °C on the coastal plain and 27.4 °C in the mountains. At some locations in the coastal plains were recorded absolute maximum temperatures above 40 °C. The mean minimum temperature in January (the coldest month) is 8.0 °C on the coastal plain and 4.0 °C in the mountains. The annual average of precipitations is 300 mm, which is low when compared with the world's average (720 mm). The summer season is usually very dry, with a high evaporation level of about 1200 mm/year on the coast and more than 2600 mm/year in the eastern area[10].
Profile of GHG emissions	Total national GHG emissions excluding removals: 79,070 Gg CO_2eq in 2005 Vs. 52,660 Gg CO2eq in 1994 (INC, 2010)[11]. Total national GHG emission by sector is divided as follows: Energy (74%); Agriculture (17%); Waste (5%); and Industrial (4%). Sector contributions to greenhouse gases in Syria's emissions profile: CO2: Energy > 95%. CH4: Agriculture-35%, Waste-30%, and -35% from Energy. N2O: Agriculture-75%, and Waste-25%.
Main emission sectors	Energy; Agriculture.
Main climatic risks	Extreme events, temperature increase, evapotranspiration and runoff, shifting seasonal patterns, water shortages, changes in precipitation patterns (excess and scarcity of rainfall), and sea level rise.
Vulnerable Sectors	• Agricultural sector • Water sector • Ecosystems • Coastal zone • Health sector
NDA/FP	Ministry of Local Administration and Environment (MoLAE)
Main International AEs	FAO, GIZ, IFAD, JICA, KfW, UNDP, UNEP, and World Bank
Direct Access AEs	None

1.1. National development context

Syria has been for the last ten years under a crisis, which started in 2011. During this period, public and private infrastructure was destroyed, and the economy crushed due to escalating inflation, declined exports and investments, and constantly rising unemployment and poverty. Therefore, many of the socio-economic and environmental achievements of the previous two decades were drastically reversed. On the Human Development Index (HDI), the country currently only ranks on 151 of 189[12].

Years of crisis and heavy infrastructural damage and looting, has transformed Syrians from strong agrarian

10 INC-SY (2010).
11 UNDP, 2020. Human Development Index
12 UNDP, 2020. Human Development Index.

economy to food insecure country dependent on imports. Syria has historically been a strong agrarian economy. Much of the country's cropland lies in the north- east, north and central parts of the country, including notably the governorates of Al-Hasakeh, Ar- Raqqa, Aleppo, Hama, Homs, and Rural Damascus. Agriculture in the western governorates of Lattakia, Tartous and Idleb is known to largely center on citrus fruits, apples, olives and vegetable cultivation. While the Badia region, a stretch of semi-arid land in central Syria covering around 55 percent of the country, is primarily used for livestock grazing. The long-lasting crisis has resulted in increasing trend of food insecurity among the population and high dependence on imports for essential goods.

A total of 9.3 million Syrians is experiencing food insecurity (46% of total population), and the current crisis andCOVID-19 pandemic situation are exacerbating this situation. Food insecurity in the country is deteriorating because of the ongoing crisis and the COVID-19 pandemic situation, which has resulted in increase of prices, limited access to markets and limited imports of humanitarian aid.

The agricultural sector is an important economic sector in Syria; where 30% (6.5 million ha) of the Syrian lands are arable (24.65% irrigated and 57.89% rainfed). Approximately, 8.9 million people (44.5% of the Syrian population) live in rural areas, and more than one million (19.4% of the Syrian labour force) work in agriculture. The exceptional importance of the Syrian agricultural sector lies in that it constitutes an economic resource for more than 46% of the Syrian population in addition to the significant contribution to the Syrian national economy where more than 31% of the total Syrian exports come from the agricultural sector.

Before the crisis, the agricultural sector had been one of the main pillars of the Syrian economy with good contribution to the gross domestic product (GDP) and to more than 20% of the Syrian labour force. Even with the decline in the contribution from 21% of GDP in 1980 to 14.1% in 2011, the agricultural sector remained one of the main sectors of the Syrian economy.

Wheat, cotton, and olive oil are the most important agricultural products in Syria. Wheat is one of the most important strategic crops in Syria and the backbone for food security, while cotton and olive oil play a great role in supporting the balance of payments and are important exports products for the economy.

Syria is located in an arid and semi-arid land, where water resources are limited. Water is a scarce resource in the country and not uniformly distributed. There is an annual deficit in the water balance of about 3 billiard cubic meters. This deficit clearly appears in the Barada and Al-Awaj drainages, as well as in the Tigris and Habour Basins. This deficit is linked mainly to annual increase in water use in different sectors, far above the renewal rate of water. Syria is therefore categorized as one of the poor countries in water resources, according to the universal classification, which considers the limit of water poverty to be 1000 cubic meters per person per year.

The agricultural sector consumes around 90% of water resources, while around 8% are used for drinking purposes and 2% for the industrial sector. Since ~60% of total renewable water available originates from outside the country and most of Syria's major rivers are shared with neighboring countries, the water supply is highly vulnerable to upstream or international human and climate impacts. Climate change will likely exacerbate these water concerns. Unsustainable land- and drought-management practices that have driven over-abstraction from aquifers and reduced Syria's resilience to sustainably cope with periods of lower-than-average rainfall and the unprecedented series of droughts in recent decades. Syria has experienced three major drought events since 1990, each of which lasted approximately three years — the worst of these was the most recent drought of 2007–2010. With no standing national drought management or response capacity, the drought of 2006-2010 exposed Syria's water insecurities, and is also regarded as a contributing factor to social grievances in the country. These trends and projections are alarming. Under current conditions, water demand already exceeds supply, which is evidenced by declining groundwater levels. Climate change can thus be expected to exacerbate the water stress the country already experienced, with likely impacts on growth and development. Reduced and unpredictable rainfall

may lead to falling agricultural yields, potentially aggravating existing concerns over food security.

The forest lands in Syria cover 2.8% of the total territory of the country and play a key role for the sustaining the hydrological ecosystem services. The area of natural forests is 232,840 ha (44.5%) of Syrian forests, while the artificial forests represent 290, 083 ha (55.5%). Forests in Syria play an important role in stabilizing organic carbon in the soil and environmental and tourism role. They have no economic objective other than the benefits of beekeeping and access to medicinal plants and aromatic ones.

1.2. Climate Change Profile

Syrian Arab republic has a history of dealing with extreme climate including, frequent floods, droughts, and extreme temperatures. The country has high exposure to climate risks such as water deficit and limited adaptive capacity both at the institutional and individual levels. The Syrian crisis has led to severe disruptions to the economy, livelihoods, and development in the country, as well as contributing to migration, humanitarian, and refugee crises for the region at large. For those whose livelihoods and assets have been lost or abandoned, a low adaptive capacity to shocks such as climate change leaves them highly vulnerable. Whilst agriculture remains the backbone of the Syrian economy, employing one-fourth of the labour force and contributing 24% of GDP, this contribution is much reduced from pre-crisis levels. Furthermore, the crisis has caused significant damage to the country's essential water and sewage systems, thereby placing millions of people at risk of waterborne diseases and creating huge challenges for the sector.

Over the past decades, Syria has been affected by the adverse effects of climate change, including drought, extreme flooding, pests, and disease outbreaks, changes in rainfall patterns, increased sandstorm frequency, and increasing ambient temperature. Projections of future climate change indicate that these impacts are likely to increase in coming years, compounding the impacts of the crisis, and thereby threatening the livelihoods of a population made particularly vulnerable by high dependence on natural resources and widespread poverty. The convergence of these challenges with the results of the current crisis makes Syria among the world's most vulnerable countries to climate change.

As a result of the crisis which began soon after the submission of the Initial National Communication (INC) in 2010 and despite some efforts to develop a framework for long-term adaptation in Syria, adaptation planning in Syria remains limited. In addition to interrupting several donor-funded adaptation projects, the crisis diverted government resources to humanitarian and reconstruction priorities.

As the crisis situation has recently stabilised, Syria is resuming attention to national development and adaptation planning, although barriers and gaps remain, including: i) limited institutional capacity and coordination in institutions responsible for adaptation planning; ii) insufficient climate data, analysis and dissemination/access of information and knowledge that can be used to inform climate-resilient planning processes; iii) no consensus on, or mainstreaming of, climate change in national or sectoral planning; iv) limited financial resources and planning for funding adaptation; and v) lack of monitoring and reporting systems to communicate results of adaptation measures to decision-makers and improve implementation by evaluating lessons learned.

In the light of Syria's urgent need for adaptation to climate change, the Green Climate Fund provided support through the Readiness programme to assist the country in developing its ability to access climate finance.

1.2.1. Climate Change Scenarios

Climate change scenarios: medium and long-term projections

The effect of climate change in Syria points to an increased recurrence of extreme events and natural disasters, generating significant environmental and socio-economic impacts. Syria has a history of dealing with a harsh climate including low precipitation, frequent floods, droughts, and extreme temperatures. The country has high exposure to climate extremes and limited adaptive capacity both at institutional and individual level. Because climate change acts on many fronts and one event can trigger a cascade of responses, many indirect and hard to predict consequences of climate change may occur. The most vulnerable sectors to climate change include the agricultural sector, water sector, ecosystems, coastal zone, and health sector[13]. In order to better analyze the impacts of climate change in Syria, two scenarios developed by the IPCC AR5 were considered:1 a high emissions scenario (RCP 8.5) and an intermediate

13 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

emissions scenario (RCP 4.5). Climate projections for Syria have been modelled at a national scale[14] within the Initial National Communication on Climate Change for Syria (2010) and at a regional scale (50x50 km grid)[15] by the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR). While both levels of projections provide aligned results for the changes in temperature and precipitation, for the purposes of the climate change profile of Syria, the regional scale projections will be considered as a primary reference due to the use of more recent data, integrated assessment and upgraded models[16,17].

Temperature increases, rainfall variations, evapotranspiration and runoff, risk of water shortages, sea level rise and changes in climate patterns. The results of these projections indicate the following events in Syria:

Temperature

The temperature in Syria is increasing and is expected to continue to increase until the end of the century. The average temperature has been steadily increasing in the period 1955–2005 with around 0.6 °C (±0.16 °C) per decade[18]. A more significant increase is observed in the period 1995-2000 with a sharp increase between 2000 and 2005. According to the climate projections of the Initial National Communication on Climate Change, the average warming in Syria for the year 2041 will be higher than the global average for both reference and policy scenarios. The greatest increase (2.0-2.1 °C) will occur in the northwest and the southeast, while the most moderate increase (1.0-1.2 °C) will occur all over the country.

According to RICCAR assessment, projected temperature changes (compared to the reference period 1985–2005) at a regional level, show that temperatures will rise during this century. The general change in temperature for RCP 4.5 shows an increase of 1.2 °C – 1.9 °C, at mid-century and 1.5 °C – 2.3 °C by end-century. For RCP 8.5, temperatures increase to 1.7 °C – 2.6 °C for mid-century and 3.2 °C – 4.8 °C towards end-century[19]. For Syria in particular, warming is projected to be more rapid in the interior regions than in areas close to the coast. Higher warming is projected in the northwest and southeast. The north-eastern "breadbasket" region, which produces over two-thirds of the country's crop yields, is expected to experience higher temperature rises than the rest of the country, around 2.1-2.5°C in RCP 8.5 by mid-century. The number of consecutive dry days is projected to increase by 5 days, while the number of frost days are projected to decrease by 13 days.

Rainfall variations

According to long historical data, several sources verify that changes in rainfall patterns over the Middle East, including Syria, have declined over the past four decades with a gradually declining average rainfall since around 1940. Nearly all rainfall in the region occurs during winter (November – April) and exhibits large natural year-to-year variability, but the observation data show new record lows in the past three decades, especially in the northern and north-eastern zones of Syria[20]. Precipitation trends are decreasing across the country. Precipitation changes vary considerably across the region with no universal trend for annual results as well as at the seasonal level. Decreasing trends can be seen in most of the region at mid-century. By the end of the century, both scenarios for RCP 4.5 and RCP 8.5 suggest a reduction of the

14 Methodology used for the national climate projections: Model for the Assessment of Greenhouse Gases Induced Climate Change (MAGICC version 4.1, September 2003), coupled with a Climate Scenario Generator (SCENGEN), was used for the 2041 prediction, while predicted data acquired using global models were retrieved from the IPCC data base for 2041 -2100.

15 Methodology used for the regional climate projections: The climate change data was produced through downscaling projection from three global circulation models; EC-EARTH, CNRM-CM5, and GFDL-ESM2M on a specific Arab Domain using the regional climate model Rossby Centre Regional Atmospheric Model 4 (RCA4) to provide high-resolution information (50x50 km scale). These high-resolution climate outputs were generated for two emission scenarios, namely RCP4.5 and RCP8.5.

16 Climate Change Atlas of Syria (2010), Meslmani Y. and Faour G.; Ministry of State for Environment Affairs (MSEA) / United Nation Development Programme (UNDP), Damascus, April 2010.

17 Syria's National Action Plan and Strategy for Adaptation to climate change, 2010.

18 Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

19 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

20 GoS, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

average monthly precipitation reaching 8–10 mm in the coastal areas of the Arab region.

Evapotranspiration and runoff

The projected changes in evapotranspiration and runoff, calculated using the variable infiltration capacity (VIC) hydrological model, correspond with the projected annual change in precipitation in the country. At a regional level, evapotranspiration would potentially increase by 20-40 mm/year under RCP 4.5, reaching 40-60 mm/year under RCP 8.5 at mid-century. Although the change in evapotranspiration for Syria may not change significantly under RCP 4.5, will likely experience increase between 8-30mm/year by mid-century according to RCP 8.5. These increases are coupled with similar projected declines in runoffs in the most affected areas, runoff is likely to decrease by more than 50 mm/year[21]

Floods

More people are exposed to and affected by recurrent floods. While there is no clear trend in either the frequency or impact of floods because occasional huge events dominate the signal, data show a steady increase in the occurrence in the last two decades. Floods greatly affect agriculture and agricultural production. The most flood-prone areas in Syria are the north-eastern region, the *Ghab* region, and the coast. And, as an example of the damage that occurred in February and March of 2020, more than 2,000 greenhouses and tunnels planted with vegetables were exposed to the winds of storms and rainstorms, 4,500 hectares of wheat and barley were flooded in *Raqqa* and *Hasaka*, and dozens of sheep died in the desert due to the heavy rains, which caused economic losses in production for hundreds of families. The rapid urbanization in flood-prone areas, with poor urban planning and low investment in drainage, are often the causes for the high vulnerability.

Extreme events (*Temperature and precipitation extremes indices show increasing trend*) Syria is highly vulnerable to extreme events. In the recent past, the country has witnessed a significant rise in the frequency and severity of heat waves, droughts, and floods, which caused significant economic damage and loss of life. Droughts have become more frequent and more intense. Drought is one of the major climate hazards which affects Syria. Over the past decades (1950 – 2010) there were six significant droughts in Syria, caused by a significant decrease of winter precipitation—the major rainfall season. Five of these droughts lasted only one season, while the sixth lasted two seasons. Starting in 2006 and lasting into 2011, Syria experienced a multi-year extreme drought that contributed to immense agricultural failures. This dry period is being described as the ‘‘worst long-term drought, and most severe set of crop failures since agricultural civilisations began in the Fertile Crescent”. It is estimated that between 2006 and 2009, around 1.3 million inhabitants of eastern Syria were affected by agricultural failures. An estimated 800 000 people lost their livelihoods, and basic food supports, thus becoming food insecure. During this period, yields of wheat and barley dropped 47% and 67%, respectively, and livestock populations plummeted[22]. A return of drought in 2011 worsened the situation. By late 2011, the UN estimated that between 2 to 3 million people were affected, with 1 million people driven into food insecurity. More than 1.5 million people—mostly agricultural workers and family farmers—migrated from rural areas to cities and camps on the outskirts of Syria’s major cities of *Aleppo*, *Damascus*, *Dara’a*, *Deir ez-Zour*, *Hama*, and *Homs*. As a consequence of the recurrence of agricultural drought, the population immigration increased from the north-western part of Syria and from the Syrian steppe to urban areas.

Annual mean temperature and precipitation are generally insufficient to assess the impact of climate change on the region and reference to extreme climate indices and their seasonal peaks can provide greater insight into the implications of these changes. Understanding climate extreme indices contributes as well to better plan actions for reducing disaster risks at smaller scales of analysis. Regarding precipitation extremes, the projections for the maximum length of dry spell shows trends towards drier

21 FAO / GIZ / ACSAD, 2017. Climate Change and Adaptation Solutions for the Green Sectors in the Arab Region. RICCAR Technical Report, Beirut, E/ESCWA/SDPD/2017/RICCAR/TechnicalReport.2. Available at: http://www.riccar.org/sites/default/files/2020-01/Technical%20Report2_Green%20Sectors_Final.pdf

22 ACSAD, 2011. Case Study: Droughts in Syria – Ten years of scarce water 2000-2010. Available at: https://reliefweb.int/sites/reliefweb.int/files/resources/Full_Report_3074.pdf

conditions with an increase in the number of consecutive dry days by the end of the century. Changes in the length of dry spells are expected to be more significant under the RCP 8.5 scenario and towards the end of the century. It is assumed that the increases in the number of dry days can be an indication that the dry summer season is likely to be extended in length[23]. All indices for extreme temperature relating to hot days show increasing trends over time. Table 2 shows the projected change in the indices for temperature and precipitation extremes.

Table 2. Projection of extreme climate event indices for Syria[17].

Indices	Projection
Extreme temperature indices	
Cold Spell Duration Index (CSDI)[24]	Decreasing trends under both scenarios (RCP 4.5 and 8.5).
Change in the annual number of days with Tmax> 35°C (SU35)	Significant increase (RCP 4.5 and 8.5). Under RCP 8.5 the number of days with temperatures over 35°C is likely to rise to 80 days.
Change in the annual number of days with Tmax> 40°C (SU40)	Strong projected warming under RCP 8.5 indicating that the increase in extreme temperatures in the coastal areas is projected to be lower than the central parts of the country.
Changes in extreme precipitation	
Change in the maximum length of dry spell (CDD)	Trends towards drier conditions with an increase in the number of dry days. Because of this, the duration of the summer dry season will potentially be longer.
Change in heavy precipitation days (R10mm)	Decreasing trends, indicating a projected overall reduction in heavy precipitation days.
Change in very heavy precipitation days (R20mm)	The number of very heavy precipitation days is projected to decrease.

23 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

24 Annual number of days with at least 6 consecutive days when Tmin< 10th per centile

Extreme climate events

- **Drought is likely to be more common and more intense:**
  (i) More frequent and more intense droughts.
  (ii) A multi-year extreme drought (2006 – 2011) resulted to immense agricultural failures and massive population displacement:
    - Approx. 3 million people were affected.
    - 1 million people were driven into food insecurity.
    - More than 1.5 million people—mostly agricultural workers and family farmers—migrated from rural areas to cities.
- **Floods are more likely to affect greater numbers of people.**
  (iii) More people are exposed to and affected by recurrent floods.
  (iv) Recent floods (2020) resulted in impacts on the agricultural sector:
    - More than 2,000 green houses and tunnels planted with vegetables.
    - 4,500 hectares of wheat and barley were flooded in Raqqa and Hasaka, and dozens of sheep died.
- Heat waves will be more common and more intense.

Table 3: Projected Effects of Climate Change in Syria

Effect of ClimateChange	Details of Climate Projections
Increase in temperature	According to the climate projections of the Initial National Communication on Climate Change, the average warming in Syria for the year 2041 will be higher than the global average for both reference and policy scenarios. The greatest increase (2.0-2.1°C) will occur in the north-west and the southeast, while the most moderate increase (1.0-1.2°C) will occur all over the country[25]
Decrease in precipitation and water availability	Precipitation trends are decreasing across the country. Precipitation changes vary considerably across the region with no universal trend for annual results as well as at the seasonal level. Decreasing trends can be seen in most of the region at mid-century. By the end of the century, both scenarios for RCP 4.5 and RCP 8.5 suggest a reduction of the average monthly precipitation reaching 8–10 mm in the coastal areas of the Arab region. The Mean change in annual precipitation (mm/month) for mid- and end-century for ensemble of three RCP 4.5 and RCP 8.5 projections compared to the reference period.
Evapotranspiration and runoff	The projected changes in evapotranspiration and runoff, calculated using the variable infiltration capacity (VIC) hydrological model, correspond with the projected annual change in precipitation in the country. At a regional level, evapotranspiration would potentially increase by 20-40 mm/year under RCP 4.5, reaching 40-60 mm/year under RCP 8.5 at mid- century. Although the change in evapotranspiration for Syria may not change significantly under RCP 4.5, will likely experience increase between 8-30mm/year by mid-century according to RCP 8.5. These increases are coupled with similar projected declines in runoffs as shown in

25 GoS, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

	Figure 5. In the most affected areas, runoff is likely to decrease by more than 50 mm/year[26].
Temperature and precipitation extremes indices show increasing trend	Annual mean temperature and precipitation are generally insufficient to assess the impact of climate change on the region and reference to extreme climate indices and their seasonal peaks can provide greater insight into the implications of these changes. Understanding climate extreme indices contributes as well to better plan actions for reducing disaster risks at smaller scales of analysis. Regarding precipitation extremes, the projections for the maximum length of dry spell shows trends towards drier conditions with an increase in the number of consecutive dry days by the end of the century. Changes in the length of dry spells are expected to be more significant under the RCP 8.5 scenario and towards the end of the century. It is assumed that the increases in the number of dry days can be an indication that the dry summer season is likely to be extended in length.[27] All indices for extreme temperature relating to hot days show increasing trends over time.
Increased drought occurrence	By 2030 drought is likely to be more common and more intense. Climate change is likely to exacerbate aridity in the country as temperatures increase and Syria is expected to become global hotspots for drought over the next century. Several studies suggest that severe drought is expected to be the "new normal" across the region as soon as 2030, with droughts becoming more severe and prolonged by 2065 with both more consecutive dry days and soil moisture anomalies[28].
Increase in severity and intensity of heat waves	Heat waves will be more common and more intense by 2030. Since the 1960s, the number of heat waves across the country has risen with increases in the durations of warm spells. These trends are expected to continue, and Syria is likely to experience increases in the frequency and intensity of heat waves that are substantially above the global average. Heat extremes will have serious consequences for human health.
Increased occurrence of flash floods	By 2030 floods are more likely to affect greater numbers of people. Projections of future extreme precipitation events in MENA are inconsistent or inconclusive. Even so, the number of people exposed to flash floods by 2030 appears likely to increase due to continued and rapid urbanization in flood prone areas.

26 FAO / GIZ / ACSAD, 2017. Climate Change and Adaptation Solutions for the Green Sectors in the Arab Region. RICCAR Technical Report, Beirut, E/ESCWA/SDPD/2017/RICCAR/TechnicalReport.2. Available at: http://www.riccar.org/sites/default/files/2020-01/Technical%20Report2_Green%20Sectors_Final.pdf

27 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

28 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

28 Annual number of days with at least 6 consecutive days

1.2.2. Climate Vulnerabilities

Syria has a history of dealing with a harsh climate including low precipitation, frequent floods, droughts, and extreme temperatures. The country has high exposure to climate extremes and limited adaptive capacity both at institutional and individual level. Because climate change acts on many fronts and one event can trigger a cascade of responses, many indirect and hard to predict consequences of climate change may occur. The most vulnerable sectors to climate change include the agricultural sector, water sector, ecosystems, coastal zone, and health sector[29].

The above effects of climate change are anticipated to have significant negative consequences for Syria, particularly in critical sectors like agriculture, water, coastal zone, and health. An extensive multi-sector climate vulnerability assessment was conducted highlighting the exposure, potential impact, and resilience of critical sectors in Syria. An overview of impacts and potential weaknesses can be seen in Table 4 below:

29 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

Table 4: Sectoral Vulnerabilities to Climate Change

Sector	Key Impacts from Climate Change
Agriculture	**The agricultural sector in Syria is particularly vulnerable to climate change.** Most of the country's agricultural area is rainfed. A large portion of the region's agricultural production is based on dryland farming systems, with a variable annual rainfall range of 200 to 600 mm. Irrigated agriculture requires modernization, still relying on highly inefficient flood irrigation. Overall, less than one-fifth of the irrigated area uses modern sprinklers or drip systems. Half of all irrigation comes from groundwater systems, which in many cases are overused, leading to dropping groundwater levels and rising production costs. **Climate change has already manifested in Syria, leading to devastating agricultural impacts due to multiyear droughts and remains a significant, long-term challenge for the country.** The Agriculture Stress Index (ASI)[30] developed by FAO demonstrates that more than 30% of cropland has been affected by droughts. By 2030 increasingly frequent and intense droughts and heat waves will affect food production and food availability. It is also expected to affect other aspects of food security – access to, and the stability and safe utilization of food supplies. **The major climate hazards that will affect the agricultural productive systems are inter-annual and inter-seasonal rainfall variability and temperature extremes**. These climate factors will likely result in alterations in the agro-climatic conditions in the country. Temperature is projected to increase during the growing season, the number of days with temperature above the threshold will likely increase, particularly during crucial plant development times. Additionally, the length of dry seasons will likely increase in already arid regions, and salt-water infiltration is expected to affect coastal areas due to sea-level rise. Decreases will also impact hydrological and soil conditions in groundwater recharge, surface flows, soil moisture, and soil carbon. **By 2030, temperature extremes and drought events due to climate change will affect crop yields.** By 2030 increased frequency, duration and intensity of drought will be more prevalent in Syria and will intensify even more by 2050. While Syria is accustomed to multi-year droughts due to its geographical location, the effects of potential future droughts will likely be much more pronounced because of increased water demand, a reduced buffer for water availability resulting from reduced groundwater, and the lack of recovery time from previous droughts. Impacts are likely to include crop and livestock losses, reductions of soil fertility and increases in land degradation, and increased competition for water resources during dry spells. Syrian rain-fed farming systems, the main crop – olives – are especially likely to be impacted because of the strong positive correlation between fluctuations in rainfall and olive yields. Olive yields will also be impacted by the increase in temperatures (around 1.6-2oC in RCP 8.5) since olive trees require at least two months of cold weather to produce flowers and fruit. Since olives are used as a key source of income for these farmers, the impact on their livelihoods

30 The Agriculture Stress Index (ASI) helps show how 'stressed' crop areas are by combining vegetation condition and temperature variables. The compiled results are then analysed over time, by comparing current values to the long-term minimum and maximum, and spatially, by aggregating agriculture areas by administrative area.

Sector	Key Impacts from Climate Change
	will be significant. Increased water stress, resulting from precipitation changes and increased demand from other socio- economic uses, will impact irrigation and livestock production in the country. Farmers and agricultural systems are likely to focus increasingly on stabilizing rather than maximizing yields in the face of increasing climate variability, particularly in rainfed agriculture. **Key Figures** - Overall decreased agricultural productivity and total crop failure in some areas - Increased reliance on irrigation from rivers and groundwater - Migration from rural to urban areas due to crop failures and loss of livelihoods - Shift in land-use and agro-ecological zones - Decrease milk and meat productivity. - Small-scale pastoralists are highly vulnerable to the impacts of drought and have low capacity to adapt to climate change. - Dryland mixed farming systems are at risk of transforming into rangelands. - Climate change is likely to result in structural economic change as the share of agriculture in Syria's economy decreases.
Water	The impact of the increased evaporation and decreased rainfall will result in less recharge and therefore less replenishment of surface water and groundwater reserves. In the long term, this impact will extend to cause serious soil degradation that could lead to desertification, exacerbating future conditions and worsening the situation of the agricultural sector due to the lack of sufficient water that will affect the income of the agriculture sectors. Low-income ultimately reduces the ability to adapt to climate change, with families unable to respond to the pressing needs for replacing traditional water supplies. **Water security will become an even more critical issue affecting people in Syria in coming decades.** The region is already the most water precarious region in the world, and more people means more demand and competition for water. The average annual per capita share of water amounts to slightly over 1000 m^3 compared to 7500 m^3 at the global level. The per capita share of water is expected to worsen in the future which might drop to 500 m^3 in 2025.31 Currently, water resources are under heavy and increasing pressures due to persistent drought, population growth and unsustainable use of water resources, especially groundwater. And yet as averages they disguise large variations in access to sufficient quantities of safe water by different groups in society. As competition for water increases,

31 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

Sector	Key Impacts from Climate Change
	the water security of poor and marginalized people will be most at risk - a challenge of equity rather than physical scarcity. Water security will become even more critical not just for food production, but also for food utilization. **Syria will be under extreme water stress in 2040.** According to World Resource Institute's Aqueduct Water Stress Projections, Syria is among the countries (Rank 25/113) which will experience extreme water stress in 2040 under Business-as-Usual Scenario (RCP8.5). **Main rivers will experience a decrease in runoff and discharge, thus resulting in reduced water availability.** The Tigris–Euphrates River basins are essential for agricultural and pastoral systems. Agricultural development and food production rely heavily on the availability of water in the river basins. A broader climate assessment for the basins evaluated the hydrologic impacts of climate change shows higher temperatures and thus evaporation demand with the highest increases in the highland areas. Precipitation changes are variable, with decreases in the basins' northern regions and increases in the southern regions. Overall, climate projections show a high probability of reduced water availability from those basins due to reductions of 25%–55% in annual surface runoff from the headwater's regions, along with a shift in the timing of runoff[32]. Figeh spring system is another essential water source, located close to Damascus and provides drinking water for nearly three million people. A hydrological analysis focused on differences in annual, seasonal, and monthly temperature, precipitation, and water availability measured as spring discharge between reference period (1961–1990) and two scenarios (2021–2050 and 2070–2099). Results from the analysis identified potentially severe reductions in water availability from increased evapotranspiration and decreased precipitation. The relative change in mean discharge for the climate ensemble showed a decrease during the peak flow from March to May of up to 22% in 2021–2050 and almost 25% in the period 2069–98, compared to the reference period. Decreases of this magnitude would have dramatic effects on local water availability. **Groundwater is under serious threat of depletion.** Groundwater is a critical source of water in the country. Its importance increases considerably during drought events as it becomes the primary water source for drinking and irrigation. With few exceptions, most of the groundwater basins in the country are experiencing water deficits. Recent studies projected a change of groundwater recharge more than -30% between 2041 to 2070 (with reference scenario 1961 to 1990). There is a high risk of groundwater salinization due to sea-level rise, making local wells unfit for drinking and decreasing agricultural productivity. The projected decrease in the runoff for major rivers will further threaten Syria's river resources, thus increasing dependence on groundwater and rainwater. A study published in 2013 with the use of NASA images shows a dramatic increase in the dryness of the soil and depletion of below-ground water levels between January 2003 and December 2009 in the Euphrates and Tigris basins. It indicated that the two basins registered the second fastest rate of regional groundwater storage loss in the world after India. **Key Figures** - Reduced recharge rates and increased rates of depletion.

32 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

Sector	Key Impacts from Climate Change
	- Decreased access to safe drinking water. - Increased stress over water - Saltwater intrusion into groundwater sources - Decreased runoff. - Decreased quantity and quality of groundwater
Coastal Areas	**The coastal zone has high social and economic importance for Syria.** While the coastal zone is only 2% of the total territory of Syria, it is highly populated area with more than 11% of the total population for 2010, the population density is the highest among all governorates except of Damascus. The coastal zone has a significant importance for the agricultural production of the country, especially for green house farming and fruit orchards. Industries such as cement production and oil refining are also located at the country's shoreline. **Sea Level Rise (SLR) is likely to adversely affect several physical, ecological, biological, and socioeconomic characteristics of the Syrian coastal zones, which are already under stress.** Projections for the possible impact of SLR on the coastal area include six scenarios using a spatial resolution of the digital elevation model (DEM) was 10 m, and its vertical accuracy was between 5-10m. The scenarios range from extremely low risk to extreme risk from coastal inundation. Under these scenarios, the socioeconomic impact of SLR on coastal lowlands would vary depending on the level of inundation, the degree of land use and development activities. The likely inundated seashore area varies between 17.56 km2 for the very low-risk scenario to 118.90 km^2 for the extreme risk scenario[33.] SLR will likely result in displacement of coastal communities, increased coastal erosion and increased salinity of coastal aquifers. **Coastal vulnerability to SLR is extremely high at low-laying coastal plains where most of the urban areas are located.** A Coastal Vulnerability Index was developed based on projected SLR, geomorphology, land use/cover, and population to identify the area's most vulnerable to the impacts of SLR. Based on these criteria the most vulnerable coastal areas include[34]: ○ Flat and low-lying coastal plain (sandy and rocky within 0–1 m above MSL) ○ Deltaic and estuaries coastal plain areas ○ Sandy shores characterized by gentle slopping beach face.

33 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

34 GoS, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

Sector	Key Impacts from Climate Change
	Key Figures - Damage to coastal infrastructure and agricultural areas - Displacement of coastal communities - Increased salinity of coastal aquifers - Increased coastal erosion. - Increased coastal flooding and damage
Ecosystems/ biodiversity	**Climate change may add additional pressure on already stressed ecosystems and biodiversity thus increasing threats to their survival and possible extinction.** **The higher temperatures, changes in annual and seasonal precipitation patterns and the frequency of extreme events, such as droughts and forest fires, are severely impairing the production, quality and stability of forests.** Brutia pine forests, which constitute 27.5% of the natural forested area, are the most vulnerable to climate change resulting from possible increase in the frequency, intensity, and extent of fires[35]. The aridity of the region and low forest cover, coupled with high deforestation rates, make forests more vulnerable to the negative consequences of climate changes. The direct and indirect impacts of climate change affect current tree developmental processes and growth but have cumulative effects that can last for a tree's lifetime. **Climate change may cause changes in spatial distribution of some tree species.** A decrease in precipitations and an increase in temperatures might cause spatial "upward shift" for some plant species of the forest vegetation zones of mountainous areas. **Key Figures** - Species can adjust by migration, naturally or managed, but at some point, higher temperatures become limiting to growth over large areas. - More frequent occurrence of harmful insects due to temperature increase. - More intensive drying of forests and individual tree species. - Increases in vulnerability to forest fires.
Health	**Climate change affects negatively fundamental determinants of health, namely water, air, and food.** Thus, it is indirectly impacting human wellbeing as these determinants are affected. Furthermore, climate change has a direct impact on the environment itself by increasing risk factors for health. For instance, deterioration of water quantity and quality will increase water-borne and food-borne diseases. Incidents of floods, heatwaves, drought spells and dust storms have direct impacts on public health. This direct impact may express itself in extreme weather-related mortality, affecting the most vulnerable groups in the society like the poor, the elderly and the

35 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

Sector	Key Impacts from Climate Change
	chronically sick. **Heat stress can induce adverse impacts on human health due to high humidity coupled with extreme temperatures, and often constitute a significant mortality cause.** Although it is difficult to quantify the full effects of climate change, the projected increase of days with extreme temperatures will likely result in a range of health-related symptoms, particularly for the urban population, which is more exposed. Health institutions have been severely overstretched and damaged by the crisis, leaving Syria more vulnerable to the types of health impacts it may expect due to climate change. At the height of the drought lasting from 2006 to 2011, there was a dramatic increase in children's nutrition-related diseases. As these prolonged and intense droughts will likely become more common, nutritional deficiencies are likely to increase[36]. **Vector-borne diseases may extend their range due to warming, floods and other climate variables.** Although at present Syria is a malaria-free country, there is an increased risk that malaria could re-emerge (from neighboring countries) due to projected increases in floods and stagnant water. **Key Figures** - Reduced quality and quantity of safe drinking water, leading to increased risk of waterborne illnesses. - Spread and growth of vector- borne diseases (e.g., malaria and Aleppo boil) - Heightened food insecurity leading to increased and severe malnutrition (particularly in children) - Increase in the number of people suffering from heat strokes.
Urban	Urban systems are vulnerable to extreme weather events that are becoming more intense, frequent, and/or longer-lasting due to climate change. Urban systems and services will be affected by disruptions occurring in relatively distant locations due to linkages through national infrastructure networks and the national economy. Further, cascading system failures related to infrastructure interdependencies will increase threats to health and local economies in urban areas, especially in locations vulnerable to extreme weather events like heat waves. Such effects will be especially problematic for parts of the population who have higher vulnerability because of their limited coping capacities. From all this import costs are likely to grow substantially particularly for coping technologies like air conditioners and fans.

36 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

1.2.3. Sustainable Development Agenda[37]

The Syrian Arab Republic , as an active member state in the UN, participated in the General Assembly summit for the adoption of the 2030 Agenda for Sustainable Development by virtue of Syria's commitment to international consensus over the comprehensive framework of international development efforts to achieve SDGs, and given the significant role of these goals on the international level on the one hand, and on the national level to serve the best interests of Syrian citizens and institutions, on the other hand.

A resilient and prosperous Syria requires sustaining peace and security, safeguarding development gains, addressing the increased pressures on resources, infrastructure, and services across the country, and systematically working to reduce all forms of inequality, including geographic and gender-based disparities, while empowering women and youth.

Syria has been for the last ten years under a crisis, which started in 2011. During this period, public and private infrastructure was destroyed, and the economy crushed due to escalating inflation, declined exports and investments, and constantly rising unemployment and poverty. Therefore, many of the socio-economic and environmental achievements of the previous two decades were drastically reversed. On the Human Development Index (HDI), the country currently only ranks on 151 of 189.

There are also great challenges facing all national efforts to achieve sustainable development in Syria due to the economic coercive measures imposed on Syria since 2011 to date.

Although all 17 SDGs are of equal importance, four SDGs are particularly critical for Syria's climate finance programing because they are linked to the climate threats faced by the country. These include SDG 13: Take urgent action to combat climate change and its impacts. Further details on SDG 13 and its status in Syria can be found below:

Goal 13: Take urgent action to combat climate change and its impacts.

Climate change presents a major environmental, economic and development challenge, and the sooner it is possible to address its negative impact, the better the opportunity is to mitigate its effects at lower costs. Syria is affected more intensely by this phenomenon rather than contributing to it, as is the case in many developing countries. As outlined above, the negative effects of global warming on Syrian include: an increase in temperature; expansion in areas affected by drought; loss of some natural eco-systems; migration and habitat degradation; deforestation; rise in the incidences of forest fires; fluctuation of rainfall; recurring heat waves; decrease in the amount of water available (groundwater and surface) as a result of the decline in water flows, which in turn impact food security.

Target (112): Strengthen resilience capacity to climate-related hazards and natural disasters in all countries.

Consumption of all petroleum products decreased in 2015 compared to that in 2010, because of crisis in Syria, and the continuation of imposed coercive economic measures, along with the decline in oil productivity and the partial of suspension of petroleum products governmental subsidies. The consumption of diesel decreased by 78.3%, and that of fuel by 67.3% in 2015 compared to that in 2010. The amount of aviation kerosene consumed in the country is still extremely low compared to its consumption in countries with heavy aviation activity. However, this indicator is expected to rise in the near future with the gradual return to normal of economic and social life, and the recovery of activities of industrial cities. In parallel, however, there will be more work on implementing promising alternative energy options such as solar and wind energy.

Target (113): Integrate climate change measures into national policies, strategies, and planning.
The Syrian Arab Republic participated in most international climate change conferences and meetings. It

37 UNITED NATIONS, The First National Report on Sustainable Development Goals (SDGs) - EXECUTIVE SUMMARY, 2019. Available at: https://www.arabdevelopmentportal.com/publication/first-national-report-sustainable-development-goals-sdgs

was one of the first signatories to the international conventions, the last of which was the accession to Paris Agreement by law no. 31, dated 26/10/2017. It has become a party to the United Nations Framework Convention on Climate Change in 1995 and ratified the Kyoto Protocol in 2005. The Syrian State has worked on applying and integrating these conventions in the national legislations and measures that contribute to reduce the impact of climate change impacts. However, the crisis has restrained the enforcement of these legislations and measures. In 2014, a project matrix was designed to improve the quality of air and the ecosystems. Many wind farms have been constructed, and many projects have been implemented to generate electricity using photovoltaic antennas. In the same line, 100 thousand solar heaters for homes have been installed which reduced the amount of emission. Furthermore, petroleum products have been obtained in accordance with international standards.

Target (114): Improve human and institutional capacity on climate change mitigation, adaptation, impact reduction, and early warning.

According to the first National Climate Change communication, the amount of greenhouse gases emissions CO2/equivalent in 2005 from all sectors amounted to 79 million tons. There has been no amounts recalculation after the first report due to lack of international support to the Syrian Arab Republic to prepare the second climate change national report. However, the amount of CO2eq resulting from the consumption of petroleum products in the period 2010-2015 was calculated, and it recorded a decrease from 45.701 in 2010, to 12.710, in 2015, i.e., a drop by 70.2% as a result of the cuts in the amount of consumed petrol products during the years of war.

Target (115): Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilizing jointly $100 billion annually by 2020.

Syrian Arab Republic ratified the United Nations Framework Convention on Climate Change on 3/4/1996 as a party not included by Annex 1. The Syrian Arab Republic has no commitments regarding amounts of greenhouse gas emissions that need to be reduced. However, it is obliged under article 12 of the Convention to prepare national communication for the conference of the contracting parties to the United Nations Framework Convention on Climate Change. It is also obliged to raise awareness on climate change issues, increase national consensus to combat climate change, in addition to providing the international community with information in a form of an inventory of the directions of sources and disposal pathways of greenhouse gases. No financing has been offered yet to any national project by the Framework Convention on Climate Change, or by the Green Climate Fund, while funding has been given to a project to prepare the first national communication of the Syrian Arab Republic, and the adaptation in 2006 by the Global Environment Facility (GEF). Syrian Arab Republic has joined and ratified many of the regional and international conventions that are concerned with sustainable development and environment protection. It has lately submitted the document of contributions defined nationally within the framework of the Paris Convention. This document has been prepared through concerted national efforts, and with contributions from all concerned institutions, relevant local administrations, representative of civil society and academics. The document identifies the national activities and plans required to adapt with climate change impacts and reduce the emission over the short-term, while stressing that implementing these contributions in the optimal manner requires sufficient financial and technical support predicted by international funds that work in the framework of international environmental conventions.

Target (116): Promote mechanisms for raising capacity for effective climate change-related planning and management in developing countries.

Work is underway on redrafting the national strategy and plan of the adaptation to climate change in accordance with the developments in the Syrian Arab Republic and the international requirements in this domain. The environmental dimension will be integrated in the policies and plans of the reconstruction phase. In addition to this, efforts will be focused on developing environmental monitoring work and inspection, rehabilitating affected laboratories, and monitoring stations, training environmental inspectors, and activating the supervisory body over industrial activities which might have adverse impact on the environment.

1.3. National strategies and plans to mitigate climate change:

The country must face incomparable situations because of the crisis launched in 2011. The crisis has stopped the execution of different national strategies, policies, and plans that can contribute to climate change mitigation. The Five-Year Plans were the key mechanism for planning nation-wide sustainable development, mobilizing, and aligning available resources. Several strategies, regulations, plans, and programmes were adopted with climate change mitigation essence before the crisis within the successive Five-Year Plans. Some of these are as follows:

- The National Environmental Strategy and Action Plan.
- The National Environmental Strategy and Action Plan for Biodiversity.
- The National Strategy to Combat Desertification.
- The National and Sectoral Action Plan to reduce pollution in the Mediterranean Sea and the Coastal Zone.
- The Solid Waste Management Master Plan (2004).
- The National Strategy for Renewable Energy.
- Law No.18 of 2008 for applying the standards of energy consumption of commercial and home apparatus. (Raise the efficiency of energy use in devices that are used in the manufacture of household, commercial, and service appliances)
- The thermal insulation code for buildings was issued in November 2007.
- The Decree to Protect, Manage and Exploit Forestry (2007), and its amendments.

The overview of climate change mitigation initiatives in Syria is summarized in Table 5.

Table 5: Summary of the climate mitigation initiatives in Syria.

Background Information	
Country	The Syrian Arab Republic
Country group	Low-income economies (World Bank)[38] Emerging Market and Developing Economies (International Monetary Fund-IMF)[39].
The constitutional commitment to environmental protection	Protection of the environment shall be the responsibility of the state and society and it shall be the duty of every citizen[40].
UNFCCC ratification	4 January 1996
Type of Party	Non-Annex I
Kyoto Protocol ratification	27 January 2006
Paris Agreement ratification	13 November 2017
National Communications	Initial National Communication (INC): Submitted in April 2010. Second National Communication (SNC): Ongoing with GEF finance[41].
First Nationally Determined	November 2018

38 World Bank Country and Lending Groups. https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups (Retrieved 5 December 2020).
39 World Economic Outlook 2020: Statistical Appendix. https://www.imf.org/~/media/Files/Publications/WEO/2020/April/English/StatsAppendixIntro.ashx (Retrieved 25 November 2020).
40 Constitution of the Syrian Arab Republic – 2012, Article 27, Chapter III: Social Principles. https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/91436/106031/F-931434246/constitution2.pdf (Retrieved 5 December 2020).
41 The agreement between the Ministry of Environment (now renamed as Ministry of Local Administration and Environment-MoLAE) and UNDP was signed in 2012 to conduct SNC with GEF finance, but due to the crises in Syria starting from 2011, the project has been stopped until now.

Contribution (NDC)		
NDC Key Indicators[42]		
Reference Year	2020	
Target Year	2030	
Period	10 Years (2020-2030)	
Greenhouse gas (GHG) reductions target	No sector-specific quantified target is mentioned.	
Sectors included for mitigation measures	Energy, Forests, Land and Agriculture, Transport, Industry, and Waste	
Planning Process	The institutional arrangement to develop the NDC involved workshops/sectorial consultations with the participation of national stakeholders and representatives of local administration.	
National policy alignment	Syria's first NDCs was aligned with: - The new constitution (2012), Article 27, Chapter III: Social Principles. - The Local administration regulation (107/2011) of achieving balanced and sustainable development. - The Environment Law No. 12 (2012) established the rules of protection and preservation of environmental elements and their main components.	
Latest National GHG Inventory-as the Initial National Communication		
Inventory year	1994 and 2005	
Methodology used	IPCC 1996 Revised National GHG Inventory Guidelines. Tier 1 methodology used mostly, but sometimes adjusted in certain cases to suit better local or national circumstances i.e., Tier 2.	
Greenhouse gases (GHGs) covered	CO_2, CH_4, and N_2O	
Sectors covered	Energy, Industry, Agriculture, and Waste.	
Total net GHG emissions (excluding LULUCF)	52,660 Gg CO_2eq (1994) and 79,070 Gg CO_2eq (2005)[43]	
Total net sectoral GHG emissions (excluding Removals)	***In the year of 1994*** Energy 38,230 Gg CO_2eq (72%) Industry 2,490 Gg CO_2eq (5%) Agriculture 9,470 CO_2eq (18%) Waste 2,470 Gg CO_2eq (5%)	***In the year 2005*** Energy 58,350 Gg CO_2eq (74%) Industry 2,940 Gg CO_2eq (4%) Agriculture 13,930 Gg CO_2eq (17%) Waste 3,850 Gg CO_2eq (5%)

1.3.1. Emission Profile

The National Greenhouse Gas (GHG) inventory is estimated for Syria under the Initial National

42 Nationally Determined Contributions Under the Paris Agreement on Climate: Syrian Arab Republic (2018). https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Syrian%20Arabic%20Republic%20First/FirstNDC-Eng-Syrian%20Arab%20Republic.pdf (Retrieved 25 November 2020).

43 Gg CO_{2e} represent Gigagram Carbon dioxide equivalent.

Communication (INC) for the years 1994 to 2005. According to the INC, the per capita GHG emissions of Syria were 3.95 tons CO_2eq. per person in 2005 (Population was 20 million) compared to the world average of 4.0 tons of CO_2eq per person. In absolute terms, the total emission of Syria (79,070 Gigagram CO_2eq) was around 0.18% of the global GHG emissions for the year 2005 (44,153,000 Gigagram CO_2eq or 44,153 million metric tons CO_2eq).

The total national GHG emissions excluding removals were 79,070 Gigagram (Gg) CO2eq in 2005 compared to 52,660 Gg CO2eq in 1994 as per the INC. Of the total national GHG emission, 74% was contributed by the energy sector (58,350 Gg CO_2eq), 17% by the agriculture sector (13,930 Gg CO_2eq), 5% by the waste sector (3850 Gg CO_2eq), and 4% by the industry sector (2940 Gg CO_2eq) in 2005[44].

The sectoral breakdown of Syria's total emissions of GHGs is as follows: Energy –%74; Agriculture –%17; Waste –%5, Industrial processes –%4.

1.4 Sectoral Greenhouse gas mitigation potential

As discussed in the previous chapter, the GHG emission sources in Syria can be classified into two key sources, such as-energy related emissions from fossil fuel combustion, and non-energy GHG emissions from the agriculture and waste sector. Again, the energy-related emissions can be classified into electricity generation-related and non-electricity related covering transport, residential, industry, agriculture, and service sectors[45]. The GHG emission mitigation potential of these key sectors in Syria. For all the future projections and scenario analyses, the baseline year is 2019, with some of the data sources based on the years 2016 to 2018. The data is assumed to be not have changed so much in the year 2019.

1.4.1. Energy

Baseline energy consumption for the year 2019 is based on national data sources. Fuel consumption data from powerplants are sourced from the annual statistical report of the Ministry of Electricity, Syria. Data related to industrial, agriculture, transport, residential, and service sector energy consumption is also sourced from the National Energy Research Center, Syria. National studies and international sources are also used related to energy consumption patterns.

The total energy consumption in 2019 was 509.7 PJ (Table 6). This baseline energy consumption is also in agreement with the energy consumption reported by international sources. For example, according to Country Nuclear Power Profiles (2018), national energy consumption in 2016 was 413.4 PJ[46]. Out of the total energy consumption, electricity generation consumed 46%, followed by residential (24%), transport (14%), industry (9%), service sectors (5%), and agriculture (2%). The main sources of total energy consumption (509.7 PJ) by fuel type, indicate that natural gas-based thermal power generation contributed 164.4 PJ, followed by oil consumption in transport (72.8 PJ), Heavy Fuel Oil (HFO) based thermal power plant (72.0 PJ). All the energy consumption in the transportation sector (72.8 PJ) was sourced from oil, or oil-based products (57.6 PJ) (Table 6).

As of the year 2019, Syria has a total installed capacity of approximately 9,842 MW. Of which major generating source was compound turbines powered by natural gas (4039.5 MW). Syria has also three hydroelectric power plants, such as *Baath* Dam (81 MW) located in *Raqqa*, *Tabqa* Dam (800 MW)[47] located in *Al-Thawrah*, and *Tishrin* Dam (630 MW)[48] located in *Abu Qalqal*. However, according to the ministry of electricity, these power stations used to contribute to about 5 % of the total electricity generation of Syria before the crisis, but they only provide 2-3% of total electricity generation nowadays due to lack of water and maintenance, and they need to be restored. According to the World Bank open database[49], 86% of the

44 Initial National Communication on Climate Change (INC, 2010).
45 Future development of Syrian power sector in view of GHG mitigation options, (2014).
46 Country Nuclear Power Profiles 2018 Edition: Syrian Arab Republic. https://www-pub.iaea.org/MTCD/Publications/PDF/cnpp2018/countryprofiles/SyrianArabRepublic/SyrianArabRepublic.htm (last accessed on 30th June 2021).
47 ibid.
48 ibid.
49 https://data.worldbank.org/country/syrian-arab-republic?view=chart (last accessed on 5th January 2021).

total population had access to electricity in 2018. When looking within specific sectors, 100% of the urban population has access to electricity, while only 69.5% of the population living in rural areas have access to electricity. According to the annual statistical report of the Ministry of Electricity, Syria; the total electricity generated in 2019 was 26,001.13 GWh.

Table 6: Baseline energy consumption in 2019.

Sectors	Fuel type					
	Fuelwood	Heavy Fuel Oil (HFO)	Oil products	Natural gas	Electricity	Total
	(PJ)					
Household	7.3	-	-	84.0	32.8	124.0
Powerplant	-	72.0	0.1	164.4	-	236.4
Industry	-	3.5	9.4	18.4	12.3	43.5
Transport	-	-	72.8	-	-	72.8
Agriculture	-	-	6.2	-	3.0	9.2
Service	-	-	19.1	-	4.7	23.8
Total	**7.3**	**75.4**	**107.6**	**266.7**	**52.7**	**509.7**

The total GHG emission from energy consumption in 2019 was 31,630 Gg CO_2eq. Out of the total energy related GHG emissions, 16,858 Gg CO_2eq (53.30%) contributed by natural gas, followed by Heavy Fuel Oil (HFO) (7,193 Gg CO_2eq, 22.74%), and oil (6,919 Gg CO_2eq, 21.8%). Out of the GHG emission from natural gas, 11,130 Gg CO_2eq (66%) was emitted by the power plants, followed by the residential user (4,698 Gg CO2eq, 27.87%), and industry (1,029 Gg CO_2eq, 6.1%). Out of the GHG emission from HFO, 6,940 Gg CO_2eq (96.5%) emitted by the electricity generation, followed by industry (251 Gg CO_2eq, 3.5%). Out of the GHG emission from oil, transport sector contribution was highest (5,047 Gg CO_2eq, 72.95%), followed by service (1394 Gg CO_2eq, 20.14%), and agriculture (455 Gg CO_2eq, 6.58%).

1.4.1.1. Future scenarios

GHG emission scenarios have been developed for the energy sector covering the activities discussed above using the energy-related data. Three scenarios have been created, as follows (*a brief overview of the scenarios is presented in Table 7 and Table 8*):

***Business-as-usual (BAU) Scenario*:** This scenario is without any action based on the historical trend of energy consumption to show what might happen if Syria does not take any action in the energy sector.

***NDC Scenario*:** This is based on the existing action and target mentioned in the NDC. This assessment is based on the historical trend of energy consumption, and what can be achieved using the actions and target of NDC focusing on the energy sector.

Enhanced NDC (ENDC) Scenario: This is based on additional action and target covering NDC, recently adopted renewable energy strategy (2019), and measures mentioned in the INC. This scenario represents what else and accelerated effort can be done by Syria focusing on the energy sector to further enhance the climate change mitigation.

A new renewable energy strategy was adopted by the Syrian Council of Ministers (Decision Statement No. A/ 15538 dated 30 October 2019). According to this strategy 1,500 MW solar photovoltaic, 900 MW from wind turbines, and 1.2 million solar water heaters will be installed in the future. As shown in figure 8 (lower panel), around 40% of the generated electricity can be sourced from renewable energy source by 2050, such as- Wind (15%), Solar (13%), Hydro (11%), and MSW (1%), under the enhanced NDC scenario.

Table 7: Overview of Nationally Determined Contribution (NDC) scenario parameter.

Sectors	Activity	Analysed parameter for this mitigation report
Energy	Electricity transmission and distribution loss reduction.	The existing loss of 16 % will be reduced to 12%.
	Upgrading the gas turbines and heavy fuel oil (HFO) steam turbine.	200 MW of existing gas turbines will be retired in 2030, and 223 MW in 2037. 1 new HFO steam turbine of 450 MW power plant is expected to build. 2 new gas-fired compound turbines power plants of 1200 MW (600 MW each) are expected to build.
	Restoration of existing hydro powerplant.	Existing hydro power plants will be restored and properly maintained.
	Generating electricity from Wind turbines.	One 100 MW wind turbine-based power plant will be developed.
	Generating electricity from Solar energy.	One 100 MW solar power plant will be developed.
	Adoption of climate-friendly fuel mix for the industry sector through relevant regulation. Installing Solar PV and biogas plants in the industrial facility through fiscal incentives.	Industry sector fuel mix by 2050 will be 40% gas, 30% electricity, and 30% oil. 2.5% of the total energy will be provided by solar PV and biogas plants installed in the industrial facility.
	Installing Solar PV and biogas plants at the farm level in Agriculture sector through fiscal incentives and subsidy.	5% of the agriculture sector energy will be provided by solar PV and biogas from crop residue and livestock manure in 2050.
	The climate-friendly fuel mix for the Transport sector through relevant regulation and fiscal incentives.	The transport sector fuel mix will be 4% gas, 1% electricity, and 95% oil by 2030. It will be 8%, 2%, and 90%, respectively in 2050.
	Installing solar PV in the residential sector, and modification of the cooking energy use through relevant regulation and fiscal incentives.	5% of household electricity will be from solar PV. Electric stoves 60%, LPG stoves 35%, and waste to biogas stoves 5% by 2050
	Installing Solar PV at the commercial facility in the Service sector through fiscal incentives and subsidy.	The service sector's 2% oil consumption will be replaced by solar PV in 2030, and 4% by 2050
Agriculture	Installing biogas plant based on livestock manure and crop residue feedstock at the farm level.	Biogas generation from 5% of the livestock manure and crop residue by 2030, and 15% by 2050.
	Reduction of synthetic fertilizer application.	10% fertilizer application reduction by 2030, and 15% in 2050 due to crop residue recycling and conservation agriculture.
	Use of crop residue and livestock manure as soil additives.	10% of crop residue/livestock manure will be used as soil additives, and 20% by 2050.
Waste	Installation of organic waste to biogas generation plant.	10% waste will be diverted for biogas generation by 2030, and it will be 20% by 2050.
	Developing composting facility at the urban centres	10% of the wastes will be diverted for composting by 2030, and it will be 15% by 2050.
	Sanitary landfill development with biogas utilization.	20% of the wastes will be managed through sanitary landfill with gas utilization by 2030, and it will be 30% in 2050.
	Wastewater sludge to biogas generation	5% of the wastewater will be managed under this practice, and it will be 10% by 2050.

Table 8: Overview of the Enhanced Nationally Determined Contribution (ENDC) scenario parameter

Sectors	Activity	Analysed parameter for this mitigation report
Energy	Electricity transmission and distribution loss reduction.	The existing loss of 16 % will be reduced to 8%.
	Upgrading the gas turbines and heavy fuel oil (HFO) steam turbine.	200 MW of existing gas turbines will be retired in 2030, and 223 MW in 2037. 1 new HFO steam turbine of 450 MW power plant is expected to build. 1 new gas-fired compound turbine power plant of 600 MW is expected to build.
	Restoration of existing hydro powerplant.	Existing hydro power plants will be restored and properly maintained.
	Generating electricity from Wind turbines.	Four wind turbine-based power plants (each of 225 MW capacity) will be developed equalling 900 MW from wind turbines as mentioned in the Ministry of Electricity's newly adopted renewable energy generation strategy.
	Generating electricity from Solar energy.	Three solar power plants (each of 500 MW) are expected to build equalling 1500 MW from solar energy as mentioned in the Ministry of Electricity's newly adopted renewable energy generation strategy.
	Generating electricity through waste incineration plant.	Three waste-to-energy plants (incineration) (100 MW baseload capacity each) will be developed in the future for Damascus, Aleppo, and Homs.
	Adoption of climate-friendly fuel mix for the industry sector through relevant regulation. Installing Solar PV and biogas plants in the industrial facility through fiscal incentives.	Industry sector fuel mix by 2050 will be 40% gas, 35% electricity, and 25% oil. 10% of the total energy will be provided by solar PV and biogas plants installed in the industrial facility.
	Installing Solar PV and biogas plants at the farm level in Agriculture sector through fiscal incentives and subsidy.	20% of the agriculture sector energy will be provided by solar PV and biogas from crop residue and livestock manure in 2050.
	The climate-friendly fuel mix for the Transport sector through relevant regulation and fiscal incentives.	The transport sector fuel mix will be 10% gas, 5% electricity, and 85% oil by 2030. It will be 15%, 20%, and 65%, respectively in 2050.
	Installing solar PV in the residential sector, and modification of the cooking energy use through relevant regulation and fiscal incentives.	20% of household electricity and heating need will be from solar PV and solar water heaters. It will be 30% in 2050. Electric stoves 65%, LPG stoves 25%, and waste to biogas stoves will be 10% by 2050.
Agriculture	Installing Solar PV at the commercial facility in the Service sector through fiscal incentives and subsidy.	The service sector's 5% oil consumption will be replaced by solar PV and solar water heating in 2030, and 10% by 2050.
	Installing biogas plant based on livestock manure and crop residue feedstock at the farm level.	Biogas generation from 10% of the livestock manure and crop residue by 2030, and 25% by 2050.
	Reduction of synthetic fertilizer application.	10% fertilizer application reduction by 2030, and 20% in 2050 due to crop residue recycling and conservation agriculture.
Waste	Use of crop residue and livestock manure as soil additives.	15% of crop residue/livestock manure will be used as soil additives, and 25% by 2050.
	Installation of organic waste to biogas generation plant.	10% waste will be diverted for biogas generation by 2030, and it will be 20% by 2050.
	Developing composting facility at the urban centers.	5% of the wastes will be diverted for composting by 2030, and it will be 15% by 2050.
	Sanitary landfill development with biogas utilization.	10% of the wastes will be managed through sanitary landfills with gas utilization by 2050.

In the year 2020, the GHG emission was 23,441 Gg CO_2eq, which is the BAU scenario estimated as 58,149 Gg CO_2eq in 2050. Existing NDC action and target will help to reduce the expected emission to 43,139 Gg CO_2eq in 2050, i.e., around 26% reduction from the BAU scenario. Further in line with the existing NDC measures, INC suggested actions and higher renewable energy adoption under the newly adopted renewable energy strategy as depicted in the ENDC scenario (actions and targets are mentioned in Box 1 and Box 2); Syria is expecting to reduce the emission to 32,637 Gg CO_2eq in 2050. This represents a 44% reduction from the BAU scenario.

Table 9 represents individual sectoral GHG emissions reduction under the NDC and ENDC scenario compared to the BAU scenario. More than 10% GHG emissions reduction due to energy consumption under the ENDC scenario is possible for the agriculture, industry, service, and transport sector in 2030. While, in 2050, under the ENDC scenario due to higher renewable electricity generation, 38% GHG emission reduction is possible in the electricity generation sector; and because of the increasing portion of electric vehicle and gas-based mass transport, more than 50% GHG emission reduction is possible in the transport sector.

Table 9: Greenhouse gas emission reduction in different sectors due to energy consumption under NDC and ENDC scenario in comparison with BAU scenario.

Sectors		Scenarios			Reduction percentage in	
		BAU	NDC	Enhanced NDC	NDC	ENDC
		GHG emission in Gigagram CO_2eq			(%)	
2030	Agriculture	631	560	519	11%	18%
	Residential	3,908	3,843	3,715	2%	5%
	Industry	2,719	2,486	2,204	9%	19%
	Service	2,146	1,891	1,738	12%	19%
	Transport	7,770	6,868	5,853	12%	25%
	Electricity generation	12,747	12,410	12,560	3%	2%
2050	Agriculture	1,139	817	659	28%	42%
	Residential	2,718	2,592	2,357	5%	13%
	Industry	4,911	3,435	2,641	30%	46%
	Service	4,701	3,248	2,631	31%	44%
	Transport	17,025	11,836	7,076	30%	58%
	Electricity generation	27,655	21,211	17,272	23%	38%

1.4.2 Agriculture

The agricultural sector is a key economic sector of Syria. The country has 6.5 million ha arable lands (30% of the land surface), of which 24.65% irrigated and 57.89% rainfed. Around, 8.9 million people (45% of the population) live in rural areas, and more than one million (~20% of the labour force) work in agriculture[50]. The country produces a wide variety of crops including main crops cereals, cotton, vegetables, various types of citrus plants, olive trees, and pistachios. Before the crisis, 31% of the total Syrian exports contributed by the agricultural sector.

50 Syrian crisis repercussions on the agricultural sector: Case study of wheat, cotton, and olives.

Even after the crisis, agriculture remains a key component of the Syrian economy and contributes an estimated 26 percent of gross domestic product (GDP). A recent FAO study revealed the losses and damages in the agriculture sector are about US$ 16 billion, distributed to $7.2 billion in crop production and $5.5 billion in the livestock sector between 2011 and 2016 due to the crisis[51]. During the Syrian crisis, the agricultural sector witnessed a significant drop in production for all kinds of commodities, such as wheat, cotton, and olives[52].

Quantification of agriculture sector GHG emissions requires intensive data focusing on crop production and farming practices, livestock farming, manure management, and land use management practices. Due to the high level of data uncertainty and unavailability, agriculture sector emissions are derived from FAOSTAT[53]. Due to the impact of the crisis on the agriculture sector, GHG emissions were reduced by approximately 5% from 6,280 Gg CO_2eq in 2014 to 5,947 Gg CO_2eq in 2018. The major emission source in 2018 was enteric fermentation which represented 52% of total agriculture emissions, followed by manure left on pasture (42%). The long-term (1990-2018) agriculture sector GHG emission analysis enteric fermentation contributed to approximately 41% emissions, followed by manure left on pasture (~34%), fertilizer application (~17%), and emissions from crop residues (~6%). The observed pattern is also similar as reported in the INC for the agriculture sector.

1.4.2.1 Future scenarios

GHG emission scenarios have been developed for the agriculture sector covering the activities discussed above using the FAOSTAT[54] data. The emission scenarios are based on the historical emissions trend, and projections are made until 2050 from the baseline year 2019 using the historical GHG emissions trend from 1990 to 2010. Three scenarios have been created as follows (*a brief overview of the scenario parameter is presented in Table 7 and Table 8*):

***Business-as-usual (BAU) Scenario*:** This scenario is based on historical GHG emissions trends in the agriculture sector and shows what might happen if Syria does not take any action.

***NDC Scenario*:** This scenario is based on historical GHG emissions trends in the agriculture sector, and existing actions and targets mentioned in the current NDC.

Enhanced NDC (ENDC) Scenario: This scenario is based on additional action and target covering NDC and measures mentioned in the INC for the agriculture sector. This scenario represents an accelerated path that can be taken by Syria to further enhance the climate mitigation ambitions in the agriculture sector.

The same set of data was used for all the scenarios and projections, So, scenario analysis reflects the impacts of other relevant actions of the agriculture sector on GHG emissions. However, emission projections here are entirely based on historical emission trends and do not include other factors, such as GDP growth, crisis, population, and technology uptake which can influence future projections.

In the year 2020, the agriculture sector emitted 5,947 Gg CO_2eq, which is the BAU scenario is estimated to reach 8,147 Gg CO_2eq in 2050. Existing NDC action and targets will help to reduce expected future emissions to 5,310 Gg CO_2eq in 2050, representing a 35% reduction compared to the BAU scenario. In line with the existing NDC measures, INC suggested actions, and the ambition under the ENDC scenario, Syria expects to reduce agriculture emission to 4,280 Gg CO_2eq in 2050. This represents a 47% reduction from the BAU scenario.

1.4.3. Waste

According to the waste management master plan of Syria (2004), around 5,400,000 metric tonnes of solid wastes are generated per annum. Approximately, 5,000 metric tonnes of solid waste generated per day in Syria. Of these generated solid wastes, around 94% is generated by the urban areas and the remaining 6%

51 Counting the Cost: Agriculture in Syria after six years of crisis (FAO 2017). http://www.fao.org/3/b-i7081e.pdf (last accessed on 15th June 2021).
52 Syrian crisis repercussions on the agricultural sector: Case study of wheat, cotton, and olives.
53 Agriculture emission, Syria. http://www.fao.org/faostat/en/#data/GT (last accessed on 15th June 2021).
54 Ibid.

from rural areas[55]. According to the INC, around 90% of waste related GHG emission is from solid waste and remaining 10% is from wastewater. A recent study published in November 2020 reported in the city area on an average of 0.68 kg/person/day solid waste is generated in Syria[56], while the solid waste generation rate in a rural area is around 0.2-0.3 kg/person/day[57]. The waste composition analysis revealed organic waste has the highest contribution in the solid waste stream of Syria (69.1%), followed by plastic (10.6%), inert materials (8.7%), paper (4.6%), textile (2.5%), metal (1.2%), glass (1.1%), wood (0.6%), and hazardous materials (1.6%).

Even before the crisis, solid waste management was recognized as a critical environmental problem in Syria. Though solid waste was regularly collected, open dumping was widespread in the cities due to a lack of investment in this sector. Solid waste was often openly burned at the outskirt of the cities. Before the crisis, the waste collection rate was 85%, and the waste management system relied on composting (2%), recycling through the informal channel (2–3%), and open land disposal (95%). Of the solid waste disposed of in open lands, around 20% were disposed of in landfills, and 80% open burned after being dumped. These solid waste management contexts have not changed so much. As reported, waste management infrastructure is almost damaged, and a massive amount of solid waste has accumulated beside the roads in Syrian cities. The local authorities are managing most of the solid wastes through open burning (10%), and open dumping (90%) on land.

Five sewerage companies have been established in *Damascus, Aleppo, Homs, Hama, and Lattakia*[58]. According to the Ministry of Water Resources, approximately 1012× 1000 m^3 wastewater/day, and 224× 1000 m^3 wastewater/day is generated by the city centres and rural areas, respectively in 2018. Around 46% of generated wastewater is treated by the wastewater treatment plant (WWTP). Syria has 40 WWTP, with three large-scale WWTPs in urban areas[59]. Due to the lack of industrial wastewater generation data, GHG emission from industrial wastewater is not estimated here. INC also reported GHG emissions from industrial wastewater is less than 1%[60].

The total GHG emissions from the waste sector were 6,763 Gg CO_{2eq} in 2018, which increased from 6,139 Gg CO_2eq (with 2.5% per year growth). The major emission source in 2018 was open dumping of solid wastes (5,791 Gg CO_2eq), followed by wastewater (777 Gg CO_2eq), which increased from 5,257 Gg CO_2eq, and 705 Gg CO_2eq in 2014, respectively. The observed GHG emission growth pattern per year is slightly lower than the growth pattern reported in the INC for the wastes sector throughout 1994 to 2005. For example, as per the INC, in 2005 the waste sector emission was 3,856 Gg CO_2eq, which increased from 2,474 Gg CO_2eq in 1994 with a 4.6% growth rate per year. The slower growth pattern over the year 2014 to 2018 is perhaps because of the crisis in Syria.

1.4.3.1. Future scenarios

GHG emission scenarios have been developed for the waste sector covering the activities discussed in the baseline contexts. The emission scenarios are based on the historical emissions trend and population growth trend. A brief overview of scenarios parameter is presented in Table 7 and Table 8. For all the scenarios and projections, similar data is used. So, scenario analysis reflects the impacts of waste management actions. Three scenarios have been created as follows.

***Business-as-usual (BAU) Scenario*:** This scenario is without any action based on the historical trend of GHG emissions in the waste sector to show what might happen if Syria does not take any action.

55 Initial National Communication of the Syrian Arab Republic https://unfccc.int/non-annex-I-NCs
56 Determinants of Household Solid Waste Generation and Composition in Homs City, Syria. Journal of environmental and public health, 2020.
57 Initial National Communication of the Syrian Arab Republic https://unfccc.int/non-annex-I-NCs
58 The study on sewerage system development in the Syrian Arab Republic. https://openjicareport.jica.go.jp/pdf/11879095_02.pdf
59 Syria National Report on the actual statues of wastewater and Reuse for agriculture in Syria. https://www.ais.unwater.org/ais/pluginfile.php/356/mod_page/content/111/Syria%20Reusing%20Sewage%20and%20treated%20Water%20for%20Irrigation%20and%20its%20Effects.pdf
60 Initial National Communication of the Syrian Arab Republic https://unfccc.int/non-annex-I-NCs

***NDC Scenario*:** This is based on the existing action and target mentioned in the NDC. This assessment is based on the historical trend of GHG emissions, and what can be achieved using the actions and measures of NDC.

Enhanced NDC (ENDC) Scenario: This is based on additional action and target covering NDC and measures mentioned in the INC. This scenario represents what else and accelerated effort can be done by Syria to further enhance the climate change mitigation-related ambitions.

In the year 2020, the GHG emission was 7,112 Gg CO_2eq, which is the BAU scenario estimated as 15,100 Gg CO_2eq in 2050. Existing NDC action and target-related reduction can lowered the emission to 6,239 Gg CO_2eq in 2050, i.e., around 58 % reduction from the BAU scenario. Further in line with the existing NDC measures, INC suggested actions, and more sustainable waste management practices under the ENDC scenario (actions and targets are mentioned in Table 7 and Table 8), Syria is expecting to lower the GHG emission by 3,652 Gg CO_2eq in 2050. This represents around a 76% reduction from the BAU scenario.

1.5. Response to Climate Change

1.5.1. National Initiatives

Syria has played an active role in the United Nations Framework Convention on Climate Change (UNFCCC) and has made efforts to advance the fight against climate change. As a result of the crisis which began soon after the submission of the Initial National Communication (INC) —together with the National Adaptation Strategy and Action Plan for Climate Change Adaptation[61]— to the UNFCCC in 2010, which forms the basis of the adaptation planning process in Syria[62,63], and despite limited efforts to develop a framework for long-term adaptation in Syria, the governmental capacity to institutionalize climate change adaptation remains limited. In addition to interrupting several donor-funded adaptation projects, the crisis reverted government priorities and financing to respond to the humanitarian crises produced, and to contribute to reconstruction following damage to essential basic services, infrastructure, and key economic sectors.

Despite all these difficult circumstances of the current crisis, Syria is making efforts to further the climate change agenda and strengthen its policy and institutional framework. A first step towards the development of a comprehensive strategic framework comes in the form of the ratification of the Paris Agreement in 2017 and the development of the NDCs in 2018. This was achieved through a specialized Committee, chaired by the Ministry of Local Administration and Environment (MoLAE), which included relevant line ministries and a private sector representative. The document identifies both mitigation and adaptation need but does not contain specified action plans or programme that could serve as guidance for the development of a comprehensive strategy on climate change. At present, MoLAE is in preparation to update the NDCs.

The Syrian government has emphasized its ambition to scale up adaptation and mitigation activities. Syria started in 2012 to prepare the second communication to the UNFCCC which is intended to contribute to the development of NAMA with the support of UNDP, but due to the crisis, the working on SNC has been stopped.

1.5.2. Existing climate change adaptation policies in Syria:

- **National Action Plan and Strategy for Adaptation to climate change 2010**[64]: The plan is structured around six main components: 1) the development of a sustainable institutional coordination mechanisms; 2) integration of the UNFCCC concepts in the national policy and legislation; 3) Sustainable development of agricultural and water resources; 4) Capacity development, knowledge management, networking, outreach and awareness raising on climate change; 5) technology transfer; and 6) Local communities' empowerment and participation.

- **National Environmental Action Policy (NEAP) 2003:** The policy describes the state of the environment on a national scale, identifies environment priorities for the country and sets up a general framework for environmental planning until 2010. Launched in 2003, it identifies water issues and land degradation as the most critical environmental problems in Syria. The formulation of NEAP brought together representatives of various ministries, universities, and civil society organizations, thus reflecting a multi-sectoral and participatory approach to sustainable development. The preparation of the NEAP was led by the Ministry of State for Environmental Affairs (MSEA) and was supported by UNDP and the World Bank.

According to the Environmental Protection Law No.50 /2005, two entities are designated as the leading

61 The Way Forward to prepare a Framework of National Adaptation Action in Syria (2010). Available at: https://adaptationlearningnetwork.com/placemarks/maps/view/584

62 INC (2010): Syria's initial national communication to UNFCCC, State ministry for environment, GEF and UNDP

63 Strategy and national action plan for adaptation with climate change in Syria (2010). Minister of State for Environment Affairs, GEF and UNDP. Available at: https://www.researchgate.net/publication/351235470_Strategy_and_a_National_Adaptation_Action_Plan_in_Syria

64 Strategy and national action plan for adaptation with climate change in Syria (2010). Minister of State for Environment Affairs, GEF and UNDP. Available in English at: https://www.researchgate.net/publication/351235470_Strategy_and_a_National_Adaptation_Action_Plan_in_Syria and in Arabic (2010 ،الإستراتجية وخطة العمل الوطنية للتكيف مع التغيرات المناخية في سورية) at:

institutions on climate change: *The Council for Environmental Protection and Sustainable Development* (CEPSD) and Ministry of State for Environmental Affairs. However, this law did not provide clear path to establish responsibilities and a mechanism for coordination and cooperation among the central national bodies relevant to climate change programing and policy.

The Council for Environmental Protection and Sustainable Development (CEPSD) functions as the de jure highest institutional body for environmental affairs. Initially established in 1991 as the Supreme Council for Environmental Protection, it is headed by the Prime Minister and composed of representatives from all line ministries and representatives from non-governmental organizations (NGOs). This includes private sector representatives, such as the Craftsmen Union and the Chamber of Industry, and civil society organizations (CSOs), such as the Women General Union. The CEPSD is tasked with the endorsement of the strategy, policy, and action plans on environmental protection and sustainable development and ensuring their alignment with national policy. Furthermore, it is responsible for determining environmental regulation and the approval of contingency plans in response to environmental disasters. The CEPSD played an important function in passing legislation and strategies prior to the crisis. For example, it passed the National Action Plan to Combat Desertification in 2002 and the National Biosafety Framework in 2008. Table 10 shows a list with the climate-related policies and laws in Syria.

Table 10: List of key climate-related policies and laws in Syria.

Title/ Year	Description
Nationally Determined Contributions, 2018	Planned efforts to achieve Paris Agreement goals, reduce greenhouse gas (GHG) emissions and strengthen the global response to the threat of climate change, including efficient natural resource management, transition to renewable energies, adaptation, and increased resilience to climate change in food security, sustainable agricultural production, and environmental conservation
Initial National Communication (INC) to the UNFCCC, 2010	GHG inventory and proposed action to address, reduce and adapt to negative impact of climate change, climate change vulnerability assessment, presentation of NAPA road map
National Action Plan and Strategy for Adaptation, 2010	Identification of priority measures to adapt to climate change and climate variability, development of project-based activities to address climate change adaptation needs in Syria
Land Degradation Neutrality Target Setting Programme, 2020	Identification of targets to achieve land degradation neutrality in the country as part of the initiative implemented by the Secretariat and the Global Mechanism of the UNCCD.
National Drought Management Strategy, 2009	Identification of actions in food and agriculture, water, health aimed at increasing drought resilience, jointly implemented with the UN
National Action Plan for the Protection of Mediterranean Sea Water, 2008	Priorities to reduce discharge of pollutants from land-based sources and activities into the Mediterranean Sea, following the ratification of the Barcelona Convention
National Integrated Water Resources Management Strategy, 2009	Integrated development and management of water and land resources to maximize economic and social benefits without compromising the sustainability of vital ecosystems services
National Master plan for solid waste management 2004	National policy for integrated management of solid waste (implementation 2005-2016)
National Renewable Energy Master Plan, 2002	Set of recommendations and proposals for renewable energy systems to meet primary energy demand in the country by reducing dependence on hydrocarbon

	sources (2002-2011)
National Plan to Combat Desertification, 2002	Measures to address land degradation and soil erosion, and combat desertification, developed as an implementation of Article 4 of the International Convention to Combat Desertification of 1994
National Biodiversity Strategy, 2002	20-year strategy for biodiversity conservation in all habitats and ecosystems, including rehabilitation of degraded habitats, protection of endangered species, sustainable socio-economic development through sustainable investment of biological resources

1.5.3. Access to climate change finance

Syria is eligible to receive funding from different multilateral and international funds. The term 'climate finance' refers to various forms of finance for climate change related activities, including mitigation and adaptation. A basic distinction can be made between private climate finance (coming from investors such as commercial banks, investment and insurance companies and pension funds) and multilateral climate finance, governed by multiple national governments. Among the largest multilateral climate funds are the Green Climate Fund (GCF), the Adaptation Fund (AF), the Climate Investment Funds (CIF) and the Global Environment Facility (GEF) which channels its resources through different multilateral organizations and provides technical and financial support in areas related to biodiversity, climate change, energy, forests, and others. The GCF, as the world's largest multilateral climate fund, holds great potential to provide a part of this financing. It could therefore play a crucial role in Syria's climate finance landscape and its climate resilient and low carbon development. It is important to note that the GEF, AF, and CIF funds are valuable sources of climate finance that can be programmed with complementarity to GCF resources over the course of the next programing cycle. In many cases GEF, AF, and CIF funds have their own respective programing areas for future funding allocations that synchronize with priorities presented in this Country Programme. For example, the GEF-8 STAR allocation for Syria covers 'Climate Change', 'Land Degradation', and 'Biodiversity' focal areas, which can be used to potentially help co-finance GCF funding proposals and/or drive readiness capacities in line with the GCF programing agenda. Given that climate finance resources in the country are noted to be scarce, this Country Programme recognizes the need to maximize impact through a programmeing plan that seeks complementarity with broader resources.

Chapter 2.

CHAPTER 2

Institutional Arrangements and Country Program development process

2. Institutional Arrangements and Country Programme development process

2.1. GCF Institutional Arrangements in Syria:

Syrian's National Designated Authority (NDA) is located at the Ministry of Local Administration and Environment (MoLAE). In order to fulfil its roles vis a vis the GCF. The role of the NDA is to act as an interface between the country and the Fund and communicate the country's strategic priorities for climate finance. The NDA's mandate includes acting effectively to promote a shift in the paradigm of national development toward sustainable low carbon development with resilience to climate change related risks.

GCF funding for projects and programmes in the country requires both alignment with the Country Programme and a no-objection from the NDA. The NDA is responsible for the implementation of the no objection procedure, including the technical analysis of programme and project proposals to be funded by the GCF in Syria. This technical analysis is based on national priorities and follows criteria, guidelines and constraints established by the GCF in regular consultation with other stakeholders and related government agencies. The NDA is also responsible for appointing national entities that seek their accreditation in the modality of direct access to the GCF.

The NDA establishes broad coordination with other with other stakeholders and related government agencies. Considering the need for technical analysis to ensure that the work of the GCF in Syria is in accordance with the country's policies and priorities, the NDA maintains an ongoing dialogue and promotes coordination with central and cross-cutting line ministries regarding the climate change agenda which are: Ministry of Local Administration and Environment (MoLAE), Ministry of Water Resources (MoWR), Ministry of Agriculture and Agrarian Reform (MAAR), Planning and International Cooperation Commission; Ministry of Finance (MoF), General Directorate of Meteorology, MoH, Ministry of Public Works and Housing (MoPWH), Ministry of Industry, Ministry of Transport (MoT), Ministry of Education (MoEd), Ministry of Economy and Foreign Trade (MoEFT), Ministry of Petroleum and Mineral Resources (MoPMR), Ministry of Information, private sector, civil society, NGOs and sectoral experts on climate change and other relevant thematic areas

For the no-objection procedure, a stepwise approach is starts from the initial call for project ideas and follows through to the issuing of a no-objection letter upon review of the full funding proposal, thereby encouraging early interaction between the Accredited Entity developing a project idea and Syria's NDA.

More detailed information about the procedures for preparing proposals for the Green Climate Fund in Syria, in addition to information on other related activities, is contained in the "GCF-Handbook for Syria" and is available on the NDA website: http://www.molae.gov.sy.

Country Programing in Syria could equally follow a stepwise approach, starting from the identification of top-level GCF priorities, gathering project ideas and allocating them into short- or long-term GCF planning categories. The presented options can now be used in follow-up targeted consultations as a baseline for further discussion, can be amended to fit Syria's capacities, fine-tuned, or replaced by new ideas.

2.2. Country Priorities for GCF Engagement

The crisis has severely inhibited the medium- to long-term planning of the Government of Syria. Several barriers including institutional, financial, and information barriers, make planning for and implementation of climate change adaptation measures in Syria, challenging.

Based on strategic investment opportunities and assessment of the country priorities outlined by Syrian's NDC[65], NAPSA[66], INC[67], NDMS[68], NIWRMS[69], NLD-TSP[70], and other related climate change projects and

65 Nationally Determined Contributions (NDC), 2017.

importantly their alignment with the GCF investment criteria, several priority areas for developing climate adaptation and mitigation projects for the GCF have been identified.

In addition to the strategic opportunities outlined in Syria's various development and climate change policies, there are several barriers. These barriers limit climate action in the country, present financial gaps, and highlight other issues that climate projects will need to address. These include:

Lack of Institutional Coordination:
Overall policies developed by governmental units are not necessarily aligned with the NDC. Syria's institutions have weak capacities to integrate climate change adaptation across sectors. The mandate to address climate change is limited to one ministry, however it is required to effectively coordinate efforts and integrated climate change across all relevant ministries such as environment, finance, agriculture, water, energy, and foreign affairs. A multi-sectoral approach will facilitate the integration of climate change into development plans, annual budgets, and policies. Additionally, there is a lack of transparent monitoring and evaluation mechanisms to ensure the effective implementation of adaptation measures, that funds are spent effectively and to capture lessons learned to facilitate upscaling and replication of successful adaptation interventions.

Finance Gap:
Communities and government agencies have constrained financial capacity to meet the incremental costs of adaptation. Public resources have been drained in the context of the on-going crisis and the breakdown of the Syrian economy. In the absence of substantial available discretionary funds, line ministries have to rely on the central administration's approval of their annual plan of work and budget. Limited resources are dedicated to implementing adaptation measures and disaster risk reduction actions at various administrative levels. In many cases, emergency plans exist, but resources for preparedness are inadequate, particularly at local levels. Syria has accessed the financial mechanism established by the UNFCCC to facilitate the provision of climate finance through financial resources provided by international operating entities. These include the GEF, the Adaptation Fund, the CIF and, recently, the GCF. However, the onset of the crisis in 2011 resulted in the disruption of all sources of international development and climate finance. In effect, Syria does not have any recent exposure or experience with managing, implementing, and overseeing international climate finance projects. This is major barrier that will have to be addressed in GCF Readiness work going forward. It also holds that readiness support in this area will not only assist access to GCF resources but also facilitate access to climate finance resources from other available multilateral funds.

Capacities must be built within institutions to access available climate-related financing mechanisms, particularly from the private sector. On the other hand, the cumulative deterioration resulting from increasing climate-related shocks has reduced productivity and impoverished smallholder farmers. Community organizations and, in particular, farmers' organizations do not have the capacity to identify costs, plan and invest adequately in innovative climate resilient land and soil management technologies. Where government investments are leveraged, the investment is not sustained due to lack of financial capacity to bear the incremental costs of addressing the severity of climate shocks on small-scale infrastructure. The upfront capital costs of these investments are outside the financial capability of farmer households or communities and, due to extensive demand and limited national financial resources, exceeds the capacity of government. In addition, communities lack the ability to effectively mobilize financing for land restoration and adopting climate resilient technologies.

Information Gaps:
Limited knowledge and awareness of climate change risks, impacts, and adaptation solutions across the

66 National Action Plan and Strategy for Adaptation (NAPSA), 2010.
67 Initial National Communication to the UNFCCC (INC-SY) 2010.
68 National Drought Management Strategy (NDMS), 2009
69 National Integrated Water Resources Management Strategy (NIWRMS), 2009
70 Land Degradation Neutrality Target Setting Programme Final Country Report UNCCS. (NLD-TSP), 2020. Available online: https://knowledge.unccd.int/sites/default/files/ldn_targets/2020-08/Syria%20LDN%20TSP%20Final%20Report%20%28English%29.pdf

different government institutions and the local population. Information regarding risks and future trends of extreme events is limited. Climate information services are generated by the National Meteorological Office and disseminated through several channels, but it is not always easily accessible and is rarely used in decision making. Practical guidance on how to adopt alternative and innovative practices to adapt livelihood and agriculture development and water management practices based on climate forecasts is not available. Combined, these factors have in turn led to inadequate capacity of communities to seek out and adopt best practices for climate adaptation. Without access to knowledge and training based on international adaptation best practices and in combination with limited access to financial resources and the technologies and materials that improve adaptive capacities, communities do not have the necessary capacity to develop and implement adaptive measures to climate proof land management initiatives. Additionally, baseline data regarding the state and vulnerability of livelihoods and ecosystems is often inaccurate, scattered, and inaccessible, particularly for the most vulnerable and remote populations. There are limited resources and capacity to collect, analyze, manage, monitor, and utilize reliable and accurate baseline climatic and project data to calculate and track information for making evidence-based investment decisions and solutions.

Policy Gaps:

Lack of coherent and cross-sectoral policies aligning climate and development. There is a lack of resources and capacity to formulate coherent policies that align climate and development and enable cross-sectoral collaboration and coordination. Climate change adaptation in policy remains highly sector specific, which results in ineffective adaptation measures, as climate adaptation is a cross-cutting issues. National forest and agriculture sector policies analyzed failed to explicitly include consideration of climate risk-informed landscape consideration.

2.2.1. Country Programme development process and engagement of relevant national stakeholders

Syria's Country Programme document for the GCF is the result of a broad debate in Syrian society during 2020 and the first half of 2021, which succeeded in engaging various stakeholders involved with climate finance, includes civil society, the private and public sectors. Primarily, a draft document was prepared for discussion, based on inputs from several line Ministries, namely: Local Administration and Environment; Agriculture and Agrarian Reform; Water Resources; Transport; Education; Electricity; Planning; Petroleum and Mineral Resources; Foreign Affairs and Expatriates; Information; Economy and Foreign Trade; Finance; Industry; Public Works and Housing; Social Affairs and Labor; Communications and Technology; and several of related scientific institution. Following a first round of contributions from the Syrian Government, this draft document was discussed with relevant stakeholders in a national consultation workshops from 30 May to 03 June 2021 and through online meeting and consultations on the NDA website.

In order to effectively engage national stakeholders in the preparation of the document, the NDA organized four Workshops to discuss Syria's priorities for the GCF. The participants in the last stakeholder consultation workshop in May 2021 were divided into five groups, which reflect five sectoral work areas for the GCF action in Syria: Agriculture; Water; Energy, Sustainable Infrastructure; and Resilient Cities and Communities. In June 2021, three content-related consultation workshops were held in Damascus to discuss the above-mentioned priorities. And a final thematic advisory workshop on June 29, 2021, to prepare two concept notes on two projects of the most national priorities to be submitted to the GCF. The workshops focus on the following areas: - Readiness and Disaster preparedness for drought and wildfires. – Sustainable urbanization and resource efficiency in the city of Damascus and the surrounding area.

Considering the relevant role of the engagement of the private sector and NGOs in climate protection in Syria, special workshops were held in Damascus on May 20, 2021. And a special Training workshop on the application of the GCF Manual 'Mainstreaming Gender in GCF Projects' to support the integration of gender equality in climate change interventions and climate finance were held in Damascus on May 19, 2021.

The "GCF-Hand book for Syria" and the matrix of projects that were proposed in the consultative workshop

was distributed to all stakeholders, as well as the discussion paper was available for consultation online on the NDA website. The NDA received some contributions as a result of the electronic consultation process from distinct segments of the Syrian stakeholders. It is worth mentioning that the inputs received during the process were systematized by the NDA and considered in the preparation of this Country Programme.

The Syrian Country Programme is a flexible document that sets clear national priorities for the Green Climate Fund, which must always be adapted and updated to reflect new developments, implementation progress, new information on adaptation and mitigation, and other issues or changes that may arise.

The NDA will continue to raise funds through the Green Climate Fund and bilateral support and develop baselines and updates for the Country Programme in 2023.

This first version of the Country Programme is supposed to provide strategic guidance for upcoming project proposals to the Green Climate Fund in the coming years, with an update in 2025.

This will allow adjustment of the Country Programme in response to:

- Changes in economic circumstances.
- New information on adaptation and mitigation needs, priorities, and objectives; and
- New information about changing viability or the cost of various adaptation and mitigation measures and options.
- The long-term revision cycle of the Country Programme will be set in 2023, with the nature of the document remaining flexible.

The Syrian Country Programme will be monitored and evaluated using results in a logical framework with SMART performance indicators. Baseline data and the results framework will be compiled by the NDA at a later stage and will include the overall goal, outcomes, and outputs. A review on effectiveness, performance, and accuracy will be conducted in 2025 to provide the NDA and stakeholders with relevant information on insights into its functionality as a guiding document and if it reflects the country's needs. Syrian National Designated Authority (NDA) will be responsible for updating the Country Programme, using external support if required.

2.2.2. Accreditation

Through the various engagements and consultations conducted during current GCF readiness activities, it was noticed that the potential future candidates all require capacity building in project proposal development and basic project finance concepts. Therefore, future support is a targeted element in the current readiness proposal submitted to the GCF. Awareness of the GCF has increased under the approved Readiness Programme, but the processes, roles and responsibilities of the NDA and DAE / AEs required to mobilize funding in Syria would benefit from additional specialization in project finance, climate change mitigation and adaptation measures, and coordination between the responsible departments within the NDA and external ministries.

Syria and its NDA are still at the beginning stages of navigating the GCF processes. As of July 2021, Syria (i) still does not have a direct access entity; (ii) the NDA did not have plans for additional readiness support; (iii) would benefit from the additional refinement of its current project pipeline; and (iv) could strengthen dialogue and partnership between the public and private sector on climate actions. Therefore, this will be revisited upon subsequent reviews of the Country Programme.

There is currently no comprehensive accreditation strategy for Syria, however, it would be recommended to highlights the nomination of a private sector entity. This would provide Syria more leverage to submit different types of climate change projects to GCF under the DAE modality. It is also strongly recommended to support capacity building for the candidate entities to ensure that they can develop and implement effective and bankable financing projects and programmes on behalf of Syria.

The current Readiness Programme proposal under GCF review has been developed to address the current capacity gaps faced by Syria. The Programme was designed to ensure the NDA and other stakeholders in

Syria can: i) coordinate and liaise on national climate action priorities, ii) better understand GCF funding policies and procedures, iii) meet the investment requirements of international climate funds, and iv) engage with those outsides of their institutions with the desire and resources to implement climate actions in Syria.

It would be recommended that by the implementation of Syria's next Readiness Programme, the NDA could select its first DAE candidate, through a national Expression of Interest (EOI) process. The EOI process will be open to all interested potential entities and the NDA will lead the promotion the EOI call. In particular, the EOI call will be communicated to entities that have supported project implementation for other multilateral climate funds (i.e. GEF, AF, CIF etc.) or bi-lateral climate funds in the past. The rationale for this approach being that these groups potentially already have the experience and basic capacities to move quickly through the accreditation process.

Under Stage 1 review, the applicant DAE would benefit from more comprehensive training around GCF processes particularly as they relate to project development; support to develop standard operating procedures (SOPs) to effectively manage a pipeline of GCF projects; and support to the Stage 2 accreditation panel review.

Annex 2 provides a summary of the Future Direct Access Entity (DAE) nomination selection process.

The approach for future selection processes of Syrian DAE nominations to the GCF is based on a combination of the EOI that would be undertaken for the selection of the potential nominees for accreditation to the GCF as well as the integration of steps to provide a process that (i) more closely aligns with the GCF accreditation standards; (ii) includes additional criteria based on accreditation potential; and (iii) introduces a national stakeholder selection process.

The process includes a two-tiered approach, utilizing a qualitative approach to determine a shortlist of candidates from an initial applicant pool. The shortlist analysis would be of 2-3 candidates and would include a more detailed gap assessment. The shortlist assessment would include a request for candidates to submit additional documentation and/or answer specific questions, and preferably an on-site visit, and a gap assessment outlining potential gaps against the GCF standards[71] (51).

An Expression of Interest (EOI) would be conducted as per Syria's need for DAEs. Calls could be made be once per year, several times per year, or once every few years. Based on the above, the steps for the selection process are outlined below:

- **Step 1:** Call for Proposals: MoLAE distributes a call for proposals for organizations interested in seeking direct access accreditation to the GCF. The call should be widely disseminated and can also be distributed through the contacts and channels of the members of the technical committee. Depending on the country's needs, the NDA can specify additional criteria or expertise the government is seeking for potential candidates. For example, if there is a project or programme area that other DAEs or nominated DAEs are not able to manage, the NDA may seek national entities that are capable of doing so.
- **Step 2:** Applications Submitted: Interested candidates submit their application to the NDA.
- **Step 3:** Initial Screening: the NDA conducts an initial screening, either internally or with the external support of the applications, focusing on (i) candidates' self-assessments against the GCF fiduciary standards, environmental and social safeguards, and gender policies, (ii) candidates' track record of climate-related initiatives, and (iii) the scope of candidates' overall portfolio against the scope of work undertaken by entities previously nominated for accreditation. The

[71] The gap analysis could be done internally by MoLAE or outsourced to an expert(s). There is potential to utilize GCF Readiness funds to either (i) hire expertise for gap assessments or (ii) build the capacity of staff to undertake assessments.

screening may also look at any additional criteria the NDA is seeking in a DAE (i.e. adaptation focus, forestry focus, disaster risk reduction, etc.)

- **Step 4:** Short-Listing of Candidates: Findings from the initial screening are presented to the appropriate technical working group (TWG). The technical advisory committee (TAC) makes a recommendation for a shortlist.
- **Step 5:** In-Depth Screening: Short-listed candidates are visited to develop a more detailed analysis of each of the entities against the GCF standards. Similar to step 3 this can be done by internal personnel or with external support[72]. Expertise of those undertaking the analysis should include finance, audit project management as well as environmental and social safeguard experience.
- **Step 6:** Final Decision – the more in-depth screening of the short-listed candidates is presented to the TAC. In addition to technical aspects, the TWG may consider certain qualitative aspects to an organization that could make one organization more suitable as a DAE than another. A recommendation is made by the TAC on the nomination of a candidate or candidates for accreditation to the GCF. The NDA is responsible for completing the process by generating the no-objection letter based on the recommendation of the TAC.

2.3. Mitigation Priorities

A myriad of financial instruments could be utilized to finance mitigation projects in Syria, although, as described in Section 1, debt instruments must be used with caution.

Due to the increasing demand for energy in Syria, it makes sense to introduce the renewable energy sector as one of the main sources of energy sources in the country and encourage private sector participation in investments in this sector, *there is significant potential for rationalization of energy consumption in all sectors*. Energy efficiency improvement can be supported through (a) projects, such as water pumping and street-lighting, (b) improved standards for appliances and equipment, and (c) stronger building codes. The transport sector is a major and fast-growing fuel consumption sector, which can be supported through (a) projects such as, improved public transport and introduction of zero emission electric vehicles (ZEV), and (b) improved vehicle efficiency and emission standards.

The mitigation priority projects for GCF finance are therefore centered around four components:

1. Renewable energy, and energy efficiency, Industry, and the built environment
2. Sustainable and low-emission transportation
3. Waste
4. Forestry and agriculture

Based on the focus in the national policies, a number of project types have been suggested and discussed through the development of the GCF Country Programme. The list in Table 11 is therefore, not meant to be exhaustive, but rather indicative of projects that are well-aligned with national policy frameworks and the GCF's results areas.

72 The gap analysis could be done internally by MoLAE or outsourced to an expert(s). There is potential to utilize GCF Readiness funds to either (i) hire expertise for gap assessments or (ii) build the capacity of staff to undertake assessments.

Table 11: Mitigation Priority Projects for the GCF

Promotion of low emission development (Mitigation)
Component 1: Renewable Energy and Energy Efficiency, Industry, and the Built Environment • Expanding and strengthening renewable Energy production particularly from solar PV, CSP, and wind resources. • Promotion and development opportunities from biogas and landfill gas capture and utilization • Promotion of solar water heating technology and programmes for residential and industrial end users • introduce renewable energy as an energy source for supply water systems. • Rural electrification and sustainable energy access. • Promotion of energy efficiency and demand side management technologies • Expansion and development of green building codes • Improve energy use efficiency in water utilities. • Development of material substitution, waste management and energy recovery programmes for industry
Component 2: Sustainable end Low-emission Transportation • Expansion of public transport particularly BRT and rail transit • Development of Zero Emission Vehicle Programmes • Expansion and promotion of fleet energy efficiency
Component 3: Waste • Updating the strategic study for solid waste, and conducting sanitary landfills in all governances. • Developing composting facility at the urban centres. • Installation of organic waste to biogas generation plant. • Installation of biogas generation plant for organic waste.
Component 4: Forestry and Agriculture • Reforestation and forest conservation • Restoration and conservation of rangelands and protected areas. • Development and expansion of climate-smart agriculture and agroforestry

2.4. Adaptation Priorities

There are multiple challenges Syria faces in addressing climate change adaptation including a lack of funds to address climate risks. Syria's NDC provides important adaptation related activities that would benefit from GCF finance including (a) projects related to afforestation of rangelands and forest areas; (b) strengthening climate- informed disease control programmes and surveillance systems; and (c) promoting climate smart agricultural practices. These activities can be further aggregated, within clusters or across project or policy interventions, for efficiently identifying financing resources and improving pace of implementation. Based on the challenges and national priorities, the adaptation priority projects for GCF funding are centered around four components:

- Agriculture and Food Security
- Water Resources and Water Security
- Coastal zone
- Disaster Risk Reduction and Human Health

The project types suggested in Table 12 are intended to provide information on projects that are well-aligned with national policy frameworks and GCF's results areas.

Table 12: Adaptation Priority Projects for the GCF

Enhanced resiliency to climate change (Adaptation)
Component 1: Water Resources and Water Security • Promotion of practices for the sustainable use of water resources (Water efficiency, infrastructure repair, demand side management, financing, etc.) • Expansion of rainwater harvesting and water reuse to augment water supplies, particularly for agriculture • Exploration of desalinization pathways for water supplies • Improved efficiency and optimization of irrigation for agriculture
Component 2: Agriculture and Food Security • Expanded water efficiency and sustainable irrigation for agriculture • Promotion of climate responsive strategies like crop diversification and modification of planting times • Improve access to climate resilient crop species to improve agricultural productivity • Establishment of crop insurance programmes and credit • access for smallholder farmers • - Develop drought and flooding early warning systems
Component 3: Ecosystems and Coastal zone • Development and promotion of ecosystem-based adaptation • Promotion of sustainable land management and agroforestry, particularly in buffer communities • Sustainable management of coastal resource zones • - Expansion of national protected areas
Component 4: Disaster Risk Reduction and Human Health • Develop climate responsive buildings and infrastructure, particularly for water, energy, transportation, and health • Develop early warning systems for flooding, drought, and other significant health events • Development of capacities for epidemiological surveillance of health phenomena sensitive to climate change • Develop and improve data and information systems and strategic plans for disaster risk reduction • Improved flood protection and stormwater management plans

2.4.1. Sectoral adaptation options in Syria:

Climate impacts and adaptation options from a sectoral perspective can be summarized as follows:

2.4.1.1. Agriculture sector:

Climate hazards and impacts for the agricultural sector		
Increased temperature	**Greater frequency and intensity of drought and extreme temperature**	**Seasonal shift**
• Overall decreased agricultural productivity and total crop failure in some areas • Increased reliance on irrigation from rivers and groundwater • Decrease in the productivity of agricultural crops and animal feed, and thus will lead to a decrease in the production of milk and meat. • Migration from rural to urban areas due to crop failures and loss of livelihoods • Shift in land-use and agro-ecological zones		

Examples of the adaptation options in the agricultural sector	
Policy and institutional strengthening measures	**Management practices**
• Development of a comprehensive adaptation plan for crop production and livestock to address drought risks. • Capacity development at sectoral and subnational levels on adaptation and climate–smart practices and policies. • Mainstreaming of climate resilient agricultural practices in agricultural sectoral plans and strategies.	• Enhancement of climate services for the agricultural sector to provide real time and user-friendly climate information to the farmers. • Strengthen existing early warning systems to focus on drought prediction for specific crops. • Promotion of agroecological practices for soil and water conservation. • Adjustment of agricultural calendar (e.g., planting dates) to better respond to the shift of seasonality.

2.4.1.2. Water sector:

Climate hazards and impacts for the water sector	
Greater frequency and intensity of drought	**Decreased precipitation**
• Reduced recharge rates and increased rate of depletion. • Decreased access to safe drinking water. • Increased stress over water • Saltwater intrusion into groundwater sources • Decreased runoff • Decreased quantity and quality of groundwater	
Examples of the adaptation options in the water sector	
Policy and institutional strengthening measures	**Management practices**
• Mainstreaming of climate change in water-related policies and plans and strengthening cross-sector planning and activities. • Promotion of integrated water resource management at basin scale informed by climate information. • Creation of a monitoring platform on water data at multiple scales to improve water governance and planning by authorities at local, sub-national and national levels	• Adoption of nature-based solutions (e.g., reforestation) to enhance ecosystem services that support the hydrological cycle. • Promotion of water harvesting technologies such as roof-top rainwater harvesting systems. • Promotion of forest conservation practices that will enhance the recharge of groundwater and aquifers. • Improvement of water-use efficiency in the agricultural sector via water conservation practices

2.4.1.3. Coastal zone:

Climate hazards and impacts for the coastal zone	
Sea Level Rise	**Coastal flooding**
• Damage to coastal infrastructure and agricultural areas • Displacement of coastal communities • Increased salinity of coastal aquifers • Increased coastal erosion. • Increased coastal flooding and damage	
Examples of the adaptation options in the coastal zone:	
Policy and institutional strengthening measures	**Management practices**
• Integration of climate change impact and risk	• Improvement/upgrade of early warning for coastal

assessment into all future coastal strategic documents. • Strengthening of cross-sector coordination in the coastal areas. • Improvement of the protection of areas that have the status of a special nature reserve. • Set up of a National Coastal Observation System as a precursor to Early Warning System.	floods and storm surges. • Promotion of erosion control measures, such as dune regeneration and restoration of coastal areas. • Adoption of nature-based solutions to protect from inundation. • Stabilizing the sand dunes with a combination of rocks and local vegetation species to encourage dune growth by trapping and stabilizing blown sand.

2.4.1.4. Disaster Risk Reduction and Human Health Sectors:

Climate hazards and impacts for the health sector:		
Decrease of crops	**Water scarcity**	**Extreme weather events**
• Children malnutrition caused by decreasing crops especially wheat. • Diseases caused by decreasing of quantity of drinking water and deterioration of its quality • Several harmful impacts of extreme weather events. • Diseases caused by low quality of irrigation water.		
Examples of the adaptation options in the health sector:		
• Support and finance response plans to manage medical status. • Develop and finance plans to reduce loss and damage caused by extreme weather events.		

Chapter 3

CHAPTER 3

Priority Investment Areas & Readiness Needs for GCF Portfolio Development

3. Priority Investment Areas and Readiness Needs

Syria's has defined priority 'Investment Areas' and priority 'Readiness Needs' for GCF portfolio development. It is intended that Syria's pipeline of projects will follow this investment framework, which is summarized in Table 13 below. The proposed organization of pillars and associated priority investment areas and readiness needs have been developed to structure the analysis and dialogue for developing projects and programmes with the GCF. The priority investment areas and readiness needs described in this chapter set the general framework for developing Syria's GCF portfolio of projects and programmes for the next funding cycle. It should be noted that the following investment areas and readiness needs include only those which have been identified during the time of development of this Country Programme and may be subject to necessary updates over the course of the programing cycle. Therefore, it is important that these areas and needs are seen as flexible. They should be seen as indicative guidelines for the work of accredited entities and potential parties interested in accessing the Fund's resources, presenting in a transparent manner, the main areas in which a relevant potential for operations in the country.

The priority investment areas described in this chapter give indication as to where funding proposals are intended to be developed for submission to the GCF over the next programing cycle. Four investment areas have been identified for three investment pillars (12 total) and they describe important sector priorities, interventions, outcomes, and objectives that Syria wants to target with climate finance resources. The rationale for grouping investment areas by 'pillar', as opposed to by sector (like many other strategic documents, including the NDC and NAP), is that many of the needed sector interventions when translated into project ideas are highly cross-sectoral in nature and do not fit neatly into distinct sector classifications. Therefore, priority investment areas are described according to investment theme, or 'Strategic Pillars'. NDC/NAP sectoral investment needs for 'Forests, Lands, and Agriculture' have been included in the 'agriculture, forests, and landscape management' pillar. NDC/NAP sectoral investment needs for 'Energy', 'Transport', 'Solid Waste', 'Industry', and 'Housing' have been split between the 'sustainable infrastructure' and 'resilient cities, communities and areas' pillars. The investment areas contained in each Strategic Pillar are also connected and interrelated to the interventions and activities contained in the other Pillars, as well as to other areas in their own Pillar. Figure 2 below explains this interrelation between the areas, establishing the connections between topics that are relevant to more than one category. These investment areas are further detailed here in Chapter 3 within sub-sections 3.1 to 3.3. They form the basis for dialogue surrounding GCF project pipeline construction going forward. In some areas specific projects have already been identified, and brief descriptions of those projects are included to show their relationship to the investment area. However, detailed descriptions of these projects are described later in Chapter 5 and in the respective Annexes. It is worth noting that the inclusion of the project ideas in the following investment areas do not imply 'no-objection' by the NDA at the time of analysis, and that the order of presentation of the projects does not consist in any kind of prioritization or ranking. All of the following investment areas and associated project ideas have been identified and confirmed to be lacking sufficient domestic and international resources to support Syria's climate targets and sustainable development outcomes, and therefore GCF assistance is warranted to initiate and catalyze investment in priority areas. It is therefore intended that future funding and readiness proposals submitted to the GCF will fall in line with the investment themes and areas described below.

The priority readiness needs described in this chapter provide indication of the known technical and capacity needs that Syria intends to address through readiness proposal submissions to the GCF. The priority readiness needs identified have been selected to help Syria capitalize on its plans to develop projects and programme in the targeted investment areas. These needs build on existing GCF readiness projects that are currently nearing end of their implementation phase. Many of these needs have been identified through current readiness work, including preparation of this Country Programme. The current readiness needs do not constitute a full list of readiness needs – many more exist, yet these identified are only those of high priority for operationalizing projects. It is important to note that Syria's readiness priorities will change over time depending on the results of new strategic developments, new project ideas, further diagnostic work and needs assessment outcomes etc. The readiness needs and associated

proposals to the GCF will be updated in future Country Programme revisions and discussed with the GCF Asia Regional team on a more frequent and recurring basis. This chapter identifies key priority readiness needs that are intended to be addressed in future readiness proposals and they are specifically described in sub-section 3.4. Some of the particular readiness needs are closely related to investment areas and are also addressed intermittently throughout sub-sections 3.1, 3.2 and 3.3.

The following investment areas and readiness needs were prepared under close coordination with primary stakeholders. These primary stakeholders include the Directorate of Environmental Safety of the Ministry of Local Administration and Environment (MoLAE), Syria's National Designated Authority (NDA) to the GCF, and a regular dialogue with all stakeholders in the relevant government agencies and civil society, as well as the Asia Regional Team at the GCF. In addition, it reflects the outcomes of the broad discussion with all secondary stakeholders that were identified within NDC/NAP priority sectors and thematic areas for action to mitigate climate change and adaptation during the five-day advisory workshop held in Damascus from May 30th to June 3rd, 2021. This was followed by four technical workshops, in which inputs were collected and discussed, as well as two specific workshops involving the private sector and gender engagements.

Table 13: Strategic Pillars and Investment Areas for GCF action in Syria

Strategic Investment Pillar I – Agriculture, Forests and Landscape Management	
Investment Area	**Goals**
Sustainable development of agricultural and water resources.	• Integrated Agricultural production. • Develop agricultural and water research and extension. • Development of the investment environment in agriculture and agribusiness. • Conservation and rational use of water resources including modern irrigation. • Develop and implement easily accessible drought forecast and drought monitoring information systems to improve drought preparedness.
Sustainable Management of Forest and rangelands, their Economy	• Improve the structure of the production chain of agro-biodiversity products. • Promote market access and structuring,
Restoration, Conservation and Reforestation	• Implement measures for the restoration and recovery of native vegetation, as well as reforestation actions. • Strengthen mechanisms for environmental compensation and payment for environmental services;
Low-Carbon Emission Agriculture and Adaptation in the Production Sector	• Promote agricultural technologies to mitigate emissions and the adoption of systems and practices that reduce the vulnerability of agricultural systems to climate change. • Promote the technological dissemination of conservationist agricultural practices through actions such as rural extension, technical assistance, and support for scientific and technological development;
Strategic Investment Pillar II – Sustainable Infrastructure	
Investment Area	**Goals**
Low-emission transport modes	• Develop financial products and business models for the promotion of private investment through concessions and PPPs. • Expand the use of more efficient and resilient modes for passenger and cargo movement.

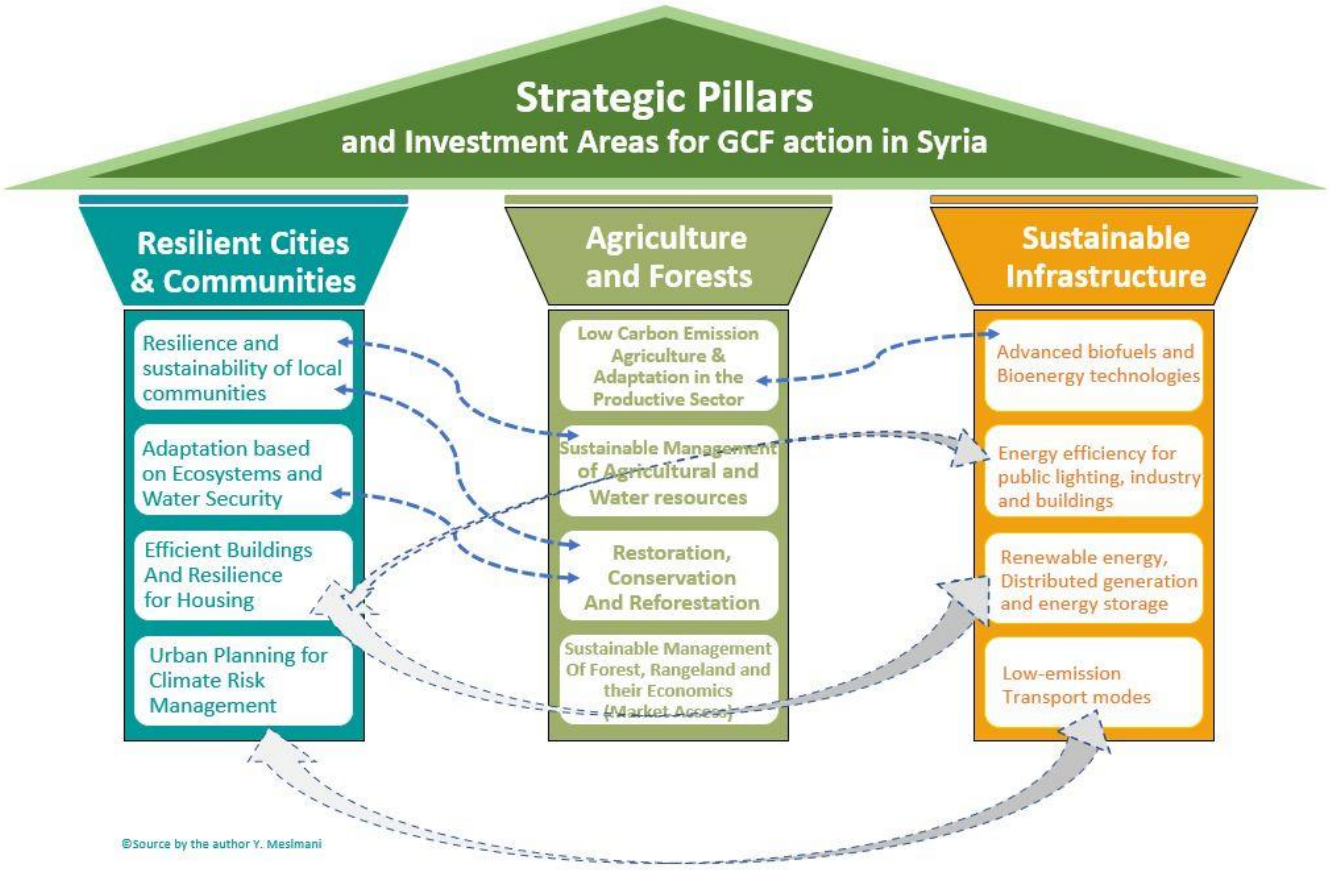
	• Promote the integration of transport modes.
Renewable energy, distributed generation, and energy storage	• Promote the use of non-hydro renewable sources, including through distributed generation. • Promote energy storage solutions. • Establish financial and technical tools to increase the penetration of low carbon technologies
Energy efficiency (EE) for Public Lighting, Industry, and Buildings	• 12. Development of a technology transfer system and capacity building for energy efficiency and renewable energy • 15. Create environment for renewable energy and develop capacity for rational and efficient uses of energy. • Develop new business models and financial products to unlock EE investments in the industry. • Encourage the use of more energy-efficient technologies. • Encourage partnerships and private investments to promote EE in public lighting and buildings
Advanced biofuels and bioenergy technologies	• Foster the technological development and at-scale production of advanced biofuels. • Improve the sustainable management of solid waste, promoting electricity generation from biogas and biomethane. • Strengthen financial mechanisms to enable bioenergy generation

Strategic Pillar III - Resilient Cities, Communities and Territories

Investment Area	Goals
Urban Planning for Climate Risk Management	• Implement urban planning measures to increase resilience in cities and metropolitan areas. • Promote the dissemination of information and coordination among different stakeholders involved in urban planning, thus enabling the implementation of solutions at the local level. • Integrate the use of risk management technologies and disaster warning and prevention systems
Efficient Buildings and Resilience for Housing	• Foster the use of eco-efficient building materials and low water and energy consumption technologies. • Consider housing solutions to increase the resilience of low- income populations. • Develop incentive structures to finance resilient and low-carbon buildings
Ecosystem-based Adaptation (EbA) and Water Security	• Establish long-term planning tools by implementing mitigation and adaptation measures. • Identify specific impacts in areas of greatest vulnerability, with special emphasis on coastal zones and hydrographic basin regions. • Increase water security in regions susceptible to drought effects and changes in precipitation patterns.
Resilience and sustainability of local and traditional communities	• Support the engagement of local and traditional communities in issues related to sustainable economic production and natural resource management, respecting their specificities and traditional knowledge. • Promote access to electricity by populations living far from the grid, with emphasis on replacing fossil fuels with renewable sources. • Promote improvements in the quality of life of local and traditional communities, including their economic, infrastructure and water and energy access conditions.

Readiness Pillar	
Readiness Needs	**Goals**
Pipeline Development	• Identification of new project ideas within strategic investment areas • Preparation of at least five new concept notes
Accreditation	• Accreditation strategy development • Identification of potential direct access candidates • Accreditation capacity building support provided to DAE candidates • Identification of suitable international or regional entities that can help deliver on potential projects in key investment areas
Financial Instruments	• Identification of appropriate financial instruments and products for potential projects in priority investment areas
Private Sector Engagement	• Development of a comprehensive private sector engagement strategy for priority investment areas

Figure 2. Links and interrelationships between strategic pillars and proposed investment areas



3.1 Agriculture, Forests, and Landscape Management

Syria has a history of dealing with a harsh climate condition, including low precipitation, frequent floods, droughts, and extreme temperatures. Syria has experienced food insecurity and according to the Global Food Security Index, the country is ranked 107/113 (38.4 score). Climate change is expected to put an additional pressure on households already suffering food shortages. The most direct impact of climate change on small-scale farmers in the country will likely be a reduction or increased variability in their food supply. The potential of reduced agricultural productivity and production will mean that more of these farmers are at risk of hunger. The food security of different social groups will be affected in different ways, depending on their livelihood strategies and physical and institutional environments. The food security of farmers is most at risk from a loss of income from agriculture, and reduced yields of food produced for household consumption. The food security of urban consumers may be most at risk from price fluctuations, supply chain disruptions and risks to human health.

The initiatives to which Syria refers in the National Action Plan and Strategy for Adaptation (NAPSA)[73]. Nationally Defined Contribution (NDC)[74] include strengthening policies, procedures, and project development in the forest, land and agricultural sectors. Key strategic approaches for managing these sectors have been identified in the NAPSA, and are summarized as follows:

- Sustainable management of forests and increasing forest area to develop and rehabilitate burned and degraded forests. Increase the production of forest plantations and forest areas to enhance the role of forests in carbon sequestration.
- Organization of agricultural production based on land use mapping and determining appropriate agricultural rotations considering natural and terrestrial resources capacity to ensure their sustainability and efficiency.
- Sustainable management and manufacturing of agricultural waste, and recycling of residues instead of burning. Production of alternative energy from solid waste and liquid residues.
- Rehabilitation of degraded rangelands and application of conservation agriculture.
- Support for renewable energy projects in agricultural contexts.

Syria will also seek to adopt restoration and reforestation measures, enhance sustainable native forest management systems, and strengthen the Sectoral Plan for Mitigation and Adaptation to Climate Change for the Consolidation of a Low Carbon Economy in Agriculture. These are ambitious targets that will require a high level of investment to make up for persistent shortfalls in investment funding for agriculture, forests, and landscapes.

Affordable measures should be considered to support forest restoration and vegetation cover initiatives. The cost of restoration varies according to the technique to be implemented and the scale of the project. At the same time, the mitigation potential of these investments has a significant impact on the national effort to cope with climate change - the implementation of the Native Forestry Law (Law 6/2018). In this sense, actions that promote technical assistance and rural extension and foster innovation to reduce vegetation recovery costs are of the utmost importance - for example by native plants and species that are better adapted to climate change.

For the agricultural sector, the strategy of increasing low emission production by enhancing productivity should be maintained, that is, without the need to expand the area into the stock of native vegetation (The Decree of Organic Agriculture, 2012)[75]. This can be achieved by using sustainable intensification practices and low-emission technologies to increase efficiency, resilience, intercropping, diversification of the

73 National Action Plan and Strategy for Adaptation (NAPSA), 2010.

74 Syria´s NDC, 2018. Available at: https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx

75 The Decree of Organic Agriculture (2012): This calls for ensuring the responsible and sustainable use of energy and natural resources and minimizing the use of non-renewable sources, soluble fertilizers, and non-farm inputs. It also mentioned the need to produce various varieties of food and other agricultural products that meet the consumer's needs from manufactured production while respecting the environment, plant health, and animal health and safety.

productive matrix, value added, and recovery of degraded areas. Considering this diagnosis of policies and opportunities, it is important to decentralize the environmental agenda by promoting capacity-building at the local level.

Land-use planning is a relevant and cross-cutting issue for all Investment Areas of the Agriculture and Forests pillar since they directly impact not only the conservation and restoration of forests and vegetation cover but are essential for strengthening sustainable supply chains. The national action programme to neutralize land degradation (to which the Syrian Arab Republic was approved to accede by the letter of the Ministry of Foreign Affairs and Expatriates (MOFAE) No. 2281 dated 7/3/2016) comes to link the implementation of the Convention to the sustainable development goals Beyond 2015 especially Target 15.3 which aims to "combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world" by 2030. as one of the main goals of implementing the Convention. Protected areas, in particular conservation units, and areas occupied and used by local communities or traditional populations in a sustainable manner should also be considered.

Therefore, following the GCF mandate of promoting interventions with a transformational impact in the agriculture, forests, and land sector, four Investment Areas have been identified:

a. Sustainable Management of agricultural and water resources.
b. Sustainable Management of Forest, rangelands, and their Economy
c. Land Restoration, Land Conservation and Reforestation
d. Sustainable Management of Forest, rangelands, and their Economy

3.1.1. Sustainable Management of agricultural and water resources

Agriculture plays a vital role in the economy of the country as it employs and engages a large portion of the work force, provides food and fiber, and generates localized income for households and also foreign income through exports. Agriculture is directly affected by climate change and rural communities are consequently affected. Repeated drought strikes, water shortage and pollution, and low profile of use of modern technologies in agricultural practices, water use especially irrigation, processing and marketing are major challenges for sustainable agricultural production. It is essential for developing sustainable agricultural programmes that the broad vision be pursued in coordination with other national environmental strategies adaptation to exploit synergies as they arise.

Drought early warning systems, contingency plans, food security systems, alternative livelihood projects or sustainable irrigation programmes could be effective adaptation options in the country. Sustainable intensification farming practices and new climate smart technologies could also serve as components of the National Action Plan to Combat Desertification and to protect biodiversity. The NAAP process confirmed that climate change issues are indeed linked to ongoing national efforts related to the UN Convention Biodiversity (CBD) and the UN Convention on Combating Desertification (CCD).

Syria intends to develop and implement easily accessible drought forecast and drought monitoring information systems to improve drought preparedness. Drought reduces agricultural production, which leads to a reduction in the total value of agricultural output and income, and damages national economic growth. At the community level, drought causes loss of crops, livestock and, in severe cases, leads to chronic food shortages and famines. The migration of rural people from drought-stricken areas to cities, in search of food and employment, can add to the pressure on urban resources causing social problems. The actions that farmers take in tackling drought challenges are regulated by their socio-economic environment, knowledge, and experience. The social and economic possibilities and constraints that they face also determine the way in which they cope with drought. Hence, drought management should be strongly associated with household food security and be linked to ensuring food supply and developing the human resources necessary for sustainable agricultural development. Farmers, herders, and other rural stakeholders must commit resources each year before the commencement of key rainfall outcomes. For

example, decisions about planting crops (variety, date of planting, seeding rate, fertilization, etc.) usually must be made at the beginning of the wet season, before knowledge about rainfall quantities and distribution is available. The ability to provide early warning drought forecasts would represent a powerful tool for avoiding many of the economic costs associated with the misallocation of resources, particularly in combination with a well-functioning response farming system. Reliable drought forecasts could also enable governments and relief agencies to position themselves each year for more effective and cost-efficient drought interventions. It is therefore important to develop drought forecast and monitoring information systems that can be easily accessed by all stakeholders involved in drought preparedness. Requirements on meteorological networks and remote sensing techniques, data acquisition, storage and analysis, GIS, and access to information (dissemination) must be identified and satisfied. Such forms of improved data collection and management may help with the development of index-based weather insurance systems or other finance services to support smallholder farmers during drought event which would be considered and approved later. MAAR already has the basis of this project and there is need to reactivate it in cooperation with the General Authority of Metrology, the General Authority of Remote Sensing, the Ministry of Local Administration and Environmental Affairs and other stakeholders. Key objectives for project development in this space include: i) strengthening the ongoing projects on preparedness for drought strikes; ii) developing long term strategy to mitigate the bio-physical and socio-economic impacts of drought strikes; and iii) data collection and management systems to support index-based weather insurance systems or other finance services to support smallholder farmers.

Syria intends to promote integrated and intensified agricultural production. Integrated and intensified agricultural production systems and practices are applied in the different sites and for different types of national and sub-national needs. Pulses and forage production are a major component in different rotations and livestock is essential in many production systems. With integrated and improved agricultural systems, it is anticipated that agricultural production could by 30% without a significant expansion of cultivation or grazing areas. MAAR and all other stakeholders are responsible for leading implementation projects and initiatives that promote such an improved approach. The major goal is the enhancement of sustainable food security and income from agriculture through improved productivity per unit area. Accordingly, MAAR maintains the following objectives: i) to develop improved sustainable intensification land use policies; ii) to promote sustainable agricultural production practices and approaches; iii) to achieve sustainable use of water and soil resources; iv) to combat desertification and conserve biodiversity; and v) to improve overall agricultural productivity across agricultural sub-sectors.

Syria aims to promote conservation and rational use of water resources including use of modern irrigation systems. In order to overcome this problem and the problem of low productivity, the GOS launched the Project on Transfer to Modern Irrigation (PTMI) in 2000, implemented by MAAR. The project aimed at increased agricultural productivity and production and conservation of water and soil resources. PTMI also aimed at increasing water efficiency use by 45% and reduce loss of water by 70% from all water systems. The major expected results have been saving 3.795 billion m3 of water to overcome the gap between water requirements and resources. Cost of production would decrease while net revenues significantly increase for all crops at the local and the national levels. The PTMI faces many institutional, social, and technical challenges which lead to slow implementation (less than 25%) of its activities. MAAR is the implementing agency for this project GCSAR shall also be involved in developing research activities for the best implementation practices. The Ministry of Industry shall be involved in supervising the manufacturing of all equipment needed in addition to their quality control. Objectives: To strengthen the existing PTMI, and to help new water conservation agricultural projects achieve their objectives, it is important to maintain and adhere to the following generalized objectives: i) Increased agricultural productivity and production; ii) Conservation of water resources; iii) Conservation of soil resources and combating desertification; and iv) Alleviation of drought impacts.

Syria aims to promote sustainable development amongst the investment environment in agriculture and agribusiness. The existing regime for investment, including the agribusiness sector, has several drawbacks that have so far impeded a more vigorous and sustainable process of investment and growth. The general

problem is that the regime grants special temporary benefits for new investments, without altering much of the general macroeconomic and institutional environment, or making those benefits permanent. This encourages the pursuit of short-term advantages, but hardly promotes long-term growth. The Ministries of Finance, Agriculture, MSEA, Industry, in addition to SPC and the private sector are the concerned parties for implementing this programme. Syria's objectives for improving the overall investment environment in agriculture and agribusiness includes: i) promotion of sustainable investment in agribusiness; ii) facilitating development of cooperative enterprises; iii) facilitating development of rural micro-finance institutions to expand the use of credit in the countryside; iv) improving and decentralizing agricultural planning processes; v) promoting marketing of agricultural products; vi) fostering on-farm investment for modernization of irrigation systems; vii) adjusting the laws of agricultural relations; and viii) improving the information system and the provision of investment studies to comply with the international standards of marketing agricultural products.

Syria aims to develop agricultural and water research and extension systems. Agricultural research and extension in all sectors and at all levels should include traditional crop breeding and the use of modern technologies to develop varieties that are tolerant to adverse conditions of climate changes and drought, and soil and water salinity among other adverse conditions. Application of traditional crop breeding system is adopted, and many varieties of wheat, barley and cotton have been developed. However, this process is slow. Modern technologies are very expensive and difficult to attain, particularly for new crop varieties. The system needs regional efforts since all the Arab countries face the same difficulties in attaining food security, and share similar challenges of water shortage, land degradation, climate change and drought, lack of coordination among institutions and experts, etc. It is anticipated that when new resilient crop varieties are developed and spread, agricultural production would be sufficient under the adverse conditions of climate change. MAAR, the Ministry of Irrigation, the Ministry of High Education, and the related stakeholders are the key implementing agencies. Their major goal is to enhance sustainable agricultural production and the conservation of water resources through the development of extension packages containing the proper technologies. Activities that can help achieve this goal have been identified as the following: i) Development and adoption of heat and drought tolerant cultivars for both irrigated and rain fed regions; ii) Changes in crop production practices (optimum sowing date, cultivars, water needs and plant density); iii) Increased efficiency in managing rainwater resources through applying conservation farming practices including minimum tillage, strip cropping, building contour terraces and contour plowing; iv) Construction of water harvesting systems to store rainfall water that can be used during prolonged periods of drought; v) Improved irrigation system management and typology design (the application of irrigation at critical growth periods of the crop is important to maintain high yield); and vi) Development of training packages to promote and apply the developed and adopted technologies.

3.1.2. Sustainable Management of Forests, Rangelands, and their Economies

The sustainable management of forest and rangelands will also be promoted by the GOS to help achieve mitigation and adaptation outcomes. To achieve this, investments in mitigation and adaptation measures will be considered to promote forest and rangeland's resilience and GHG sequestration capacities. One of the approaches provided in the NAPAS is the use of 'Ecosystem-based Adaptation' approach, which uses the management, conservation, and restoration of ecosystems and services from these ecosystems for the benefit of society. Ecosystem based adaptation approaches to managing forests and rangelands conserves and enhances vegetation resources, which in turn increases their GHG mitigation capacity on a per hectare basis. Other initiatives include the consolidation of Conservation Units and integrated forest and landscape management. For the development of new projects and readiness proposals such approaches will be duly considered given their potential to deliver mitigation and adaptation outcomes at scale.

3.1.3 Land Restoration, Land Conservation and Reforestation

In recent years Syria has established targets for achieving land degradation neutrality, a state whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance

food security, remains stable or increases within specified temporal and spatial scales and ecosystems[76]. Actions need to meet the Syrian target will focus on the restoration of native vegetation, reforestation and strengthening of forest economy and management. Achieving these targets requires actions focused across sectors, for example, on the restoration of native vegetation and reforestation for multiple uses associated with the strengthening of forest economy and management; natural restoration; monitoring of LDN indicators; mechanisms to compensate vegetation deficits such as Environmental Reserve Quotas (CRAs), protection of native forests and Payments for Environmental Services (PES). It is fundamental to support those who are directly engaged in conservation and who have historically had a relationship of dependence with the forest, especially local and traditional communities.

Access to technical assistance and incentive to innovation can reduce the cost of restoring degraded areas. Access to information and technical assistance will be fundamental for Syria to implement measures to reforest and restore degraded areas. Technical Assistance and Rural Extension (ATER) contributes to this process by guiding rural producers (commercial, family, and indigenous) in crop planning and management techniques, for developing sustainable agricultural production and promoting the use of native species and species adapted to climate change. In addition to this effort, it is necessary to invest in technology and process innovations to reduce costs of forest restoration. Given the historical lack of funding for such types of initiatives climate funds are needed to help advance progress towards achieving LDN targets. In terms of developing investment projects, GCF funding proposals should focus on the aforementioned LDN principles and preferred approaches and also consider co-financing opportunities with the GEF-8 focal area of 'Land Degradation' as well as potential GEF-8 impact programmes that promote LDN. GCF proposals may also seek complimentary funding from private sector windows that attract funding towards LDN initiatives, such as the 'LDN Fund' spearheaded by the UNCCD. In this sense, GCF resources could be used to catalyze and coordinate additional LDN resources from the GEF and the LDN Fund, amongst others, and this represents a considerable opportunity for Syria to investigate through a GCF readiness operation.

3.1.4. Low Emission Agriculture and Adaptation in the Productive Sector

Actions around agriculture should focus on promoting GHG emission mitigation technologies in areas already affected by human activity that encourage the use of conservationist systems and practices and reduce the vulnerability of agricultural systems to climate change. Priority will be given to proposals that aim to contribute to strengthening and monitoring of the Sectoral Plan for Mitigation and Adaptation to Climate Change for the Consolidation of a Low Carbon Economy in Agriculture (National renewable energies strategy until 2030) and the Agriculture Strategy of the National Adaptation Plan and Strategy (NAPAS), focusing on measures that reduce GHG emissions and increase agricultural resilience to climate change. The Ministry of Electricity, in coordination with the Ministry of Agriculture, will set a timetable for a sustainable transformation programme focusing on the use of renewable energies (solar and wind) to operate water pumps and at the farm producing crops and livestock. Introducing biogas production projects to generate renewable energy (biogas and power) and organic fertilizers from livestock wastes. Installing solar energy systems to pump water from wells and for all pumps within the sewage and drinking water network of the Ministries of Agriculture and Water Resources. Installing solar water system at the farm level, and solar energy with modern irrigation techniques (drip-spray). Taking advantage of hydroelectric projects and bioenergy in coastal or north-eastern cities. Identification of appropriate practices at sub-national levels may be a suitable activity for a future readiness operation in this space.

Priority will be given to proposals aimed at monitoring existing policies and the efficient use of public resources, thus considering both their impacts and the reduction of emissions. The initiatives indicated by the country in the NDC require investment in a comprehensive Monitoring, Reporting and Verification (MRV) system. Such a system enables calculating data in a more precise, internationally recognized way, to be used systematically, identifying bottlenecks, opportunities, and the potential for replicability in other regions and territories.

[76] Following the official UNCCD definition

Programmes for the promotion, access, and development of technologies and approaches that foster adaptation to climate change in the agricultural sector will also be prioritized, based on the NAP Agriculture Strategy, thus ensuring greater resilience, and generating co-benefits. Priority will be given to initiatives aimed at increasing the sector's resilience through programmes that foster and encourage adaptation technologies and strengthen climate-smart tools. Actions to implement monitoring and risk and vulnerability simulation systems for the agricultural sector, combined with the availability of tools to support decision-making processes based on these scenarios can have beneficial and lasting results for the sector in relation to climate change.

3.2. Sustainable Infrastructure

In the wake of recent crisis in Syria, significant portions of the country's domestic urban and rural infrastructure have been damaged or destroyed. This includes destruction of infrastructure in key sectors where both mitigation and adaptation outcomes are needed, including energy, transport, industry, solid waste, housing and water. Remaining physical infrastructure in these key sectors, particularly energy, has been determined to be mostly unsustainable in terms of its ability to meet the ambitious targets set forth in the NDC and NAP documents. Therefore, a cross-sector theme, deemed as the Sustainable Infrastructure pillar has been decided upon as a category for investment areas where multiple sectoral objectives can be met simultaneously. The following investment areas have been decided upon for the Sustainable investment pillar.

Syria intends to establish and maintain a climate change database for infrastructure. The adverse impacts and implications of climate change on people and the quality of their livelihood require enormous efforts and actions to be undertaken at local, national, regional, and international level. The availability and accessibility of climate change related information and its impact on infrastructure resources and development is the essential element to know, to deal with the consequences of climate impacts, and to conduct adaptation activities. There are a lot of information and reports relevant to climate change, but they are scattered in different places and not accessible in most of the cases. This situation makes it quite difficult and challenging to inform people and make them aware on how to deal and adopt the appropriate responses to climate change. Establishment of climate change database for infrastructure is essential to facilitate information sharing and accessibility to national data, and to create links to the regional and international sources of information. Objectives: i) to establish an accessible database for climate change; ii) to strengthen the country capacity to aggregate, analyze, and disseminate climate change information; and iii) to improve capacity in producing and interpreting climate modeling and scenarios.

Development of a technology transfer system and capacity building for energy efficiency and renewable energy. A special attention was apparent in the INC process on adopting energy efficiency and renewable energy technologies through the UNFCCC and other technology transfer systems as a basic requirement for adaptation and mitigation measures and as an urgent process for restructuring the energy sector to face the rise in oil prices. However, few national or international climate funds have been dedicated to help facilitate investment in this space. Considerable technical and capacity support is needed to initiate this type of work. Energy policy makers should implement a GCF readiness project to advance progress for the sustainable transition of energy infrastructure. The Ministry of Electricity, Ministry of Oil and Mineral Wealth, relevant research centers, private sector, and the State Ministry of Local Administrative and Environmental Affairs Environment are all notable potential stakeholders for this needed technical and capacity building work. Objectives of the GCF readiness operation may include: i) development of a comprehensive technology inventory and needs assessments for energy efficiency and renewable energy; ii) identification of required technology through a gap analysis of existing technologies in energy efficiency; iii) identification of potential technology transfer routes; iv) Assessments of the current national and global legislative framework regarding technology transfer and intellectual property right related to energy efficiency and renewable energies; v) Establishing designs of realistic and well-articulated technology transfer programmes for Syria; vi) Creating an enabling legislative and administrative environment for technology transfer in sustainable energy; and vii) development of a system of incentives for companies making investments in renewable energies.

Syria intends to develop linkages between policymaking and research, and national policies of technology transfer for energy systems and associated infrastructure at the regional and international levels. The linkages between policy makers and research results are weak. Most efforts conducted in national scientific research centers and regional and international bodies in Syria on energy and climate change issues do not find their way to the policymaking and management systems for a reason or another. A capacity development programme for creating an enabling environment for linking scientific research to policy making is one of the major priorities in energy infrastructure management and climate change. The research capacity-building component should be focused on systematic data observations, collection, and management. Moreover, fulfillment of obligations under the UNFCCC, financial and technological support is necessary to ensure technology transfer such as building institutional capacity, establishing/ strengthening research centers and funding demonstration projects that mitigate climate changes effect. Other capacity requirements include capacity to identify, adapt and disseminate relevant climate change safe technologies and capacity to coordinate the various technology transfer initiatives and to report on the achievements.

Syria will create an enabling environment for renewable energy and develop capacity for rational and efficient uses of energy. Development in energy policies and the feasibility of alternative energies is growing at slow pace in Syria. However, recent economic developments should put more emphasis on developing renewable energy resources (such as wind and solar) in the national energy mix. Capacity development in the field of systematic and institutional aspects of renewable energy is considered one of the main priorities. To minimize GHG emissions, changes in economic development and energy policies, and fulfilling the requirements of the UNFCCC need to be addressed through a strong programme for capacity building, and to emphasize more on developing renewable energy options. The national focus on energy efficiency will be a positive driving force in many sectors including energy, agriculture, industry, housing and transport, and a practical capacity development programme should be associated with this transition. This approach needs development of technologies and practices for energy efficiency at all levels of energy consumption. All stakeholders, especially the Ministries of Industry, Transport, Housing, Oil and mineral Wealth and Agriculture in addition to research centers, the private sector and NGOs would be involved. Objectives for GCF funding proposals and readiness proposals may include: i) Identification, promotion, and adoption of energy efficiency programmes in all sectors; ii) Development and implementation of guidelines for energy audit and energy efficiency programmes; iii) Identification and creation financial incentives for projects using energy saving mechanisms.

The need for infrastructure investments in the coming decades presents both substantial opportunities to reduce emissions and challenges to increase resilience to the effects of climate change. One of GCF's main investment criteria is to promote transformational changes[77] through its interventions. For a country like Syria, infrastructure is at the core of its development and economic growth, given infrastructure's importance to increase productivity, reduce poverty and foster regional development. This is a consistent theme running through the country's sustainable development agenda and in particular its NDC.

In the context of this Country Programme, Sustainable Infrastructure refers to projects that not only incorporate environmental risks but also consider the resilience of projects to the effects of climate change, avoiding traditional development patterns and promoting the use of disruptive technologies. Following this logic, in line with government priorities and within the scope of action and investment criteria established in the GCF, sectors considered as priorities for investment and development of new projects include areas such as transport, urban mobility and energy.

In summary, the Sustainable Infrastructure pillar will focus on four major priority areas:

a. Low-emission transport modes.

77 Transformational change according to the World Bank's definition is characterized: improve fundamentally the lives of the poor anddisadvantaged people; produce demonstration effects that can be replicated or scaled up; generate spillover effects on multiple sectors of the economy; increase government effectiveness or stimulate private investment; result in far-reaching impacts; and promote sustainable development (SAIN, 2017).

b. Renewable energy, distributed generation, and energy storage.
c. Energy efficiency for public lighting, industry, and buildings; and
d. Advanced biofuels and bioenergy technologies.

3.2.1. Low Emission Transport

Investment in transport modes should consider lower GHG emissions and higher efficiency systems. Priority will be given to proposals aimed at the implementation or expansion of sustainable systems for transport infrastructure, such as: modal integration, multimodal logistics platforms; low-emission infrastructure for urban passenger transport, subways and urban trains, BRTs (bus rapid transit systems), electromobility and associated infrastructure, among others. Given a significant lack of funding for low emission transport, GCF funding proposals and readiness activities should identify financial mechanisms that enable scaling-up financing for transport infrastructure by leveraging private sector resources, thus demonstrating the potential to contribute to the promotion of a transformational change in the sector.

Particular attention should be given to the integration of low emission transport modals also contributes to reducing emissions in urban transport. Progress in urban mobility using public transport, transition to electric, hybrid and fuel cell vehicles, and the development of conditions for active mobility emerge as the main solutions to reduce GHG emissions. However, it is important to develop measures for the integration of different urban transport modals, to complement existing actions. Improving the passenger load factor is another important element to increase efficiency in the use of urban transport in Syria.

3.2.2. Renewable Energy, Distributed Generation and Energy Storage

Priority should be given to proposals that focus on greater diversification of the energy matrix, through solar generation (photovoltaic and concentrated power- CSP) for both Distributed Generation (DG) and Centralized Generation (CG), generation from biomass, wind generation, and energy storage. Increasing the use of renewable energy sources will be paramount not only for implementing Syria's NDC but also for meeting the country’s increasing demand for energy over the coming decades.

There are financial and technical barriers to increasing the penetration of low-carbon technologies. There are still important barriers that prevent further integration of micro- and mini-generation technologies and storage to increase the share of other renewables. These barriers include the need for high initial investments, the time needed to amortize costs, access to adequate lines of credit, and tariff flexibility to encourage new technologies, as well as technical barriers for accessing the grid in the case of distributed generation.

With the increased share of renewables, energy storage technologies become indispensable for the integration of intermittent energy sources and security in Syria. The development of energy storage technologies such as batteries, liquefied air, supercapacitors, and flywheels, can play a significant role in energy security in the country as the integration of intermittent renewable sources grows. This is due to the nature of these sources, such as wind and solar, which do not generate energy constantly and do not have the same supply stability as hydroelectric plants with reservoirs. However, energy storage technologies are still at a nascent stage of technological development and face a range of cost implications depending on the typology of the renewable energy system being implemented. It is anticipated that support for project work in this space will need to be met with feasibility studies and cost benefit analyses to justify investments in energy storage that are suitable to renewable energy system design. Such studies and needs will be assessed in the preparation and/or identification of renewable energy projects and such identification and preparatory work can be conducted at an early stage through readiness proposals, and at a more advanced design stage with project preparation facility (PPF) resources.

The use of solar energy has increased, with different technologies under development. Despite the significant potential of solar energy in Syria, this technology has developed more prominently in the photovoltaic segment. Concentrated Solar Generation (CSG) technology has not followed the same pace of deployment. CSG is a promising technological solution that enhances its clean energy generation gains by being structured in a cogeneration arrangement while providing electricity and process heat. It will be

important to monitor the technological and performance evolution of the different forms of solar energy generation, to prioritize those that are more efficient, affordable, and appropriate to the Syrian context.

3.2.3. Energy Efficiency for Public Lighting, Industry and Buildings

Priority topics for financing will be those aimed at the adoption and use of energy efficiency technologies for the public, residential, commercial, and industrial sectors, particularly actions to enhance energy efficiency in public lighting, industrial efficiency and civil construction efficiency. The building sector presents itself as an opportunity, yet it still faces barriers. While developed countries face a huge challenge to retrofit existing buildings to reduce their emissions and increase their efficiency, Syria has a great opportunity because it is still in the process of expanding its urban development.

Attention should be taken particularly on the design of financial mechanisms that help unlock investments in energy efficiency, catalyze private sector investments and reduce credit risks. Capacity-building strategies for local and private sector managers, as well as the dissemination of knowledge and information on energy efficiency through technological diffusion, particularly in industry, are also relevant. New business models will be needed to unlock investments, since the design of innovative financial instruments is key to leveraging investments in energy efficiency. Special consideration should be given mainly to actions aimed at creating new business models and financing for the public and industrial sectors by eliminating barriers to investment.

3.2.4. Advanced Biofuels and Bioenergy Technologies

Investments in bioenergy technologies will be prioritized, including biogas, biomethane, carbon capture and storage (CCS), and increasing production of advanced biofuels. These technologies are noteworthy for their mitigation potential and relevance to GCF investment. Priority will be given to projects focused on increasing the use of these technologies, as well as their improvement for use at scale. Therefore, proposals should identify solutions to unlock financial and commercial conditions to leverage the adoption of these technologies and develop an adequate transport and storage infrastructure.

New forms of financial incentives are needed to increase the share of bioenergy in Syria. Focus should be on financial mechanisms that reduce the risk of investment in these technologies and, in cases such as CCS for bioenergy, on reducing costs. In addition, the various sources (e.g., urban solid waste, landfills, animal waste, and sanitary and industrial effluents among others) for biogas and biomethane and new business models to enable using these sources can also be considered. Scoping for appropriate financial increntives, mechanisms, and business models shall be a focus of readiness proposals that address biofuel and bioenergy technologies.

3.3. Resilient Cities, Communities and Areas

This investment pillar considers adaptation and mitigation actions for strengthening cities, communities, and territories in the country. It is understood that tackling climate change should include an integrated perspective that considers, whenever possible, the co-benefits of adaptation and mitigation measures. Urban environments contain several sources of greenhouse gas emissions, and with more than half of the world's population currently living in urban centers, the mitigation and adaptation agenda in these zones represents a major challenge.

In Syria, nearly 55% of the population lives in cities. As a result, coping with risks related to climate change in urban areas, as well as in urban sprawl and rural (peri-urban) areas that provide ecosystem services becomes even more relevant in an adaptation context. Coastal areas are susceptible to sea-level rise, which can lead to serious damage to local infrastructure, with direct impacts on the economy and on society. For this reason, they require adequate and long-term planning and management. Considering the proportion of the Syrian population currently living in cities, and among them those that live in coastal cities, it can be said that most of the Syrian population may be at risk from climate change.

Promoting the resilience of cities requires a broader look at the spaces producing the ecosystem services that support urban population survival. Most of the water, food and energy that supply cities and metropolises come from ecosystems located in rural and peri-urban areas, organized in river basins or along the coastal zone, which are the main providers of these services. The possible impacts of climate change for these territories and associated river basins include the risk of disaster from prolonged droughts, with serious damage to water, food, and energy security; the risk of disasters intensification associated with landslides and floods; the size of the areas exposed to disease vectors; and the loss of forest remnants due to changes in climatic niches, with harm to the production of ecosystem services.

Addressing climate change in cities is not only a matter of adaptation, but there are also bottlenecks and opportunities in the short and long term for the mitigation agenda. Therefore, it is extremely important to seek synergies between these measures in favor of projects of more resilient cities. As Syrian municipalities develop, there is an opportunity to invest in better practices and efficiency gains in the urban environment. In the future, this will certainly contribute to reduce both emissions and exposure to the impacts of extreme climate change effects.

It is necessary to increase the resilience of socio-ecological systems and the adaptation capacity of indigenous peoples, traditional communities, respecting the regional specificities and the characteristics of each population. The importance of implementing integrated and participatory actions to reduce the vulnerability of indigenous peoples, traditional peoples, and communities that are more susceptible to the adverse effects of climate change is evident. These actions must be suitable for the different historical, environmental, territorial, and socio-cultural contexts of these groups and to their specific exposure and sensitivity conditions. Additionally, actions should seek to strengthen the rights of these populations through actions at enhancing the production and marketing of agricultural biodiversity products, thus guaranteeing food security and diversifying income generation strategies.

Four Investment Areas are considered for this pillar:

a. Urban Planning for Climate Risk Management.
b. Efficient Buildings and Resilient Housing.
c. Adaptation Based on Ecosystems (AbE) and Water Security.
d. Resilience and sustainability of traditional communities.

Following these priorities, Syria intends to promote a systematic approach for sustainable green Damascus. A systematic rehabilitation plan for sustainable urbanization and recourses efficiency in Damascus. To assist the Damascus Governorate (DG) improve the quality of life for its citizens and comply with the National renewable energies strategy (NRES) until 2030 and the Energy Conservation Law (Law 3/2009) via support for more sustainable resource-efficient urban planning and targeted low-carbon interventions. Damascus suffers from a number of environmental problems, the growing demand for water and energy, the increase in the number of cars, the increase in industrial and health expenditures, and the reflection of this from the pollution of soil and water, especially the *Barada* River, in addition to the lack of green cover around the city and the surrounding *Ghouta* due to the lack of precipitation, drought, high temperature, the increase in population and encroachments On agricultural areas and the spread of random construction in the city as a result of farmers' migration to their lands due to climate change, by focusing on the priority sectors identified by the governorate of Damascus through the following interventions: i) Efficient and resilient energy systems and buildings; ii) Accessible, diverse and low-carbon mobility systems; iii) Resource efficient and holistic waste management systems; iv) Integrated water resources management; v) Comprehensive and reflective land-use planning; vi) Responsive and forward-looking climate adaptation practices.

3.3.1. Urban Planning for Climate Risk Management

It is essential that proposals in this area include aspects of resilience to the effects of climate change. The National Adaptation Plan (NAP) outlines a strategy for the territorial and thematic dimensions of cities, based on guidelines that include strengthening urban expansion planning processes; rehabilitating consolidated and degraded urban areas with installed infrastructure; supporting improvements in water

supply and sanitation systems; managing water resources; urban cleaning systems and solid waste management, among others.

Syria intends to promote urban planning initiatives that propose integrating climate change actions with regulations related to cities and metropolitan areas are important for resilient development. Proposals in this regard should consider structuring and replicable measures to make cities environmentally sustainable and resilient to the risk of climate change. The goal is to ensure in an integrated manner: sustainable urban planning according to the Statute for the Cities. the improvement of urban mobility by integrating modes of transportation and promoting active mobility; the implementation of urban environmental zoning and land regularization; improvement in sanitation and water resources management systems; the improvement of solid waste management by strengthening the consolidation of an integrated management system and fostering the use of new waste treatment technologies (e.g. recycling, composting, mechanical biological treatment and bio digestion); and the application of differentiated treatment to the most vulnerable urban populations.

Syria intends to promote low emission and climate resilient urban planning - including actions for urban mobility, expansion and revitalization, housing, sanitation, solid waste management and water supply. This provides a starting point for increasing resilience in cities. Actions in this investment area should also include dialogue between different local actors and sectors, thus enabling the integration between them, as well as coordination between the three spheres of government (central, governorate and municipal), insofar as the effective solutions depend on the coordination of their respective competences. It is also important to consider vulnerable populations in the urban context that will be even more exposed to the effects of climate change and extreme events (landslides, floods, and lack of water supply in peripheral areas and precarious settlements, for example). Partnerships between governments and the private sector can be an important tool for implementing projects and initiatives in this context.

Syria intends to take a data driven approach to urban planning measures by collecting and maintaining improved climate-related data records. With the increase of extreme events due to climate change, natural disaster alert and response, and prevention and recovery systems become even more relevant in the urban context, where the number of people affected is higher and concentrated. The use of large databases can assist in these processes, as well as in early urban development planning. "Smart" cities, which use the amount of data available from various sources (transport flows, climate variations, energy consumption, amount of waste produced, air quality, economic and social distribution, etc.) can better manage their resources by reducing their impact and increasing their economic resilience to the effects of climate change. Continuous dialogue between the public and private sectors and civil society, as well the alignment of public policies at all levels of government is important for the feasibility of these actions and for all actors involved to effectively share and use the information available.

Measures should be directed towards the use of innovative technologies and the development of risk-management tools and financial instruments to strengthen local governments. Financial instruments that assist local governments in the main bottlenecks identified, such as investment guarantees, technical assistance and financing for local concessionaires (water and sanitation, solid waste, transport, energy), as well as the training of urban planning agents are of fundamental importance - note that this investment area is closely linked to the areas highlighted in the ‘Sustainable Infrastructure’ pillar.

3.3.2. Efficient Buildings and Resilient Housing

Syria’s NDC presents housing as a fundamental element for the country's adaptation policy. According to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (AR- 5), buildings contributed to 19% of greenhouse gas emissions and accounted for 32% of electricity consumption. The situation is similar in the case of Syria showing the potential for efficiency advances in the sector. This includes improvements and adaptation of construction and infrastructure materials, techniques, and technologies in buildings, as well as the integration of these elements in residential homes to reduce their emissions and make them more resilient to climate impacts.

The construction, housing and building sector should consider the use of more efficient and sustainable

materials. Therefore, proposals around efficient construction should focus on the implementation of mechanisms for the development of eco-efficient building materials, which aim at a more efficient use of energy and water (for example, through energy efficiency measures and rainwater harvesting and underground storage systems), the reduction of greenhouse gas emissions, and waste production. In relation to housing, there is also a need to build new housing with ecological and smart infrastructure, integrated with green areas and existing urban plans, particularly in housing of social interest. Also, worth mentioning is the importance of disseminating information and training professionals in the civil construction sector, to ensure the replicability of these interventions.

Housing solutions should be considered to increase the resilience of the low-income population. It is important to highlight the social aspect in the civil construction sector, since lower income populations in urban centers are more vulnerable to climate change. Low income urban populations are typically located in socially and environmentally sensitive areas, often vulnerable to climate impacts, and have less resources for improving their resiliency. This element often makes the construction of resilient housing even more challenging because of the difficulties of adapting the existing infrastructure in these locations. Therefore, there is a need to combine urban planning that considers the risks associated with climate change with at-scale investment in bioclimatic social housing, thus encouraging actions aimed at transforming the production of new social housing including, for example, elements such as the use of solar energy for heating and photovoltaic power generation.

The inclusion of sustainability and adaptation components should be considered in housing finance metrics, especially housing of social interest. The incorporation of analyzes on the selection of the construction area and the use of materials and technologies for efficient buildings in the provision of housing credit enables creating financial incentives to promote a reduction in emissions from the real estate sector, as well as an increase in the resilience of this stock of infrastructure.

3.3.3. Ecosystem-based Adaptation (EbA) and Water Security

Areas in the country exposed to climate change include arid and dry sub-humid areas, which have already suffered great impact by land degradation and therefore are more vulnerable to droughts and dry spells. These areas correspond to approximately 55% of the national territory. Land degradation (soil, water, and biodiversity) is one of the most serious environmental problems in Syria, causing significant economic losses and social damage. The implementation of actions that improve the adaptation capacity of these populations and their respective territories contributes to reduce vulnerability to climate change.

Measures must be implemented to ensure and enhance water security in regions particularly susceptible to the effects of droughts and changes in precipitation patterns. The promotion of water security in Syria has direct impacts not only on consumption, but also on the irrigation of productive systems and energy security to avoid competition between them. Considering the socioeconomic context of these areas of greater vulnerability, as in the semi-arid region, it is essential to promote actions that increase or even provide improved access to drinking water. At the same time, it is necessary to strengthen the economic structures on which these populations depend, especially in terms of agricultural production, to make them sustainable in the long run. Again, regional specificities must be considered in all proposals.

Solutions founded on Ecosystem-based Adaptation (EbA) measures can assist in the development and implementation of policies that result in economic, environmental, and social benefits. They ensure the maintenance of important ecosystem services such as mitigation of heat zones, regularization of the functioning of river basins, with effects on the reduction of flood risks and maintenance of hydrological cycles, removal of greenhouse gases from the atmosphere and conservation of biodiversity. The most important ecosystem services for coping with the impacts of climate change in Syria include drought, dust storms, water scarcity and regulation of extreme events, local climate, air quality, waste management, and erosion.

The conservation of coastal zones and marine ecosystems is essential for long-term planning. Sea level rise coupled with other effects of climate change, like intensified storm surges, can lead to serious

infrastructure losses in coastal areas, as well as to degradation of associated ecosystems. These generate negative impacts for the population, government and the private sector, considering the high reconstruction costs and reallocation of new assets. The national territory is composed of a variety of coastal and marine ecosystems, which are particularly sensitive and fragile and harbor enormous biodiversity, in addition to providing a set of environmental services that are essential to the maintenance of life quality. The proposals in this theme should include, in addition to long-term planning, a vision of exposure and risk of coastal infrastructure, of co-benefits between mitigation and adaptation, of integrated 'gray' (infrastructure) and 'green' (nature-based) solutions, seeking to guarantee the quality of life and health of the populations.

The identification and monitoring of future impacts of climate change on these areas, as well as advances in the knowledge of methodologies for identifying priority coastal and marine areas, basins and ecosystems for conservation should be encouraged. For the coastal zone, the dissemination of knowledge from Reference Centers for Integrated Coastal Management with a focus on training governmental and non-governmental players is essential for actions related to the qualification and availability of instruments that support the resilient occupation of the Syrian coast. This identification and monitoring of the future impacts of climate change on coastal areas will help guide priorities for future projects in this investment area.

3.3.4. Resilience and sustainability of local communities

Syria intends to promote local community empowerment and their participation in climate change projects and programmes. Local communities are the ultimate target for sustainable development programmes. They are engaged and empowered through trainings, institutional and technical capacity development activities and initiatives that improve their livelihoods. Engaging and empowering local communities requires several fundamental changes in low income development programmes. New projects and programmes should: (i) Give more management responsibilities to local communities; (ii) Improve operational linkages between local community and public staff; (iii) Simplify diagnostic and planning procedures for local community development; (iv) Offer flexibility in terms of the activities to be supported; and (v) increase the number of field teams to expand coverage. To create such changes, the main principle of this investment area is that the communities, including the rural poor, would be empowered to work out their development programmes and Action Plans according to their own needs and priorities. Sustainable impact after completion of a basic investment is difficult to achieve unless there is local participation and acceptance by both the beneficiaries and local communities. Therefore, adoption of Rio Conventions cannot be expected unless communities assume responsibility for the management of their natural resources. The benefit of this project will be the tendency to integrate biodiversity conservation and sustainable use with sustainable land management approaches and introducing adaptation to climate change at the community level with combined results benefiting the three Conventions together.

Syria intends to promote development and implementation of a comprehensive capacity building and innovation programme for community management of natural resources based on traditional knowledge. This project should be implemented by mobilizing all networks and institutions with direct linkages to community action. The Ministry of Local Administration and Environmental Affairs and the Ministry of Agriculture and Agrarian Reform should be integrally involved with the implementation of community-based initiatives. One of the main partners of this project would be the Non-Governmental Organizations (NGOs) and Community Based Organizations (CBOs). Objectives of this project include: i) increasing the technical and administrative capacity of CBOs in community management of natural resources; ii) demonstrating the implementation of community-based projects linking biodiversity conservation and sustainable use with sustainable land management and adaptation to climate change; iii) empowering the communities to utilize traditional knowledge in natural resource management with proper conservation of their property rights; and iv) developing a practical framework based on evidence on the integration of biodiversity conservation and sustainable land management with poverty alleviation.

Climate change has caused changes in important Syrian rangeland. The impact of climate change, such as the change in rainfall patterns in "Al Badia", has led to drought and water scarcity, with impacts on the productive activities of several communities, in "Al Badia" east Syria.

Recent experiences involving the perception of climate change by indigenous communities with different sociocultural and territorial realities show a series of impacts in different regions. These effects include extreme climatic events and desertification processes, changes in plant and animal life cycles, agricultural calendars, dynamics of water and fisheries resources, traditional medicine practices, community life organization, sustainability of productive activities, food production, food security, health conditions, etc. Therefore, indigenous peoples, recognized as playing a key role in biodiversity conservation and climate balance maintenance, are among the segments most vulnerable to the adverse effects of climate change.

Measures for this investment area include sustainable management of natural resources, strengthening of local production chains and mechanisms of income generation for traditional peoples and communities. In this sense, it is important to enhance the dissemination of good practices by strengthening chains of agricultural biodiversity products, promoting the productive inclusion and access of these communities to markets at various levels (local, regional, national), increasing income generation, and strengthening the culture and way of life of these populations. Proposals should also consider the importance of land-use planning.

Financial mechanisms also require specific adjustments to the needs and reality of the intended beneficiary communities. Funding, albeit with a high degree of concession, may not work if implemented in isolation, although it has an important role to play. A good portion of these populations are excluded from the banking and financial systems and, therefore, ensuring a lasting impact also requires investing in social, economic, and business structures to implement the interventions through training and direct technical assistance. Financial instruments to assist targeted populations and businesses may include microfinance and SME lending and require implementing entities to have sufficient level of accreditation status with the GCF.

3.4 Readiness Needs

While Syria's readiness needs are in an ever-evolving state following delivery of each new readiness activity, fundamental readiness capabilities must be satisfied to mobilize GCF funding for investment projects on the ground. The priority readiness needs discussed in this section are not a complete list of readiness needs, rather they are a list of fundamental needs that will have to be addressed in order for the country to make progress on developing projects and programmes in priority investment areas. Since these readiness needs constitute an operational barrier, they are considered a 'priority' for upcoming proposal developments. It is expected that the process of addressing the following readiness needs will drive further understanding of evolving needs in the future, which in turn will drive new updates to the Country Programme's portfolio. In between Country Programme updates, readiness needs should still be assessed through ongoing collaboration between the NDA, accredited entities, the GCF Asia Regional team, and other key country stakeholders.

The current assessment of Syria's fundamental GCF readiness to date is that it is still quite limited in some areas with respect mobilizing finance from the GCF. While Syria's first two readiness grants have made progress in establishing and operationalizing the NDA, developing a climate profile, creating this Country Programme, and carrying out a technology needs assessment, amongst others, notable shortfalls remain in the areas of entity accreditation, pipeline development, available financial instruments/products, and private sector engagement capacities. Of these gaps, the absence of direct access entities (DAEs), direct access candidates, and international access entities that are able or willing to operate in Syria at the moment is a prominent operational barrier that will have to be addressed and will be highly prioritized in the forthcoming readiness agenda. Further details on Syria's priority readiness needs are detailed below:

3.4.1. Entity Accreditation

Syria currently does not have any DAEs or DAE candidates. Furthermore, following the crisis in recent years, there are limited international AEs that are currently operating in Syria. In recognizing the operational barrier that this poses for Syria in accessing GCF funds, the it important that Syria establish a pipeline of DAE candidates and identify international AEs that are willing and able to execute GCF projects in Syria. These activities are highly prioritized readiness needs to be addressed in future readiness proposals.

In support of increasing entity accreditation, Syria intends to leverage readiness resources to develop a comprehensive accreditation strategy to identify suitable regional, national, and/or subnational candidates for direct access. This accreditation strategy will build on the stepwise approach outlined in Section 2.2.2 and in Annex 2. Particular focus will be given to examining the accreditation scope (i.e., size of the project/programme the DAE candidates can serve; their fiduciary capabilities; their potential to contribute to GCF result areas, and their ability to deliver upon potential projects in Syria's priority investment areas, amongst others), their ability to meet GCF accreditation criteria (standards for their level of fiduciary responsibility, environmental and social safeguard risks, gender requirements, etc.) and complementarity with international accredited entities working in the country. The strategy will identify common accreditation gaps and define an approach for building needed capacities to help entities meet GCF accreditation criteria. The strategy will also review potential international AEs that have the capabilities and willingness to execute future GCF project work in priority investment areas in Syria. Ultimately the end goal of implementing the strategy will be to have DAEs and International AEs available to help the NDA mobilize funds and implement projects and programmes.

It is intended that the accreditation strategy will be iterative in nature, where it is refined upon updates to the project and programme pipeline and as new candidate DAEs entities proceed through the accreditation process. However, registering at least one DAE candidate will serve as the initial target for the first readiness proposal, with additional DAE candidates supported in subsequent proposals.

3.4.2. Pipeline Development

Currently Syria only has a limited amount of concept-level project ideas for the priority investment areas discussed in this Country Programme. Currently two concept notes have been developed to date through the two earlier readiness projects from 2019. This includes a concept note from UNDP/FAO to implement a 'Green Damascus' resilient cities project (requesting US$ 20 million in GCF financing) and a UNDP/FAO implemented project focusing on the development of early warning systems for climate hazards (requesting US$ 50 million GCF financing).[78] However, these two projects have not been approved, and many priority investment areas remain unaddressed by concept-level project ideas.

Therefore, future readiness proposals should incorporate pipeline development (including required diagnostic work and the development of concept notes to be submitted to the GCF board). Readiness activities should focus on not only on designing the interventions within the priority investment areas, but also for ensuring suitable alignment with DAEs/AEs identified through recent entity accreditation work, rigorous assessment of necessary financial instruments (and DAEs/AEs abilities to use them), and the GCF appraisal criteria.

Readiness activities for pipeline development should also be programmed into the current readiness proposals that are being prepared for re-submission at the moment to the GCF. This includes the UNDP proposal *Building capacity to advance the National Adaptation Planning Process in Syria;* and the UNICEF proposal *Strengthening sector capacity to assess and address the impacts of climate change on the provision of water and sanitation services*)[79].

[78] For full details of these projects, please review their detailed descriptions in Chapter 5.
[79] For full details of these projects, please review their detailed descriptions in Chapter 5.

3.4.3. Financial Instruments

Many of the investment areas will require investigation into the funding instruments that are needed to support projects. This is a point that was reiterated throughout descriptions of the priority investment areas, since there is a need to align incentives with the appropriate financial instruments. It is important that Syria understand exactly which instruments are needed and that the accreditation strategy mentioned in 3.4.1 is adjusted to select for entities with the right fiduciary capabilities. Otherwise, Syria will continue to face significant limitations in its ability to utilize advanced forms of climate finance instruments (i.e. on-lending and/or blending for loans, equity and/or guarantees etc.), should they be needed. As a necessary precondition for developing Syria's investment pipeline, Syria will use the GCF readiness programme to identify the types of instruments needed per investment area and align them with the capabilities of an available accredited entity that could potentially execute project work in that investment area.

3.4.4. Private Sector Engagement

Future readiness proposals will need to address private sector engagement in the priority sectors pertaining to each investment area. Engagement with private sector entities has been limited thus far. Syria will need to undertake a variety of readiness diagnostic work that will help identify and target private sector firms that hold potential for providing great contributions to GCF projects in Syria. Readiness activities in this space should focus on producing the evidence base that supports: the business case for private investment in low-emission and climate-resilient development in priority investment areas, defining a sustainable finance strategies for priority investment areas, communicating tailored climate information to attract private sector investment for adaptation and raising awareness on resilience building, engaging with the finance sector to develop new financial products, blended finance approaches, and/or service markets that accelerate uptake of climate technologies, and catalyzing private-public partnerships for adaptation action. These private sector engagement activities will be planned within future upcoming readiness proposals to the GCF.

The above investment areas and readiness needs presented were prepared by the NDA because of the dialogue with accredited entities to the GCF, relevant government agencies and civil society as part of Syria's first Readiness Programme (implemented by FAO). All projects and investment areas presented were discussed directly with the NDA, through a five-day stakeholder workshop held in Damascus, in a preliminary evaluation, are aligned with Syrian climate change policies and with the guidelines contained in this document. It is worth noting that the inclusion of the projects in the GCF portfolio does not imply no-objection by the NDA at the time of analysis, and that the order of presentation of the projects does not consist in any kind of prioritization or ranking.

Chapter 4

CHAPTER 4

Frameworks for Project & Programme Development

4.Frameworks for Project and Programme Development

4.1 Monitoring & Evaluation Framework

Monitoring and evaluation (M&E) frameworks are a powerful public management tool that can be used to improve the way governments and organizations achieve results at multiple levels. Just as governments need financial, human resource, and accountability systems, governments also need good performance feedback systems. It is critical for developing objective conclusions regarding the extent to which projects and programme can be judged a "success". Monitoring and evaluation together provide the necessary data to guide strategic planning, design and implement projects and programme and allocate and re-allocate resources in ways that improve intended project results and development impacts[80].

The projects, programme, and activities presented in the pipeline will be monitored on an ongoing basis by the National Designated Authority in coordination with the Accredited Entities. These projects, programme, and activities will be monitored for impact, efficiency, and effectiveness in line with the rules and procedures established by the GCF Board. Where possible, the Syrian NDA will promote participatory monitoring involving targeted stakeholders and requiring accredited entities to include participatory monitoring approaches at the project/programme level. This includes the expectation that participatory monitoring should include local stakeholders, including civil society organizations (CSOs) at all stages of the project/programme cycle. In cases where the GCF's private sector facility is utilized private sector organizations within the relevant sector shall be involved in participatory monitoring of activities funded through the facility.

4.1.1. Integrated Results Management Framework (IRMF)

At the project and programme level, the proposals that Syria submits to the GCF for funding assistance will be developed in line with the GCF's integrated results management framework (IRMF) and incorporate the associated IRMF indicators. This will ensure the achievement of overall objectives of promoting a paradigm shift towards low-emission and climate-resilient development pathways in the context of sustainable development and making a significant and ambitious contribution to the global efforts towards attaining the goals set by the international community to combat climate change.

4.1.2. Portfolio-Level M&E Framework

Since the projects presented in this document are at different development stages, at the portfolio level this will require continuous monitoring by the NDA, according to the specificities of each project and the implementation of planned activities. It is worth reiterating that the pipeline can be updated in a timely manner to include new projects, in accordance with the development of new proposals within the framework of the guidelines presented in this document. The portfolio in the Country Programme is expected to be reviewed by 2023, with a reassessment of the guidelines for potential GCF action in Syria, based on the implementation status of projects in the country and the evolution of the framework of national policies and strategies related to climate change. In this sense, the process of reviewing the guidelines is expected to be directly influenced by the results and experiences obtained from the implementation of GCF projects in Syria. The portfolio in the Country Programme review process will be carried out through a broad debate with relevant stakeholders of the Syrian society, through dialogue processes like those held for the preparation of this document.

The preliminary results framework for the portfolio in this Country Programme is outlined in Table 14. These results will be monitored and evaluated alongside subsequent Country Programme document updates. Additional key indicators will be incorporated into subsequent drafts of the CP to ensure that means of verifications of potential interventions in different sectors can take place. This will include the

80 Adapted from Gage and Dunn 2009, Frankel and Gage 2007, and PATH Monitoring and Evaluation Initiative.

development of science-based indicators to measure mitigation (estimation of GHG emissions reductions) and adaptation (determining number of beneficiaries) outcomes across priority sectors.

Table 14: Syrian Country Programme Results Framework

Impact: GCF finance contributes to the implementation of the NDC, NAPSA, Vision 2025					
Outcome	**Outputs**	**Activities**	**Key performance indicators**	**Target**	**Means of verification**
Investment disbursed from GCF for mitigation proposals.	Funding Proposals submitted to the GCF Secretariat.	1.1.1 Concept Notes (CN) and Funding Proposals (FP) developed with AE (UNDP, UNEP, FAO, or others) and national stakeholders. 1.1.2 No-objection letters (NoL) issued by the NDA.	Number of proposals submitted, approved, pending, or rejected by the GCF each year. Volume and percentage of funds approved and disbursed by project and year	- Two Concept notes submitted to GCF each year - One Funding Proposal submitted to GCF each year	Approved Funding Proposal documentation NoL/GCF website country page
Investment disbursed from GCF for adaptation proposals.	Funding Proposals submitted to the GCF Secretariat.	2.1.1. Concept Notes (CN) and Funding Proposals (FP) developed with AE (UNDP, UNEP, FAO, or others) and national stakeholders. 2.1.2 (NoL) issued by the NDA.	Number of proposals submitted, approved, pending, or rejected by the GCF each year. Volume and percentage of funds approved and disbursed by project and year	1-2 Funding Proposal submitted to GCF each year	Approved Funding Proposal documentation NoL /GCF website country page
Syria achieves direct access to the GCF	Accreditation applications submitted to the GCF Secretariat. Accreditation nominations aligned with Country Programing priorities, strategies and plans identified and prioritized	3.1.1 Accreditation application sub-mitted to the GCF Secretariat. 3.2 Nomination letter issued by NDA. 3.3 DAE candidates selected and prioritized.	Number of DAEs accredited to the GCF Number of accreditation applications submitted to the GCF Secretariat, and number of nomination letters issued.	1 national DAE accredited by 2023	
Capacity of GCF stakeholders strengthened	Trainings completed on GCF processes and national stakeholder awareness strengthened	4.1.1 Trainings on GCF processes and best practices. 4.1.2 Country Programme is disseminated to national stakeholders.	Strengthened understanding of the Country Programme, and GCF national processes. National stakeholders follow national procedures.	National trainings completed	National stakeholders with a strengthened understanding and awareness of the Country Programme and GCF processes.
Engagement of stakeholders in GCF processes is strengthened.	NDA develops and implements mechanisms for engaging national stake-holders in GCF processes.	5.1.1 GCF consultation workshops and meetings held. 5.1.2 Communications strategy for the GCF developed.	Number of participants at workshops, disaggregated by sex of participants disaggregated by gender at workshops. Number of communication products developed.	Workshop completed. Communication products developed.	National consultations incorporated into GCF processes (including project design and implementation)

4.2 Social & Environmental Safeguards Framework

Syria's Social and Environmental Safeguards (ESS) framework includes a series of criteria that aims to address key environmental and social risks in the implementation of activities to be funded by the GCF. It helps ensure that the climate finance it will receive from the GCF does not harm local communities or ecosystems. Syria's ESS framework will follow the GCF Standards and include equitably managing environmental and social risks in relation to project activities, as well as implementing an Indigenous People's Policy to reflect the importance of fully and effectively engaging with indigenous peoples in the design, development and implementation of the strategies and activities to be financed by GCF, while respecting their rights. In this regard the ESS framework will follow the GCF's environmental and social management system, which can be found in Annex III of GCF/B.07/11.

All readiness and funding proposals submitted must also necessarily observe the GCF ESS safeguards policy and comply with the mechanisms for consultation considering the opinion of the populations impacted by the project, as well as the Fund's gender policy. Proposals of projects and programmes to be submitted to the GCF that have any material social or environmental impact need to include a detailed environmental and social safeguards report (ESS Report), which will be posted on the Fund's website in case the project is approved. Funding proposal's will follow requirements based off of the ESS risk category and, In addition, will be aligned with the GCF's indigenous peoples and gender policies (further detailed in Section 4.3.).

4.3 Stakeholder Engagement Framework

Syria will implement a rigorous stakeholder engagement framework for the development of projects and programme developed for the GCF. This stakeholder engagement will be the key to ensuring that GCF related activities in Syria are grounded in national ownership, and are country driven through purposeful involvement of relevant institutions as stakeholders.

The stakeholder engagement process will be led by the NDA with implementation support provided by DAEs and/or International AEs. The NDA will embark on meaningful stakeholder engagement in recognition that integrating the voices of multi-stakeholders into all the phases of project and/or programme development will ensure that multiple interests and issues are incorporated, thus increasing the coherence, transparency, accountability and sustainability of the GCF related activities. This process will also serve as an opportunity to innovate, collaborate, build trust and credibility and improve outcomes on shared challenges. The stakeholders that will be meaningfully engaged in all phases of the programme cycle will include government entities at national and local levels, financial institutions, media, development partners, civil society, academia, private sector, research institutions, vulnerable populations such as women, indigenous peoples, and people with disabilities. The framework will follow the four steps of the multi-stakeholder engagement strategy developed as a part of this Country Programme diagnostic work.

4.3.1. Gender

The impacts of climate change in Syria affect women and men differently. Women are the hardest hit by dramatic shifts in climatic conditions. Women's mortality from climate-related disasters is higher than that of men. Compared to men, domestic burdens (e.g. collection of firewood and water) of women increase substantially with various manifestations of climate change. Women tend to rely more on natural resources for their livelihood. Any decline in land and biomass productivity affects women more than men, especially in rural areas. In urban areas, after climate-related disasters, it is harder for poor women than for poor men to recover their economic status and welfare. Women, as well as men, significantly contribute to combating climate change as knowledgeable small-scale farmers and leaders of climate change adaptation and mitigation initiatives.

In recognition of this, Syria intends to develop projects and programmes following the three main areas of interventions were identified to enhance stakeholders' capacities to develop and implement gender-responsive projects: i) knowledge generation, ii) training and capacity-building on gender-responsive programing and iii) institutionalization of a gender perspective in the work of climate-change related government entities. This will follow the approach outlined in the 'Gender Gaps Assessment' report that was prepared for the NDA during the first GCF readiness project.

Syria will also ensure that all projects and programmes are developed in line with the GCF's updated Gender Policy and Gender Action Plan. Principles and criteria from this policy and action plan will be applied across all investment criteria for projects and programme, and act as an integrated measure of the social dividends of the overall project and programme pipeline.

4.3.2. Syrian citizens

Syria's NDA will ensure that all projects and programmes are developed in line with the constitution of Syrian Arab Republic where all citizens have equal rights and duties and are guaranteed of equal opportunities, and are aligned with the GCF policies. This ensures that activities of the GCF are developed and implemented in Syria fostering full respect, promotion, and safeguarding. Therefore, all Syrian citizens will (a) benefit from the GCF activities and projects in a culturally appropriate manner; and (b) not suffer harm or adverse effects from the design and implementation of the GCF financed activities.

4.4 Risk Management Framework

Syria will implement GCF's risk management framework. This approach includes managing a wide variety of risks at the funding proposal investment level covering funding, non-financial, investment and compliance risks. It also contains project and progamme development within GCF's tolerated risk appetite, its approach to assessing risk throughout the project review as well as its approaches to reporting on risk matters. This policy category also includes the GCF's internal control framework.

Chapter 5

CHAPTER 5

Portfolio and Pipeline of Projects and Programmes

5. Portfolio and Pipeline of Projects and Programmes

Due to the crisis conditions, Syria has so far been unable to establish funding proposals for investment projects with the Green Climate Fund. However, Syria was able to access the readiness programme and currently has two readiness grants under implementation. Syria is currently prioritizing single country concept notes for full funding proposals. In support of this, the readiness programme will be utilized to underpin project and programme development, while boosting overall capacity and technical capabilities of stakeholders. Through a broad stakeholder consultation process and based on the mitigation and adaptation priorities mentioned above, Syria has identified several projects and programme ideas to further develop for GCF funding during the programing cycle of 2024-2027. The priority interventions selected are based on the following:

- Alignment with the highest climate change priorities in Syria in line with the contexts of development, climate change and climate finance.
- Alignment with the GCF's strategic plan and relevant sector guidance for its initial replenishment phase.
- Demonstrate the added value of GCF funding using the full range of GCF funding instruments (grants, loans, equity and guarantees) to mobilize higher amounts of public and private financing in line with the GCF investment framework.
- Identifying where project preparation resources may be required to develop the prioritized projects or programme.
- Identify the partnerships established with the accredited direct access or international access entities (or nominated direct access entities) intended to develop and submit the projects or programme to the GCF compliant with the respective entities' accreditation scope; and
- Identifying where project preparation resources may be required to develop the prioritized projects or programme.

Syria's current project and programme portfolio is summarized below in subsection 5.1. This sets the stage for the future pipeline of project and programmes to be developed with GCF resources over the next programing cycle of 2024-2027, summarized below in sub-section 5.2.

5.1 Current Project and Programme Portfolio

5.1.1. Current Readiness Projects

Syria currently has three GCF readiness projects under implementation that have helped establish basic capacities and strategic frameworks for deploying climate finance with GCF resources. The first readiness project, led by the FAO, was approved in January 2019, and is now near closure. This readiness project helped establish the NDA and Steering Committee, compile a national climate profile, and draft this Country Programme document. The second readiness project, led by UNIDO, was approved in December 2019 and is still under implementation. This project will soon close as well. This readiness project supports the Country Programing process by carrying out a technology needs assessment for priority sectors and developing concept notes to be submitted as future funding proposals. The third project was approved on March 31st 2023. Led by UNICEF, this readiness aims to strengthen the capacity of water, sanitation, and hygiene sector to assess and address the impacts of climate change. Further details on these three current readiness projects are provided below in Table 15. The first two readiness projects have helped develop two concept notes for funding proposals that will be planned within the 'Future Funding Proposal Pipeline', described in Section 5.2.2. These readiness projects have helped develop basic GCF readiness capabilities and will serve as the basis for which future readiness proposals are being planned in the next programing cycle.

Table 15: Current Readiness Project Portfolio

Current Readiness Project Portfolio				
Project name	**Description / Objective**	**Accredited Entity**	**Status**	**Funding Amount (USD)**
NDA Strengthening and Country Programing support for the Syrian Arab Republic	Guided by Syria's national development policies and priorities, this Readiness proposal has provided support for the set-up of a fully functioning National Designated Authority [NDA], (position is currently filled by a national Focal Point) and his office, including a Steering Committee that supports the ND in making strategic decisions. This Readiness project ensures Syria's climate profile is accessed and communicated to all relevant officials. The climate profile of Syria, which has been compiled through this Readiness proposal guides the thematic areas to be included in Syria's Country Programme, which is a major output of this proposal. The Country Programme, drafted through inclusive stakeholder consultations, will guide the Government of Syria to pursue sustainable and cost-efficient adaptation and mitigation investment options and measures and prepare for taking-on larger climate investment projects. Comprehensive stakeholders' consultations and participation in planning Syria's climate change strategy was established via the stakeholder engagement framework. The objectives of the project will be achieved through three interconnected outcomes, focussing on: i) Country capacity strengthened; ii) Stakeholders engaged in consultative processes and Country Programmes developed; and iii) Access to finance.	FAO	Readiness proposal approved on January 10th , 2019. This readiness project has been implemented and is in its final phase	482,610
Technical guidance and support conducting a Technology Needs Assessment (TNA)	The overall objective of the technology needs assessment project is to conduct technology needs assessment for climate change mitigation and adaptation in Syria in most vulnerable economic sectors as identified in both the country's INC and NDC documents namely Agriculture, Energy, Water, Industry etc. It also seeks technical guidance for the different activities required to conduct the TNA process, including training on the TNA process, methodologies, and quality control. The outputs of the support will be the TNA synthesis report, which contain the following elements: i) Objectives for the TNA in the context of national development priorities; ii) A description of the stakeholder process adopted; iii) An evaluation of sectoral needs and opportunities; iv) A statement of data gaps; v) The criteria and process for technology assessment; vi) Identification and assessment of technology options (including adaptation and mitigation); vii) A list of priority sectors and key technologies for preliminary action and	UNIDO	Readiness proposal approved on January 10th, 2019	398,274

	TAPs for various sectors; viii) A review of key barriers related to existing plans and programme and steps to overcome them; ix) Capacity building measures; x) Potential sources of funding; xi) A discussion of implementation plans.			
Strengthening the capacity of water, sanitation and hygiene sector to assess and address the impacts of climate change on the provision of water and sanitation services	The proposed readiness project aims to strengthen the water, sanitation, and hygiene (WASH) sector's capacity to identify and address the impacts of climate change through increased understanding of risks and impacts, stakeholder capacity, engagement and coordination, and mobilisation of climate finance for the WASH sector in the Syrian Arab Republic. As the Delivery Partner (DP), UNICEF will implement this project, in partnership with UN-Habitat as an Executing Entity (EE) through an UN-to-UN agreement, under the guidance of the National Designated Authority (NDA).	UNICEF	Approved on March 31st 2023	980,199

5.1.2. Current Funding Proposals

Syria currently does not currently have any approved funding proposals under implementation.

5.2 Future Project and Programme Pipeline

5.2.1. Future Readiness Proposals Pipeline

Syria has recently developed new readiness proposals that follow up on the foundation of prior readiness work. The NDA and UNEP have drafted a readiness proposal focusing on advancement of the NAP planning process.

In addition to the readiness proposals that Syria has submitted to the GCF for approval, the country still has significant readiness needs that will have to be satisfied as a part of the next programing cycle. As discussed in Chapter 3 of this Country Programme, key readiness gaps that will need to be addressed in future proposals include: (1) Entity Accreditation; (2) Pipeline Development; (3) Financial Instrument Identification; and (4) Private Sector Engagement.

Syria will plan to address these priority readiness gaps through a new readiness proposal. Preparation of this readiness proposal is planned to begin in 2022 and will seek formal submission for GCF funding support in 2023. The proposal is expected to operate for a period of approximately 18-24 months. It will be prepared with urgency as Syria needs to mobilize GCF funds for investment projects on the ground and begin implementation as soon as possible. Therefore, the readiness project will focus on maximizing Syria's project planning and implementation capabilities.

Details on these proposals are currently under review and are listed in Table 16 below. Additionally, Syria is scoping further readiness proposals to build capacity and its technical capabilities for accessing climate finance from the GCF. While such proposals have yet to be drafted, indicative details have been provided in Annex 1.

Table 16: Future Readiness Proposals Pipeline

	Project name	Description / Objective	Confirmed AE	Status	Funding Amount (USD)
1	Building capacity to advance the National Adaptation Planning Process in Syria	The proposed readiness project aims to enhance the technical, institutional, and operational capacity of the Government of the Syrian Arab Republic (GoS) to coherently formulate, implement and monitor national and sectoral adaptation planning in Syria.[81] This will support the country's efforts to respond to, and address, the hazards associated with climate change, which include drought, extreme flooding, pests and disease outbreaks, changes of rainfall patterns, increased sand-storm frequency and increasing ambient temperature. The project will target the priority sectors of water, biodiversity, land degradation, agriculture, and public health. The development and implementation of the NAP will be undertaken in a cross-sectoral and gender-inclusive manner, with input from a wide variety of stakeholders and emphasizing complementarity with other ongoing adaptation and development planning processes or projects. The objectives of the project will be achieved through five interconnected outcomes, focusing on: i) enhancing national adaptation planning governance, coordination and capacity; ii) identifying and analyzing climate change impact and adaptation information to inform adaptation planning in Syria, and enhancing climate information management systems and capacity; iii) strengthening National capacity to mainstream CCA into the country's overall development policy and strategy; iv) developing a funding strategy for the implementation of national adaptation; and v) enhancing the capacity to monitor, report on, and learn from the NAP process in Syria.	UNEP	Readiness proposal drafted	2,906,306

[81] Please note that this description is based on the initial submission of the first proposal sent to the GCF and may be subject to changes going forward. This description is provided for illustrative purposes only to give a general indication of what this readiness proposal plans to do.

2	Supporting entity accreditation and critical elements of project pipeline planning in Syria	In terms of accreditation planning and support, the proposal will focus exclusively on: (1) developing an accreditation strategy; (2) identifying potential DAE candidates; (3) supporting DAE candidates in building their accreditation capacities; and (4) identifying international AEs that are willing and able to support project development within priority investment areas. The purpose of this proposal is to bring potential DAE candidates online and establish work planning agreements with international AEs as soon as possible. In terms of strategic pipeline planning, this proposal will focus on carrying out diagnostic work for identifying and elaborating new project ideas in priority investment areas that can be taken forward by DAE candidates and/or International AEs and submitted as concept notes. Significant emphasis and diagnostic work will be given to developing this pipeline in line with the GCF sectoral guides. This diagnostic work will focus particularly on identifying stakeholder incentives and suitable financial instruments, identifying private sector partnerships, and identifying co-financing opportunities. It should be noted that this will be carried out not just for new projects ideas, but also for any concept notes that are in development at the time of this readiness project (this may include the Green Damascus and EWS projects that are in development by UNDP/FAO and have yet to receive board approval). It will also assess the technical, operational, and fiduciary capabilities of DAEs candidates / International AEs, and match them with project ideas in priority sectors. This proposal will then aim to develop suitable concept notes for DAEs and International AEs in priority investment areas for submission to the GCF.	TBD	Not started	1,000,000

5.2.2. Future Funding Proposal Pipeline

Through the first two readiness projects, and in close coordination with the NDA, two project concept notes (CN) were developed based on the Country Programme and Syrian priorities, aligned with the GCF investment framework, and validated by relevant stakeholders. Below is a summary of these two proposed projects (detailed CN in Annex). The first is a concept note for the *Systematic Rehabilitation Plan for A Sustainable Green Damascus*, which will seek $20 million from the GCF (with $6.7 million in potential co-financing) over 25 years and will be led by UNDP/FAO. The proposal will address the priority investment area of 'resilient Cities, communities, and areas'. The first is a concept note for the Systematic Rehabilitation Plan for A Sustainable Green Damascus, which will seek $20 million from the GCF (with $6.7 million in potential co-financing) over 25 years and will be led by UNDP/FAO. The proposal will address the priority investment area of 'Resilient Cities, Communities, and Areas'. The second concept note is for *Building resilience to climate change in Syria through an early warning system and the agriculture-water-energy nexus approach*, which will seek $50 million from the GCF (with $199 million in potential co-financing) over 25 years and will be led by UNDP/FAO. The proposal will address the priority investment area of 'Sustainable Management of agricultural and water resources'.

This future funding proposal pipeline will be updated or truncated as plans for new concept notes are developed through the upcoming readiness activities and would be with the same targets without exceeding the proposed budget.

Table 17: Future Funding Proposals Pipeline

	Project name	Description	Confirmed AE	Status	Funding Amount (USD)
1	A systematic rehabilitation plan for sustainable green Damascus[82]	The proposed readiness project aims to enhance the technical, institutional, and operational capacity of the Government of the Syrian Arab Republic (GoS) to coherently formulate, implement and monitor national and sectoral adaptation planning in Syria.[83] This will support the country's efforts to respond to, and address, the hazards associated with climate change, which include drought, extreme flooding, pests and disease outbreaks, changes of rainfall patterns, increased sand-storm frequency and increasing ambient temperature. The project will target the priority sectors of water, biodiversity, land degradation, agriculture, and public health. The development and implementation of the NAP will be undertaken in a cross-sectoral and gender-inclusive manner, with input from a wide variety of stakeholders and emphasizing complementarity with other ongoing adaptation and development planning processes or projects. The objectives of the project will be achieved through five interconnected outcomes, focusing on: i) enhancing national adaptation planning governance, coordination and capacity; ii) identifying and analyzing climate change impact and adaptation information to inform adaptation planning in Syria, and enhancing climate information management systems and capacity; iii) strengthening National capacity to mainstream CCA into the country's overall development policy and strategy; iv) developing a funding strategy for the implementation of national adaptation; and v) enhancing the capacity to monitor, report on, and learn from the NAP process in Syria. Further details on this funding proposal can be found in Annex 4. This type of a project includes several financial and operational risks known at this stage. The financial risks include: (1) the prospects that proper budgets are allocated by the Government of Syrian at the national and governorate levels to meet the co-financing commitment for the proposed project; and (2) the amount of co-financing is not forthcoming. Known operational risks include: (1) the related local governorates and whether they will be supportive and constructively engaged throughout the implementation process; and (2) whether there is sufficient local technical capacity and available information for training on best practices for integrating and addressing climate risks into livelihood activities associated with the resilience of both human and ecological systems in Syria.	TBC	Concept Note Drafted	20,000,000

[82] During this readiness project, and in close coordination with the NDA, two project concept notes (CN) were developed based on the country programme and Syrian priorities, aligned with the GCF investment framework, and validated by relevant stakeholders. Below is a summary of these two proposed projects (detailed CN in Annex).

[83] Please note that this description is based on the initial submission of the first proposal sent to the GCF and may be subject to changes going forward. This description is provided for illustrative purposes only to give a general indication of what this readiness proposal plans to do.

2	Building resilience to climate change in Syria through an early warning system and the agriculture-water-energy nexus approach	The overall objective of the proposed project is to build the resilience of both human and ecological systems in Syria to cope with and address climate change impacts using a systemic integrated approach rooted in the water-agriculture-energy-climate change nexus. Adopting innovative practices, the approach will focus on the adoption of eco-system-based management, increasing and diversifying water supply and enhancing its efficient utilization in agriculture in terms of farm productivity, agriculture diversification and renewable energy application. The architecture of building resilience focuses on enhancing ability of the country to adapt to climate change by enhancing the efficiency and coverage of a multi-hazard early warning system for climate change-induced hazards in Syria. Further details on this funding proposal can be found in Annex 3. The financial risks include: (1) the prospects that proper budgets are allocated by the Government of Syrian at the national and governorate levels to meet the co-financing commitment for the proposed project; and (2) the amount of co-financing is not forthcoming. Known operational risks include: (1) the related local governorates and whether they will be supportive and constructively engaged throughout the implementation process; and (2) whether there is sufficient local technical capacity and available information for training on best practices for integrating and addressing climate risks into livelihood activities associated with the resilience of both human and ecological systems in Syria.	TBC	Concept Note Drafted	50,000,000

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Annexes

ANNEXES

Annex 1: Additional matrix of the Syrian GCF strategy portfolio

The following table shows an additional matrix of the Syrian GCF strategy portfolio, in which the short and long-term action plan for the projects has been developed, which corresponds to the national priorities and specific measures for climate change adaptation and mitigation.

Themes / sector	Rationale / Measures	Components	Outcomes	Activities	Estimated costs (USD)
1. Develop sustainable institutional coordination mechanisms	*There is some confusion over the roles of agencies and authorities, and in other instances, lack of coordination and duplication of efforts. This requires identification of roles for each institution and subsequently implementing training programmes for the staff.*	1.1. Development of a sustainable coordination mechanism among institutions implementing the National Adaptation Action Plan	- Effective coordination mechanism system for implementing the UNFCCC is developed among the stakeholder institutions. - Technical and organizational capacity for implementing the UNFCCC is consolidated and strengthened. - Implementation of the UNFCCC is well coordinated.	- National assessment of lessons learned and experiences of previous coordination committees. - Develop the final TORs and mandates of each subcommittee. - Develop reporting systems. - Establish a scientific / technical advisory committee.	200,000
		1.2. Strengthen the technical capacity of the UNFCCC focal point at the MoLAE	- A qualified and professional Convention implementation unit (entity) is established at the MSEA - Implementation of UNFCCC in Syria while ensuring synergies in implementation improved. - Negotiation, networking, and reporting skills by the focal point developed.	- Develop an organizational cooperation structure for the focal point. - Conduct a capacity needs assessment for the focal point and the organizational system of implementing the activities of UNFCCC. - Develop a comprehensive plan for the focal point; and - Mobilize resources from the various ministries, organizations, and departments to facilitate the implementation of the Convention.	325,000
2. Develop clear and systematic integration of the UNFCCC concepts in	*Syria is moving towards integrating with the international economic system at a relatively*	2.1. Develop a regulatory framework for systematic integration of the concepts of UNFCCC	- A national development-based regulatory legislative system for the integration of the crosscutting concepts developed.	- Survey of the current national legislation and development plans for the presence of UNFCCC concepts. - Develop a national team to identify the	350,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
the national policy and legislation	*reasonable rate and has signed many trades and economic agreements including agricultural and industrial activities. Some agreements include articles and provisions that have direct and cumulative impacts on the environmental issues. To reduce the impact of these agreements and increase the benefits, the concepts of the UNFCCC should be integrated in the national policies, legislations, and development plans of all sectors. This integration process should include a national system for assessing the impact of all agreements and a sustainable regulatory framework for a sustainable integration process.*	in the national policy and legislation	- The national rights in the UNFCCC are protected. - The national team for the integration of international Convention developed. - The national regulatory framework for the integration of the crosscutting concepts of the Convention is made clear. - Qualified practitioners and legislators trained in crosscutting issues; and - Provisions for crosscutting issues in implemented UNFCCC are developed.	policy and legislation gaps and suggest the policy and legislation options for concepts to be integrated. - Test the policy options with the participation of all stakeholders and determine the suitable options to be integrated. - Promote the policy options among the policy makers in the country. - Conduct a training programme for policy makers on issues related to the UNFCCC and its integration in the national policy legislation and development plans; and - Develop the national regulatory framework for the integration of crosscutting issues concepts.	
		2.2. Development of a policy system for assessing the impact of the economic and trade agreements on the environment	- Procedural and technical Strategic Environmental Assessment (SEA) guidelines and directives are developed and made functional. - A policy system for Strategic environmental assessment for economic and developmental agreements on the environment is developed and - Newly negotiated trade agreements are made subject to participatory and transparent SEA(s).	- Establish a national Strategic committee for the development of national system/guidelines for SEA. - Develop national operational and technical directives and laws for SEA. - Apply SEA in analysis of current trade and economic agreements. - Conduct training programmes on the application of SEA. - Establish a national system for use of SEA in negotiations for new trade and economic agreements; and - Seek provisions in trade agreements under which parties to those agreements strive to ensure that they do not weaken or reduce the protections afforded in national environmental laws and policies as an	375,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
				encouragement for trade.	
3. Sustainable development of agricultural and water resources	*Agriculture plays a vital role in the economy of the country, absorbs a large portion of the work force, provides food and fiber, and generates foreign currency through exports. Agriculture is directly affected by climate change and rural communities are consequently affected. Repeated drought strikes, water shortage and pollution, and low profile of use of modern technologies in agricultural practices, water use especially irrigation, processing and marketing are major challenges for sustainable agricultural production. It is essential for developing sustainable agricultural programmes that the broad vision be pursued in coordination with other national environmental strategies adaptation to exploit synergies as they arise.* *Drought early warning systems, contingency plans,*	3.1. Integrated Agricultural production	- Land use policies developed. - Agricultural production improved and sustained. - Water, soil resources and biodiversity conserved; and - Desertification limited.	- Develop long and midterm policies and mechanisms to establish land use policies according to the potentials of lands according to soil and water resources in each area and to needs of the food security of the country. - Develop the farm system according to land use policies. - Improve successful traditional agricultural practices. - Develop agricultural practices according to land use; and - Enhance integration of livestock-agricultural production.	3,750,000
		3.2. Conservation and rational use of water resources including modern irrigation	- Implementation of the Project on Transfer to Modern Irrigation (PTMI) enhanced. - Agricultural production increased. - Water and soil resources conserved. - Desertification limited; and - Drought impacts alleviated.	- Conduct studies on challenges hindering the implementation of PTMI; and - Promote use of modern irrigation systems at the level of the small farmer.	625,000
		3.3. Develop and implement easily accessible drought forecast and drought monitoring information systems to improve drought preparedness	- Ongoing projects on preparedness for drought strikes strengthened. - Long term strategy to mitigate the bio-physical and socio-economic impacts of drought strikes developed; and - Bio-physical and socio-economic impacts of drought alleviated.	- Climatic prediction and early-warning systems. - Adaptation of production systems to match the bio-physical and socio-economic environment (e.g., crop diversification, cropping patterns, etc.). - Application of agro-climatic information in crop improvement research for better	1,250,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
	food security systems, alternative livelihood projects or sustainable irrigation programmes could be effective adaptation options in the country. At the same time, each of these could serve as a component of the National Action Plan to Combat Desertification and to promote Biodiversity.			targeting of crop varieties and management to specific agro-ecological environments. - Crop manipulation and crop management for improved water- use efficiency and drought tolerance. - Improved management of livestock and rangelands. - Soil and water conservation and watershed management including water harvesting. - Efficient and sustainable use of different alternative water resources (rain, groundwater, surface water, non-conventional water sources). - Policy and institutional measures that enable implementation of drought mitigation strategies and practices and can provide necessary assistance in case of disaster. - Animal and crop insurance. - Establishment of special emergency funds. - Capacity building.	
		3.4. Development of the investment environment in agriculture and agribusiness	- Investment in agribusiness promoted. - Cooperative enterprises Developed. - Rural micro-finance institutions developed and the use of credit in the countryside expanded. - Agricultural planning improved and decentralized. - Marketing of agricultural products promoted. - On-farm investment for modernization	- Facilitate access to land, especially publicly owned land, including the development of industrial zones provided with all basic services (mainly electricity and water). - Reduce inefficiencies and overhead costs, implying administrative reform of the public sector, simplification of administrative, procedures, and improvements in basic infrastructure and services. - Introduce more initiative and innovation in	1,250,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
			of irrigation systems fostered. - Laws of agricultural relations adjusted; and - Information system and the provision of investment studies to comply with the international standards of marketing agricultural products improved.	the strategic crop sector. - Promote foreign investment in agricultural export products. Foreign capital and technology are needed to expand production of specific high quality agricultural products, especially fruit, vegetable, and dairy, for export to other markets. - Provide governmental studies about the projects required for economic growth, which are beneficial for investors, and provisional studies related to these projects to help investors in the decision-making process; and - Attract foreign, Arab, and Syrian capital by providing more incentives.	
4. Capacity development, knowledge management, networking, outreach, and awareness	*The knowledge barrier in Syria is the most important because of the limited information and weak knowledge generation and processing, especially regarding environmental management. Even if some of the information is available, its accessibility and dissemination to the target stakeholders is still very weak and largely does not exist. On the other hand, it has been proven that sound decision-making is enabled by accurate, complete, and relevant information, where*	4.1. Develop Sustainable Awareness on Adaptation to Climate Change	- Public role in planning, executing, and monitoring of climate change issues at community levels achieved. - Awareness on climate change impacts and adaptation of the target sectors among policy makers, NGOs, youth clubs, and local communities enhanced; and - Audio-visual materials produced and disseminated.	- Establish the project's coordination system. - Survey and analysis of all education and awareness approaches and guidelines developed by the UNFCCC. - Identify a national assessment of all previous and existing awareness and education projects with gap analysis and lessons learned. - Select contents to be used in the awareness and education plans derived from the conventions and adapted to national conditions. - Develop awareness Strategy with used modules and awareness tools. - Set up pre-service and in-service training programmes for all teachers, administrators, and educational planners. - Prepare publications and conduct seminars	1,000,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
	knowledge management system can play a key role in supporting the management staff with the needed information.			and workshops for schools, universities, and communities to spread knowledge and awareness to the targeted communities and their schools and community centers. - Develop new concepts in the curricula; and - Develop the new university course outlines, resources, and planning for implementing the new courses.	
		4.2. Establishment and Maintaining of Climate Change Database	- Accessible data source established. - Data in different forms including tables, maps, charts etc. available. - Knowledge and awareness on climate change and adaptation enhanced. - Capacities on research and information sharing strengthened; and - Periodical reports on the status of climate change and related activities are prepared.	- Procurement of materials, hardware and software including the proper software systems. - Training on data collection, analysis, and dissemination. - Collection of relevant data and information. - Establishment of the database. - Create links to national, regional, and international data sources. - Documentation of climate extreme events, review, and update data; and - Developing and preparing reports on climate change related activities.	500,000
5. Develop means for technology transfer	*Agricultural research and extension in all sectors and at all levels should include traditional crop breeding and the use of modern technologies to develop varieties that are tolerant to adverse conditions of*	5.1. Develop agricultural and water research and extension	- Agricultural production enhanced. - Water resources conserved.	- Develop and adopt heat tolerant cultivars for both irrigated and rain fed regions. - Change crop practices (optimum sowing date, cultivars, water needs and plant density); - Increase rainfall efficiency through applying conservation farming practices including minimum tillage, strip cropping,	3,750,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
	climate changes and drought, and soil and water salinity among other adverse conditions. Application of traditional crop breeding system is adopted, and many varieties of wheat, barley and cotton have been developed. However, this process is slow. *Modern technologies are very expensive and difficult to attain to develop new crop varieties at this stage. The system needs regional efforts since all the Arab countries face the same difficulties in attaining food security, and share similar challenges of water shortage, land degradation, climate change and drought, lack of coordination among institutions and experts, etc.* *It is anticipated that when new crop varieties are developed and spread, agricultural production would be sufficient under the adverse conditions of climate change.*			building contour terraces and contour plowing. - Construct water harvesting structures to store rainfall water to be used during prolonged droughts. - Improve irrigation management. The application of irrigation at critical growth periods of the crop is important to maintain high yield; and - Develop packages to promote and apply the developed and adopted technologies.	
		5.2. Development of a technology transfer system and capacity building for energy efficiency and renewable energy	- National needs in technology transfer for energy efficiency and renewable energy are identified. - Regional and global technology transfer routes are identified. - Database on new technologies is developed and updated. - An enabling legislative and administrative environment for technology transfer is established. - Technology transfer agreements, partnerships and initiatives are designed. - A national technology capacity-building plan for energy efficiency - and renewable energy is developed. - Barriers against technology transfer are removed. - Guidelines for energy audit and energy efficiency programmes are developed and implemented; and - System of incentives for companies	- Survey and analysis of all technology transfer guidelines and approaches developed in the UNFCCC, Kyoto Protocol and Copenhagen conference is conducted. - Conduct a thorough national technology assessment exercise for energy efficiency and renewable energies. - Identify gaps in technologies available nationally. - Identify the required technology. - Assess the national legislative and administrative system for technology transfer and identify needed modifications to overcome legislative and financial barriers. - Create a database of required appropriate energy efficiency and renewable energy technologies and its sources that is continuously updated. - Explore potential technology transfer routes and partnerships. - Develop a national plan for transfer of	900,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
			making investments in renewable energy is introduced	appropriate priority needs technologies and their sources with adequate enabling environment. - Develop a capacity building programme related to the new technologies. - Combine standards, tools, and training in making energy efficiency an integral part of corporate management systems. - Capacity building on the development and implementation of government-sponsored recognition schemes based on verified energy savings. - Organize workshops involving all the concerned institutions with the objective of presenting the appropriate approaches to assess technology transfer needs. - Provide financial and non-financial incentives for the diffusion of relevant technologies; and - Collect information on cost effective technologies (energy efficient, renewable energy technologies).	
		5.3. Development of knowledge management and networking	- A comprehensive, sustainable, and maintained knowledge management (KM) system to serve all stakeholders is operational and accessible. - Knowledge about the themes and updated channeling of new information improved. - A national indicator system with clear sources of monitoring information for the three themes of climate change, biodiversity and desertification is established.	- Conduct assessment to identify gaps and priorities in knowledge management needs for related institutions. - Identify the content of the KM system and sources of information. - Select proper knowledge management channels and systems based on existing ones that can be upgraded. - Purchase and develop required software and connectivity systems. - Create an open-source accessible system	625,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
			- Personnel in the use and management of the KM system trained; and - Multi-media and modern software knowledge products developed and made accessible.	for the collection and retrieval of information in the form of a database or other KM media. - Define roles and responsibilities on the addition and use of existing information and sorting all issues related to intellectual property rights. - Identify suitable indicators and processes of data generation for combined monitoring of biodiversity, desertification, and climate change indicator systems; and - Train key personnel directly linked with the design, management and use of the KM system.	
		5.4. Develop linkages between policymaking and research, and national policies of technology transfer at the regional and international levels	- Linkage mechanisms between research and policy making to implement the climate change convention identified and promoted. - Linkage mechanisms between research, systematic observation, and policy making to implement the climate change convention by stakeholders adopted.	- Develop a system for integrated inventory of GHG emissions and adaptation measures within the policy making process. - Conduct comprehensive inventory of current applied technology. - Conduct national technology needs assessment study. - Promote environmentally sound technologies to implement Climate Change Convention. - Adopt and enforce a legal, regulatory, and institutional framework that coordinates the national efforts for technology transfer. - Develop technology transfer projects based on financial opportunities; and - Adopt environmentally sound Climate Change technology by stakeholders.	650,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
		5.5. Create environment for renewable energy and develop capacity for rational and efficient uses of energy	- Energy efficiency programmes in all sectors promoted and adopted. - Guidelines for energy audit and energy efficiency programmes developed and implemented; and - Financial incentives for projects using energy saving mechanisms created.	- Conduct awareness programme for prompting the utilization of renewable energy resources. - Introduce a system of incentives for companies making investments in renewable energy projects.	225,000
6. Local communities' empowerment and participation	*Local communities are the ultimate the different development programmes and their empowerment through training, institutional and technical capacity development and financial resources development is a key factor for the success of any natural resources and environmental management programmes. This requires several fundamental changes in the ways dealt with local community support such as: (i) Give more management responsibilities to local communities; (ii) Improve operational linkages between local community and public staff; (iii) Simplify diagnostic and planning procedures for local community development; (iv) Flexibility in terms of the activities to be supported;*	6.1. Local communities' empowerment and participation	- Technical and administrative capacity of CBOs in community management of natural resources is enhanced. - Implementation of community-based projects linking biodiversity conservation and sustainable use with sustainable land management and adaptation to climate change is evident through demonstration projects. - Communities are empowered to utilize traditional knowledge in natural resource management with proper conservation of their property rights. - A practical framework based on evidence on the integration of biodiversity conservation and sustainable land management with poverty alleviation is developed. - A package of community empowerment actions toolkit linking poverty reduction and gender to community management is developed.	- Document traditional and local knowledge and practices of farmers in land and resources management and biodiversity and incorporate in the development of innovations and the application of new technologies. - Develop database for traditional knowledge and its uses. - Provide training and awareness raising to understand and up-take knowledge generating from local community and understand the impact of environment and natural resources degradation on community well-being. - Documenting success story of community management linked to poverty reduction and sustainable livelihoods in local communities. - Strengthen the capacities of community organizations to assume various developmental activities such as land rehabilitation, forestation, water harvesting and input supply. - Facilitate dialogue on key policy issues such as land tenure impacting on natural resources management through the development of permanent consultation	625,000

Themes / sector	*Rationale / Measures*	Components	Outcomes	Activities	Estimated costs (USD)
	and (v) increased number of field teams to expand coverage. To create such changes, the main principle of this programme is that the communities, including the rural poor, would be empowered to work out their development programmes and Action Plans according to their own needs and priorities. This programme aims at increasing the community ownership and responsibility for infrastructure and eventually will enhance the sustainability of the development effort and adoption of the UNFCCC and the other Rio Conventions in Syria.			and negotiation processes between local communities, national policymakers, and research community. - Develop modules of community management of natural resources based on national, regional, and global experiences. - Conduct capacity-building initiatives on community management in the specific linkages between biodiversity conservation and land management. - Apply a community approach where the community individuals, and their organizations would play an integral role to promote sustainable utilization of natural resources; and - Design a community action toolkit based on experiences with special focus on the gender and poverty reduction dimensions of community management.	

Summary of the estimated total investment needs to implement the priority projects proposed in the National Action Plan and the Adaptation Strategy (NAPSA, 2010)

Themes / sector	Develop sustainable institutional coordination mechanisms	Develop clear and systematic integration of the UNFCCC concepts in the national policy and legislation	Sustainable development of agricultural and water resources	Capacity development, knowledge management, networking, outreach, and awareness	Develop means for technology transfer	Local communities' empowerment and participation
Required Funding (USD)	525,000	725,000	6,875,000	1,500,000	6,150,000	625,000
Total Required Funding (USD)	***16,400,000***					

Annex 2: Process for Future DAE Nomination Selection

Direct Access Entities are sub-national, national, or regional organizations that need to be nominated by Syria's NDA. Organizations nominated to become Direct Access Entities (DAEs) are eligible to receive GCF readiness support. This funding is designed to help them become Accredited Entities (AEs).

The approach for future selection processes of Syrian Direct Access Entity (DAE) nominations to the GCF is based on a combination of the EOI that would be undertaken for the selection of the potential nominees for accreditation to the GCF as well as the integration of steps to provide a process that (i) more closely aligns with the GCF accreditation standards; (ii) includes additional criteria based on accreditation potential; and (iii) introduces a national stakeholder selection process.

The process includes a two-tiered approach, utilizing a qualitative approach to determine a shortlist of candidates from an initial applicant pool. The shortlist analysis would be of 2-3 candidates and would include a more detailed gap assessment. The shortlist assessment would include a request for candidates to submit additional documentation and/or answer specific questions, and preferably an on-site visit, and a gap assessment outlining potential gaps against the GCF standards[84].

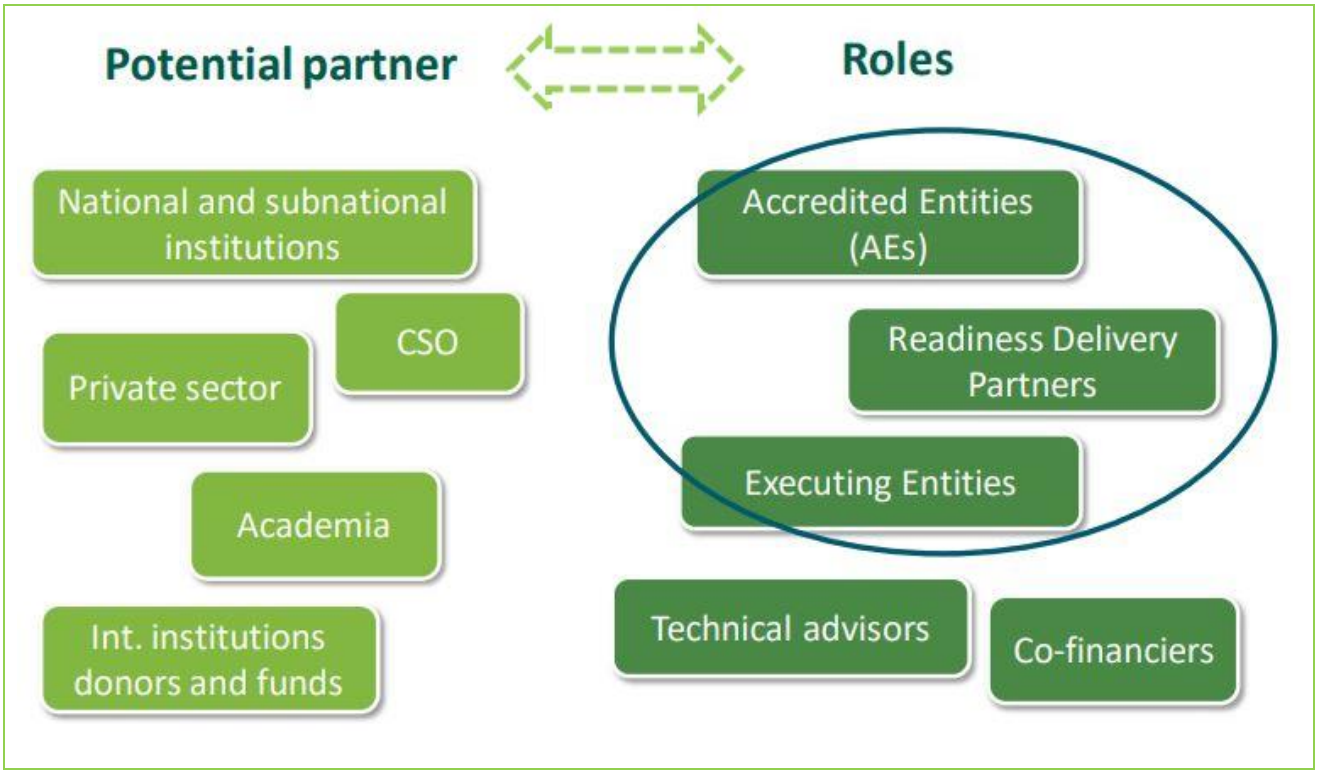
An Expression of Interest (EOI) would be conducted as per Syria's need for DAEs. Calls could be made be once per year, several times per year, or once every few years. Based on the above, the steps for the selection process are outlined below:

- Step 1: Call for Proposals: MoLAE distributes a call for proposals for organizations interested in seeking direct access accreditation to the GCF. The call should be widely disseminated and can also be distributed through the contacts and channels of the members of the technical committee. Depending on the country's needs, the NDA can specify additional criteria or expertise the government is seeking for potential candidates. For example, if there is a project or programme area that other DAEs or nominated DAEs are not able to manage, the NDA may seek national entities that are capable of doing so.
- Step 2: Applications Submitted: Interested candidates submit their application to the NDA.
- Step 3: Initial Screening: the NDA conducts an initial screening, either internally or with the external support of the applications, focusing on (i) candidates' self-assessments against the GCF fiduciary standards, environmental and social safeguards, and gender policies, (ii) candidates' track record of climate-related initiatives, and (iii) the scope of candidates' overall portfolio against the scope of work undertaken by entities previously nominated for accreditation. The screening may also look at any additional criteria the NDA is seeking in a DAE (i.e. adaptation focus, forestry focus, disaster risk reduction, etc.)

[84] The gap analysis could be done internally by MoLAE or outsourced to an expert(s). There is potential to utilize GCF Readiness funds to either (i) hire expertise for gap assessments or (ii) build the capacity of staff to undertake assessments.

- Step 4: Short-Listing of Candidates: Findings from the initial screening are presented to the appropriate technical working group (TWG). The technical advisory committee (TAC) makes a recommendation for a shortlist.
- Step 5: In-Depth Screening: Short-listed candidates are visited to develop a more detailed analysis of each of the entities against the GCF standards. Similar to step 3 this can be done by internal personnel or with external support[85]. Expertise of those undertaking the analysis should include finance, audit project management as well as environmental and social safeguard experience.
- Step 6: Final Decision – the more in-depth screening of the short-listed candidates is presented to the TAC. In addition to technical aspects, the TWG may consider certain qualitative aspects to an organization that could make one organization more suitable as a DAE than another. A recommendation is made by the TAC on the nomination of a candidate or candidates for accreditation to the GCF. The NDA is responsible for completing the process by generating the no-objection letter based on the recommendation of the TAC.

The different types of partners, and their specific roles



Source: GCF-Module 3 Choosing the right partner

[85] The gap analysis could be done internally by MoLAE or outsourced to an expert(s). There is potential to utilize GCF Readiness funds to either (i) hire expertise for gap assessments or (ii) build the capacity of staff to undertake assessments.

Matchmaking – selecting the right partner for the right objective

Readiness Delivery Partner	Accredited Entity	Executing Entity
• Institutions selected by the NDA to implement activities approved under the Readiness and Preparatory Support Programme • Provide services, e.g., development of readiness request proposals. implementation and supervision; fiduciary management; progress reporting; and project completion and evaluation	• Design projects and develop funding proposals to be considered by GCF for financing based on country priorities • Implement, deliver, monitor, and report on the results of such activities • Manage executing entities • Develop and periodically update an entity work programme that is aligned with the Country Programme	• Any entity through which GCF proceeds are channeled or used for the purposes of a Funded Activity or part thereof • An entity that executes carries out or implements a Funded Activity, or any part thereof
Examples: GGGI; UNDP, UNEP, FAO, …	**Exempels: UNDP, FAO, UN-Habitat, UNEP, GIZ, KFW, KfW, World Bank, …**	**Exempels: UNDP, FAO, UN-Habitat, UNEP, GIZ, …**

The NDA strategy in choosing the right partner

The selection of the right partner…

- …can ensure that the partner has the right expertise, relevant experience, track record and skills to successfully contribute to the achievement of the priorities
- …helps to determine which part of the CP the partner can specifically deliver on NDAs can advise interested parties on appropriate roles

The selection of the right partner…

- **Appropriate technical skills**
- **Skills and experience in project management**
- **Time sensitivity considerations**

Annex 3: Concept Note on Building resilience to climate change in Syria

Concept Note

Project Title:	Building resilience to climate change in Syria through an early warning system and the agriculture-water-energy nexus approach
Country(ies):	Syria Arab Republic
National Designated Authority(ies) (NDA):	Ministry of Local Administration and Environment
Accredited Entity(ies) (AE):	UNDP / FAO
Date of first submission/ version number:	[2021-07-06] [V.0]
Date of current submission/ version number	[YYYY-MM-DD] [V.0]

GREEN CLIMATE FUND

A. Project/Programme Summary (max. 1 page)			
A.1. Project or programme	☒ Project ☐ Programme	**A.2. Public or private sector**	☒ Public sector ☐ Private sector
A.3. Is the CN submitted in response to an RFP?	Yes ☐ No ☒ If yes, specify the RFP:	**A.4. Confidentiality[86]**	☐ Confidential ☒ Not confidential
A.5. Indicate the result areas for the project/programme	**Mitigation:** Reduced emissions from: ☒ Energy access and power generation ☐ Low emission transport ☐ Buildings, cities and industries and appliances ☒ Forestry and land use **Adaptation:** Increased resilience of: ☒ Most vulnerable people and communities ☒ Health and well-being, and food and water security ☐ Infrastructure and built environment. ☒ Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO2eq over lifespan)	Not yet quantified	**A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)**	1000,000; 20% of the target population
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 249 million	**A.9. Indicative GCF funding requested**	Amount: USD 50 million
A.10. Mark the type of financial instrument requested for the GCF funding	☒ Grant ☐ Reimbursable grant ☐ Guarantees ☐ Equity ☐ Subordinated loan ☐ Senior Loan ☐ Other: specify_____		
A.11. Estimated duration of project/ programme:	a) disbursement period: 02 January 2022 to 31. December 2025 b) not applicable	**A.12. Estimated project/ Programme lifespan**	25 Years[87]
A.13. Is funding from the Project Preparation Facility requested?[88]	Yes ☒ No ☐ Other support received ☐ If so, by who:	**A.14. ESS category[89]**	☐ A or I-1 ☒ B or I-2 ☐ C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes ☒ No ☐	**A.16. Has the CN been shared with the NDA?**	Yes ☒ No ☐

[86] Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy (Decision B.12/35) and the Review of the Initial Proposal Approval Process (Decision B.17/18).

[87] 2 The technologies and best practices to be introduced by the proposed Project are projected to yield benefits long after the implementation phase is completed. The period of 25 years is a conservative estimate of the lifespan of the benefits of the proposed Project.

[88] See here for access to project preparation support request template and guidelines.

[89] Refer to the Fund's environmental and social safeguards (Decision B.07/02)

A.17. AMA signed (if submitted by AE)	Yes ☒ No ☐ If no, specify the status of AMA negotiations and expected date of signing:	**A.18. Is the CN included in the Entity Work Programme?**	Yes ☒ No ☐
A.19. Project/Programme rationale, objectives, and approach of programme/project (max 100 words)	Summary of the problem statement and climate rationale, objective, and selected implementation approach, including the executing entity(ies) and other implementing partners. The agricultural sector is an important economic sector in Syria; where 30% (6.5 million ha) of the Syrian lands are arable (24.65% irrigated and 57.89% rainfed). The agricultural sector consumes around 90% of water resources. By 2030, temperature extremes and drought events due to climate change will affect crop yields. Syria will be under extreme water stress in 2040. Water security will become an even more critical issue affecting people in Syria. Rural poor across Syria are expected to be most vulnerable as they are projected to face the most severe consequences due to their low adaptive capacity to climate hazards. Rural communities with diversified income sources and a high level of experience in resilient agriculture practices will be less vulnerable relative to communities with fewer practical experience and livelihood options. The project will enhance the resilience of Syria's development using a systemic approach rooted in the agriculture-water-energy-climate change nexus. The executing entities will be the Ministry of Agriculture and Agrarian Reform, the Ministry of Irrigation, and the General Directorate of Meteorology, in closely cooperation with the Ministry of Local Administration and Environment.		

B. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

A. Climate Change Hazards, Impacts, and Vulnerabilities

1. **Increase in temperature in Syria**: According to the climate projections of the Initial National Communication on Climate Change, the average warming in Syria for the year 2041 will be higher than the global average for both reference and policy scenarios. The greatest increase (2.0-2.1°C) will occur in the north-west and the southeast, while the most moderate increase (1.0-1.2°C) will occur all over the country[90]
2. **Decrease in precipitation and water availability**: Precipitation trends are decreasing across the country. Precipitation changes vary considerably across the region with no universal trend for annual results as well as at the seasonal level. Decreasing trends can be seen in most of the region at mid-century. By the end of the century, both scenarios for RCP 4.5 and RCP 8.5 suggest a reduction of the average monthly precipitation reaching 8–10 mm in the coastal areas of the Arab region91 The Mean change in annual precipitation (mm/month) for mid- and end-century for ensemble of three RCP 4.5 and RCP 8.5 projections compared to the reference period.
3. **Syria is highly vulnerable to extreme events.** In the recent past, the country has witnessed a significant rise in the frequency and severity of heat waves, droughts, and floods, which caused significant economic damage and loss of life.

90 GoS, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf
91 Idem.

4. **The country has a history of dealing with extreme climate** including, frequent floods, droughts, and extreme temperatures. The country has high exposure to climate risks such as water deficit and limited adaptive capacity both at the institutional and individual levels. The Syrian crisis has led to severe disruptions to the economy, livelihoods, and development in the country, as well as contributing to migration, humanitarian, and refugee crises for the region at large. For those whose livelihoods and assets have been lost or abandoned, a low adaptive capacity to shocks such as climate change leaves them highly vulnerable. Whilst agriculture remains the backbone of the Syrian economy, employing one-fourth of the labour force and contributing 24% of GDP, this contribution is much reduced from pre-crisis levels. Furthermore, the crisis has caused significant damage to the country's essential water systems, thereby placing millions of people at risk of waterborne diseases and creating huge challenges for the sector.
5. **The agricultural sector in Syria is particularly vulnerable to climate change**. Most of the country's agricultural area is rainfed. A large portion of the region's agricultural production is based on dryland farming systems, with a variable annual rainfall range of 200 to 600 mm. Irrigated agriculture requires modernization, still relying on highly inefficient flood irrigation. Overall, less than one-fifth of the irrigated area uses modern sprinklers or drip systems. Half of all irrigation comes from groundwater systems, which in many cases are overused, leading to dropping groundwater levels and rising production costs[92].
6. **Climate change has already manifested in Syria, leading to devastating agricultural impacts due to multiyear droughts and remains a significant**, long-term challenge for the country. The Agriculture Stress Index (ASI)[93] developed by FAO demonstrates that more than 30% of cropland has been affected by droughts. By 2030 increasingly frequent and intense droughts and heat waves will affect food production and food availability. It is also expected to affect other aspects of food security – access to, and the stability and safe utilization of food supplies.
7. **The major climate hazards that will affect the agricultural productive systems** are inter-annual and inter-seasonal rainfall variability and temperature extremes[94]. These climate factors will likely result in alterations in the agro-climatic conditions in the country. Temperature is projected to increase during the growing season, the number of days with temperature above the threshold will likely increase, particularly during crucial plant development times. Additionally, the length of dry seasons will likely increase in already arid regions, and salt-water infiltration is expected to affect coastal areas due to sea-level rise. Decreases will also impact hydrological and soil conditions in groundwater recharge, surface flows, soil moisture, and soil carbon.
8. **By 2030, temperature extremes and drought events due to climate change will affect crop yields**. By 2030 increased frequency, duration and intensity of drought will be more prevalent in Syria and will intensify even more by 2050.95 While Syria is accustomed to multi-year droughts due to its geographical location, the effects of potential future droughts will likely be much more pronounced because of increased water demand, a reduced buffer for water availability resulting from reduced groundwater, and the lack of recovery time from previous droughts.96 Impacts are likely to include crop and livestock losses, reductions of soil fertility and increases in land degradation, and increased competition for water resources during dry spells.97 Syrian rain-fed farming systems, the main crop – olives – are especially likely to be impacted because of the strong positive correlation between fluctuations in rainfall and olive yields. Olive yields will

92 Salman and Mualla 2003
93 The Agriculture Stress Index (ASI) helps show how 'stressed' crop areas are by combining vegetation condition and temperature variables. The compiled results are then analysed over time, by comparing current values to the long-term minimum and maximum, and spatially, by aggregating agriculture areas by administrative area.
94 Selvaraju, R. 2013. Implications of Climate Change for Agriculture and Food Security in the Western Asia and Northern Africa Region. In M. Sivakumar, R. Lal, R. Selvaraju, & I. Hamadan, eds. Climate Change and Food Security in West Asia and North Africa, New York, Springer Dordrecht Heidelberg.
95 Dai, 2011; Seneviratne et al., 2012
96 Kelley et al., 2015
97 Field, Barros, Mach, & Mastrandrea, 2014; Schellnhuber et al., 2014

also be impacted by the increase in temperatures (around 1.6-2oC in RCP 8.5) since olive trees require at least two months of cold weather to produce flowers and fruit. Since olives are used as a key source of income for these farmers, the impact on their livelihoods will be significant. Increased water stress, resulting from precipitation changes and increased demand from other socio- economic uses, will impact irrigation and livestock production in the country. Farmers and agricultural systems are likely to focus increasingly on stabilizing rather than maximizing yields in the face of increasing climate variability, particularly in rainfed agriculture.

9. **The agricultural sector is an important economic sector in Syria; where 30% (6.5 million ha) of the Syrian lands are arable (24.65% irrigated and 57.89% rainfed).** Approximately, 8.9 million people (44.5% of the Syrian population) live in rural areas, and more than one million (19.4% of the Syrian labour force) work in agriculture. The exceptional importance of the Syrian agricultural sector lies in that it constitutes an economic resource for more than 46% of the Syrian population in addition to the significant contribution to the Syrian national economy where more than 31% of the total Syrian exports come from the agricultural sector98.
10. **The agricultural sector consumes around 90% of water resources,** while around 8% are used for drinking purposes and 2% for the industrial sector. Since ~60% of total renewable water available originates from outside the country and most of Syria's major rivers are shared with neighboring countries, the water supply is highly vulnerable to upstream or international human and climate impacts. Climate change will likely exacerbate these water concerns. Unsustainable land- and drought-management practices that have driven over-abstraction from aquifers and reduced Syria's resilience to sustainably cope with periods of lower-than-average rainfall and the unprecedented series of droughts in recent decades. Syria has experienced three major drought events since 1990, each of which lasted approximately three years — the worst of these was the most recent drought of 2007–2010. With no standing national drought management or response capacity, the drought of 2006-2010 exposed Syria's water insecurities, and is also regarded as a contributing factor to social and in the country.
11. **The impact of the increased evaporation and decreased rainfall will result in less recharge and therefore less replenishment of surface water and groundwater reserves.** In the long term, this impact will extend to cause serious soil degradation that could lead to desertification, exacerbating future conditions and worsening the situation of the agricultural sector due to the lack of sufficient water that will affect the income of the agriculture sectors. Low-income ultimately reduces the ability to adapt to climate change, with families unable to respond to the pressing needs for replacing traditional water supplies.
12. **Water security will become an even more critical issue affecting people in Syria in coming decades.** The region is already the most water precarious region in the world, and more people means more demand and competition for water. The average annual per capita share of water amounts to slightly over 1000 m3 compared to 7500 m3 at the global level. The per capita share of water is expected to worsen in the future which might drop to 500 m3 in 2025[99]. Currently, water resources are under heavy and increasing pressures due to persistent drought, population growth and unsustainable use of water resources, especially groundwater. And yet as averages they disguise large variations in access to enough safe water by different groups in society. As competition for water increases, the water security of poor and marginalized people will be most at risk - a challenge of equity rather than physical scarcity. Water security will become even more critical not just for food production, but also for food utilization.
13. **Syria will be under extreme water stress in 2040.** According to World Resource Institute's Aqueduct Water Stress Projections[100], Syria is among the countries (Rank 25/113) which will experience extreme water stress in 2040 under Business-as-Usual Scenario (RCP8.5).

98 Syrian Central Bureau of Statistics, 2011.

99 Ministry of State for Environment Affairs, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf

14. **Main rivers will experience a decrease in runoff and discharge, thus resulting in reduced water availability.** The Tigris–Euphrates River basins are essential for agricultural and pastoral systems. Agricultural development and food production rely heavily on the availability of water in the river basins. A broader climate assessment for the basins evaluated the hydrologic impacts of climate change shows higher temperatures and thus evaporation demand with the highest increases in the highland areas. Precipitation changes are variable, with decreases in the basins' northern regions and increases in the southern regions. Overall, climate projections show a high probability of reduced water availability from those basins due to reductions of 25%–55% in annual surface runoff from the headwater's regions, along with a shift in the timing of runoff[101]. Figeh spring system is another essential water source, located close to Damascus and provides drinking water for nearly three million people. A hydrological analysis focused on differences in annual, seasonal, and monthly temperature, precipitation, and water availability measured as spring discharge between reference period (1961–1990) and two scenarios (2021–2050 and 2070–2099). Results from the analysis identified potentially severe reductions in water availability from increased evapotranspiration and decreased precipitation. The relative change in mean discharge for the climate ensemble showed a decrease during the peak flow from March to May of up to 22% in 2021–2050 and almost 25% in the period 2069–98, compared to the reference period. Decreases of this magnitude would have dramatic effects on local water availability[102].
15. **Groundwater is under serious threat of depletion.** Groundwater is a critical source of water in the country. Its importance increases considerably during drought events as it becomes the primary water source for drinking and irrigation. With few exceptions, most of the groundwater basins in the country are experiencing water deficits. Recent studies projected a change of groundwater recharge more than -30% between 2041 to 2070 (with reference scenario 1961 to 1990) [103]. There is a high risk of groundwater salinization due to sea-level rise, making local wells unfit for drinking and decreasing agricultural productivity. The projected decrease in the runoff for major rivers will further threaten Syria's river resources, thus increasing dependence on groundwater and rainwater. A study published in 2013 with the use of NASA images shows a dramatic increase in the dryness of the soil and depletion of below-ground water levels between January 2003 and December 2009 in the Euphrates and Tigris basins. It indicated that the two basins registered the second fastest rate of regional groundwater storage loss in the world after India[104].

B. Socio-Economic Challenges

16. In addition to the climate challenges, Syria is facing several socio-economic challenges that will be considered in the design of the proposed project concept. These socio-economic challenges will be compounded by the climate impacts and vulnerabilities.
17. Economic and fiscal challenges: Syria has been for the last ten years under a crisis, which started in 2011. During this period, public and private infrastructure was destroyed, and the economy crushed due to escalating inflation, declined exports and investments, and constantly rising unemployment and poverty. As a consequence, many of the socio-economic and environmental achievements of the previous two decades were drastically reversed. On the Human Development Index (HDI), the country currently only ranks on 151 of 189. Years of crisis and heavy infrastructural damage and looting, has transformed Syrians from strong agrarian economy to food insecure country dependant on imports. Syria has historically been a strong agrarian economy. Much of the country's cropland lies in the north- east, north and central parts

101 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

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of the country, including notably the governorates of Al-Hasakeh, Ar- Raqqa, Aleppo, Hama, Homs, and Rural Damascus. Agriculture in the western governorates of Lattakia, Tartous and Idleb is known to largely centre on citrus fruits, apples, olives and vegetable cultivation. While the Badia region, a stretch of semi-arid land in central Syria covering around 55 percent of the country, is primarily used for livestock grazing. The long-lasting crisis has resulted in increasing trend of food insecurity among the population and high dependence on imports for essential goods. Rural poor across Syria are expected to be most vulnerable as they are projected to face the most severe consequences due to their low adaptive capacity to climate hazards. Rural communities with diversified income sources and a high level of experience in resilient agriculture practices will be less vulnerable relative to communities with fewer practical experience and livelihood options.

C. Alignment with National Priorities & National Ownership

18. The country must face incomparable situations because of the crisis launched in 2011. The crisis has stopped the execution of different national strategies, policies, and plans that can contribute to climate change mitigation. The Five-Year Plans were the key mechanism for planning nationwide sustainable development, mobilizing, and aligning available resources. Several strategies, regulations, plans, and programmes were adopted with climate change mitigation essence before the crisis within the successive Five-Year Plans. The NDC mentions that the priority sectors for adaptation are water, health, biodiversity and agriculture, and food security. Water is critically linked to all the other sectors, and the nexus water-agriculture-food security is predominant. National stakeholders have been engaged in the process of developing the concept note, which is accompanied by a Letter of No Objection from the NDA.

D. Barriers and Root Causes

19. Syria is constrained in its capacity to enhance its resilience in the face of above climate vulnerabilities and socio-economic challenges because of prevailing barriers and root causes. The main barriers are:
    - ✓ The Syrian crisis since 2011
    - ✓Financial and economic barriers
    - ✓ Policy, legal and regulatory barriers
    - ✓ Institutional and organization capacity barriers
    - ✓ Social, cultural, and behavioral barriers
    - ✓ Weakness in networking
    - ✓ Information and awareness barriers
    - ✓ Technical and technology barriers
    - ✓ Human capacity barriers

B.2. Project/Programme description (max. 3 pages)

A. Developmental Objective

20. The overall objective of the proposed project is to build the resilience of both human and ecological systems in Syria to cope with and address climate change impacts using a systemic integrated approach rooted in the water-agriculture-energy-climate change nexus. Adopting innovative practices, the approach will focus on the adoption of eco-system-based management, increasing and diversifying water supply and enhancing its efficient utilization in agriculture in terms of farm productivity, agriculture diversification and renewable energy application. The architecture of building resilience focuses on enhancing ability of the country to adapt to climate change by enhancing the efficiency and coverage of a multi-hazard early warning system for climate change-induced hazards in Syria.

B. Specific Objectives

21. **The project objectives are to enhance the following:**

1) To strengthen social resilience to climate change through investments in social development programmes.
2) To strengthen ecological resilience of agricultural systems through ecosystem-based management, adoption of agro-ecology and sustainable land management; and
3) To enhance the enabling environment of policy, regulatory and institutional setup in support of mitigation and adaptation to climate change. Strengthening the human and ecological resilience of agricultural systems improves the country's capacity to respond to potential changing environmental and social stresses resulting from climate change.

22. To enhance the efficiency and coverage of a multi-hazard early warning system for climate change-induced hazards in Syria in view of the projected climate change impacts. The approach combines principles articulated in the Global Framework for Climate Services (GFCS) with a 'value-chain' approach to target specific weaknesses in the delivery of early warning services, given the specific modes of operation, current infrastructure, technical capacities, and institutional arrangements in Syria. The project will introduce the impact-based MHEWS[105] based on the socio-economic risk modelling and will explore and facilitate elements of forecast-based financing as an innovative paradigm-shifting approach to the use of climate data in decision making. In particular, the project will:
    a. Improve methods and data/models used to monitor and forecast variables needed to derive climate characteristics.
    b. Develop the capacity of national agencies (Directorate General of Meteorology, Agrometeorology, and General Directorate of Remote Sensing) to model climate-related hazards (hydrological droughts, landslides, dust storms, and floods) and to utilize modern weather and seasonal forecasting techniques.
    c. Expand areas and geophysical/biophysical observations using satellite-based remote sensing (including the monitoring of precipitation, vegetation, snow cover and landslip/slides) to monitor and assess hazard risks over extensive regions of Syria, especially those regions where it is impractical to place observational equipment.
    d. Introduce a socio-economic risk and vulnerability modelling as an integral element of the impact-based multi hazard EWS.
    e. Create a central repository/facility incorporating an advanced information management system for the management, forecasting and monitoring of meteorological processes.
    f. Enhance the regulatory framework, coordination, and institutional mechanisms for an effective impact based MHEWS and promote better regional cooperation for managing transboundary risks through existing and new regional coordination platforms; and
    g. Strengthen the "last mile" delivery of disaster-related communication and interaction with end users, those in the communities with highest risks in Syria.

C. Project Locations

23. In the project document, four different areas of strategic Syrian importance will be identified, based on the confluence of the following project design parameters:
    → The first set of parameters concern the climate and non-climate challenges.
    → Suggestions and proposals received from stakeholders that address: (1) priority areas for intervention based on institutional demand; (2) alignment with national and regional adaptation priorities; (3) site-specific adaptation that will strengthen human and institutional capacity; and (4) interventions that promote existing knowledge.
    → Adoption of a territorial approach that brings in the elements of flexibility, diversity, and redundancy in the design of the concept, including complementarity with the Adaptation Fund project.

[105] Multi-Hazard Early Warning System

D. Project Components and activities

24. The concept is designed to maintain the link between agriculture, water, energy, and climate change, with building resilience architecture aiming to improve the country's ability to adapt to climate change by improving its efficiency and covering a multi-hazard early warning system for climate change-induced hazards in Syria. **Component 1** focuses on strengthening the social resilience of target farming communities across the four selected locations, **components 2, 3 and 4** focus on improving the resilience of agricultural productivity for each selected location, **component 5** address the issue of integration of renewable energy in water supply and irrigation systems, **components 6 and 7** focus on climate-smart agriculture (CSA) and resilience of agricultural resources, **component 8** deals with capacity-building of relevant institution and stakeholders key to climate change adaptation efforts, and **component 9** highlights the development of a multi-hazard early warning systems for threats caused by climate change in Syria, and finally **component 10** focuses on the Project management (this will be composed of standard project management activities). It is pointed out that the proposed concept is fully aligned with another programmematic GCF project that is being developed by the MWI.

25. Component 1: Building the social resilience of communities (farming communities across the four selected locations). This component will be carried in coordination with FAO.

— Activity 1.1: Promote self-organizing of targeted communities through empowerment of exiting entities or establishment of new structured mechanisms (e.g., associations, cooperatives…).
— Activity 1.2: Develop and implement capacity-building programmes for civil and governmental personnel at the local level.
— Activity 1.3: Support existing social services to enhance education and health of local communities in support of social resilience to climate change.
— Activity 1.4: Support community-driven development approach and recognize communities as valued partners rather than beneficiaries.
— Activity 1.5: Develop and implement a flexible land tenure strategy for natural resource use in rural areas for farmers and pastoralists.

26. Component 2: Improved supply and quality of treated wastewater for agricultural purposes in on of selected Location.

— Activity 2.1: Rehabilitation of wastewater treatment plants to provide adequate quality treated water for agro- forestry and rangeland restoration.
— Activity 2.2: Using treated wastewater for rangeland restoration applying established international guidelines with particular focus on level of treatment of wastewater in each location, and using an agro-forestry approach, and integrated crop/livestock production to improve livestock production and biodiversity enhancement.

27. **Component 3: Diversifying water supply for a more resilient agriculture and livestock production in on of selected Locationthe Syrian Badia region.**

— Activity 3.1: Water harvesting through rehabilitation of earth dams using novel and traditional knowledge.
— Activity 3.2: Developing efficient systems for distributing harvested water for agricultural purposes
— Activity 3.3: Adapting cropping strategies specifically to the Badia to the increasing risk of drought and decreasing freshwater availability.

28. **Component 4: Improving agricultural productivity through uitable irrigation technologies** (One of the selected locations)

— Activity 4.1: Enhancing water conservation system through building of dams to capture and store flood water for irrigation.
— Activity 4.2: Developing a water supply network for irrigated farming over an area of 50 ha.
— Activity 4.3: Application of best farm practices for the plantation of on selected location of almond/fruit trees over 50 ha.
— Activity 4.4: Renovation of naturally-occurring underground water wells using traditional knowledge.

29. **Component 5: Integration of solar PV pumps for water supply and irrigation in accordance with**

international guidelines and corresponding country policies

— Activity 5.1: Sizing and installation of solar pumps for sustainable water pumping and supply from wells and dams.
— Activity 5.2: Paraprofessionals trained for the operation and maintenance of solar pumping systems.
— Activity 5.3: MRV system put in place for reporting on energy savings and emissions reductions.

30. **Component 6: Scaling up good practices for a more water efficient agriculture (climate-smart agriculture)**
— Activity 6.1: Improving cropping practices and livestock husbandry using weather information and seasonal forecasts.
— Activity 6.2: Introduction and field trials of heat and drought tolerant crops & livestock species, and salinity tolerant crop species.

31. **Component 7: Improving the long-term resilience of water and agricultural resources**
— Activity 7.1: Enhance cooperation and coordination processes between the Ministries of agricultural, water, and Local Administration and Environmental affairs at the planning and implementation levels. — Activity 7.2: Integrated modelling tool such as FAO's MOSAICC institutionalized at NCARE.
— Activity 7.3: Water Quality and dynamic ground water modelling tool developed for enhanced management of water resources.
— Activity 7.4: Establish effective monitoring and warning systems for drought, floods, and water management, including seasonal forecasts that can be used to support component 6.
— Activity 7.5: Develop mechanism for disseminating weather and climate information to farmers and water managers.
— Activity 7.6: Index crop insurance scheme developed and implemented based on Activities 7.4 and 7.5.
— Activity 7.7: Review and develop national legislation and regulatory frameworks for the water sector that will address: (1) the roles and mandates of all bodies regulating the water sector; (2) enhanced capacity of WUAs to manage water productively at the local levels; (3) policy instruments to promote water efficiency in all sectors, including agriculture.
— Activity 7.8: Empowering both men and women (and youth) to participate meaningfully in demonstration and training activities and the roll out of CC adaptation practices.
— Activity 7.9: Replicating and upscaling results of project to widen resilience impacts across the country.

32. **Component 8: Human and institutional capacity building**
— Activity 8.1: Training of selected national stakeholders (e.g., the General Directorate of Meteorology, the Ministry of Irrigation, the Ministry of Agriculture and Agrarian Reform, the Agricultural Research Center, the General Directorate of Remote Sensing) for improved interpretation of best available regional and national climate scenarios and climate information that can be used in decision- and policymaking.
— Activity 8.2: Paraprofessionals trained for the operation and maintenance of solar pumping systems.
— Activity 8.3: Technicians trained for the O&M of wastewater treatment plants.
— Activity 8.4: Training provided to farmers on climate-smart agricultural practices.
— Activity 8.5: Technical support provided to the General Commission for Scientific Agricultural Research (GCSAR) to enhance research, development, and outreach capabilities as an advisory body in the agricultural value chain.
— Activity 8.6: Capacity building of WUAs to enhance their operational and servicers delivery skills.
— Activity 8.7: Training of farmers on diversification of income strategies and adoption of crop-livestock systems based on a market-demand approach.
— Activity 8.8: Training provided to national and governorate institutions to mainstream adaptation into the budgetary process.

33. **Component 9: Development of a multi-hazard early warning systems for threats caused by climate change in Syria.**
— Activity 9.1: Develop the capacity of national agencies to model climate-related hazards (drought, land degradation, soil erosion, floods, dust storms, and wildfires) and to utilize modern weather and seasonal forecasting techniques.
— Activity 9.2: Improvement of methods and models for monitoring and forecasting variables needed to

derive climate properties.

— Activity 9.3: Extension of areas and geophysical/biophysical observations using satellite remote sensing (including monitoring of drought, precipitation, vegetation cover, forest, rangeland, land degradation, soil erosion, and snow cover) to monitor and assess hazard risks in extensive regions of Syria.
— Activity 9.4: Introduce a socio-economic risk and vulnerability modelling as an integral element of the effects-based EWS for several threats.
— Activity 9.5: Create a central database facility incorporating an advanced information management system for the management, forecasting and monitoring of meteorological processes.
— Activity 9.6: Enhance the regulatory framework, coordination, and institutional mechanisms for an effective impact-based MHEWS and promote better regional cooperation for managing transboundary risks through existing and new regional coordination platforms; and
— Activity 9.7: Strengthening disaster-related communication and interaction with end-users, especially in the highest-risk communities in Syria.

34. **Component 10: Project management** (this will be composed of standard project management activities)

E. Elements of Theory of Change

35. The detailed Theory of Change (TOC) will be completed during the feasibility study that will be carried out to inform the final design of the proposed concept. It is anticipated that the project developers will seek funding from GCF's Project Preparation Facility (PPF) to support the project preparation. The first point to note here is that the TOC will be underpinned by a systemic view of the developmental process that will lead to resilience across the agriculture, water, and energy sectors, while generating jobs and protecting livelihoods. The CRF will be applied in detail during the project preparation phase to structure the proposed project as a social-ecological system (SES) composed of the interaction of its physical elements (e.g., physical interventions/adaptation measures), the human individuals and organizations that manage or use them, and the institutional "rules in use" that structure behavior.

F. Risks and mitigation measures

36. There are several financial risks, namely: (1) the prospects that proper budgets are allocated by the Government of Syrian at the national and governorate levels to meet the co-financing commitment for the proposed project; and (2) the amount of co-financing is not forthcoming.
37. There are also several operational risks. Many of these risks are focused on the related local governorates and whether they will be supportive and constructively engaged throughout the implementation process. Additional operational risks exist relative to whether there is sufficient local technical capacity and available information to train extension workers, farmers, pastoralists, and others on best practices for integrating and addressing climate risks into livelihood activities associated with the agricultural value chain.
38. All the risks and mitigation measures will be accounted for in the project design. Further, a preliminary assessment of social and environmental risks will be identified using UNDP's Social and Environmental Screening Procedure (SESP). All the risks will be validated during the development of the full project proposal.

G. Comparative advantages of UNDP and FAO

39. The project draws on the comparative advantages of UNDP/FAO in terms of its success in accessing GCF financing and its strength in implementing national projects through the National Implementation Modality (NIM). Likewise, FAO will support all activities related to its specific strengths in agriculture and water management. Both UNDP and FAO have an in-country presence and have established extended networks and working relationships with national stakeholders. Furthermore, UNDP and FAO have the added advantage of being able to tap expertise from other UN agencies under the UN Joint Programme. All contracts will be issued by the Government following UNDP rules and regulations. UNDP will maintain the role of overall quality assurance and oversight on using the project resources to ensure effective and efficient implementation as per the project document. The project modality will be 'assisted NIM'; where UNDP will be the Accredited Entity and FAO will be Implementing Partner.

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

A. Climate impact potential

40. Specific values for the GCF's investment criteria for climate impact potential are indicated below. The descriptions below are based on the formats described in the GCF's Performance Measurement Frameworks.

41. GHG emission reductions: This criterion is focused on the total tones of CO_2eq to be avoided or reduced per annum by the proposed project. Although the main impact of the project will be on adaptation using the agriculture-water-energy-climate change nexus, the proposed project will deliver emission reductions from: (1) avoidance of fossil fuel needed for water pumping using solar water pumping; (2) reduced emissions through improved water efficiency at the farm level; and (3) forest rehabilitation and rangeland restoration in Syrian Badia. The project proposes to develop a MRV system for tracking these emission reductions under activity 4.2. The architecture of the MRV system will be detailed in the full project proposal and accompanied by a detailed calculation of expected GHG emission reductions over the project lifetime.

42. Beneficiaries: The project will benefit approximately 1000,000 persons (47% women) (both directly and indirectly) living in the four targeted locations directly (most of the rural areas in the selected governorates of rural Damascus, Der-Ezzour, Al Hasaka, and Aleppo). The beneficiaries constitute about 16% of the target population in the selected four locations. These persons are farmers/pastoralists who will benefit directly from the project support through enhanced climate-resilient agricultural practices and protection of livelihoods. In addition, the project will create jobs in three ways: (i) job created for youth in infrastructure development as discussed below under Sustainable Development; (ii) new jobs in farming activities through availability of additional water and restored rangelands; and (iii) indirect jobs in the agriculture value chain.

43. Gender consideration: The project will have focus on gender sensitive planning and implementation to ensure the highest gains in the fight for gender equity. Since women are responsible for subsistence farming tasks such as planting and weeding, household chores such as collection of water and firewood fetching, women and female children are more exposed to climate risks such as drought, late rains, and flooding. The project focuses on gender-differentiated outreach and engagement. At least 47% of the project beneficiaries will be women, especially within the agriculture sector where they often make up the majority of smallholder farmers and are most vulnerable to climate shocks and variability. In vulnerable communities, women are often more affected by climate impacts and disrupted livelihoods. By providing climate information, the project will ensure that women are empowered to benefit from the information and can cope with climate change impacts.

44. A summary of the adaptation impact potential is summarized in the bullets below:

Fund-Level Impact 1.0: Increased resilience and enhanced livelihoods of the most vulnerable people, communities, and regions

✓ Indicator: Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options

- Targets: Ultimately, males and females will benefit from diversified, climate resilient livelihood options

Fund-Level Impact 2.0: Increased resilience of health and wellbeing, and food and water security

✓ Indicator: Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options

- Targets: Ultimately, 530,000 males and 470,000 females with year-round access to reliable and safe water supply despite climate shocks and stresses.

Fund-Level Impact 2.0: Improved resilience of ecosystems and ecosystem services

✓ Indicator: Coverage/scale of ecosystems protected and strengthened in response to climate variability and change

- Targets: Approximately 5,000 ha of rangeland restored using agro-forestry, and 4,500 ha of forest

rehabilitated in the selected locations to restore watershed functioning.

B. Paradigm shift

45. The proposed programme introduces an innovative approach of strengthening the human and ecological resilience of agricultural systems to enhance the country's capacity to respond to the changing environmental and social stresses resulting from climate change.
46. Enabling framework: A systemic approach is used to inform policy-decision making for resilience building by connecting actors across different levels and scales. Resilience is built using a systemic approach through the agriculture-water-energy-climate change nexus, with emphasis on job creation and protection of livelihoods in a gender-differentiated manner. A resilience framework, that spurs the human and ecological strengths of agricultural systems, is adopted that provides coverage of adaptation and mitigation interventions at the territorial level, implying that the four locations of interventions cover the multitude of climate and non-climate challenges that Syria in currently facing, and which are expected to linger or even become more pronounced in increasing climate change and climate variability. A quantitative measure of resilience as a decision-making criterion will be used in selecting adaptation measures.
47. The entry point in the nexus is water supply diversification to first improve the overall water balance across the entire country and increasing water productivity in agriculture (more crop per drop) utilizing solar energy while at the same time improving overall agriculture returns for the vulnerable population. Agricultural development in Syria is constrained by water availability both in quantity and quality. Using a spatially differentiated approach, different technologies (novel and traditional) will be used to make more water available for agriculture purposes coupled with enhancing the resilience of the agricultural value chain using strategies that increase farm productivity, apply solar energy for irrigation, and enhance water productivity along the chain through climate-smart practices, on-farm income diversification, and protection of the asset base of farmers, among others, are brought together to address resilience of farmers holistically, and at scale.
48. Knowledge generation: The potential for knowledge generation is high due to several factors. Stakeholder engagement and network building is a central feature of the proposed project through the building of farmers cooperatives, WUAs, networks/communities of learning, and practice for linking practitioners, advisory service providers, and policymakers. Real-time results from the project will be disseminated within and beyond the intervention zones through the activities proposed under component 8 aims to improve capacity building and component 9 dedicated to developing the capacities of national authorities to develop early warning systems for the multiple dangers caused by the threats posed by climate change sharing of best practices and replication. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to the broader adaptation community in the country and region. It will also identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.
49. Regulatory frameworks: This criterion is focused on the potential for the Proposed Project to contribute to the development of regulatory frameworks and policies that effectively address mitigation and adaptation to climate change. The potential for the development of these regulatory frameworks is high due to one major factor. That is, the proposed project targets seek to institutionalize the successful aspects of the proposed adaptation interventions through the implementation of existing policies, strategies, and action plans, and by overcoming prevailing policy, regulatory and legal barriers that are discussed in B1. Using iterative planning and adaptive learning the lessons learned from the project's interventions will feedback into policy, legislative, and regulatory initiatives at both the national and governorate levels.
50. Scaling-up: Potential for replication and scale (number of beneficiaries reached as well as geographical coverage) is made possible by enhancing an integrated approach to climate risk management across sectors and sub-basins by supporting climate-risk informed planning and implementation and region-wide knowledge management and coordinated service delivery (through farmers' cooperatives, WUAs and communities of learning and practice).

C. Sustainable development

51. Anticipated co-benefits from project activities that are associated with environmental, demographic, and gender-sensitive national development priorities are:
    • Diversified employment and representation for women at least 47% of all jobs created will be for women. All capacity-building exercises will also target at least 47% of women. The activities supported by the Farmer Cooperatives will target opportunities for women by generating income within the framework of adaptation including by exploiting the value chain of farming and pastoralism. Also, the project will support women-based groups to diversify their livelihoods and income services by creating businesses to promote adaptation technologies and/or sharing of local knowledge;
    • Support for Micro and Small Enterprises (MSEs): Farmer Cooperatives will be supported to establish new businesses that are climate-resilient (e.g., nurseries growing drought-tolerant tree seedlings, solar-powered pumps, collective farm-level rainwater harvesting equipment, the establishment of WUAs to manage water supply, distribution at the local level and traditional craft);
    • Employment opportunities for youth: Adaptation interventions such as canal rehabilitation, managed aquifer recharge, installation of water piping equipment and solar pumps, rehabilitation of underground wells, construction of earth dams, rangeland and forest restoration, among others, will support local employment for youth using schemes such as Cash for Work;
    • The proposed project will also provide the following benefits: improved land quality, improved ecosystem services, resources efficiency.

D. Needs of recipients

52. Climate vulnerabilities: Rural poor across Syria are expected to be most vulnerable as they are projected to face the most severe consequences due to their low adaptive capacity to the climate hazards and sensitivities outlined in B1 above. Rural communities with diversified income sources and a high level of experience in resilient agriculture practices will be less vulnerable relative to communities with fewer practical experience and livelihood options.
53. Capacity for addressing climate change adaptation: As discussed in section B1 above, there exists a host of human and institutional capacity deficiencies that hamper efforts to address some of the urgent adaptation needs that are proposed in the Climate Change Policy, NDC, NAPSA, INC, and sectoral adaptation strategies and action plans. The capacity to address climate change is further compounded by the existence of other key barriers that are underpinned by socio-economic and environmental challenges, and which are exacerbated by climate change. There remains an urgent need to improve the link between adaptation and national policymaking, as well as for policies to be supportive of cooperation and inclusiveness of the special needs of small-scale farming/pastoralist communities who are the most vulnerable and have the least adaptive capacity. There is the weakness of capacity in areas including strategic development planning and coordination across national ministries and governorates, and among national institutions that underscore the critical importance of further mobilizing institutional capacity to address effective pro-poor, pro-adaptation expenditures at the local levels of governance.
54. Financial resources constraints: Syria faces severe economic and fiscal challenges that have worsened due to the ongoing crisis since 2011 that has inflicted almost unimaginable levels of devastation and loss on the Syrian people and their economy. The situation is so critical that Syria experienced a decline in its GDP per capita after the crisis, leading to the classification of Syria as a low-income country in the United Nations classification system. Economic activity in Syria has shrunk by more than 60% compared to 2010. The food security and livelihoods of Syrians were particularly hard hit in a country where 80% of the population already live below the international poverty line. Due to the challenges outlined above, adaptation to climate change is just a more pressing national development priority that needs to be addressed with limited governmental financial resources.

E. Country ownership

58. The proposed GCF project is fully aligned with national priorities and builds on existing government programme, resulting in a co-financing ratio of approximately 4:1. The project covers the main governorates and the Syrian Badia, which provides for a balanced territorial representation of the challenges in Syria. This approach will be instrumental in catalyzing co-financing at the national level and governorates. Moreover, the project has a strong complementarity with ongoing government programme/initiatives that will be able to provide co-financing. The main sources of co-financing will be the Ministry of Local Administration and Environmental Affairs (MoLAE), the Ministry of Agriculture and Agrarian Reform (MoAAR), and Ministry of Water Resources (MoWR) and the Governorates (*Rural Damascus, Aleppo, Der- Ezzor, and Al-Hasakeh*).
59. The public goods nature of this project's activities does not entail revenue generation or cost recovery from the project's direct and indirect beneficiaries during the project duration. Hence, the financial analysis of this project is not deemed pertinent. To estimate the economic soundness of the proposed project, a full economic analysis of the projects will be carried out during proposal development in accordance with the Guidelines for the Economic Analysis of Projects of the United Nations Development Programme (UNDP 2015).

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

60. Four stakeholder engagements processes were carried out to inform the preliminary design of the proposed project concept. Followed by three technical consultation meetings with key national stakeholders at the Ministry of Local Administration and Environmental Affairs (MoLAE), supported by FAO on June 29th and July first, 2021. The main five days National Stakeholder Consultation Workshop and Brainstorming were between 30 May and 03 June 2021, the national stakeholder coordination workshop was jointly organized by FAO and MoLAE. The latter culminated into a half-day stakeholder coordination meeting that proposed the outline of a preliminary project concept. During the finalization of the concept note, several experts' meetings as well as multiple bilateral meetings have been carried out between FAO and the main project stakeholders and the NDA. Following feedback from the GCF, detailed stakeholder analysis will be carried, and the identified stakeholders will be engaged in focus discussion groups so that their priorities are reflected in the full funding proposal.

C. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

Component/Output	Indicative cost Million (USD)	GCF financing		Co-financing		
		Amount M (USD)	Financial Instrument	Amount M. (USD)	Financial Instrument	Name of Institutions
Component 1: Building the social resilience of communities	~30		Grant	~30	75% Grant; 25% in-kind	MoLAE, MoAAR, and MoWR
Component 2: Improved supply and quality of treated wastewater for agricultural purposes (Location TBD)	~29	~7	Grant	~22	75% Grant; 25% in-kind	MoLAE, MoAAR, and MoWR
Component 3: Diversifying water supply for a more resilient agriculture and livestock	~34	~9	Grant	~25	60% Grant; 40% in-kind	MoLAE, MoAAR, MoWR and

production in the Syrian Badia region (Locations TBD)						GCSAR
Component 4: Improving agricultural productivity through suitable irrigation technologies (Locations TBD)	~82	~17	Grant	~65	80% Grant; 20% in-kind	MoLAE, MoAAR, MoWR and GCSAR
Component 5: Integration of solar PV pumps for water supply and irrigation	~14	~4	Grant	~10	Grant	MoLAE, MoAAR, MoWR MoEL and NERC
Component 6: Scaling up good practices for a more water efficient agriculture (climate-smart agriculture)	~15.5	~3.5	Grant	~12	15% Grant; 85% in-kind	MoLAE, MoAAR, MoWR and GCSAR
Component 7: Improving the long-term resilience of water and agricultural resource	~15	~3	Grant	~12	80% Grant; 20% in-kind	MoLAE, MoAAR, MoWR and GCSAR
Component 8: Human and institutional capacity building	~12.5	~2.5	Grant	~10	50% Grant; 50% in-kind	MoLAE, MoAAR, MoWR, MoED, Governorates and GCSAR
Component 9: Development of a multi-hazard early warning systems	~9.5	~1.5	Grant	~8	100% in-kind	MoLAE, MoAAR, MoWR, GDMET and GORS
Component 10: Project management	~7.5	~2.5	Grant	~5	25% Grant; 75% in-kind	
Indicative total cost (USD)	**~249**	**~50**		**~199**		

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

C.2. Justification of GCF funding request (max. 1 page)

61. As discussed in the previous sections, the proposed project, and its approach to creating impact at scale through the agriculture-water-energy-climate change nexus, and using a systemic, gender-sensitive, pro-poor and spatially differentiated approach while connecting the national level policy-decision making to on the ground interventions, brings a truly innovative way to resilience building in Syria. Despite its innovative and paradigm shifting capability, the proposed project will reply mainly on public funding – national or international – for its implementation because the proposed adaptation measures are inherently for protecting the public good and for which there do not necessarily exist the private markets. Nevertheless, it is expected that private financing can be catalyzed at the individual, household, and community levels through the public investments in terms of de-risking strategies proposed by the project. An important point to note is that many of the climate impacts across the nexus discussed above can be classified as 'collective action problems' that cannot be addressed by private markets and requiring

government interventions.

62. Moreover, as discussed in section B1 above, Syria is at a cross-road regarding its adverse economic and fiscal situation, which coupled with the unique problem it faces concerning the crisis, severely constrains the ability of the Government of Syrian (GoS) to invest more in climate change adaptation. It is time to point out here that the GoS already has a large trade deficit, unsustainable debt, and unmet financing to deal with the ongoing crisis. Without GCF involvement to complement ongoing efforts and address barriers to build resilience in the face a changing climate, the Government of Syrian cannot take adequate steps to help diversify water supply, enhance water productivity, and support vulnerable farmers, mostly smallholders with the least adaptive capacity, adapt to climate-related risks and impacts. GCF support enables additional investments that allow scaling up existing efforts for transformative reach and impact across the country.
63. Given the difficult socio-economic environment, and the introduction of fiscal adjustment measures to rein in deficit and control debt (exacerbated by the other socio-economic and climate change challenges), GoS is constrained to seek the highest level of concessionally on GCF funding in the form of grant financing.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

64. The proposed project has been designed in close consultation with and involvement of relevant government agencies and technical line departments, development partners, local institutions, academia, farmer organizations. These consultations and discussions, combined with the nexus supported by national policies and strategies provide the proposed project with a sound approach and suite of interventions which are implemented with strong community participation and country ownership. Building on this foundation, the project ensures that the investments as well as the results of the interventions are sustained beyond the project period and in the longer-term through the following elements of project design and implementation:
65. Policy and legal frameworks: Land-use and water sector policy will be reinforced to promote closer institutional cooperation and effectiveness in the land-use and water sectors. Efficient use of water in agriculture will promoted, as well as setting standards for the quality of treated wastewater used for agriculture. The proposed enhancements in policy, regulatory and legal frameworks will support both MWI and MOA to implement their respective sector strategies more productively, while delivering on resilience to a changing climate.
66. Capacity building: The project builds in a strong element of human and institutional capacity building using a learning-by-doing approach that is expected to generate a virtuous feedback of learning that will continue beyond the project duration. Activities have been designed to ensure there is knowledge and skills transfer as well as peer-to-peer learning.
67. Combining traditional knowledge and practices with climate-resilient technologies and innovative practices: Building on traditional systems and mechanisms of water capture and storage, water supply for irrigation, maintenance models, and community organizational structures, such as the farmers' cooperatives and WUAs that have buy-in and ownership amongst the smallholder farmers, provides a strong basis to integrate climate-resilient design and practices thereby enabling adoption for the long-term. Capacity building and training on climate-risk informed planning, design, and implementation of climate-resilient practices will be more effective through these locally suited and community-owned systems. Interventions in upgrading the systems through modern structural elements, increasing water capture and yield through partial de-silting and multi-use watersheds, field-testing new crops and water-efficient irrigation conveyance, and improved early warning systems of drought, vegetation cover, forest, rainfall, and water level monitoring to manage water wells are among selected interventions that will be cross-fertilized with traditional knowledge to ensure resilience-building over time.
68. Ex-post plan for Operations and Maintenance of observing equipment: Since the project's investments will be in infrastructure development, attention will be paid to developing O&M plans (project and for post-project O&M) for these infrastructures to ensure that same are operational to required standards after project completion. Further, the plans will include budgeting for human and financial resources required

for O&M for the project investments. The plan reflects local ownership and commitment for the long-term sustainability of the project activities and outcomes.

69. Learning, knowledge management and replication: Through extension support, awareness-raising, and community level engagement the proposed project will catalyse knowledge sharing. It is pointed out that the proposed project has a component dedicated to knowledge management, learning, best practices, and replication. Best practices and lessons learned will enable replication for adaptation and risk reduction so that they can be scaled-up across communities and governorates.

70. Co-investments by government institutions and communities: The project leverages domestic co-financing in the form of government financing that supports baseline funding of the proposed interventions as well as co-blending of resources to support project implementation. The project will also support national government and governorates to track budgetary flows in climate adaptation actions that will be a useful tool for mainstreaming climate adaptation in budgetary processes and linking planning to on-the-ground actions.

D. Supporting documents submitted (OPTIONAL)

☐ Map indicating the location of the project/programme

☐ Diagram of the theory of change

☐ Economic and financial model with key assumptions and potential stressed scenarios

☐ Pre-feasibility study

☐ Evaluation report of previous project

☐ Results of environmental and social risk screening

Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes ☒ No ☐

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant.
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate.
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA will be reviewed but not sent to the Board for consideration? Yes ☒ No ☐

Annex 4: Concept Note on A systematic rehabilitation plan for sustainable green Damascus

Concept Note

Project Title:	**A systematic rehabilitation plan for sustainable green Damascus**
Country(ies):	Syria Arab Republic
National Designated Authority(ies) (NDA):	Ministry of Local Administration and Environment
Accredited Entity(ies) (AE):	UNDP / FAO
Date of first submission/ version number:	[2021-07-11] [V.0]
Date of current submission/ version number	[YYYY-MM-DD] [V.0]

E. Project/Programme Summary (max. 1 page)

A.1. Project or programme	☒ Project ☐ Programme	**A.2. Public or private sector**	☒ Public sector ☐ Private sector
A.3. Is the CN submitted in response to an RFP?	Yes ☐ No ☒ If yes, specify the RFP:	**A.4. Confidentiality[106]**	☐ Confidential ☒ Not confidential
A.5. Indicate the result areas for the project/programme	**Mitigation:** Reduced emissions from: ☒ Energy access and power generation ☒ Low emission transport ☒ Buildings, cities and industries and appliances ☒ Forestry and land use **Adaptation:** Increased resilience of: ☒ Most vulnerable people and communities ☐ Health and well-being, and food and water security ☒ Infrastructure and built environment. ☒ Ecosystem and ecosystem services		
A.6. Estimated mitigation impact (tCO2eq over lifespan)	Not yet quantified	**A.7. Estimated adaptation impact (number of direct beneficiaries and % of population)**	500,000; 10% of the target population
A.8. Indicative total project cost (GCF + co-finance)	Amount: USD 26.7 million	**A.9. Indicative GCF funding requested**	Amount: USD 20 million
A.10. Mark the type of financial instrument requested for the GCF funding	☒ Grant ☐ Reimbursable grant ☐ Guarantees ☐ Equity ☐ Subordinated loan ☐ Senior Loan ☐ Other: specify_____		
A.11. Estimated duration of project/ programme:	a) disbursement period: 02 January 2022 to 31. December 2025 b) not applicable	**A.12. Estimated project/ Programme lifespan**	25 Years[107]
A.13. Is funding from the Project Preparation Facility requested?[108]	Yes ☒ No ☐ Other support received ☐ If so, by who:	**A.14. ESS category[109]**	☐ A or I-1 ☒ B or I-2 ☐ C or I-3
A.15. Is the CN aligned with your accreditation standard?	Yes ☒ No ☐	**A.16. Has the CN been shared with the NDA?**	Yes ☒ No ☐
A.17. AMA signed (if submitted by AE)	Yes ☒ No ☐ If no, specify the status of AMA negotiations and expected date of signing:	**A.18. Is the CN included in the Entity Work Programme?**	Yes ☒ No ☐

[106] Concept notes (or sections of) not marked as confidential may be published in accordance with the Information Disclosure Policy (Decision B.12/35) and the Review of the Initial Proposal Approval Process (Decision B.17/18).

[107] 2 The technologies and best practices to be introduced by the proposed Project are projected to yield benefits long after the implementation phase is completed. The period of 25 years is a conservative estimate of the lifespan of the benefits of the proposed Project.

[108] See here for access to project preparation support request template and guidelines.

[109] Refer to the Fund's environmental and social safeguards (Decision B.07/02)

A.19. Project/Programme rationale, objectives and approach of programme/project (max 100 words)	Summary of the problem statement and climate rationale, objective, and selected implementation approach, including the executing entity(ies) and other implementing partners. Interventions in municipal buildings and street lighting sub-sectors focusing on priority sectors identified by the government such as: 1) Efficient and resilient energy systems and buildings, 2) Accessible, diverse, and low-carbon mobility systems, 3) Resource efficient and holistic waste management systems, 4) Integrated water resources management, 5) Comprehensive and reflective land-use planning, 6) Responsive and forward-looking climate adaptation practices.

F. Project/Programme Information (max. 8 pages)

B.1. Context and baseline (max. 2 pages)

A. Climate Change Hazards, Impacts, and Vulnerabilities

1. Syria signed the UNFCCC in 1995 as a Non-Annex I country [110] and ratified the Kyoto Protocol on 27 January 2006. The country also signed the Paris Agreement on 13 November 2017[111]. The country submitted its Initial National Communication (INC) to the UNFCCC on 29 Dec 2010[112] and submitted the NDC in November 2018[113].
2. **Increase in temperature in Syria**: According to the climate projections of the Initial National Communication on Climate Change, the average warming in Syria for the year 2041 will be higher than the global average for both reference and policy scenarios. The greatest increase (2.0-2.1°C) will occur in the north-west and the southeast, while the most moderate increase (1.0-1.2°C) will occur all over the country[114]
3. **Decrease in precipitation and water availability**: Precipitation trends are decreasing across the country. Precipitation changes vary considerably across the region with no universal trend for annual results as well as at the seasonal level. Decreasing trends can be seen in most of the region at mid-century. By the end of the century, both scenarios for RCP 4.5 and RCP 8.5 suggest a reduction of the average monthly precipitation reaching 8–10 mm in the coastal areas of the Arab region[115] The Mean change in annual precipitation (mm/month) for mid- and end-century for ensemble of three RCP 4.5 and RCP 8.5 projections compared to the reference period.
4. **Syria is highly vulnerable to extreme events.** In the recent past, the country has witnessed a significant rise in the frequency and severity of heat waves, droughts, and floods, which caused significant economic damage and loss of life. Droughts have become more frequent and more intense. Drought is one of the major climate hazards which affects Syria. Over the past decades (1950 – 2010) there were six significant droughts in Syria, caused by a significant decrease of winter precipitation—the major rainfall season. Five of these droughts lasted only one season, while the sixth lasted two seasons. Starting in 2006 and lasting into 2011, Syria experienced a multi-year extreme drought that contributed to immense agricultural failures and massive population displacement. This dry period is being described as the ‘‘worst long-term drought, and most severe set of crop failures since agricultural civilizations began in the Fertile Crescent.” It is estimated that between 2006 and 2009, around 1.3 million inhabitants of eastern Syria were affected by agricultural failures. An estimated 800 000 people lost their livelihoods, and basic food supports, thus becoming food insecure. During this period, yields of wheat and barley dropped 47% and 67%, respectively, and livestock populations

[110] https://www.climatelinks.org/resources/climate-change-risk-profile-syria
[111] https://unfccc.int/node/61211
[112] https://unfccc.int/non-annex-I-NCs
[113] https://www4.unfccc.int/sites/NDCStaging/Pages/All.aspx
114 GoS, 2010. Initial National Communication on Climate Change of the Syrian Arabic Republic. https://unfccc.int/sites/default/files/resource/Syria_Initial%20National%20Communication.pdf
115 Idem.

plummeted. A return of drought in 2011 worsened the situation. By late 2011, the UN estimated that between 2 million and 3 million people were affected, with 1 million people driven into food insecurity. More than 1.5 million people—mostly agricultural workers and family farmers—migrated from rural areas to cities and camps on the outskirts of Syria's major cities of Aleppo, Damascus, Dara'a, Deir ez-Zour, Hama, and Homs. In addition, the country has been affected by the adverse effects of climate change, including severe floods, pests and disease outbreaks, changes in rainfall patterns, increased frequency of sandstorms, an increase in ambient temperature, and an increase in the number of fires for agricultural crops, forest areas and forests. Projections of future climate change indicate that these effects are likely to increase in the coming years, compounding the effects of the crisis and thus threatening the livelihoods of populations who have become particularly vulnerable due to the heavy dependence on natural resources and widespread poverty. The convergence of these challenges with the consequences of the current crisis makes Syria among the countries in the world most vulnerable to climate change. Consequently, the agriculture sector and the water sector were greatly affected, especially as it constitutes an important sector and a major contributor to development and the national economy.

5. **The consequences of these changes cannot be overstated.** Droughts currently experienced in the Eastern Mediterranean are already harsh. According to research by NASA[116], the dry spell between 1998 and 2012 was 50 percent drier than the driest period in the past five centuries, and 10 to 20 percent drier than the worst drought since the 12th century. Some scholars have argued that this drought contributed to the crisis in Syria in 2011, however, is that climate change will lead to cascading socioeconomic challenges.
6. **Due to the geographical location of the Syrian Arab Republic in the arid and semi-arid regions**, it is very vulnerable to the effects of climate change, in particular temperature increases, differences in precipitation and limited water resources. Water is a scarce resource in the country and not uniformly distributed. There is an annual deficit in the water balance of about 3 billiard cubic meters. This deficit clearly appears in the Barada and Al-Awaj drainages, as well as in the Tigris and Habour Basins[117]. This deficit is linked mainly to annual increase in water use in different sectors, far above the renewal rate of water. Syria is therefore categorized as one of the poor countries in water resources, according to the universal classification, which considers the limit of water poverty to be 1000 cubic meters per person per year. The country is struggling with scarce and overexploited water supplies, especially Damascus and its rural side. The region is no stranger to periods of drought, but the intense droughts and desertification expected due to climate change could be far worse. In addition, the country has been affected by the adverse effects of climate change, including severe floods, pests and disease outbreaks, changes in rainfall patterns, increased frequency of sandstorms, an increase in ambient temperature, and an increase in the number of fires for agricultural crops, forest areas and forests. Projections of future climate change indicate that these effects are likely to increase in the coming years, compounding the effects of the crisis and thus threatening the livelihoods of populations who have become particularly vulnerable due to the heavy dependence on natural resources and widespread poverty. The convergence of these challenges with the consequences of the current crisis makes Syria among the countries in the world most vulnerable to climate change. Consequently, the agriculture sector and the water sector were greatly affected, especially as it constitutes an important sector and a major contributor to development and the national economy.
7. By 2030, temperature extremes and drought events due to climate change will affect crop yields, and Water security will become an even more critical issue affecting most people in Syria in coming

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decades.

8. **The agricultural sector is an important economic sector in Syria; where 30% (6.5 million ha) of the Syrian lands are arable (24.65% irrigated and 57.89% rainfed).** Approximately, 8.9 million people (44.5% of the Syrian population) live in rural areas, and more than one million (19.4% of the Syrian labour force) work in agriculture. The exceptional importance of the Syrian agricultural sector lies in that it constitutes an economic resource for more than 46% of the Syrian population in addition to the significant contribution to the Syrian national economy where more than 31% of the total Syrian exports come from the agricultural sector[118].
9. **The agricultural sector consumes around 90% of water resources,** while around 8% are used for drinking purposes and 2% for the industrial sector. Since ~60% of total renewable water available originates from outside the country and most of Syria's major rivers are shared with neighboring countries, the water supply is highly vulnerable to upstream or international human and climate impacts. Climate change will likely exacerbate these water concerns. Unsustainable land- and drought-management practices that have driven over-abstraction from aquifers and reduced Syria's resilience to sustainably cope with periods of lower-than-average rainfall and the unprecedented series of droughts in recent decades. Syria has experienced three major drought events since 1990, each of which lasted approximately three years — the worst of these was the most recent drought of 2007–2010. With no standing national drought management or response capacity, the drought of 2006-2010 exposed Syria's water insecurities, and is also regarded as a contributing factor to social in the country.
10. **Syria will be under extreme water stress in 2040.** According to World Resource Institute's Aqueduct Water Stress Projections[119], Syria is among the countries (Rank 25/113) which will experience extreme water stress in 2040 under Business-as-Usual Scenario (RCP8.5).
11. **Groundwater is under serious threat of depletion.** Groundwater is a critical source of water in the country. Its importance increases considerably during drought events as it becomes the primary water source for drinking and irrigation. With few exceptions, most of the groundwater basins in the country are experiencing water deficits. Recent studies projected a change of groundwater recharge more than -30% between 2041 to 2070 (with reference scenario 1961 to 1990) . There is a high risk of groundwater salinization due to sea-level rise, making local wells unfit for drinking and decreasing agricultural productivity. The projected decrease in the runoff for major rivers will further threaten Syria's river resources, thus increasing dependence on groundwater and rainwater. A study published in 2013 with the use of NASA images shows a dramatic increase in the dryness of the soil and depletion of below-ground water levels between January 2003 and December 2009 in the Euphrates and Tigris basins. It indicated that the two basins registered the second fastest rate of regional groundwater storage loss in the world after India .
12. **Main rivers will experience a decrease in runoff and discharge, thus resulting in reduced water availability.** The Tigris–Euphrates River basins are essential for agricultural and pastoral systems. Agricultural development and food production rely heavily on the availability of water in the river basins. A broader climate assessment for the basins evaluated the hydrologic impacts of climate change shows higher temperatures and thus evaporation demand with the highest increases in the highland areas. Precipitation changes are variable, with decreases in the basins' northern regions and increases in the southern regions. Overall, climate projections show a high probability of reduced water availability from those basins due to reductions of 25%–55% in annual surface runoff from the headwater's regions, along with a shift in the timing of runoff[120]. **Figeh spring** system is another essential water source, located close to Damascus and provides drinking water for nearly three million

118 Syrian Central Bureau of Statistics, 2011.

120 ESCWA et al. 2017. Arab Climate Change Assessment Report – Main Report. Beirut, E/ESCWA/SDPD/2017/RICCAR/Report. Available at: http://www.riccar.org/sites/default/files/riccar/RICCAR%20Publications/Pdfs/Main%20Report/Arab%20Climate%20Change%20Assessment%20Report-%20Main%20Report_2017.pdf

people. A hydrological analysis focused on differences in annual, seasonal, and monthly temperature, precipitation, and water availability measured as spring discharge between reference period (1961–1990) and two scenarios (2021–2050 and 2070–2099). Results from the analysis identified potentially severe reductions in water availability from increased evapotranspiration and decreased precipitation. The relative change in mean discharge for the climate ensemble showed a decrease during the peak flow from March to May of up to 22% in 2021–2050 and almost 25% in the period 2069–98, compared to the reference period. Decreases of this magnitude would have dramatic effects on local water availability[121].

B. Socio-Economic Challenges

13. In addition to the climate challenges, Syria is facing several socio-economic challenges that will be considered in the design of the proposed project concept. These socio-economic challenges will be compounded by the climate impacts and vulnerabilities.

14. Economic and fiscal challenges: Syria has been for the last ten years under a crisis, which started in 2011. During this period, public and private infrastructure were destroyed, and the economy crashed due to escalating inflation, declined exports and investments, and constantly rising unemployment and poverty. Therefore, many of the socio-economic and environmental achievements of the previous two decades were drastically reversed. Years of crisis and heavy infrastructural damage and looting, have transformed Syrians from a strong agrarian economy to a food-insecure country dependent on imports. The long-lasting crisis has resulted in an increasing trend of food insecurity among the population and high dependence on imports for essential goods. Rural poor across Syria are expected to be most vulnerable as they are projected to face the most severe consequences due to their low adaptive capacity to climate hazards.

C. Alignment with National Priorities & National Ownership

15. The country must face incomparable situations because of the crisis launched in 2011. The crisis has stopped the execution of different national strategies, policies, and plans that can contribute to climate change mitigation. The Five-Year Plans were the key mechanism for planning nationwide sustainable development, mobilizing, and aligning available resources. Several strategies, regulations, plans, and programmes were adopted with climate change mitigation essence before the crisis within the successive Five-Year Plans. Furthermore, the new renewable energy strategy was adopted by the Council of Minister's decision statement No. A/ 15538 dated 30 October 2019. This new renewable energy strategy is in line with the national programme for post-crisis Syria. The targeted contribution from renewable energies is 5% of the total primary energy in 2030 (1500 MW from solar photovoltaic, 900 MW from wind turbines, and 1.2 million solar water heaters). This 5% renewable energy target is expected to reduce 40 million tons of oil equivalent (fossil fuels, oil, natural gas) fossil fuel consumption, and the amount of renewable electricity expected to be produced annually from solar photovoltaic and wind turbines is expected to contribute to around 7% of the electricity demand. The sector-specific strategies are mentioned below:
Residential (buildings) sector: Installing solar heaters or solar photovoltaic with a capacity of 5 kilowatts. Application of thermal insulation, and use solar energy in residential, service, and cooperative buildings. Authorities and companies are obliged to follow these strategies during the reconstruction period to meet the technical conditions of green architecture. So, the contribution of renewable energies is 20% of the total consumption in a building.
Government (buildings) sector: Increasing energy efficiency and use of renewable energies in coordination with the National Energy Research Center. Taking advantage of the vacant roofs of

government buildings to install solar photovoltaic, and to replace lighting systems with efficient systems gradually over 5 years in coordination with the National Energy Research Center. National stakeholders have been engaged in the process of developing the concept note, which is accompanied by a Letter of No Objection from the NDA.

D. Barriers and Root Causes

16. Syria is constrained in its capacity to enhance its resilience in the face of above climate vulnerabilities and socio-economic challenges because of prevailing barriers and root causes. The main barriers are:
- ✓ The Syrian crisis since 2011
- ✓Financial and economic barriers
- ✓ Policy, legal and regulatory barriers
- ✓ Institutional and organization capacity barriers
- ✓ Social, cultural, and behavioral barriers
- ✓ Weakness in networking
- ✓ Information and awareness barriers
- ✓ Technical and technology barriers
- ✓ Human capacity barriers

B.2. Project/Programme description (max. 3 pages)

A. Developmental Objective

17. The overall objective of the proposed project is to strengthen the resilience of both human and ecological systems in Syria to address the effects of climate change with an integrated approach based on the pillars of sustainable infrastructure and resilient cities and their interconnection with Climate change in communities. By adopting innovative practices based on ecosystem-based management, infrastructure, sustainable resilient cities and promoting their efficient use in water supply, sustainable transportation, energy efficiency, renewable energy use and solid and liquid waste management. The architecture of building resilience focuses on enhancing the country's ability to adapt to climate change by improving the efficiency of sustainable infrastructure and resilient cities to withstand the challenges of climate change in Syria.

18- Damascus is the capital of the Syrian Arab Republic, the Damascus region (Damascus governorates and rural Damascus) is one of the of the most important major centers in Syria where the main services are concentrated at the national level, which burdens this region in comparison with its limited natural resources[122]. Climate change is expected to compound these challenges by making precipitation even more erratic and unpredictable, it is also expected to increase temperature and water evaporation, reducing agricultural productivity in rural Damascus "Ghouta" and further worsening food insecurity. As a result of the extreme droughts events that Syria experienced in the past two decades, Damascus suffers from a number of environmental issues, the growing demand for water and energy, the increase in the number of cars, the increase in industrial and health expenditures, and the reflection of this from soil and water pollution, especially the Barada River, in addition to the lack of green cover around the city and the surrounding Ghouta Due to the lack of precipitation, drought, high temperature, increase in population, encroachments on agricultural areas and the spread of random construction in the city as a result of farmers' migration to their lands due to climate change. Damascus's limited freshwater resources, in addition, its agricultural land "Goutah", constantly

[122] An official presentation held in Damascus Governorate titled: "Damascus, the proud and the oldest inhabited capital in history, deserves from us to make every effort to show its bright civilized face", 2020.

shrinking due to illegal urbanization encroachment, is increasingly insufficient to feed its rapidly growing population. All these reasons mentioned previously were reflected in the social and economic life of the rural population who depend on agriculture, in addition to the crisis that Syria suffer from since 2011. The migration has increased from the countryside and agricultural areas that suffer from climate change to the cities, especially to Damascus, as it is the political and economic capital of the country, which put pressure on the various natural resources (water, energy, food) which the city are already suffering from a shortage in Resources as a result of the drying up of the Barada River and the increase in demand for energy and drought in the Ghouta region that surrounds Damascus. Therefore, the proposal of this project aims to address the effects of climate change, as the activities presented under this proposal are in line with the country's efforts to contribute to the national response to climate change and to encourage low-emission and resistant development climate, including promoting environmental sustainability.

19- The most important challenges facing the governorate of Damascus:

a) Obstacles to sustainable urban development (delayed implementation of the general photographer and lack of a regional plan). **b) Unsustainable infrastructure systems** with a low level of quality (Transportation, electricity, water supply network, telecommunications, sewage, and waste management).**c) the slum areas. d) Environmental pollution problems. e) Old Damascus** (Approval of the guideline photographer that emphasizes the social structure of the population).

At the regional level, Damascus suffers from the following obstacles: **1) The lack of coordination in visions, strategies**, urban planning, and the duplication and overlap of the various activities between Damascus and the countryside of Damascus led to competing and incomplete urban planning.

2) Overlap in infrastructure, transport, and communications due to lack of coordination, which leads to waste of resources (Landfills, sewage stations, water and energy resources, regional bus stations).

3) Industrial-commercial activities in Damascus countryside beyond the region's capabilities, specifically in recreational areas of the Damascus region or areas containing the region's most important natural resources (industrial facilities - warehouses in Ghouta).

4) Some of the expansionist urbanization planning schemes in Damascus countryside serve the population growth of Damascus, and they are organized and served by the Damascus countryside (Douma - Harasta - Ain Tarma - Yafour - al-Assad villages ....) and the expansion of organizational schemes (Wadi Barada - Wadi Maaloula and Saydnaya - . ..) in a way that is not commensurate with the local population increase at the expense of the natural resources and recreational areas of the Damascus region.

B. Specific Objectives

20. **The project objectives are to assist the Damascus Governorate improve the quality of life for its citizens** and comply with the National renewable energies strategy (NRES) until 2030 and the Energy conservation Law (Law 3/2009) via support for more sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting sub-sectors. And preparing additional projects documents targeting low carbon to enhance the following: 1) Efficient and resilient energy systems and buildings. 2) Accessible, diverse, and low-carbon mobility systems. 3) Resource efficient and holistic waste management systems. 4) Integrated water resources management. 5) Comprehensive and reflective land-use planning. 6) Responsive and forward-looking climate adaptation practices.

With priorities for specific pilot projects for Damascus Governorate such as:

1) Development of 100 MW waste to energy facility in Damascus to be capable of processing up to a million tons of municipal solid waste per annum.
2) Building a belt of trees to oxygenate the city. proposes an "artificial forest" of 2 million trees, encircling Damascus, acting as a green belt to prevent urban sprawl.
3) Rehabilitation of the Barada River addresses the sewage cleanup in the city of Damascus through collection, conveyance, and treatment of wastewater.

4) Improving the transportation fleet in Damascus through zero-emission bus fleets. Battery electric buses have emerged as a viable option for public transit operators and authorities seeking to improve the environmental performance of their fleets. These buses have zero tailpipe emissions of harmful air pollutants. Furthermore, when charged using low-carbon electricity sources, electric buses can deliver deep fuel life-cycle greenhouse gas (GHG) emissions reductions relative to conventional diesel and CNG buses.

C. Project Locations

21- In the project document, several priority areas will be identified in Damascus for the implementation of this project by adopting a regional approach that brings in the elements of flexibility, diversity, and redundancy in the design of the concept, including complementarity with the GCF.

D. Project Components and activities

22. The concept is designed to strengthen the resilience of both human and ecological systems in Syria to address the effects of climate change with an integrated approach based on the pillars of sustainable infrastructure and resilient cities and their interconnection with Climate change in communities. By adopting innovative practices based on ecosystem-based management, infrastructure, sustainable resilient cities and promoting their efficient via support for more sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting sub-sectors.
Furthermore, building resilience architecture aiming to improve the country's ability to adapt to climate change by preparing additional projects documents targeting low carbon to enhance the following: i) Efficient and resilient energy systems and buildings; ii) Accessible, diverse, and low-carbon mobility systems; iii) Resource efficient and holistic waste management systems; iv) Integrated water resources management; v) Comprehensive and reflective land-use planning; and vi) Responsive and forward-looking climate adaptation practices.
Component 1: focused on planning tools and benchmarks for urban sustainability as well as existing planning and monitoring frameworks to promote accelerated low-carbon urban development in Damascus and to compare progress against established international standards; **Component 2:** focuses on Strengthening Damascus Governorate, which provides the framework for low carbon buildings and street lighting by enabling conditions, methodologies, and tools in the Damascus Governorate for enforcing and enhancing regulatory frameworks (including financial incentives) for energy-efficient buildings and street lighting; **Component 3:** focuses on performance-based GHG monitoring frameworks for low carbon buildings and street lighting as well as the creation of an integrated climate monitoring and financing framework for the development of urban NAMAs Appropriate financial de-risking tools are identified and supported to promote the adoption of EE measures in buildings attached to MRV systems; **Component 4:** focuses on targeted proof-of-concept mitigation interventions by selected proof-of-concept energy efficiency investments, and finally **component 6** focuses on the Project management (this will be composed of standard project management activities).

23. Component 1: Urban sustainability planning tools and benchmarks

— Activity 1.1: Development of a Sustainability Plan (SP) and Financing Strategy (FS) for the Damascus Governorate (DG) using the existing Damascus Master Plan (DMP).
— Activity 1.2: Quantification of all energy, water and material flows in the Damascus Governorate (DG).
— Activity 1.3: Assessment and costing of the most appropriate resource efficient water management /recycling policies, business models, awareness-raising campaigns, and capital investments for the DG.
— Activity 1.4: Damascus benchmarked against other cities using ISO 37120 to measure the performance of city services and quality of life.

24. Component 2: Strengthened Damascus Governorate enabling framework for low-carbon buildings and street lighting

— Activity 2.1: Establishing a new building code section for energy efficiency within the Directorate of Building Permits / Architectural Planning and Building in the Governorate of Damascus (in cooperation with the National Center for Energy Research).
- Activity 2.2: Strengthening the enforcement capabilities of the new department regarding compliance with Building Energy Codes.
— Activity 2.3: Update of the existing Building Energy Codes and development of a "Retrofit Building Energy Code" to make upgrades more acceptable (in close cooperation with the National Center for Energy Research).
— Activity 2.4: Development of a training and accreditation programme for the selected Energy Codes.

- Activity 2.6: Development and dissemination of an online tool for carrying out comparative socio-economic and environmental (GHG emission reduction) of buildings using a life-cycle methodology
- Activity 2.7: Development of an energy rating standard and label for buildings for issuing Energy Performance Certificates.
- Activity 2.8: Development of a web-based geospatial tool that provides a topographical plan of main buildings in the Damascus city.

25. Component 3: Performance-based GHG monitoring frameworks for low-carbon building and streetlights

- Activity 3.1: Development of an urban MRV system for (i) Energy Codes related to the building sector and (ii) EE street lighting for determination of emission reductions from investments.
- Activity 3.2: assistance to establishing a Syrian Fund for Renewable Energy and Energy Efficiency to provide customized financial incentives to promote investments in Building Energy Codes by the establishment of instruments such as a dedicated green credit line and Energy Saving Certificates
- Activity 3.3: Development of two city-wide sectoral mitigation potentials, including investment plans for (i) existing and new buildings and (ii) street / outdoor lighting.
- Activity 3.4: Identification and quantification of the effectiveness of different policy and financial de-risking instruments for EE buildings using UNDP's de-risking methodology (DREI)[123]
- Activity 3.5: Lessons learnt, experiences and best practices related to the project are compiled and disseminated in other cities in Syria and MENA countries.

26. Component 4: Targeted proof-of-concept mitigation interventions

- Activity 4.1: supporting new public-sector buildings (either schools or hospitals) integrating best practice resource efficiency measures
- Activity 4.2: retrofitting existing public-sector buildings (e.g. Ministry of Local Administration and Environment or other).
- Activity 4.3: supporting from 2 to 4 new private-sector residential buildings integrating best practice resource efficiency measures
- Activity 4.4: Updated EE Lighting Code and smart usage system in place for all Damascus Street lights
- Activity 4.5: Stand-alone PV Street lighting installed in Damascus center using the most energy-efficient and site appropriate lighting technology available (e.g., LEDs or replacement of mercury vapor lamps with high-pressure sodium lamps).

27. Component 5: In close consultation with stakeholders, produce documents for additional priority projects promoting low carbon emissions, responsive and forward-looking climate adaptation practices. With priorities for specific pilot projects for Damascus Governorate.

- Activity 5.1: Preparation of the project proposal on efficient and resilient energy systems and buildings.
- Activity 5.2: Preparation of the project proposal on accessible, diverse, and low-carbon mobility systems. (e.g., Improving the transportation fleet in Damascus through zero-emission bus fleets. Battery electric buses have emerged as a viable option for public transit operators and authorities seeking to improve the environmental performance of their fleets. These buses have zero tailpipe emissions of harmful air pollutants. Furthermore, when charged using low-carbon electricity sources, electric buses can deliver deep fuel life-cycle greenhouse gas (GHG) emissions reductions relative to conventional diesel and CNG buses).
- Activity 5.3: Preparation of the project proposal on resource efficient and holistic waste management systems (e.g., Development of 100 MW waste to energy facility in Damascus to be capable of processing up to a million tons of municipal solid waste per annum).
- Activity 5.4: Integrated water resources management (e.g., Rehabilitation of the Barada River addresses the sewage cleanup in the city of Damascus through collection, conveyance, and treatment of wastewater).
- Activity 5.5: Comprehensive and reflective land-use planning (e.g., Building a belt of trees to oxygenate the city. proposes an "artificial forest" of 2 million trees, encircling Damascus, acting as a green belt to prevent urban sprawl).

28. **Component 6: Project management** (this will be composed of standard project management activities)

[123] *De-risking Renewable Energy Investment* (*DREI*)

E. Elements of Theory of Change

29. The detailed Theory of Change (TOC) will be completed during the feasibility study that will be carried out to inform the final design of the proposed concept. It is anticipated that the project developers will seek funding from GCF's Project Preparation Facility (PPF) to support the project preparation. The first point to note here is that the TOC will be underpinned by a systemic view of the developmental process that will lead to resilience across the agriculture, water, and energy sectors, while generating jobs and protecting livelihoods. The CRF will be applied in detail during the project preparation phase to structure the proposed project as a social-ecological system (SES) composed of the interaction of its physical elements (e.g., physical interventions/adaptation measures), the human individuals and organizations that manage or use them, and the institutional "rules in use" that structure behavior.

F. Risks and mitigation measures

30. There are several financial risks, namely: (1) the prospects that proper budgets are allocated by the Government of Syrian at the national and governorate levels to meet the co-financing commitment for the proposed project; and (2) the amount of co-financing is not forthcoming.
31. There are also several operational risks. Many of these risks are focused on the related local governorates and whether they will be supportive and constructively engaged throughout the implementation process. Additional operational risks exist relative to whether there is sufficient local technical capacity and available information for training on best practices for integrating and addressing climate risks into livelihood activities associated with the resilience of both human and ecological systems in Syria.
32. All the risks and mitigation measures will be accounted for in the project design. Further, a preliminary assessment of social and environmental risks will be identified using UNDP's Social and Environmental Screening Procedure (SESP). All the risks will be validated during the development of the full project proposal.

G. Comparative advantages of UNDP and FAO

33. The project draws on the comparative advantages of UNDP/FAO in terms of its success in accessing GCF financing and its strength in implementing national projects through the National Implementation Modality (NIM). Likewise, FAO will support all activities related to its specific strengths in agriculture and water management. Both UNDP and FAO have an in-country presence and have established extended networks and working relationships with national stakeholders. Furthermore, UNDP and FAO have the added advantage of being able to tap expertise from other UN agencies under the UN Joint Programme. All contracts will be issued by the Government following UNDP rules and regulations. UNDP will maintain the role of overall quality assurance and oversight on using the project resources to ensure effective and efficient implementation as per the project document. The project modality will be 'assisted NIM'[124]; where UNDP will be the Accredited Entity and FAO will be Implementing Partner.

B.3. Expected project results aligned with the GCF investment criteria (max. 3 pages)

A. Climate impact potential

34. Specific values for the GCF's investment criteria for climate impact potential are indicated below. The descriptions below are based on the formats described in the GCF's Performance Measurement Frameworks.
35. GHG emission reductions: This criterion is focused on the total tones of CO2eq to be avoided or reduced per annum by the proposed project. The proposed project will deliver emission reductions from: (1) with lower power consumption in streetlights; (2) reduced emissions through sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings ; and (3) Building a belt of trees to oxygenate the city of Damascus. The project proposes to develop a MRV system for tracking these emission reductions under activity 3.1. The architecture of the MRV system will be detailed in the full project proposal and accompanied by a detailed calculation of expected GHG emission reductions over the project lifetime.
36. Gender consideration: The project will have focus on gender sensitive planning and implementation to ensure the highest gains in the fight for gender equity.

B. Paradigm shift

[124] National Implementation of the UNDP Supported Projects

37. The proposed programme introduces the resilience of both human and ecological systems in Syria to address the effects of climate change with an integrated approach based on the pillars of sustainable infrastructure and resilient cities and their interconnection with Climate change in communities.
38. Enabling framework: A systemic approach is used to inform policy-decision making for resilience building by connecting actors across different levels and scales. Resilience is built using a systemic approach through the resilience of both human and ecological systems-climate change nexus.
39. Regulatory frameworks: This criterion is focused on the potential for the Proposed Project to contribute to the development of regulatory frameworks and policies that effectively address mitigation and adaptation to climate change. The potential for the development of these regulatory frameworks is high due to one major factor. That is, the proposed project targets seek to institutionalize the successful aspects of the proposed adaptation interventions through the implementation of existing policies, strategies, and action plans, and by overcoming prevailing policy, regulatory and legal barriers that are discussed in B1. Using iterative planning and adaptive learning the lessons learned from the project's interventions will feedback into policy, legislative, and regulatory initiatives at both the national and governorate levels.
40. **Financial resources constraints**: Syria faces severe economic and fiscal challenges that have worsened due to the ongoing crisis since 2011 that has inflicted almost unimaginable levels of devastation and loss on the Syrian people and their economy. The situation is so critical that Syria experienced a decline in its GDP per capita after the crisis, leading to the classification of Syria as a low-income country in the United Nations classification system. Economic activity in Syria has shrunk by more than 60% compared to 2010. The food security and livelihoods of Syrians were particularly hard hit in a country where 80% of the population already live below the international poverty line. Due to the challenges outlined above, adaptation to climate change is just a more pressing national development priority that needs to be addressed with limited governmental financial resources.

E. Country ownership

41. Alignment with national priorities, policies, strategies, and action plans: The proposed project is squarely aligned with Syria's climate change strategies. which several strategies, regulations, plans, and programmes were adopted with climate change mitigation essence before the crisis within the successive Five-Year Plans. Furthermore, the new renewable energy strategy was adopted by the Council of Minister's decision statement No. A/ 15538 dated 30 October 2019. This new renewable energy strategy is in line with the national programme for post-crisis Syria. The targeted contribution from renewable energies is 5% of the total primary energy in 2030 (1500 MW from solar photovoltaic, 900 MW from wind turbines, and 1.2 million solar water heaters). This 5% renewable energy target is expected to reduce 40 million tons of oil equivalent (fossil fuels, oil, natural gas) fossil fuel consumption, and the amount of renewable electricity expected to be produced annually from solar photovoltaic and wind turbines is expected to contribute to around 7% of the electricity demand. As well Stakeholder engagements will be strengthened during the development of the full project proposal.
42. **Executing entities:** At the planning level, there are several entities that will work collaboratively in the implementation of the proposed project. The Executing Entities will be the Ministry of Local Administration and Environmental Affairs (MoLAE), Governorate of Damascus (GoD), Ministry of public works and Housing (MoPWH), Ministry of Electricity (MoEl) in close cooperation with the National Center for Energy Research (NCER) based on their respective mandates for adaptation and mitigation to climate change. Institutional coordination will be carried out by the Ministry of Environment (MoLAE) that is the focal point for climate change and is the NDA. MoPWH, MoEl, GoD, and NCER, are responsible for formulating national climate change policy and strategic planning. The Accredited Entity is the United Nations Development Programme (UNDP). The UNDP has a long and respected history in promoting sustainable development in Syria and has been actively involved in nearly all climate change activities since the development of the Initial National Communication (INC) to the UNFCCC in 1997. Food and Agriculture Organization of the United Nations (FAO) will act as a Delivery Partner on all interventions related to resilience-building in the agricultural value chain.
43. **Stakeholder entities:** The main project stakeholders who were engaged during the design of the concept note. The dialogues with stakeholders, including targeted beneficiaries, will be deepened during the development of the full project proposal. An appropriate project management structure will provide for clear roles and responsibilities of all stakeholders at implementation, including steering committees, stakeholder committees at the operational level, and thematic technical working groups.

F. Efficiency and effectiveness

44. The proposed GCF project is fully aligned with national priorities and builds on existing government programme, resulting in a co-financing ratio of approximately 4:1. The project covers the Damascus governorate and some parts of rural Damascus. This approach will be instrumental in catalyzing co-financing at the national level and governorates. Moreover, the project has a strong complementarity with ongoing government programme/initiatives that will be able to provide co-financing. The main sources of co-financing will be the Ministry of Local Administration and Environmental Affairs (MoLAE) that is the focal point for climate change and is the NDA. MoPWH, MoEl, GoD, NCER, and the Governorates of Damascus and Rural Damascus.
45. The public goods nature of this project's activities does not entail revenue generation or cost recovery from the project's direct and indirect beneficiaries during the project duration. Hence, the financial analysis of this project is not deemed pertinent. To estimate the economic soundness of the proposed project, a full economic analysis of the projects will be carried out during proposal development in accordance with the Guidelines for the Economic Analysis of Projects of the United Nations Development Programme (UNDP 2015).

B.4. Engagement among the NDA, AE, and/or other relevant stakeholders in the country (max ½ page)

46. Four stakeholder engagements processes were carried out to inform the preliminary design of the proposed project concept. Followed by three technical consultation meetings with key national stakeholders at the Ministry of Local Administration and Environmental Affairs (MoLAE), supported by FAO on June 29th and July first, 2021. The main five days National Stakeholder Consultation Workshop and Brainstorming were between 30 May and 03 June 2021, the national stakeholder coordination workshop was jointly organized by FAO and MoLAE. The latter culminated into a half-day stakeholder coordination meeting that proposed the outline of a preliminary project concept. During the finalization of the concept note, several experts' meetings as well as multiple bilateral meetings have been carried out between FAO and the main project stakeholders and the NDA. Following feedback from the GCF, detailed stakeholder analysis will be carried, and the identified stakeholders will be engaged in focus discussion groups so that their priorities are reflected in the full funding proposal.

G. Indicative Financing/Cost Information (max. 3 pages)

C.1. Financing by components (max ½ page)

Please provide an estimate of the total cost per component/output and disaggregate by source of financing.

Component/Output	Indicative cost (USD)	GCF financing		Co-financing		
		Amount (USD)	Financial Instrument	Amount (USD)	Financial Instrument	Name of Institutions
Component 1: Urban sustainability planning tools and benchmarks	~2,500,000		Grant		75% Grant; 25% in-kind	MoLAE, GoD MoPWH, MoEl and NCER
Component 2: Strengthened Damascus Governorate enabling framework for low-carbon buildings and street lighting	~5,000,000		Grant		75% Grant; 25% in-kind	MoLAE, GoD MoPWH, MoEl and NCER
Component 3: Performance-based GHG monitoring frameworks for low-carbon building and streetlights	~3,000,000		Grant		60% Grant; 40% in-kind	MoLAE, GoD MoPWH, MoEl and NCER
Component 4: Targeted proof-of-concept mitigation interventions	~15,000,000		Grant		80% Grant; 20% in-kind	MoLAE, GoD MoPWH, MoEl and NCER
Component 5: Produce documents for additional priority projects promoting low carbon emissions	~500,000		Grant		Grant	MoLAE, GoD MoPWH, MoEl and NCER

Component 6: Project management	~700,000		Grant		75% Grant; 25% in-kind	
Indicative total cost (USD)	**~26,700,000**					

For private sector proposal, provide an overview (diagram) of the proposed financing structure.

C.2. Justification of GCF funding request (max. 1 page)

47. As discussed in the previous sections, the proposed project, and its approach to creating impact at scale through sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting sub-sectors, focusing on priority sectors identified by the city. The project objective is to assist the Damascus Governorate to improve the quality of life for its citizens and comply with the National renewable energies strategy (NRES) until 2030 and the Energy Conservation Law (Law 3/2009) via support for more sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting sub-sectors, focusing on priority sectors identified by the city, and using a systemic, gender-sensitive, pro-poor and spatially differentiated approach while connecting the national level policy-decision making to on the ground interventions, brings a truly innovative way to resilience building in Syria. Despite its innovative and paradigm shifting capability, the proposed project will reply mainly on public funding – national or international – for its implementation because the proposed adaptation measures are inherently for protecting the public good and for which there do not necessarily exist the private markets. Nevertheless, it is expected that private financing can be catalyzed at the individual, household, and community levels through the public investments in terms of de-risking strategies proposed by the project. An important point to note is that many of the climate impacts across the nexus discussed above can be classified as 'collective action problems' that cannot be addressed by private markets and requiring government interventions.
48. Moreover, as discussed in section B1 above, Syria is at a crossroad regarding its adverse economic and fiscal situation, which coupled with the unique problem it faces concerning the crisis, severely constrains the ability of the Government of Syrian (GoS) to invest more in climate change adaptation. It is time to point out here that the GoS already has a large trade deficit, unsustainable debt, and unmet financing to deal with the ongoing crisis. Without GCF involvement to complement ongoing efforts and address sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting sub-sectors to building resilience in the face of a changing climate, the Government of Syrian cannot take adequate steps to help diversify water supply, enhance water productivity, and support vulnerable farmers, mostly smallholders with the least adaptive capacity, adapt to climate-related risks and impacts. GCF support enables additional investments that allow scaling up existing efforts for transformative reach and impact across the country.
49. **Given the difficult socio-economic environment**, and the introduction of fiscal adjustment measures to rein in deficit and control debt (exacerbated by the other socio-economic and climate change challenges), GoS is constrained to seek the highest level of concessional on GCF funding in the form of grant financing.

C.3. Sustainability and replicability of the project (exit strategy) (max. 1 page)

50. The proposed project has been designed in close consultation with and involvement of relevant government agencies and technical line departments, development partners, local institutions, academia, farmer organizations. These consultations and discussions, combined with the nexus supported by national policies and strategies provide the proposed project with a sound approach and suite of interventions that are implemented with strong community participation and country ownership. Building on this foundation, the project ensures that the investments, as well as the results of the interventions, are sustained beyond the project period and in the longer term through the following elements of project design and implementation:
51. Policy and legal frameworks: Sustainable resource-efficient urban planning and targeted low-carbon interventions in the municipal buildings and street lighting and comply with the National renewable energies strategy (NRES) until 2030 and the Energy Conservation Law (Law 3/2009), Land-use and water sector policy will be reinforced to promote closer institutional cooperation and effectiveness in the land-use and water sectors. Efficient use of water in agriculture will be promoted, as well as setting standards for the quality of treated wastewater used for agriculture. The proposed enhancements in policy, regulatory and legal frameworks will support both MWI and MOA to implement their respective sector strategies more productively while delivering on resilience to a changing climate.

52. Capacity building: The project builds in a strong element of human and institutional capacity building using a learning-by-doing approach that is expected to generate a virtuous feedback of learning that will continue beyond the project duration. Activities have been designed to ensure there is knowledge and skills transfer as well as peer-to-peer learning.
53. Combining traditional knowledge and practices with climate-resilient technologies and innovative practices: Enacting new legislation or policy enacted to drive more environmentally friendly activities to ensure resilience-building over time.
54. Ex-post plan for Operations and Maintenance of observing equipment: Since the project's investments will be in infrastructure development, attention will be paid to developing O&M plans (project and for post-project O&M) for these infrastructures to ensure that same are operational to required standards after project completion. Further, the plans will include budgeting for human and financial resources required for O&M for the project investments. The plan reflects local ownership and commitment for the long-term sustainability of the project activities and outcomes.
55. Learning, knowledge management and replication: Through extension support, awareness-raising, and community level engagement the proposed project will catalyze knowledge sharing. It is pointed out that the proposed project has a component dedicated to knowledge management, learning, best practices, and replication. Best practices and lessons learned will enable replication for adaptation and risk reduction so that they can be scaled-up across communities and governorates.
56. Co-investments by government institutions, privet sector and communities: The project leverages domestic co-financing in the form of government financing that supports baseline funding of the proposed interventions as well as co-blending of resources to support project implementation. The project will also support other governorates to track budgetary flows in climate adaptation/mitigation actions that will be a useful tool for mainstreaming climate adaptation in budgetary processes and linking planning to on-the-ground actions

H. Supporting documents submitted (OPTIONAL)

☐ Map indicating the location of the project/programme.

☐ Diagram of the theory of change

☐ Economic and financial model with key assumptions and potential stressed scenarios

☐ Pre-feasibility study

☐ Evaluation report of previous project

☐ Results of environmental and social risk screening

Self-awareness check boxes

Are you aware that the full Funding Proposal and Annexes will require these documents? Yes ☒ No ☐

- Feasibility Study
- Environmental and social impact assessment or environmental and social management framework
- Stakeholder consultations at national and project level implementation including with indigenous people if relevant.
- Gender assessment and action plan
- Operations and maintenance plan if relevant
- Loan or grant operation manual as appropriate.
- Co-financing commitment letters

Are you aware that a funding proposal from an accredited entity without a signed AMA[125] will be reviewed but not sent to the Board for consideration? Yes ☒ No ☐

[125] The Accreditation Master Agreement (AMA) is signed between an Accredited Entity and GCF as a pre-requisite for the disbursement of funds for a GCF-approved project.