Sida's Helpdesk for Environment and Climate Change

SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES SLU

UNIVERSITY OF GOTHENBURG

Final Helpdesk Report, 5 February 2024

Environmental and Climate Change Policy Brief

Syria

Picture 1: UNDP Syria distributing farming inputs to 500 affected families in Rural Al-Hasakah to grow summer vegetables and generate income. Photo: UNDP Syria, via Flickr.

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Sida's Helpdesk for Environment and Climate Change is a government agency collaboration between the Swedish University of Agricultural Sciences (SLU), University of Gothenburg (GU) and Sida to promote enhanced integration of environmental issues and perspectives in Swedish development cooperation.

Executive summary

The Syrian Arab Republic faces multiple challenges. Civil war, environmental degradation, and environmental disasters have had devastating effects on the country and its population. Almost 90 % of the Syrian population now live below poverty lines, half of the population rely on unsafe water sources, and 70 % of the population need humanitarian assistance, around half of which are children.

Sida's Helpdesk for Environment and Climate Change was assigned by Sida to conduct a study on key environmental and climate change problems, trends, risks, and opportunities facing Syria, and how environmental aspects are linked to challenges and opportunities for people living in poverty. The report is aligned to the Multi-Dimensional Poverty Analysis (MDPA).

The poverty in Syria is interlinked with environmental degradation and climate change in a multidimensional way. A large part of the population has no or limited access to environmental basic services such as food, water, fuel, and land. The lack of basic needs impacts people's capacity and opportunity to enjoy good health, to access education and have a decent livelihood. Having access to basic needs is a human right, which makes the Syrian environmental crisis also a human rights crisis.

Syria faced environmental challenges even before the war, and the conflict has exacerbated these challenges. Pollution to water, land and air, water scarcity, land degradation, deforestation, biodiversity loss, and climate change are now among the major environmental challenges, where climate change is expected to aggravate all other challenges. Syria is considered one of the world's most vulnerable countries to climate change due to low adaptive capacity at both institutional and individual level.

The war has likely contributed to a lack of data over humanitarian and development needs in all of Syria, why exact knowledge of where the environmental needs are most severe is difficult to obtain. Governorates in both south and northeast Syria report severe lack of access to environmental basic needs such as food and water. Still, there is much less available data over needs from the south/central Syria than the northeast Syria, and the same is true for the northeast since UN engagement there is limited. It is therefore important to consider the limited data and limited access to data when reading this report.

The humanitarian and development needs are extreme with almost 70 % of the population in need of humanitarian assistance. The situation seems most acute in the northeast Syria, especially regarding water resources since most of its people rely on diminishing and increasingly contaminated water from the Euphrates River. Water pollution in Syria is severe and primarily caused by inadequate waste and sewage management, leaking and contamination from primitive oil refineries, and the war itself with destruction of critical infrastructure, such as water and sanitation systems.

The deteriorating water situation in Syria has not only reduced access to domestic water use but has also resulted in substantial harvest and income losses, which adversely affects food security in the whole country. Syria's food security was bottom ranked in 2022 according to the Global Food Security Index, and almost 13 million people cannot secure their food requirements. The situation is particularly severe in south Syria where almost half of the population in Quneitra and Daraa governorates report a complete inability to meet basic needs, with access to food being the top unmet need.

The war has further created the world's largest population of internally displaced persons (IDPs). Over seven million people, about a third of the population, are internally displaced. The IDPs are found in both campsites and informal settlements. Most IDP sites lack camp management system, and the sites are often overcrowded and in lack of basic services, such as water, sanitation, and hygiene services (WASH). Displaced people also mean displaced knowledge and capacity, and the situation of displacements has left land uncultivated, and explosive ordnances (EO's, unexploded remnants from the war) have made land inaccessible. The people who decide to stay or return to farming or livestock herding have effectively been forced to adapt to decreased yields and reduced income from produce.

Farmers also experience low support to refine their produce as infrastructure and transport have been destroyed or increased in costs over the ability to pay. For both rural and urban communities, the low income in relation to price levels risk pushing people deeper into poverty when purchasing power is reduced and livelihood opportunities lost. Further, natural resources crucial to agricultural activity have to some extent been made inaccessible, such as electricity, land that can safely be cultivated, and water supply.

The war has had a significant impact on the environment and natural resources in Syria with destruction to critical infrastructure and disrupted delivery of essential services. To build a resilient country with strong institutions and ensured access to environmental services for the poor, reliable development support and inclusive and just processes during longer time scales are required. It is crucial to connect short term humanitarian support with long term development cooperation, and to prioritise and acknowledge the interlinkages between environmental degradation and poverty reduction at all levels. Bringing back local knowledge and skills and supporting local capacity building will be important in these processes.

The below list is a summary of issues that Sida is recommended to consider in the continuing work with the Syrian strategy. For a full list of conclusions and issues to consider, see chapter 5 of this report.

Issues for Sida to consider in the work with the Syrian strategy.

1. **Linking humanitarian assistance and development cooperation** is crucial for a sustainable development in a post-war scenario and could even contribute to peace processes.
2. **Advocating for the inclusion of environmental concerns in humanitarian assistance is severely needed.**
3. **Promoting and strengthening local assembly and projects to work with community-led, resilient, and climate-smart food and water security** initiatives should be considered.
4. **Water rehabilitation, improvements of water systems and more efficient water usage** is needed in most part of Syria, but especially the northeast.
5. **Providing support systems and adaptation measures** for the agricultural sector to cope with climate change and environmental degradation is crucial to support food security, improve soil fertility and develop livelihood diversification.
6. **Reliable environmental and climate data** is needed for future development needs.

Contents

Acknowledgements

Sida's Helpdesk for Environment and Climate Change is grateful to Lina Eklund, Centre for (CMES), Lund University, Vincent Marchetti, ACTED Syria, Alison Stehr & Esther Barvels, Impact/REACH, Zaid Jurji, UNICEF Syria, Annika Rabo, Stockholm University and Yara Hazzory, FAO Syria, for their availability to share their views on environmental challenges and development in Syria as well as providing the Helpdesk with relevant literature**.** We would like to recognise everyone's enthusiasm and time dedicated to participating in interviews and sharing documentation. It has been a valuable learning exercise for the Helpdesk, and we hope that Sida will find the conclusions useful.

Picture on the frontpage *is taken in Al-Hasakah governorate by UNDP Syria. Collected via Flickr creative commons, https://www.flickr.com/photos/undpsyria/35758518165/in/album-72177720303452115/*

Acronyms

CSO	Civil Society Organisation
EO's	Explosive Ordnances
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GoS	Government of Syria
IDP	Internally Displaced Persons
IED's	Improvised Explosive Devices
IFAD	International Fund for Agricultural Development
IPCC	Intergovernmental Panel on Climate Change
JMP	Joint Monitoring Programme
MDPA	Multi-Dimensional Poverty Analysis
NGO	Non-Governmental Organisation
NDC's	National Determined Contributions
SDF	Syrian Democratic Forces
SYP	Syrian Pound
UNDP	United Nations Development Program
UNFCCC	United Nations Framework Convention on Climate Change
WASH	Water, Sanitation, and Hygiene
WFP	World Food Program
WHO	World Health Organisation
YPG	Kurdish People's Protection Unit

Definitions: Environment and Climate Change

- **Environment**: The concept has a wide coverage including natural resources, land use, biodiversity and ecosystem functions and services, and encompasses aspects related to climate change, resource depletion, environmental degradation, and pollution. Climate change is included when environment is mentioned, even if it is not always explicitly expressed.
- **Climate change:** Change of climate is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (UNFCCC, Article 1).
- **Biodiversity**: Short for biological diversity. Biodiversity includes the variability among living organisms from all sources, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part. This includes diversity within species and between species and within and between ecosystems. It includes cultivated species and varieties and agricultural ecosystems as well as natural ecosystems and their components.
- **Ecosystem and ecosystem services**: All species in a given area, along with the physical environment with which they interact, e.g., a forest or a coral reef. Ecosystem services benefits people obtaining from ecosystem processes, e.g., in urban areas: food supply, water supply, urban temperature regulation, noise reduction, air purification, waste treatment, pollination, recreation and habitat for biodiversity.
- **Resilience:** The capacity of a system – be it a forest, city or economy – to absorb disturbances, responding to or reorganising and to deal with the change and continue to adapt, learn and develop.

1. Introduction

The current Swedish regional strategy for the Syria Crisis 2016-2023 (the Strategy) has been prolonged for 12 more months[1]. The Strategy does not include environment and climate change as a result area, but environmental issues are closely interlinked with several priority areas, such as: livelihood opportunities for people living in poverty and vulnerability (in Syria, and Syrian refugees in neighbouring countries); agricultural activity for subsistence; and access to societal services (such as electricity, water, and sanitation).

Sida's Helpdesk for Environment and Climate Change, the Helpdesk, was assigned by Sida, HUMASIA/MENA, to conduct a study on the environmental risks and opportunities in Syria. The purpose of the study is to provide background material for Sida to better understand the key environmental and climate change problems, trends, risks, and opportunities facing Syria, and how environmental aspects are linked to challenges and opportunities for people living in poverty.

The Helpdesk assignment aims to contribute with evidence-based background information for Sida as an input to the strategy process, with the purpose to support identification of a potential role for Swedish development cooperation.

1.1. Objectives

The main objectives of the study are to:

- **Describe the key environmental issues and trends** in Syria, including drivers, underlying causes, and effects (including gendered effects). When possible, specify environmental problems and risks for different regions in the country.
- **Describe multidimensional poverty-related linkages** of the environmental problems, for instance related to livelihood opportunities and access to services and resources. Describe if the linkages affect women and men differently.
- **Describe the connections between environment and other dimensions**, such as the conflict (including Gender Based Violence (GBV)) and peace building, humanitarian support, governance, and Human rights.

See annex 2 for complete Terms of References.

1.2. Structure of the report

The structure of this report is aligned to the Multi-Dimensional Poverty Analysis (MDPA) providing linkages between environmental aspects and poverty dimensions and the development context.

The report has the following structure: Chapter 1 includes the purpose, scope, and methodology of the assignment. Chapter 2 describes the overall environmental and climatic context of Syria along with the key environmental challenges and their main causes. Chapter 3 outlines the linkages

[1] Sveriges regionala strategi för Syrienkrisen 2016–2023, Strategi för Syrienkrisen (regeringen.se)

between the environmental challenges and opportunities with the four dimensions of poverty; Environment and the Resource dimension (3.1.), Environment and the Opportunities and Choice dimension (3.2.), Environment and the Power and Voice dimension (3.3.), and Environment and the Human Security dimension (3.4). Chapter 4 outlines the development context, with the linkages between the environment and; the Economic and Social context (4.1.), the Political and Institutional context (4.2.), and the Peace and Conflict context (4.3.). Chapter 5 contains the conclusions including issues for Sida to consider in their continuing work with Syria.

1.3. Scope and methodology

The assignment has been conducted as a desk study with a mix of reviewing documents, including research reports and articles, as well as conducting interviews with individuals involved in environmental and humanitarian work in Syria. See a full list of interviewees in Annex 1. The responsible officer at the Helpdesk was Linda Hansson, together with support from Anja-Christina Beier and the Helpdesk student interns Felicia Krämer and Lina Nicander.

The Helpdesk has used its existing network and started with scanning the websites of major actors in Syria, such as UNICEF, FAO, ACTED, Impact/REACH, as well as research databases on environmental terms + Syria in search of the most recent data. The Helpdesk also received start-up literature from Sida.

The Helpdesk network of contacts and organisations was used to find the interviewees. Another method used was to “snowball” e.g., investigating references and organisations mentioned in the reviewed literature.

2. Country environmental and climate change context

This chapter covers the environment and climate context of Syria and lists the country's main environmental challenges.

The Syrian Arab Republic consists of 13 governorates (fig. 1) and has a semi-arid climate with warm and dry summers and moderate to cold winters. The southeast, containing mostly deserts and around one third of the country's fertile land, is generally dryer and hotter compared to the northwest, which is more temperate. Around half of the country area (55 %) comprises natural pastures, steppe, desert, and mountainous areas (see fig. 2 for land cover details).[2]

Figure 1: Governorates of Syria map. Source: WorldAtlas.

Since 2011, war has been raging in Syria, which has had devastating effects on the country, its population, and the environment. It is estimated by UNICEF that 90 % of the population live below poverty lines, half of the population rely on unsafe water sources[3], almost 13 million people are food insecure[4], and almost seven million people, i.e., over a third of the total population, are internally displaced.[5] On top of this crisis, the earthquake in February 2023 with epicentre in southern Turkey affected almost nine million people and further exacerbated the situation. From Syria's total population of around 22 million people, more than 15 million (68 %) are now in need of humanitarian assistance, [6] out of which seven million are children.[7]

[2] CIA World Factbook, 2023 & Zwijnenburg, 2015.
[3] UNICEF, 2023(a)
[4] World Food Programme (WFP), 2024
[5] UNHCR, Syrian Arab Republic
[6] UNHCR, 2023
[7] UNICEF, 2023(a)

2.1. Environmental context

Syria can roughly be divided into 3 major areas based on land cover, climate, and politics: (1) the northwest Syria, (2) the northeast Syria, and (3) the south/central Syria (fig. 2).[8]

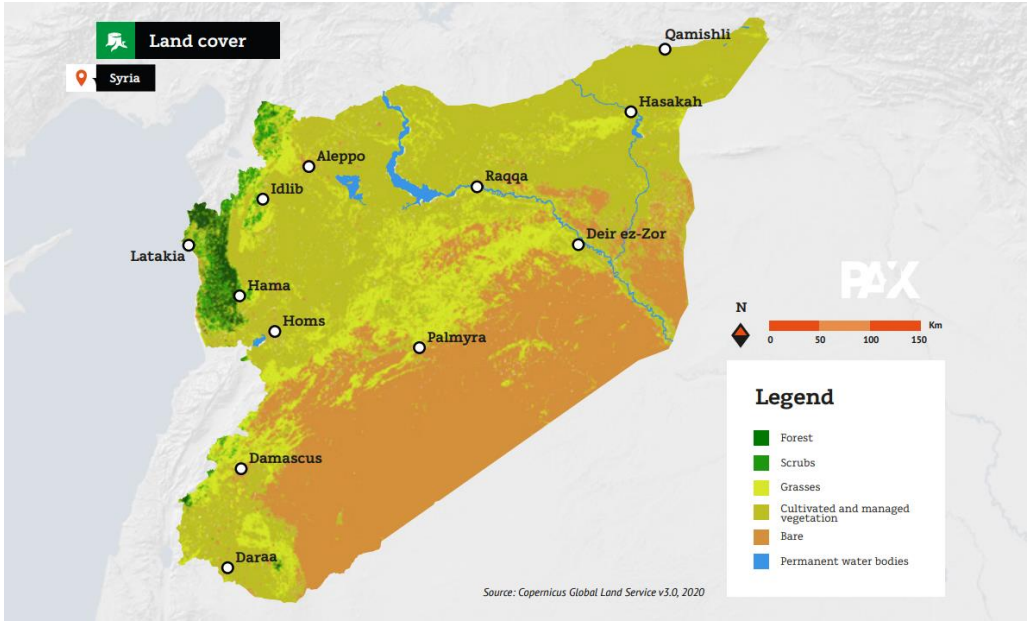

Figure 2: Land cover in Syria in 2020. Source: Najim et al., 2023.

2.1.1. The northwest Syria

The northwest Syria in this report refers roughly to the governorates of Aleppo, Idlib, Hama, Latakia, and Tartous (although who controls the areas varies between the governorates, see section 4.2). The region contains densely populated coastal and mountainous regions with forests and perennial and greenhouse crops such as citrus fruits, as well as large agricultural lands. Before the war, the main agricultural crops were olives and fruit trees, wheat and barley, vegetables, and pulses.[9] Aleppo governorate, together with the northeast governorates Ar-Raqqah and Al-Hasakah, account for 60 % of Syria's total agricultural lands.[10] In 2022, there were an estimated 6.9 million Internally Displaced Persons (IDPs) in Syria, most of them living in protracted displacements in the northwest.[11] The largest managed IDP campsites are found in Idleb and Aleppo.[12]

2.1.2. The northeast Syria

The northeast Syria in this report refers to the governorates of Al-Hasakah, Ar-Raqqah, and Deir ez-Zor. The region includes very dry areas with large agricultural lands of wheat and barley, as well as steppe lands. Al-Hasakah accounts for 75 % of the total wheat production in Syria and is therefore known as "*the breadbasket*".[13] Historically, cities and communities were dependent on the Euphrates

[8] This rough division is based on collated information, but more nuances are to be found within the regions.
[9] The New Arab, 2023 & Syria Needs Analysis Poject (SNAP), 2013
[10] Syria Needs Analysis Poject (SNAP), 2013
[11] International Displacement Monitoring Centre (iDMC)
[12] UNOCHA, 2023
[13] Syria Needs Analysis Poject (SNAP), 2013

River, which runs through the region, for both drinking water and irrigation. Due to upstream interventions, multiplied by climate change, the water level of the Euphrates is currently at one of the lowest points ever recorded, which, along with population growth, has increased the water insecurity.[14] The northeast is also home for pastoralist communities, who have lost access to grazing areas as well as fodder due to the war and droughts, in especially Ar-Raqqah and Deir-ez-Zor. This has greatly affected their food security and income generation.[15] Additionally, oil exploitation is important for northeast Syria, but the conflict has caused pollution from the oil industry and damage to water and agricultural infrastructure.[16] The northeast is home to many IDPs, where needs are most severe in Al-Hasakah[17] (fig. 4).

2.1.3. The south/central Syria

The south/central Syria in this report refers to the governorates Homs, Rif Dimashq, As-Suwayda, Daraa, and Quneitra. The region covers vast dry areas, which are largely unpopulated or inhabited by pastoralists, with grazing lands and steppe. The region also includes densely populated cities, such as Damascus. Before the war, the main cultivation in this area was vegetables, wheat, and barley, along with pastoral lands with mainly sheep.[18] Also southern pastoralist communities and Bedouin herders have suffered greatly from war and droughts, and many can no longer maintain their livelihoods or find sufficient fodder for their herds. Pastoralist communities in both north and south are often the poorest and most vulnerable. Having lost large portions of the herds and grazing lands, many have been internally displaced or pushed across international borders.[19] Now, large IDP sites are situated in the city of Damascus and Rif Dimashq, which are mainly unmanaged informal settlements.[20]

2.2. Key environmental challenges

Syria faces various environmental challenges that are aggravated by the war. Pollution, water scarcity, biodiversity loss, land degradation, deforestation, and climate change are among the major challenges.[21]

2.2.1. Pollution

Pollution is a major environmental challenge in Syria and includes pollution of water, soil, and air. The pollution is mainly caused by insufficient waste management, spills from oil refineries, as well as destruction and lack of sewage and sanitation systems. The situation is further exacerbated by lack of efficient water, sanitation, and hygiene (WASH) services.

Waste management was undeveloped even before the war, with open-air incineration of a mix of hazardous, non-hazardous, and solid waste in the outskirts of towns. Only one landfill was dedicated for hazardous waste, located in Damascus, and the government planned to establish such in each

[14] Arvantia et al., 2023
[15] Schwartzstein, & Zwijnenburg, 2022
[16] Zwijnenburg et al., 2021
[17] Personal communication
[18] Wattenback, 2006
[19] Al Jazeera, 2020
[20] UNOCHA, 2023
[21] Zwijnenburg, 2015 & European Neighbourhood and Partnership Instrument, 2006

governorate.[22] Due to shifting territorial control and alliances, there is no consolidated solid waste management in Syria. Current waste management still largely consists of open dumping sites and waste burning, resulting in severe pollution of groundwater, soil, and air. In northeast Syria, local administrations have tried to implement municipal collecting services, but without sufficient effectiveness.[23]

The sewage water treatment facilities that did exist before the war held low quality, and no rural and few urban areas were connected. The olive oil industry was also a large pre-war polluter. Wastewater from the industry was normally used for irrigation, which caused soil and water pollution as well as reduction in soil fertility.[24]

Water and sanitation infrastructure have been severely damaged by the war, which combined with bombings of oil reserves and refineries has caused a further deterioration of the quality of the water resources and pollution to soils.[25] The main oil refinery infrastructure is disrupted and has been replaced by primitive oil refineries. The facilities are often small and many of them are built close to farmlands.[26] Oil spills from these facilities poison water, soil, and air and poses large risks for human health and agricultural production. Syrian soils also contain explosive ordnances (EO's), undetonated explosive devices, which contaminate soil, air, and water, as well as impacts peoples' subsistence, e.g., agricultural activities, and security.[27]

Further, more than 70% of the Syrian population are exposed to air pollution caused by industrial and traffic emissions and open-air incineration. In 2019, Syria was ranked the 18th worst air polluter (out of 92 countries) with three times higher concentration than the World Health Organisation's (WHO) recommended levels (PM2.5 is 44 µg/m3 compared to recommended max 10 µg/m3).[28]

The northeast Syria is, until date, particularly vulnerable and exposed to impacts of water pollution due to their reliance on the Euphrates River as their single source of freshwater. Low rainfall and lower water levels further increases the concentration of biological and chemical contaminants, which increases public health risks.[29] In September 2022, a cholera outbreak was reported in Syria, mainly triggered by the deteriorating socio-economic conditions and the water crisis in northern Syria, along with overcrowded IDP sites.[30] While all Syrian governorates have reported cholera cases, the Euphrates dependent governorates remain among the most affected.[31]

2.2.2. Water scarcity

Water resources in Syria are limited and unevenly distributed. Around 88-90 % of all freshwaters goes to agriculture irrigation while 8 % is used for drinking purposes and 2 % for the industrial

[22] Zwijnenburg, 2015
[23] Zwijnenburg et al., 2021
[24] Zwijnenburg, 2015
[25] Time, 2021
[26] Zwijnenburg et al., 2021
[27] Personal communication, & Arab Reform Initiative, 2021
[28] Arab Reform Initiative, 2021, & WHO, The Global Health Observatory, 2023
[29] UNOCHA, 2023
[30] WHO Syria, 2023 & UNOCHA, 2023
[31] Most affected governorates are Deir-ez-Zor (44.7%), Ar-Raqqa (23.6%), Aleppo (16.9%), Idlib (9.3%) and Al-Hasakeh (4.2%), UNICEF, 2022.

sector.[32] The water share per capita in Syria is low and estimated to around 500-800 m^3 annually, compared to global annual average of 7000 m^3.[33] Current water resources are under heavy pressure and competition for the resources increases, often to the disadvantage of the poorest and marginalised.[34] Today, around 90 % of Syria's population lack access to potable water.[35]

The water scarcity is also human-induced due to armed forces having weaponised water by deliberately targeting water resources and key water infrastructure as well as diverting water sources.[36] The water scarcity is further exacerbated by lower water levels in the Euphrates River. The further away from the rivers' upstream source, the larger the water scarcity, and Ar-Raqqah governorate is thus better supplied with water than Deir ez-Zor.[37] Water scarcity together with climate change also increases the risk for flooding events.[38] Syria and the region in general experiences high natural hydrological variability, but droughts have been more frequent and severe in the last decades and adaptation and support-plans are necessary.

The northeast Syria is particularly vulnerable and exposed to water scarcity since the majority of the population relies on the Euphrates River for their water.

The southern Syria is also particularly affected by water scarcity, and especially the governorate As-Suwayda. Wells in this region are no longer functioning due to declining ground water levels, lack of adequate maintenance of the water system infrastructure, and lack of electricity or lack of good quality of the electricity.[39]

2.2.3. Biodiversity loss

Syria is an important centre of biological diversity where most species are endemic to the Mediterranean regions.[40] Syrian biodiversity has been characterised by a rich and diverse plant life due to its unique geographical location and diverse climate.[41]

The causes of biodiversity loss can be summarised in the war, the growth of the population, and the strife for agricultural, industrial and urbanisation development that have extensively relied on monoculture cropping systems.[42] This has deteriorated habitats and is affecting the ecological balance of arid and semi-arid systems to the point of desertification and further biodiversity loss.[43]

Due to the conflict, biodiversity loss is difficult to monitor, and data is lacking. The shrinking natural habitat for species largely affects ecosystem functions and resilience. A growing body of international research points to the severity of loss of biodiversity and ecosystem functions for livelihood opportunities and the functioning of communities. This limits people's options to manage and

[32] GCF Readiness Programme for Syria, 2021
[33] UNOCHA, 2022 & OCHA, 2010
[34] Climate Change Knowledge Portal, 2021
[35] Valensi, 2021.
[36] Carnegie Endowment for Peace, 2023 & Valensi et al., 2021
[37] Personal communication
[38] Intergovernmental Panel on Climate Change (IPCC), 2022.
[39] Personal communication
[40] Darbyshire, 2021
[41] Government of the Syrian Arab Republic, 2020
[42] State of the environment report 2010-2021
[43] UNDP, 1997 & Syria Direct, 2021

subside on natural resources, why the loss of biodiversity and well-functioning ecosystems may constitute a significant threat to a sustainable development in Syria.

2.2.4. Land and soil degradation

More than 85 % of agricultural land in Syria is exposed to soil degradation, and the use of arable land decreased by 21 % between 2010 and 2014. Besides the ongoing conflict, there are four major issues that contribute to land and soil degradation in Syria: climate change, increasing frequency of drought, water/wind erosion, and improper management of natural resources.[44]

Desertification in Syria has increased by 6.4 % since 1970,[45] and is caused by a combination of man-made and natural factors. There is a direct correlation between desertification and the decrease in precipitation,[46] but also increased forest fires under the conflict contributes to the problem. Studies have shown that fires seem to follow the spread of the conflict, especially around Aleppo and in Al-Hasakah.[47]

Data is lacking due to the conflict, but research points towards soil degradation as one of the largest challenges to agricultural sustainability.[48]

Erosion (sand and dust storms)

Dust storms have become more frequent and intense the last years in the Middle East due to the region's high susceptibility to severe droughts. Dust storms cause large damage to ecosystems, roads, and infrastructure, as well as human and animal health from air pollution. A study found that dried up lakes and marches along the Tigris-Euphrates River were highly susceptible to becoming sources of dust storms. Dust storms are very likely to increase if the water situation and land management practices are not improved. **The northeast** Syria is more exposed to dust storms given the aridity of the area.[49]

Deforestation

The landscape in Syria is mainly deserts, but forests once covered 32 % of the Syrian territories. Since then, frequent dry spells and wildfires have deteriorated the forest cover in Syria to less than 3 %.[50] Importantly enough, the trees and forest play a key role in sustaining hydrological ecosystem services as well as stabilising organic carbon in the soil[51] and thus can prevent desertification and improve access to water.

The coastal region contains 90 % of all Syria's forested land,[52] and around one quarter of its forests were lost during 2010-2020, due to the conflict resulting in population density and increased frequency of fires. Rapidly increasing energy prices, bombardments, wildfires, and charcoal production have been the major contributors to deforestation in the country. Apart from wood

[44] Government of the Syrian Arab Republic, 2020
[45] The Ecologist, 2015
[46] Cramer, 2015
[47] Personal communication
[48] Adamo et al., 2022
[49] Naghibi et al., 2023
[50] Climate Watch, 2018
[51] GCF Readiness Programme for Syria, 2021
[52] Abdo, 2018

production, the forested areas in Syria contribute to watershed protection, climate change mitigation, and biodiversity preservation. [53]

The northwest Syria is particularly hard hit, because the area is the largest forested area, the population density has increased due to IDPs (especially in coastal governorates Latakia and Tartous), and the war. The consequences of the conflict on the forests are mainly socio-economic, noticed by intentional fires that have been registered for charcoal production, and land clearing for agricultural purposes, as well as accidental fires from population pressure and under-resourced fire services.[54]

The northeast Syria contains smaller and mostly planted forests but has also had deforestation events. Prior to the conflict, local authorities invested in reforestation projects to restore biodiversity and wildlife. There have since been setbacks due to the conflict and absence of forest management, but local authorities now plan to revive large-scale reforestation projects.[55]

2.2.5. Climate change

Previous extreme climate events in Syria, such as flooding, droughts, and heat are estimated to increase in occurrence and magnitude in coming years. Limited adaptive capacity, at both institutional and individual level makes Syria one of the world's most vulnerable countries to climate change.[56] The Intergovernmental Panel on Climate Change (IPCC) estimates deterioration of water availability from a combination of climatic impact driven changes for the Mediterranean region. Even in a 1.5°C increase scenario, both summer warming and extreme heat and droughts will increase in the Syrian part of the Mediterranean region.[57]. Pluvial floods as a result of heavy erratic precipitation and the soils inability to infiltrate water because of persistent droughts are projected to increase. Risks of wildfires, severe windstorms, coastal floods, and coastal erosion are also projected to increase.[58]

It has been reported that one critical factor behind the revolt against the regime in 2011 was an ensuing drought, which highlighted both mismanagement of natural resources and neglect of the agricultural sector.[59] Critics however suggest that the climate induced drought has received disproportionate weight as one of the sources to the uprising and rather revealed cracks in the country's agricultural adaptation- and support-systems.[60]

The northeast Syria is particularly exposed to climate change and is today approximately 0.8°C hotter than it was a century ago. The climate-induced aridity combined with the effects of the war has caused cycles of wheat crop failures in the region, and climate change further exacerbates challenges with pests and diseases, which further reduces wheat production.[61]

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[53] Najim et al., 2023
[54] Abdo, 2018 & Conflict and Environment Observatory (CEOBS), 2021
[55] Zwijnenburg et al., 2021
[56] GCF Readiness Programme for Syria, 2021
[57] Intergovernmental Panel on Climate Change (IPCC), 2022
[58] UNOCHA, 2023
[59] Valensi et al., 2021
[60] Eklund, 2022 & Selby, 2019
[61] UNOCHA, 2023

3. Who is poor and in what way?

This chapter covers the connections between environmental challenges and the different dimensions of poverty found in the Sida model for multidimensional poverty analysis (MDPA): (i) Resources, (ii) Opportunities and choice, (iii) Power and voice, and (iv) Human security. Here we look at the key environmental challenges highlighted in chapter two from a poverty perspective.

3.1. Environment and the Resource dimension of poverty

Resources are a key feature of environmental linkages to multidimensional poverty. Being poor in terms of environmental resources means not having access to, or power over, natural resources, biodiversity, and ecosystem services needed to sustain a decent living standard. Environmental resources necessary for human wellbeing include land and fertile soil, forests, biodiversity and ecosystems, water, energy, building material and clean air. For people to make use of the resources they need to be available, accessible, affordable, appropriate, and of good quality.

The war has severely affected access to land, livelihood opportunities, and the availability to produce food. Agriculture employs almost half of the Syrian population (46 %).[62] The deteriorating water situation in Syria has not only reduced access to domestic water use but has also resulted in substantial harvest and income losses.[63] The harvested wheat area in 2022 is estimated at around half of the area harvested in 2019, and around 25 % of pre-war levels.[64] Harvested barley area is around 75 % less than recent years.[65] Wheat and bread serve as the backbones for subsistence and food security among Syrians, and the wheat harvest loss thus adversely affects food security in the whole country. Syria's food security was bottom ranked in 2022 according to the Global Food Security Index.[66] Climate change, water scarcity and poor irrigation systems further reduces wheat production, which increasingly risks deteriorating the food situation in all of Syria. [67]

In 2022, 94 % of all households in Syria reported that at least one household member was employed with an income. Despite this, 85 % of all Syrian households reported being either completely unable or insufficiently able to meet basic needs, such as food, water, shelter, and electricity. The situation is worse for female-headed households than male-headed households due to less opportunities for work and income generation for women and girls compared to male counterparts. The worsening socioeconomic situation can be seen all over Syria, but households in the northwest (Tartous), the south (Quneitra, Daraa, and As-Suwayda) and the northeast (Al-Hasakah) governorates reported the highest levels of inability to meet basic needs.[68]

[62] GCF Readiness Programme for Syria, 2021
[63] UNOCHA, 2023
[64] Personal communication
[65] UNOCHA, 2023
[66] Economist Impact, 2022
[67] Reuters, 2023
[68] UNOCHA, 2023

Food is reported as the top unmet need in almost all of Syria's governorates[69] and families adapt to food shortages by, e.g., selecting less expensive or less preferable foods, or reducing meal sizes at least once a week. These changing habits may cause health concerns for all family members, especially children, pregnant-, and breast-feeding women. Female-headed households have particularly poor conditions where 93 % report purchasing less expensive food, and 63 % report reducing meal sizes.[70] The polluted soils, caused by inadequate waste- and water treatment (see section 2.2.1), also affect the possibilities of subsistence farming and further deteriorates food security and livelihood opportunities for farmers. This in turn risk pushing people deeper into poverty.

The Joint Monitoring Programme (JPM)[71] reports that at a national average, 94 % of the Syrian households have access to basic water services and 6 % to limited services (95 % to basic and 5 % to limited sanitation services). There is however no access to safely managed water or sanitation services, why data on water access should be viewed with care. Before the war, water infrastructure was well developed in both urban and rural areas.[72] Impact from pollution, overextraction, and climate change (see section 2.2) combined with effects from the conflict have however deteriorated both water infrastructure and water quality since and has put additional pressures on access to water and sanitation services. In schools, the situation is worse, with less than half (49 %) of the schools having access to basic water and sanitation, and over half (51 %) having no access to even basic hygiene services. There is no data on menstrual hygiene services.

For many households, basic needs for water cannot be met. As water is necessary for all aspects of life, lack of water can severely reduce the health but also other types of reproductive and productive work. Reduced availability also increases competition of the resource, where the poorest and most vulnerable often lose out. Access to basic needs, such as water, food, land, and income, are human rights, which makes the Syrian environmental crisis also a human rights crisis.

The northwest Syria

High prices on fuel for heating combined with urban swelling in the coastal area increases pressure on natural resources for timber, charcoal, and housing, with clearing of land as a result.[73] Most of the clearings are illegal but made possible by weak institutions and driven by poverty. There have also been reported fires in the coastal region which have caused deaths, injuries, and migration due to damaged homes and assets, including agricultural land, loss of power and water supply as well as limited access to services such as hospitals, which further enhances poverty.[74]

The northeast Syria

The water situation is particularly severe in northeast Syria. In Al-Hasakah governorate, the Alouk water station that serves up to 100 000 people in Al-Hol and other IDP camps has been working with less than 50 % capacity since Turkish authorities seized the water station in 2020. The takeover was

[69] Except Damascus, Deir ez-Zor, Hama, and Homs which all report electricity as top unmet need, and Quneitra where Non-Food-Items are reported the top unmet need.
[70] UNOCHA, 2023
[71] WHO-UNICEF Joint Monitoring Programme
[72] Personal communication
[73] Abdo, 2018
[74] OCHA Syria, 2020

part of the Turkish military offensive against Kurdish forces, and it repeatedly shut off water to almost 500 000 people in the Al-Hasakah Governorate.[75] Today, the electricity to the water station is shut off and the station is no longer providing water to the population. Work is ongoing to monitor, restore, and set up other water stations to provide water for the people in the region. The city of Al-Hasakah is currently the most impacted by the lack of access to water in the governorate and the city relies entirely on emergency water.[76]

Local authorities in northeast Syria were in 2016 able to stop farmers from using contaminated water on their fields. Based on complaints from the farmers over potential income losses due to reduced growth, the local authorities subsidised fertilisers for farmers, which are currently difficult for farmers to obtain. [77] The northeast also shelters many IDPs, and only 5 % of all its IDP sites have a static camp management presence.[78]

The south/central Syria

The lack of government control over the Al-Hasakah region has caused the government to ration bread, but also access to other necessities that are currently facing mass shortages, such as gas and fuel, according to a smart card system. The system is not accessible for people without a social security number or those who live outside of their residential area, which rules out most of the children from Palestinian refugees and most IDPs, who are in dire need of assistance.[79]

The situation is particularly severe in Quneitra and Daraa governorates where 50 % and 38 % of the population respectively report a complete inability to meet basic needs, with access to food being the top unmet need. Only 1 % in each governorate report sufficient ability to meet basic needs.[80]

3.2. Environment and the Opportunities and Choice dimension of poverty

Being poor in terms of opportunities and choice means that people generally lack possibilities to use available environmental resources and ecosystem services for their own benefit to lift themselves out of poverty. Poverty in this dimension in the Syrian context can take the form of limited access to markets to sell produce, few opportunities for livelihood diversification, inability to invest in improved agricultural technology, low access to capacity building opportunities to gain experience about new agricultural methods, or barriers to change to clean energy sources.

Agriculture is the largest employer in Syria (reliable data is however difficult to find, see section 4.1). The northwest Syria with access to coastal harbours as well as governorates connected to larger cities, such as Aleppo and Damascus, are better equipped to access markets and finding job opportunities outside of agriculture.[81] However, these areas still face high poverty levels since the

[75] Daoudy et al., 2023
[76] Personal communication
[77] Zwijnenburg, 2021
[78] UNOCHA, 2023
[79] The Washington Institute, 2022
[80] UNOCHA, 2023
[81] Personal communication

income wages are too low in relation to commodity prices. For both rural and urban communities, the low income in relation to price levels risk pushing people deeper into poverty when purchasing power is reduced and livelihood opportunities lost.

According to the FAO, the price on many food items as well as fuel continue to increase, for example, the price of eggs increased with 32 % in September 2023 and the price for 20 litre diesel fuel increased with 66 % in August 2023. Further, the Syrian Pound (SYP) is generally weak against the US Dollar. The SYP exchange rate was relatively stable during September 2023, which could have a positive effect on food and agricultural input prices if the stability continues. Although wage rates increased in September, the daily wages are still not adequate to meet the daily costs for an average family. Also, costs of fertilizers and other agricultural inputs such as seeds have increased, affecting productivity and yields impacting families' livelihood and levels of subsistence.[82]

Access to resources as well as opportunities and choice tend to affect women and girls more than men and boys. Men are, for example, more likely and more socially accepted than women to migrate in search of opportunities. This has caused a shift in the agricultural sector in Syria, and women are now increasingly joining the labour force to support their families. Several parts of the agricultural sector were pre-war male-dominated areas, why projects that support specifically women have yielded positive impacts for women and girls. With an increase in productivity, demand for daily labourers for weeding and harvesting benefitted women who are traditionally responsible for these roles. Women also began participating in the labour market as produce traders and vegetable processors. In this way women increased their farming skills, were included in marketing and selling, and gained access to training and funding information.[83] There are also gendered barriers in accessing humanitarian assistance. The World Food Programme (WFP) have identified barriers before, during, and after provision of humanitarian assistance: i) low access to information, ii) security concerns and poorly organised distribution sites, and iii) low decision-making power over the received resources, which often affect women and girls' more negatively than men and boys. [84] Bringing a gender sensitive lens to the delivery of humanitarian assistance as well as development cooperation for supporting opportunities and choices is thus crucial to ensure reaching intended beneficiaries and stimulate poverty reduction.

3.3. Environment and the Power and Voice dimension of poverty

Being poor in terms of power and voice means that people lack the ability to articulate their concerns, needs and rights in an informed and meaningful way, and to take part in decision-making that affects these concerns. People in poverty are often deprived of these abilities but can be developed under conducive circumstances. Promoting power and voice contribute to ensuring people's knowledge and concerns are heard, for instance to acquire access to needed natural resources.

[82] Food and Agriculture Organisation (FAO), 2023
[83] World Food Programme (WFP), 2022 & FAO, 2019
[84] World Food Programme (WFP), 2023

The situation for human rights in Syria is considered one of the worst in the world and has been globally condemned by international organisations. Freedom house lists Syria as one of the two countries to get the lowest possible score, 1/100. Political rights, and civil liberties are virtually non-existent. Human rights in Syria are evidently severely deteriorated. The regime prohibits genuine political opposition and harshly suppresses freedom of speech and assembly.[85] All legally recognised political groups and independents are in practice either part of, allied with, or heavily vetted by the regime, be it the government of Syria or another controlling power. This applies to the whole of Syria and the different areas of control (see also section 4.2.). The civil war is having two interconnected consequences; the first is the 'brain drain', the loss of skills, knowledge base and capital that results from the departure of the massive amount of people; the other is the huge displacement of people taking place inside the country. The hollowing out of the population under these circumstances coupled with the rise of armed groups is silencing the voices of those who are advocating for humanity and sustainability.[86] Also, civil society organisations (CSO) in Syria, including environmental organisations, emerged without any strong historical base. Therefore, there is a closed or limited available space for CSOs inside Syria to hold duty bearers accountable on any issue related to power and voice. The regime generally denies registration to non-governmental organisations (NGOs).[87] Nevertheless, there are several middle-class Syrians in exile who are dedicated to build a civil society and to support their country for post-war reconstruction. There is also a large capacity among people and existing CSOs within the country who, despite the war, are committed to change the ongoing situation and to rebuild the society. Locally led initiatives are therefore essential.

The situation of displacements has left land uncultivated, EOs have made land inaccessible, and environmental deterioration and degradation along with climate change have left women and men without access to, or control over their land.[88] Those that decide to stay or return to farming or livestock keeping, have effectively been forced to adapt to decreased yields and reduced income from produce. Farmers also have low support to refine their produce as infrastructure and transport have been destroyed or increased in costs over the ability to pay. Further, natural resources crucial to agricultural activity have to some extent been cut off, such as electricity needed to continue agricultural activity and water supply.

Several projects and programmes by IFAD, FAO, WFP, and UNDP[89] are ongoing to empower women and men in agricultural activities, reaching the most vulnerable and fragile rural communities.[90] Other programmes by USAID, Syria Recovery Trust Fund (SRTF), Crop Trust, ICARDA, Acted, Welthunger Hilfe (WHH), and Agricultural Voices Syria (AVS), include for example adopting regenerative agricultural practices, and building on Syrian capacity, due to its low cost and immediate actions to mitigate the effects of climate change.[91] Since agriculture is the largest formal and informal source of income for a large part of the Syrian population[92], especially the poor (section

[85] Freedom House, 2023
[86] Fondazione Oasis 2017
[87] Collins, 2019
[88] The New Arab, 2023
[89] UNDP Syria, 2022
[90] UNDP Arab States, 2021
[91] UNDP Syria, 2022
[92] SRTF 2023 , IFAD 2023

4.1.), it is also the sector where most people have opportunities to build their power and voice. Supporting agricultural activities and farming cooperatives is strengthening the voices of the poor and vulnerable in decision making, while improving livelihood opportunities, food security and environmental sustainability. Evidently, there are examples of support to farmers and agricultural activities that has proven results, although until now not sufficiently, due to the ongoing crisis[93].

3.4. Environment and the Human Security dimension of poverty

Being poor in terms of human security, describes how violence and insecurity constrain a person's, households, or community's ability to move out of poverty. Natural disasters can have a negative impact on human security when people's houses and assets are destroyed, and people are injured or even killed. Women, children, and elders are the most vulnerable to natural disasters.

Lack of security is generally larger for women, children, IDPs and people with disabilities in Syria. IDPs are found in both camps and informal settlements. The campsites are mainly seen in northwest and northeast Syria, where northwest have an estimated 1.8 million IDPs living in 1 421 campsites in need of assistance, and northeast have 278 400 IDPs who reside in over 260 sites, also in need of assistance.[94] 76 % of all IDP sites do not have a camp management system in place and the campsites are often overcrowded and in lack of basic services. Women, children, and people with disabilities are often the most vulnerable,[95] and during 2022 high rates of sexual violence of displaced women and girls have been reported in camps and at distribution points. Displaced women and girls have lower access than men to income generating opportunities and have significantly fewer livelihood options.[96] Almost 80 % of all IDP sites in northwest Syria are critically overcrowded, and 6 of 10 camps in northeast Syria are overcrowded. Living in overcrowded sites increases risks of gender-based-violence, exploitation and exposure to climate-related disasters and communicable diseases, especially for women and girls, and human rights become deteriorated.[97]

In **northeast Syria**, there are waste dumping sites close to residential areas or IDP camps. The dump sites can sometimes serve as a source of income for people living close by, especially women and children. The burning of the waste causes pollution that adversely affect the health of residents due to the sites dangerous fumes and runoffs.[98]

Syria records the largest number of Explosive Ordnances (EO) casualties in the world, with up to 300 000 explosive ordnances having failed to detonate, with extensive contamination of soil, air, and water. The EOs affects one in two people, and the severity is largest in the northwest. [99] Farmers, IDPs and children are the most vulnerable and exposed to EOs. A report from 2022 found that farming or herding was the most common reported activity at the time of accidents, closely followed

[93] Acted 2023, IFAD 2023, SRTF 2023, UNDP 2023
[94] UNOCHA, 2023
[95] UNOCHA, 2023
[96] United Nations Population Fund (UNFPA), 2023
[97] UNOCHA, 2023
[98] Zwijnenburg, 2021
[99] Humanity Inclusion, 2022

by transportation and playing (including playing with a device). Poor farmers are especially vulnerable since they, given fertilizer's prohibitively high cost, sometimes handle improvised explosive devices (IEDs) to extract the fertilizer that has been used to make the device. Further, IDPs are more prone to accidentally encounter EOs since they are often less familiar with the conflict history in a specific area, around a quarter of all EO casualties concerns IDPs. The actual number of casualties is likely much higher due to unreliable statistics of IDPs. [100] Besides that these explosive remnants must be removed from the ground as solid waste, their soil polluting effects are unknown and will likely cause concerns also in a post-conflict future.[101]

Pollution from waste and oil spills from the primitive oil refineries affects the security of the neighbouring population and the civilian workforce in the refineries. The workforce are often children, and are exposed to noxious fumes from heating, oil spills, leaking pipes and explosions.[102] Waste dumping sites are often found close to residential areas or IDP camps and often serve as a source of income from materials found for neighbouring people, especially women and children. These people are heavily affected by dangerous fumes and runoff from the open burn sites, and the pollution causes detrimental health risks.[103]

As the conflict continues to rage, also natural disasters occur, like the February 2023 earthquake. It caused further disruption of healthcare facilities, where e.g., only one of 17 hospitals in the northeast is fully functioning. [104] This leaves the population in these regions severely exposed to consequences of potential environmental hazards and disasters, which disproportionally affects women and children negatively. Women and children are globally 14 times more likely to die from natural disasters than men.[105]

[100] Mine Action Syria Response, 2022
[101] Personal communication
[102] Time, 2021
[103] Zwijnenburg, 2021
[104] World Health Organisation (WHO), 2020
[105] UNWOMEN, 2021

4. The development context

This chapter presents a wider perspective, providing information of poverty at a structural level and a description of the development context including information on the linkages between environmental aspects and the development context areas; i) economic and social context, ii) political and institutional context, and iii) peace and conflict. Main environmental issues and challenges covered in chapter 2 are now described from a development perspective.

4.1. Environment and the Economic and Social context

A decade-long conflict has had devastating socioeconomic consequences and the economic conditions continue to deteriorate as the Syrian pound depreciates while raw materials prices remain linked to the dollar. [106]

There are several parameters contributing to the dire situation beside the war, such as the economic meltdown in neighbouring countries, the war in Ukraine, widespread corruption and mismanagement in Syria, the impact of Western sanctions against Syria, the fact that oil-rich areas in the north remain outside of government control, and consistent economic underperformance, exacerbated by migration of skilled workers.[107] A combination of these factors has fuelled an economic crisis in the country. In 2022, the Syrian pound (SYP) depreciated by 76 % against the U.S. dollar, which triggered a surge in inflation and caused an average price increase by 93 % for essential foods.[108] The economic crisis In Syria reduces the access to and consumption of quality diets at household level.

Before 2011, a third of the population in Syria lived in rural areas and the most important sectors for the Syrian economy were agriculture (22 % of the economy), industry (25 %), retail (23 %) and tourism (12 %).[109] It is difficult to obtain reliable and updated data on the workforce today and numbers are varying. In 2021, numbers indicate that around 65 % were employed in the service sector, 22 % by the industry sector and almost 13 % by the agricultural sector.[110] Other numbers however indicate that 46 % of the Syrian population was employed by the agricultural sector the same year.[111] Data should be viewed critically, but a third to half of the Syrian population get their primary source of income from the agricultural sector, especially the poor and vulnerable who lack other alternatives. This makes agriculture an important sector for poverty alleviation because of its interlinkages with people's access to natural resources and a sustainable subsistence.[112]

[106] The World Bank, 2023(b)
[107] Middle East Institute (MEI), 2023
[108] The World Bank, 2023(a)
[109] Zwijnenburg, 2015
[110] O'Neill, 2023
[111] GCF Readiness Programme for Syria, 2021
[112] FAO 2017, FAO 2018

Further, agriculture is a significant contributor to the Syrian national economy with more than 31% of Syrian exports, and an important economic resource for almost half of the Syrian population. More than half of the arable land (58 %) in Syria is rainfed, while 25 % is irrigated. The most important agricultural products are wheat, cotton, and olive oil, where wheat is the most important strategic crop, and cotton and olive oil important exports for the economy.[113] Cotton fields require a lot of water, and more and more farmers are today shifting from cotton to less water intensive crops due to water scarcity.[114]

Syria is heavily dependent on fossil fuels for its energy generation where 95-98 % of total installed capacity comes from oil (70 %) and gas (28 %).[115] Around 4.8 % of energy generation comes from hydroelectricity and 0.2 % from biomass and waste.[116] The share of solar energy is still negligible, although the Government of Syria (GoS) claims to have made adequate efforts to increase solar energy capacity as part of their Nationally Determined Contributions (NDC's, see section 4.2). Shifting from fossil fuel dependency to renewable energy sources and contributing to a low carbon world could improve possibilities of income generation, and thus contribute to poverty reduction for the Syrian population. It could also improve resilience to sudden onset changes and provide a larger part of the population with energy. The diminishing water levels in the Euphrates River however negatively affect possibilities to develop Syria's hydropower sector, and energy needs for especially sanitation systems are dire. Water treatment facilities and sanitation systems are costly and complicated to build, develop and maintain. Even bringing the country's system up to pre-war level will require large financial support and access to sufficient and reliant energy sources.[117] The shift from fossil fuels to renewable energy resources is aggravated by the war and could further risk to be increasing tensions in the conflict. To lift the country out of its fossil fuels dependency, large commitments for renewable energy sources need to be made together with management of potential negative socioeconomic effects.

The most affected regions of the February 2023 earthquake are northwest governorates Idleb, Aleppo, Lattakia, and Hama. The earthquake caused a drop in Gross Domestic Product (GDP) in 2023 by 2.2 %, accounting for around 3.6 billion US Dollars, where the effect was largest in Idleb. Adding losses of capital stock and furniture, total direct economic losses amount to almost 6 billion US Dollars. Further adding costs of indirect effects such as lost income opportunities, the economic effects of the earthquake alone are disastrous and adds a significant impact on an already challenged economic state.[118] In Idleb and Aleppo, around 21 % of units damaged by the earthquake, such as housing, are from the informal sector and occupied by vulnerable lower- and middle-income families. Food security was a large issue even before the earthquake and has since left thousands of households unable to access food and livelihoods. Also, public institutions were severely damaged and 116 health facilities including seven hospitals in Aleppo, Hama, Lattakia and Tartous, were destroyed. Water and sanitation infrastructure was damaged with collapse of water reservoirs, water

[113] GCF Readiness Programme for Syria, 2021
[114] Personal communication
[115] CIA World Factbook, 2023 & International Renewable Energy Agency (IRENA), 2023
[116] CIA World Factbook, 2023
[117] Personal communication
[118] Nasser et al., 2023

towers, water stations, and networks of sanitation facilities.[119] The effects of the earthquake cannot be overstated and will take years to rehabilitate. The disaster also highlights the need to create resilient systems that can buffer against future potential disasters, which are likely to increase with climate change.

4.2. Environment and the Political and Institutional context

To understand how the Syrian population is affected by environmental issues, the power dynamics of the conflict and areas of control are important to consider.

The south and central region is mainly controlled by the Syrian government and pro-government forces, the northeast region is mainly controlled by the Kurdish People's Protection Unit (YPG) and Syrian Democratic Forces (SDF), and the northwest region and the northern strip bordering to Turkey are mainly controlled by oppositional groups and Turkish Armed Forces.[120] Daesh/ISIS, are spread out and present mainly in the governorates of Homs, Deir ez-Zor and Ar-Raqqah (figure 3). Given the severly unstable political situation, it is necessary to recognise the different regions of control.

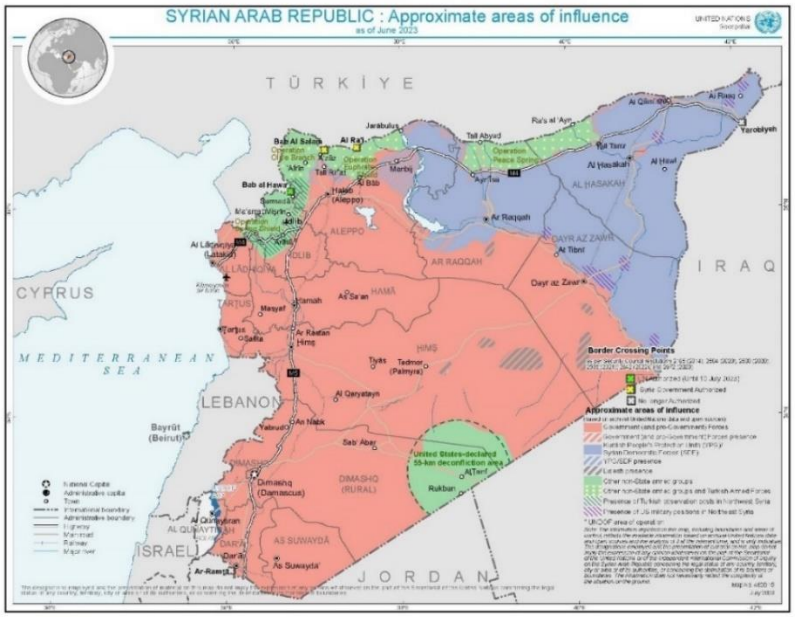

Figure 3: Syrian Arab Republic: Approximate areas of influence as of June 2023. Source: UN Geospatial, 2023.

Providing social protection access to all, women, men, and children, including groups traditionally marginalised and discriminated against, is key to fulfil the pledge of the 2030 Agenda. The formal social protection system in Syria has suffered a complete breakdown due to the war and is not equipped to respond to neither shocks nor slow-onset events.[121] The years have left the public sector in Syria in disarray and it is clear that the disruption of services has affected the well-being of

[119] International Federation of the Red Cross (IFRC), 2023
[120] UN Geospatial, 2023 & Personal communication
[121] UNDP, 2018

the whole population, particularly children.[122] For various reasons, social protection services to refugees and IDPs have mainly been provided through the humanitarian system.[123]

The **northwest region** is today most intensively affected by the conflict with air strikes in Idleb, northern Latakia, and Aleppo governorates during 2022.[124] The northwest is also the region that contains most IDP's. This combination makes the region comparatively least institutionally developed.

The Kurdish controlled **northeast region** has come the farthest of all the regions in developing functioning institutions.[125] Although not unanimously endorsed, the northeast authorities seem to be generally supported and able to pursue development. In Rojava, the autonomous region in northeast, the agriculture builds on cooperative approaches, often female-led, with the aim of creating a more sustainable and resilient agriculture as compared to preceding industrial farming, which seem to be positively received.[126]

The GoS controlling the **south/central Syria**, reported its first national data on climate change in 2010, reporting emissions from 2005 that reached around 79 $GtCO_2eq.$, where 73 % of emissions came from the energy sector, 18 % from agriculture and 5 % and 4 % from the waste and industrial sector, respectively.[127]

The GoS ratified the Paris Agreement in 2017 and prepared Syrian NDC's for the period 2020-2030 aligned with national priorities. According to the Climate Watch, Syria has further put forward a new constitution (2012) that regards the state's responsibility to protect the environment, a local planning regulation (107/2011) that gives local units the tasks of achieving a sustainable development, a regional planning law (no. 26, 2010) that supports development across regions, as well as the environment law (no. 12, 2012) which established the rules of protection and preservation of environmental elements.[128] The GoS further had a national plan that was prepared for the UN conference on Sustainable Development in 2012, in which they claim to have initiated projects to improve waste management and water and sanitation infrastructure.[129] This implies that there are environmental and climate laws and regulations in Syria, but these are currently not being enforced, and it is unclear how much was enforced prior to the conflict. For example, Syria already had policies for earthquake-proofed buildings years ago, but these were never implemented.[130]

The claim that the ensuing drought in 2008 was an important reason behind the conflict, and the critique against this claim, brings forward the importance of separating climate change impacts, and resilience against it.[131] By giving more room to climate change as a significant driver of the conflict,

[122] UNICEF Syria, & UNICEF, 2023b
[123] The World Bank, 2022
[124] UNOCHA, 2023
[125] Personal communication
[126] Eklund, 2023
[127] Climate Watch, 2018
[128] Climate Watch, 2018
[129] Zwijnenburg, 2015
[130] Carnegie Endowment for International Peace, 2023
[131] Personal communication

less attention is given to the responsibility of the government to build robust and resilient systems which can withhold disasters and provide support even during times of need.

The current Syrian constitution, in effect since 2012, entrenches social protection within the country's legislative framework and states that the government shall provide for all citizens in cases of need, and strives for a balanced development among all regions in Syria. However, the government never ratified the plan. Drawing up a new social contract by developing a strong social protection system for all parts of the Syrian population will be central to sustainable peacebuilding and post-conflict reconstruction.[132]

4.3. Environment and the Peace and Conflict context

The frontlines of the war are now somewhat fixed, and humanitarian and development work is slightly easier to conduct in the northeast given the relative stability of the region and its established institutions.[133] The humanitarian and development needs seem to be most acute in the northeast, especially regarding water resources, but the regional political situation needs to be acknowledged. International organisations are to a lower degree allowed to work in the whole country, implicating that the Government of Syria limits the international community to work both in government held regions as well as oppositional or Kurdish held regions. This potentially contributes to a gap of data over needs at national level. It further impacts human rights since the lack of comprehensive data reduces transparency and could reduce possibilities for accountability and imbalances of needs.

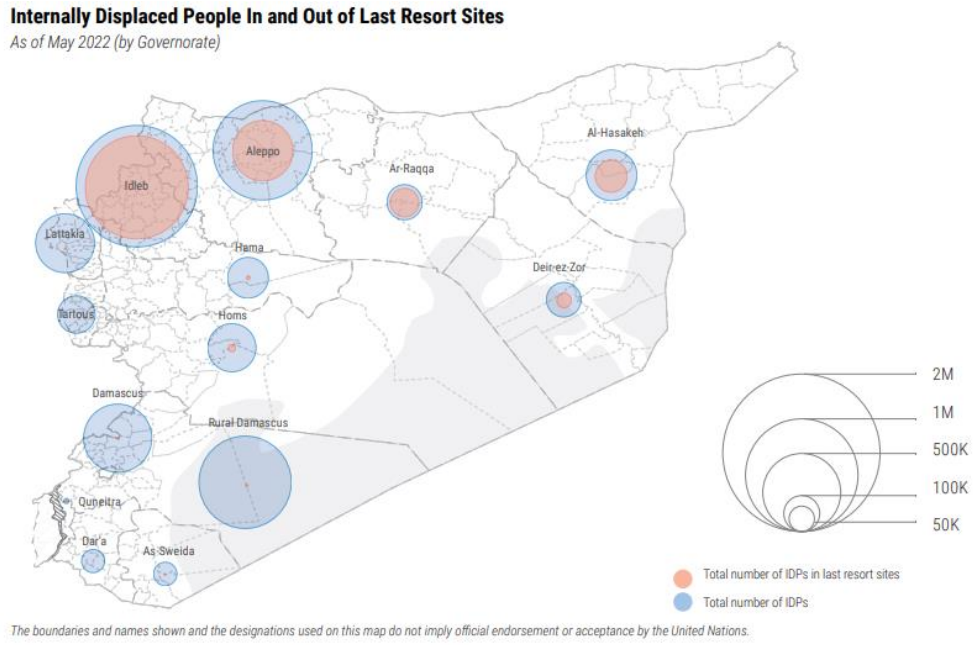

Figure 4: Number of internally displaced people in and out of last resort sites. Source: UNOCHA, 2023.

[132] Harsch, 2019
[133] Personal communication

Syria is now entering its 13th year of war, with no foreseeable end in sight. The conflict has created the largest IDP population in the world and more than 15 million people in the country need humanitarian assistance.[134]

The IDP settlements vary from collective centres and informal settlements to planned camps, with planned camps mainly in Idleb and Aleppo governorates (fig. 4). Most camps, both informal and planned, are characterized by lack of management systems, overcrowding and varying degrees of access to basic services. Self-settled sites frequently lack camp management systems and settlers risk eviction due to legal status of the land, why households are increasingly trying to get to planned sites in search of improved living conditions.[135] Even so, IDPs in either planned or informal settlements are at higher risk of communicable disease due to overcrowding and lack of reliable WASH services and shelter.[136]

As described previously, the war has had a significant impact on the environment and natural resources in Syria with destruction of critical infrastructure, such as water and sanitation systems, and power plants. This has disrupted delivery of essential services as well as caused environmental contamination and pollution. Essential services such as water have also been monopolized and weaponized, which primarily affects vulnerable communities, and much conflict today revolves around the oil rich north.

Prospects of using environmental issues as entry-points for peacebuilding are context specific and appear to be limited in Syria, especially concerning water issues. Experts express that water issues in Syria are so heavily politicised that it is unlikely for these issues to serve as building blocks for peace in the country.[137] However, there are cases from other contexts that could provide good examples, more technical issues regarding e.g., biodiversity conservation and other environmental concerns as well as research collaborations could serve as entry points for discussions between regions and conflicting parties since these seem to be less politicized.[138] The magnitude of the displaced population both within and outside the country also causes concern for environment, peace and development. Tensions between residents and IDPs can be seen outside campsites with increased pressure and conflicts over resources, and displaced people causes displaced knowledge and capacity. Bringing back local knowledge and skills and building local capacity will be crucial for prospects of peacebuilding and sustainable development.

[134] UNHCR, 2023
[135] UNOCHA, 2023
[136] World Health Organisation (WHO), 2020
[137] Personal communication
[138] Personal communication

5. Conclusions and issues to consider

There are a variety of ways in which the humanitarian and development responses can spur transformative changes in the delivery of a more sustainable development for the benefit of all Syrians. This chapter lists the main conclusions drawn from this assignment and includes issues for Sida to consider in the continuous development cooperation in Syria.

5.1. Conclusions

There are immense humanitarian and development needs in Syria, and the conflict has made it difficult to navigate in the political reality of today. Due to the large political differences between the geographic areas, it is important to understand the political differences and to implement a conflict-sensitive approach in all operations.

The long war and conflict and the politicised landscape of whole Syria has likely contributed to a lack of data over humanitarian and development needs and their linkages to environmental issues. The governorates of Quneitra and Daraa in southern Syria for example report severe lack of access to environmental basic needs such as food and water, but there is much less available data over needs from the south/central Syria as from the northeast Syria. The same can however be said about the northeast since UN engagement there is limited, as the area is outside of government control. It is therefore important to acknowledge the limited data and limited access to data when reading this report.

The poverty level in Syria is very high and it is difficult to differentiate poverty levels and poverty related environmental needs between the different regions of Syria. The poorest and most vulnerable in most poverty dimensions however seem to be IDPs, people with disabilities, small-scale farmers, herders and pastoralists, women, and children.

Environmental degradation and climate change is interlinked with poverty in Syria in a multidimensional way. A large part of the population does not have, or have limited, access to environmental basic services such as food, water, fuel, and land. Even when people have access to these resources, the income levels are inadequate in relation to living costs. Reduced access to natural resources and environmental services affects health, sustainable livelihood opportunities and income generation.

The main environmental challenges and potential key development areas in Syria are: i) Pollution, to both water, air, and soils, ii) Access to water and nutritious food, iii) Inadequate waste management (in all of Syria but especially in and outside of IDP camps), iv) Climate change (with large needs to develop adaptation capacity), and v) Access to renewable energy sources (much needed to transform the country from fossil fuel dependence, reduce risks of pollution, as well as to support a sustainable and resilient development in the country).

Pollution to water, land and air in Syria severely impacts sustainable development and human rights. The (inadequate) waste management in Syria is a large contributor to the pollution, and developing the systems for waste management should be considered for a sustainable and equitable

development, especially around IDP sites. Having access to safe environments without exposure to health risks is a human right that is currently overlooked in Syria.

The extent and impact of biodiversity loss in Syria is unknown but is expected to affect resilience building. Biodiversity loss must be investigated in situ, and the conflict has considerably limited data collection. Additionally, the biodiversity loss is likely also affected by the environmental challenges of the country. More analysis of the biodiversity loss in Syria is needed, and with reliable and sufficient data there is opportunity to make efforts to improve Syria's resilience to upcoming challenges.

It seems that most humanitarian work does not link short term needs to long term sustainability, which is needed to cope with environmental challenges. The humanitarian needs of Syria are immense, however long-term resilience will only be possible if development cooperation and humanitarian assistance is interlinked. In this process, it is important to consider building local capacity, and long-term development projects could potentially also contribute to peace building.

It is necessary to develop adaptation- and support systems for the Syrian agriculture to improve food security and secure resilience against climate change impacts. The Syrian agriculture does not seem to have collapsed, but market and value chains are damaged and need to be rebuilt to support farmer's livelihood and improve resilience to climate change, especially for small-scale farmers. The process of developing these systems need to be inclusive and locally led to ensure a just, equitable and sustainable development. To enable development of the agriculture it is also necessary to clear the land from explosive ordnances to secure human health and for expanding agricultural practices, also for the reason to protect the most vulnerable, such as children and IDPs.

Due to the instability of Syria, development cooperation efforts need to be flexible and responsive of changing circumstances. Interventions would likely benefit from a combination of small scale and localised projects, such as low-tech, house-level environmental improvements, and larger scale capacity building and rehabilitation. Interventions also need to be inclusive and locally led. This could improve resilience and possibilities to adapt to both disasters and slow onset changes.

5.2. Issues for Sida to consider

Based on the findings in this report, the Helpdesk recommends Sida to consider the following issues in the continuous development cooperation in Syria.

1. **Linking humanitarian assistance and development cooperation is crucial for a sustainable development in a post-war scenario and could even contribute to peace processes.** Building strong institutions and ensuring access to environmental services takes time and needs reliable support and maintenance during longer time scales. The Helpdesk thus recommends Sida to continue with the interventions and collaborations that have been successful and to promote environment and climate change integration into all operations (also those that do not have environmental objectives).
2. **Advocating for the inclusion of environmental concerns in humanitarian assistance is needed.** Sida is recommended to promote humanitarian interventions that address climate- and environmental concerns such as food insecurity, basic livelihood needs, waste management, and access to renewable energy. This is important for a strong and sustainable development cooperation that reaches the poor and vulnerable people.

3. **Promoting and strengthening local assembly and projects to work with community-led, resilient, and climate-smart food and water security initiatives should be considered.** Building and supporting local capacity connected to environmental issues is crucial for a more resilient and a just sustainable development in Syria.
4. **Water rehabilitation, improvements of water systems and more efficient water usage is needed in most part of Syria, but especially the northeast.** To deal with current and (likely) upcoming negative water and WASH issues, the water infrastructure needs to be developed and monitored to promote sustainable developments. A combination of supply-side (for example irrigation infrastructure) and demand-side (for example shifting to less water intensive crops) mitigation strategies for e.g., the agriculture could be considered for more resource efficient water-use systems.
5. **Providing support systems and adaptation measures for the agricultural sector to cope with climate change and environmental degradation is crucial to support food security, improve soil fertility and develop livelihood diversification.** Low-tech and locally adapted farming practices that are climate resilient and soil improving provide needed support for farmers. Building capacity and providing support on sustainable practices as well as to marketing and supply chains is needed, with specific focus on the most vulnerable, especially women.
6. **Reliable environmental and climate data is needed for future development needs.** Reliable data is key for the reconstruction and rebuilding processes. It is therefore recommended that reliable data collection is considered to support a resilient and sustainable post-conflict development. Climate issues should be prioritized in this work.

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Annex 1. List of interviewees

The Helpdesk has held the following interviews with experts on the environmental issues of Syria.

- **Lina Eklund,** Researcher, Centre for Advanced Middle Eastern Studies (CMES), Lund University
- **Vincent Marchetti,** hydrogeological and water management expert, ACTED Syria.
- **Alison Stehr,** Senior Assessment Officer focus on WASH, Impact/REACH
- **Esther Barvels**, Regional Remote Sensing Specialist, Impact/REACH
- **Zaid Jurji,** Chief, Water, Sanitation & Hygiene (WASH), UNICEF Syria
- **Annika Rabo,** Professor Emeritus, Stockholm University

Annex 2. Terms of reference

Terms of References: Syria – Environment and Climate Change Policy Brief

2023-11-13

Sida (HUMASIA/MENA) is requesting support from Sida's Helpdesk for Environment and Climate Change, for a study on environmental[139] risks and opportunities in Syria. The purpose of the study is to provide analytical background material for Sida to better understand the key environmental and climate change problems, trends, risks, and opportunities facing Syria and how environmental aspects are linked to challenges and opportunities for people living in poverty.

1. Background

The Swedish regional strategy for the Syria Crisis expires by end of 2023. Environment and climate change is not included as a result area in the current strategy. However, environmental issues are closely interlinked with some priority areas, such as livelihood opportunities for people living in poverty and vulnerability (in Syria and Syrian refugees in neighbouring countries), and access to societal services (such as electricity, water, and sanitation).

2. Purpose and scope

This study aims to contribute with analytical background information for Sida as an input to the strategy process.

The purpose of the Helpdesk assignment is to provide support to Sida in the process of identifying key environmental challenges and opportunities and describe how they link to multi-dimensional poverty aspects in Syria, and to support identification of a potential role for Swedish development cooperation. A particular attention can be placed on livelihood opportunities and municipal services.

2.1. Scope of the assignment/areas to consider

To the extent the information is available, that the following areas will be included in the assignment.

- Describe the key environmental issues and trends in Syria, including drivers, underlying causes and effects (including gendered effects). When possible, specify environmental problems and risks for different regions in the country.
- Describe multidimensional poverty-related linkages of the environmental problems, for instance related to livelihood opportunities and access to services and resources. Describe if the linkages affect women and men differently.

[139] The concept 'environment' is used in a broad sense, including natural resources, land use, biodiversity and ecosystem functions and services, and encompasses aspects related to climate change, resource depletion, environmental degradation and pollution. Climate change is included in the concept, even if it is not always explicitly expressed.

- Describe the connections between environment (in a broad sense) and other dimensions, such as the conflict (including GBV) and peace building, humanitarian support, governance, and Human rights.

Detailed examples of questions that will guide the study and the literature search, are specified in the attached report outline. All chapters and sections will be addressed, but a larger focus will be given to chapter 1-2, section 3.1., 4.1., and 4.3., and chapter 5, while the others will be analysed with a lighter hand.

The assignment will be undertaken by the Helpdesk as a desk study, in close collaboration with Sida.

2.2. Output and timing

The Helpdesk will identify and synthesise existing information and develop a report in English. The report will be around 20 pages long, plus an Executive Summary, and annexes.

A summary of the final report shall be presented to Sida, preferably over video link.

- The assignment is expected to require a maximum of 15 workdays.
- A draft report shall be delivered in the beginning of December for comments.
- Sida shall review and provide comments to the draft report within 2 weeks after submission.
- The Final report will be delivered before the end of 2023.
- Summary presentation of the report shall be made one week after submission of the final report.