

TURN ON THE LIGHT

Why tackling energy-related challenges in the nexus of water and food in Syria cannot wait



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DISCLAIMER

1. This paper is based on Oxfam programs data and analysis together with the findings and analysis of a study commissioned by Oxfam in October 2022 and completed in May 2023 exploring the water-energy-food (WEF) nexus in Syria. The paper covers areas where Oxfam operates and can draw evidence from, which are in government-controlled parts of Syria. Oxfam used its best efforts to cross-check the information provided by various sources to inform this paper. Possible data limitations encountered are indicated, when relevant, in the body of the paper. Data was assessed as accurate at the time of writing. As the situation in Syria is very dynamic, and new analyses are published, this information is subject to change.
2. This paper is limited to the situation in government-controlled parts of Syria. However, albeit beyond the scope of this report, the situation about water, energy and food in other areas of the country is equally dire. Hence, a similar analysis for those areas would merit urgent attention. To keep the paper focused and at a reasonable length, whenever it refers to 'Syria', it is intended to mean 'government-controlled areas of Syria'.
3. This paper defines the WEF nexus as the study of the interconnections between water, energy and food "resource sectors, together with the synergies, conflicts and trade-offs that arise from how they are managed".¹ The paper does not aim to conduct a fully-fledged analysis of the WEF nexus, but rather to input to the broader discourse around this approach, and contribute to future thinking with other actors, hopefully by expanding the analysis to other parts of the country.²
4. This is a discussion paper written with the sole purpose of improving the humanitarian conditions in Syria. As per Oxfam definition, a discussion paper's purpose is to flesh out key themes, contribute to big questions and debates and engage with core audiences. Presented as work in progress, not as Oxfam policy. As such, it is written to contribute to public debate and to invite feedback on development and humanitarian policy issues. Hence, this document does not reflect Oxfam policy positions. It does intend to inform the discussion about the ineffectiveness of the WEF nexus impacting directly Oxfam humanitarian operations in the strict limit of its mandate as a humanitarian organization. The analysis advanced by this paper does not have the ambition to cover all the factors affecting the WEF nexus in Syria and their possible solutions. For example, albeit beyond the scope of this report, the circumstances in areas of Syria controlled by non-state armed groups are equally dire. Hence, a similar analysis for those areas would merit urgent attention, which could also provide parallel or complementary solutions. Similarly, the analysis of how to strengthen state institutions to counteract the effects of the war economy and corruption would benefit from further attention, by also drawing lessons from existing literature on Syria and other countries in the Middle East.
5. As also indicated by the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA), Oxfam's research identifies conflict (characterized by widespread destruction of civilian infrastructure, explosive ordnance contamination, forced displacement, and massive and systematic violations of international humanitarian and human rights law) and its long-term consequences as key factors underlying the critical state of the WEF nexus.³ It is grounded on some essential reference that provides a detailed account of grievances and inequalities at the root of the Syrian crisis.⁴ However, while the paper explores conflict factors, it is beyond its scope to provide an analysis of the root causes of the conflict.
6. The paper explores some of the effects of legislative frameworks adopted by various states, such as sanctions and Syrian laws, on the WEF nexus. It reports the stipulated objectives of these measures as indicated by the states that adopted them. However, this paper does not aim to revisit the comprehensive range of arguments supporting or challenging the legitimacy and effectiveness of these measures against their stated objectives, as these have been extensively discussed in the existing literature.
7. In order to keep the paper at a reasonable length, it does not provide a full overview of all sanction programmes on Syria implemented by various governments. The paper solely explores regulations within the European Union (EU) and the United States (US) sanctions frameworks that are relevant for the analysis of the WEF nexus. The UN does not currently impose sanctions directly targeting the Syrian government or Syria as a country. However, it has three resolutions

which affect Syria.⁵ The analysis aims to provide a general overall framework within which to analyse the interplay between addressing humanitarian needs within the WEF nexus in Syria and these legal frameworks.⁶ Other countries have tended to follow these systems for their own autonomous measures.⁷ However, the analysis of their sanctions systems is beyond the scope of this paper.

8. This paper uses the terms 'impacts' and 'consequences' of sanctions on the population without further qualification. By doing so, Oxfam does not suggest that states imposing sanctions on Syria intended them to have an impact on the humanitarian situation, nor were these consequences the objective of sanctions.
9. In this paper, sanctions are defined as measures adopted by the United Nations (UN) Security Council, regional inter-governmental organizations such as the EU, and individual states, which aim to influence the behaviour of other states, individuals, or groups without involving the use of armed force. Sanctions aim to bring about changes of policies by imposing various restrictions.⁸ To keep this paper focused, 'sanctions' will be used to refer to those measures taken by single states or regional inter-governmental organizations in lieu of unilateral restrictive measures, unilateral coercive measures, unilateral sanctions, or restrictive/autonomous measures when these are applied.
10. This paper adopts the following definition of 'chilling effect': 'When the government passes a law, it often regulates conduct. People and organizations adjust their behaviour to fit the legal rule [...]. But regulations are sometimes unclear, uncertain, or overbroad, which can lead people to refrain from engaging in permissible actions because they are unsure whether they will be legally sanctioned. This phenomenon — a law's effect on activity outside the scope of its intended target — is called the chilling effect.'⁹
11. This paper uses the term 'systemic collapse of the WEF nexus to describe the breakdown of those interlinkages between the water, energy and food sectors that are essential for their functioning and for the provision of basic services.
12. This paper adopts the broader definition of war economy suggested by Carbonnier (2016, p.68), which includes both the generation, mobilization, and allocation of resources to sustain a war effort by parties to the conflict, as well as survival activities undertaken by people seeking to preserve their livelihoods.¹⁰
13. The exchange rate between Syrian Pounds and US\$ applied in this paper is of 7200 SYP/US\$, which was the one in use at the time data was analysed to produce this paper.

EXECUTIVE SUMMARY

The Syrian conflict requires a comprehensive peace solution that is driven and owned by the people of Syria. Tackling the factors that hinder recovery of the energy sector at macro and systemic level will require comprehensive and longer-term dialogue and engagement. However, not all options – especially those related to rehabilitating or maintaining public electricity, water and food facilities and infrastructure – can wait for a political solution to the conflict, as this could bring further escalation of humanitarian needs and displacement. Until that time comes, Syrians should have unimpeded access to basic services. The significant and rapid changes witnessed in a sector as pivotal as energy have reverberated across the water sector and the whole food supply chain, which, despite humanitarian aid, are on the brink of their systemic collapse. This situation is the result of the cumulative effects of a wide range of factors, including conflict, protracted economic crisis, domestic policies and regulations, a war economy, corruption, alongside donor policies and sanctions.

In the areas of Syria where Oxfam works, at the time of writing this report, almost 5.3 million people live with less than two hours of public electricity per day; more than a quarter (27%) are disconnected from the public electricity grid and 10% do not have any alternative electricity source at home. Energy poverty levels, defined as “a situation in which households are unable to access essential energy services and products” reported in recent UN reports are similar to those verified by Oxfam in its data collection. As families become even more vulnerable, the population becomes increasingly dependent on external support. In the areas where Oxfam works, more than 35% of families taking part in this research reported placing additional expectations on the government and on humanitarian organizations to cope with their current living conditions, thus increasing their level of dependency.

Since 2011, water, energy and food have been severely affected as standalone sectors, as well as forming a nexus. The lack of water, energy and food plays a key role in exacerbating the condition of families in Syria today. This is why it is important to understand the interplay between these sectors at household level. Running water schemes without minimum secured levels of electricity is an impossible task. Lack of electricity limits the operability of vital public water systems, which means that families in some areas only receive between 10% and 25% of the amount of water they used to receive before the conflict. Scarcity of diesel renders diesel-powered alternatives for operating those systems mostly non-feasible. Similarly, the energy crisis is one of the main underlying causes responsible for the disruption of the supply chain, as it has an impact on the recovery of the agricultural sector, the increased cost of state-run food facilities and food industries, making it impossible to meet the demand at reasonable prices, hence directly impacting population’s access to affordable food.

This discussion paper offers a contribution, albeit limited, to the broader discourse on the WEF nexus in government-controlled parts of Syria. It looks at what approaches could be used to understand and address the linkages between water, energy and food that could be most beneficial to the people of Syria. It does so through a quantitative and qualitative analysis looking at how the water, energy and food sectors influence each other as a nexus affecting the condition of the population in Syria. It also explores the main causes of the progressive deterioration of those sectors, and the challenges to their sustainable recovery. Finally, it aims to do so by focusing on those aspects that directly impact and limit Oxfam’s work in Syria, particularly when delivering livelihood and WASH interventions. In Oxfam’s experience, delivering principled humanitarian aid in this context continues to require navigating a range of complex dilemmas, particularly when it comes to operational choices on longer-term programming. However, in the short term, addressing the WEF nexus can help in delivering more sustainable and effective interventions at local level.

The primary cause of electricity shortages at household and business levels is the limited capacity of the public infrastructure to *generate* electricity.¹¹ Oxfam's analysis reveals that in 2022, a significant 70% of the power generation system remained inoperative for electricity production, directly attributable to conflict factors, technical factors and lack of fuel.¹² For example, lack of electricity to run fridges impacts families' ability to safely store and process food. More than 20% of families surveyed reported no longer buying food in bulk due to lack of safe storage options, and hence purchasing goods at a higher price. Similarly, families started to consume food they have bought based on what is going bad first, irrespective of dietary and health considerations. As for water, even when available through the public network or wells, families are unable to pump it into water tanks or house-level water systems due to lack of electricity. Energy poverty has been identified as a significant contributing factor increasing vulnerabilities and protection risks, damaging social cohesion and disproportionately impacting women and gender dynamics. Further examples of impacts on the most vulnerable according to findings around electricity are provided in the paper.

Issues related to energy transmission and distribution, even when not directly impacting electricity shortages at household level, are nonetheless impeding ongoing humanitarian interventions, particularly when it comes to reconnecting vital basic services to electricity at the community level. Based on that, Oxfam's analysis attempted to quantify the main factors contributing to the decline in power generation capacity chronologically, in order to identify its most immediate causes (at the time of writing). In pursuit of this objective, the gathered data was input into a tool that facilitated the construction of a causal chain specifically designed for this study.¹³ The main findings were the following. First, some power generation capacity is not available due to distant (int time) causes, linked to events that took place between 2011 and 2017, whose effects persist and have not yet been resolved (mainly conflict and sanctions). Second, some power generation capacity is not available due to more recent events (immediate causes) from the end of 2022.

This paper confirms the findings of earlier research, which sees conflict as the main contributor to the destruction of infrastructure and the uprooting of millions of Syrian people, exacerbated by the impact of sanctions, alongside domestic policies and regulations, which constrain recovery.¹⁴ However, as per the causality study, all play a different role at a different moment in time. For example, sanctions along with export control and domestic regulations, to differing degrees, timing and depending on the specificities of the transactions, significantly hinder service providers (including humanitarian actors). This is particularly true when accessing the international market to source crucial spare parts, fuel, consumables, equipment, and essential technical expertise needed for water, sanitation, and hygiene (WASH), electricity and food supply services. In specific cases, sanctions also limit the space for capacitating public sector personnel on maintenance and operation of vital WEF nexus systems. At a differing degree (depending on the transactions), domestic regulations and challenges including corruption function as a disincentive for the domestic and international markets to engage with Syria in support of the humanitarian response, further amplifying the major consequences of the 'chilling effect' linked to sanctions (see definition under Disclaimer, item 10).¹⁵ For example, since the onset of the crisis, conflict has reduced (directly or indirectly) the power generation capacity and availability of fuels in government-controlled parts of Syria. However, as the intensity of the conflict reduced in 2018 in some parts of the country, sanctions, alongside domestic regulation and obstacles that hinder fair competition, took a more prominent role in limiting the maintenance and recovery of the electricity sector and the availability of fuels. These factors also limit the advancement of renewable energy options.

A 'one-solution-fits-all' approach would simply not work. Intervening in the water and food sectors requires addressing energy scarcity, which could bring immense relief to millions of people in Syria today. It is almost impossible to address the needs of millions of Syrians for water and food without also addressing the energy crisis. The severity of need also

cannot be addressed effectively and at scale by only delivering localized humanitarian interventions. Understanding the interplay between water, food and energy at household level and avoiding analysing them separately would be the only way to effectively inform any decisions taken to address basic services' access. There is no single standalone solution that can address the energy crisis, and humanitarian organizations cannot come up with solutions on their own.

With this in mind, the paper aims to contribute to the ongoing dialogue on possible remedies to address the challenges of the WEF nexus in Syria, whereby it could be used to broaden a dialogue that is constructive, multi-layered, and accountable for the views of different stakeholders (humanitarian actors, donors, countries that apply sanctions, the Syrian government, local authorities and independent civil society) in order to expand the spectrum of possible options. In turn, this could help devise more granular solutions that should also factor in the substantial changes in political economy that have occurred in the country. It does so by advancing some initial thinking on three key questions:

1. How can the WEF nexus approach help improve Syrian people's access to food and water?
2. Are there realistic options to help address the energy crisis in the country?
3. How much can dialogue achieve?

In the context of Syria, dialogue is challenging; but the alternative to dialogue is to leave millions of Syrian people deprived of their very basic needs for water, energy and food. Unprecedented humanitarian needs, coupled with the protracted nature of the conflict, has had social and economic consequences in Syria and in the whole region and is one of the elements which prevents finding durable solutions inside Syria and in neighbouring host countries for millions of Syrians that, to date, continue to live in forced displacements.

1 INTRODUCTION

After more than 12 years, the crisis in Syria is far from over. In Oxfam's experience, delivering principled humanitarian aid in this context requires navigating a range of complex dilemmas, particularly when it comes to operational choices on longer-term programming.¹⁶ In 2023, according to the UN, 15.3 million people in Syria were in need of humanitarian aid, with limited sustained access to food and clean water.¹⁷ Almost 4 million of those people live in areas of the country where Oxfam is working. Energy poverty at household level makes electricity the second most widely unmet need in the country.¹⁸ UN OCHA estimates that 15 million people in Syria need some form of food and agriculture assistance, at least 12.1 million are food insecure, and more than half of the population relies on unsafe alternative water supply modalities other than piped water to meet their needs.¹⁹

The Water, Energy and Food Nexus (WEF Nexus) centres on attaining security in water, energy and food by mitigating trade-offs and fostering synergies, thereby ensuring sustainable access for all individuals.

(Schneider, Avellan and Le Hung, 2018)

In recent years, Syria has experienced a series of shocks. Since 2011, water, energy and food have been severely affected as standalone sectors, as well as forming a nexus. This is due to the cumulative effects of multiple factors, including destruction of infrastructure, protracted economic crisis, forced displacement, a war economy, corruption, the macroeconomic crisis in Lebanon and its spill-over into Syria, the consequences of the conflict in Ukraine, domestic policies and regulations, the policies of donors, and sanctions implemented against the country.²⁰ As a result, Syrians have to make impossible choices every day in order to survive. The earthquake that hit the north of the country in February 2023 further exacerbated the conditions of an already exhausted population, further undermining people's capacity to recover from the ongoing war, despite reduced intensity of the conflict since 2018 in various areas under government control.²¹

"Suffering is carved in our faces. Living, for us, is simply the absence of death."

Mother, Syria, 2023

Prior to the conflict, public water and electricity services reached large proportions of the Syrian population, as part of a centrally managed state that needed reforms (particularly in terms of resource management, efficiency, accountability and cost recovery) and safeguards from corruption.²² The country saw low levels of food insecurity, with the food and energy sectors fundamental for the economic stability of the country and its population.²³

Since the start of the conflict, the relatively swift pace at which significant changes took place in sectors as pivotal as water, energy and food have pushed these sectors to the brink of systemic collapse, despite these sectors receiving support through humanitarian aid. Even when they are reconnected to vital services repaired after damage sustained during the conflict, the populations remain underserved. This is due to the impact of the domestic energy crisis on Syria's public infrastructure, which also makes internal food production more and more unsustainable and unable to meet internal demand at affordable prices.

Addressing the humanitarian situation in the country is an almost impossible task, particularly when it comes to sectors as vital as water and food, without also addressing the interlinked challenges of the energy sector in general, and electricity in particular. Humanitarian organizations are trying their best to support the resilience of Syrians. However, their best is simply not enough when it comes to strategic sectors such as energy. For example, humanitarian responders (including Oxfam) find it increasingly hard to restore people's access to basic services and livelihoods. Lack of electricity and diesel for generators limits the operability of drinking water or agricultural water facilities after they have been rehabilitated. Furthermore, the increased prices of transport, fuel and gas, partially caused by the scarcity of fuel in the country, reduce the impact of funded food-related income-generating or agricultural activities.

Syrians deserve a humanitarian response that matches what those in need identify as being most critical to them. This includes early recovery programmes to restore access to reliable basic services and promote sustainable livelihoods, as reflected in each of the last three UN Security Council resolutions on Syria.²⁴

Humanitarian organizations supporting Syrians in government-controlled parts of the country are not operating in a vacuum. They work with donors funding the aid response, as well as with the private sector and the Syrian government, which is responsible for providing public services through its state institutions. When it comes to the WEF nexus, the government is also responsible for ensuring equitable and accountable access to water and energy, and creating a conducive environment for making livelihood opportunities accessible across all segments of the population, with the involvement of local authorities and independent civil society stakeholders.

Humanitarian organizations, and their contractors and partners, need to carry out their work while respecting national policies and regulations as well as (where applicable) sanctions. The EU and the United States indicated that they adopted sanctions to promote meaningful behavioural change by the Syrian government, with not always sufficient safeguards in place to enable humanitarian aid to navigate, for example, export control regulations. Additional time-bound safeguards were adopted in the aftermath of the February 2023 earthquake. However, some scholars indicate that these sanctions do not have clear payoffs and incentives, with impacts that may compromise the stated objectives.²⁵

Finding solutions to support the resilience of the Syrian people is an urgent task that is key to bringing relief to millions and reducing the risks of further displacement within and beyond the country. As aid organizations adjust their resilience programmes to adapt to the continually changing circumstances, they must act differently, and do so now. The first steps in pursuing possible solutions are: to broaden the understanding of what is impeding early recovery in Syria today; to engage more openly in constructive dialogue; and to implement critical measures that could save the lives of millions of people.

This discussion paper offers a contribution to this task, albeit limited to the broader discourse on the WEF nexus in government-controlled parts of Syria.²⁶ In particular, it looks at what approaches could be used to understand and address how energy is impacting water and food that could be most beneficial to the people of Syria. It does so through a quantitative and qualitative analysis of how the water, energy and food sectors influence each other as a nexus affecting the condition of the population in Syria. It also explores the main causes of the progressive deterioration of those sectors, and the challenges to their sustainable recovery. Finally, the paper also raises key questions for the humanitarian community working in these parts of Syria with the aim of initiating a solution-oriented dialogue with donor governments, the Government of Syria (GoS) and other actors on the ground.



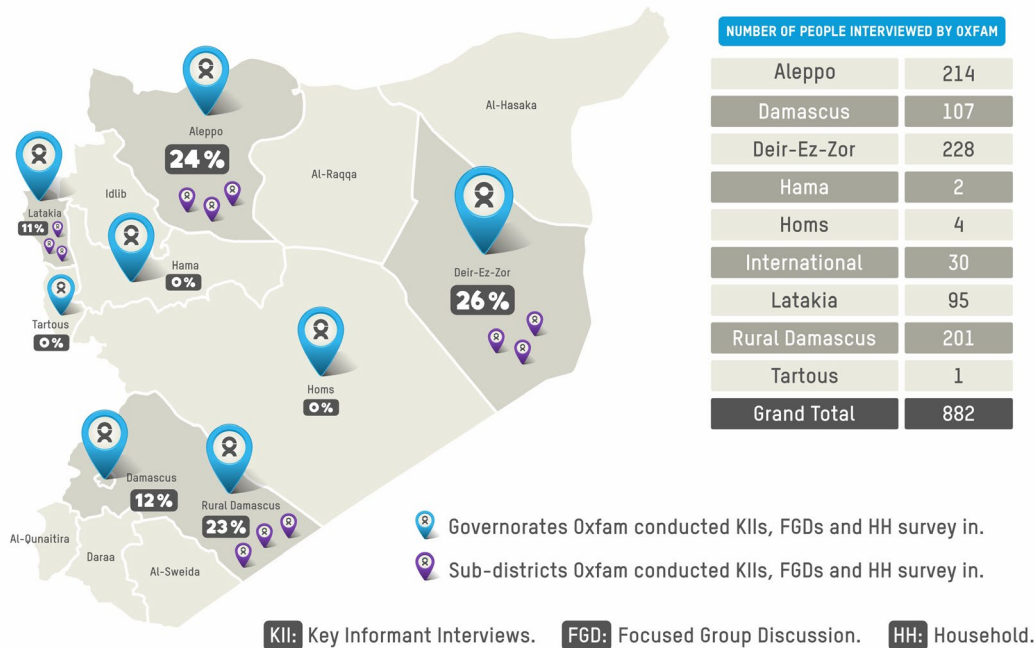
Khalid Daoud, 54 years old, carries a bucket of river water to his family for drinking, since the town's water pump does not have enough fuel to work. Deir Ez-Zor – AlMarrat Town. Photo Credit: Dania Kareh/Oxfam.

"The water station in our town works, but what good is it if there is no fuel to run it? How would you feel if you had to leave your home every day and carry a bucket along a dusty, muddy road to get sewage-scented water directly from the river, and then to bring it back to your family to drink it? This is how we get water for drinking in my town. How would you feel if you had to leave your home every day and carry a bucket along a dusty, muddy road between farms to get sewage-scented water directly from the river that is full of worms and dirt and then to bring it back to your family to drink it? This is how most families in my town get water for drinking."

Khalid Daoud

METHODOLOGY

Figure 1: Map showing the regions in which Oxfam conducted research and the number of people who participated within each region



Note: the boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by Oxfam in Syria. Source: Oxfam.

This discussion paper is based on a study conducted by Oxfam in government-controlled parts of Syria between October 2022 and May 2023, which adopts tools and concepts from the WEF nexus approach as well as those contained in the 2014 Inter-Agency Standing Committee (IASC) Handbook on Sanctions Assessment.²⁷ The study was informed by an extensive literature review and primary data collection through semi-structured interviews with 328 individuals.²⁸ The study was complemented by a household survey, administered to 554 families in Rural Damascus, Latakia, Aleppo and Deir-Ez-Zor.²⁹ The methodology for the study devised measures to reduce the risk of statistical biases to the maximum extent possible.³⁰ The technical analysis of the electricity sector looked at the changes on a yearly basis that occurred to each power plant in Syria between 2011 and the first quarter of 2023, coupled with field visits.³¹

Approximately 4.2 million people live in the areas directly covered by the study in Rural Damascus, Latakia, Aleppo and Deir-Ez-Zor.³² Some of these areas were badly impacted by the February 2023 earthquake, particularly in Latakia and Aleppo. The research focused on areas under the control of the government of Syria where Oxfam delivers humanitarian and early recovery interventions, experiencing first-hand the scale and severity of people’s needs on the ground. This enabled better triangulation of information.

Figure 2: Key statistics on humanitarian needs



Source: HNAP, OCHA and Oxfam.

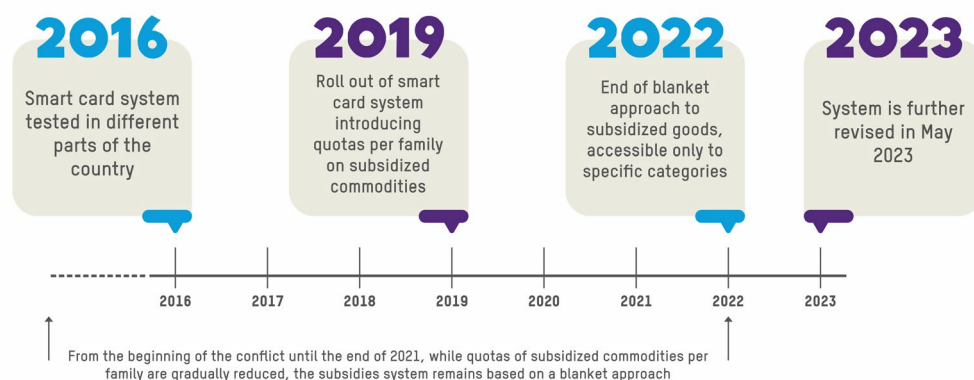
3 THE WATER-ENERGY-FOOD NEXUS AT THE BRINK OF SYSTEMIC COLLAPSE

The Syrian conflict and its consequences have brought profound changes to the country, particularly in relation to water, energy and food and how they interplay with one another. These changes have developed in a relatively short period of time, bringing the WEF nexus to the brink of systemic collapse. Not only is this contributing to a widening of pre-existing inequalities, but it is also creating new ones, and reinforcing mechanisms of monopolies and exploitation by profiteers from war economy, a subject that has been explored at length in earlier research.³³

3.1 ENERGY AND SUBSIDIES

Subsidies to energy have been a constant feature in Syria’s history. They have required careful navigation in terms of policymaking, particularly in a system as centralized as Syria’s, even before the conflict.³⁴ This is valid both for public electricity as well as for fuel for private consumption. Figure 1 provides a summary timeline of the main changes in subsidies to gasoline, diesel and gas in the past few years.

Figure 3: Main changes in subsidies policies between 2016 and 2023



▶ SMART CARD SYSTEM

There is a separate smart card designed for petrol and diesel issued by the Ministry of Oil and Mineral Resources. Diesel and gas for domestic use can be obtained from the Syrian Company for Distribution and Storage of Petroleum Products. Scarcity of oil-derived energy/fuel in the country was due to the Syrian government losing control of a conspicuous part of its oil and gas reserves. As a result of these changes, in the areas where Oxfam is working, over the last one-year period, families were able to access at subsidized prices one third of the cooking gas and on average a little over 50 litres of diesel against more than 2,000 litres of what they got before the crisis.

Source: Compiled by the author from primary and secondary data.

Before the conflict and until 2021, the system for regulating subsidies to gasoline, diesel and gas adopted a blanket approach. However, the government incrementally reduced quotas of gasoline, diesel and gas at a subsidized price per family, partly due to the increasingly untenable economic crisis, and as cost recovery of the public services remained largely unaddressed.³⁵ During the conflict, a parallel black market of these commodities was expanded further, also extending to smuggling into Lebanon.³⁶ From 2022, subsidies policies moved away from the blanket approach, redistributing entitlements for receiving goods on the basis of specific criteria that, in the view of policymakers, reflected vulnerability. Availability of fuel in the black market ‘compensated’ (for those that could afford it) the steadily decreasing government subsidized quantities for households and productive sectors alike.³⁷ These systems were further revised in May 2023.³⁸

Changes introduced to tariffs for public services, such as electricity, have been gradual and not as comprehensive as those on goods. Syrian electricity prices remain highly subsidized, and changes to subsidies have not yet tackled electricity tariffs.³⁹ Given the prevailing conditions within the country, marked by scarcity and the impractical cost of alternative energy sources like gas and diesel, it is likely that, were it to be accessible, Syrians might lean excessively on the public electricity grid. This, in turn, could lead to excessive demand surpassing standard household consumption, thereby intensifying strain on the infrastructure.⁴⁰

Moving forward, subsidies will grow increasingly untenable due to multiple factors, including the continuation of conflict, the deteriorating economic performance of the country, sanctions and fuel scarcity.⁴¹ Having a clear and transparent structure of subsidies, and well-thought through safeguards with forms of social compensation, will be paramount to mitigate risks of further reforms on the most vulnerable people in society, as well as vital productive sectors (agriculture and food industry) and key public services (water and health).

3.2 WHY IS THERE NOT ENOUGH ELECTRICITY?

While public electricity is generally affordable for most people, it is broadly unavailable at the levels needed to cover the basic needs of the population. In the governorates of Latakia, Deir-Ez-Zor, Rural Damascus and Aleppo, almost 5.3 million people – roughly three-quarters of the total local population – live with less than two hours of public electricity per day. Remarkably, in areas such as Latakia that did not experience destruction and damage due to the conflict, these levels of electricity shortages have persisted since 2020. For other areas in Aleppo, Deir-Ez-Zor and Rural Damascus, this has been the case for the past five or six years. This indicates that not only has the country’s electricity network failed to recover in areas that experienced higher instability and destruction during the conflict, but it also kept deteriorating in all areas under government control. The primary cause of electricity shortages is the limited capacity of the public infrastructure to *generate* electricity, rather than issues related to its transmission and distribution, even though the latter are vital for ongoing humanitarian response, particularly reconnecting vital basic services to electricity at the community level.⁴²

3.2.1 UNDERSTANDING THE ELECTRICITY GAP: POWER GENERATION

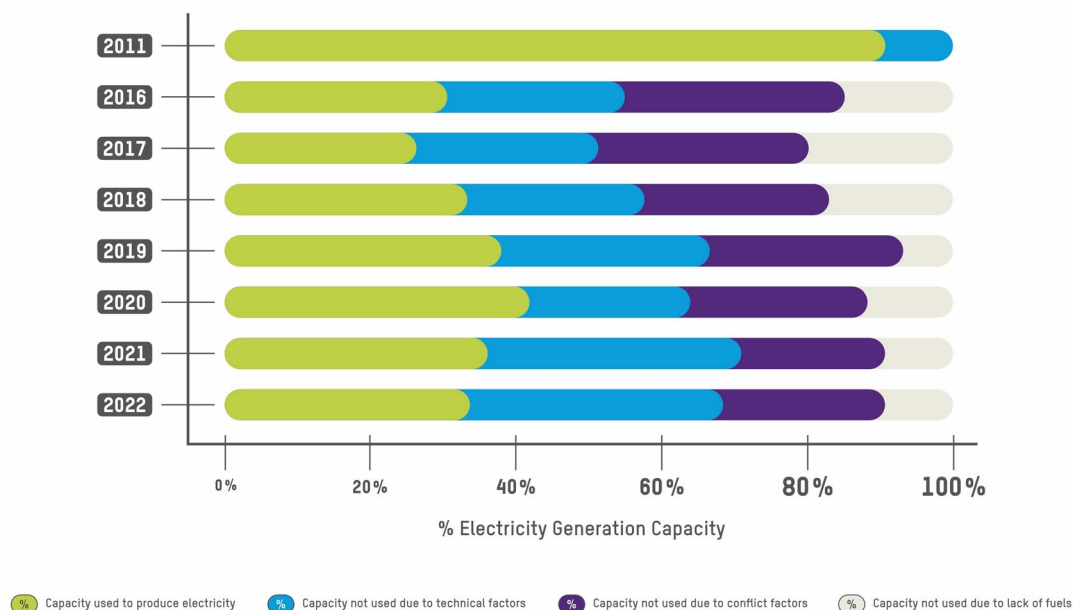
At the end of 2022, the electricity produced in Syria was only 38% of pre-conflict production.⁴³ Reliable and accurate estimations of current demand for electricity in the country are challenging in the absence of an up-to-date electricity master plan.⁴⁴ However, current production is deemed to be less than half of what is needed to meet estimated demand for electricity in the country.

The main factors contributing to shortages of electricity generation in Syria are conflict and the consequent damage, sabotage, degradation, lack of fuel, sanctions, corruption, looting of energy infrastructure and domestic policies and regulations mentioned earlier.⁴⁵ However, there is no baseline research quantifying the relative impact and interplay of each of these factors on electricity production over time, which could help identify solutions to the 'electricity generation gap'.

Oxfam's analysis reveals that in 2022, a significant 70% of the power generation system remained inoperative for electricity production.⁴⁶ The reduced capacity of the public system to produce electricity is directly attributable to three groups of factors:⁴⁷

14. *Conflict factors*, which refers to major failures/damage to power plants due to conflict, loss of control by the government of a given facility and electricity generation capacity due to territorial shifts, and permanent or intermittent disconnection of the facility from the national grid. For example, at present, 22% of power generation capacity is in areas that are not under government control.
15. *Technical factors*, which refers to major problems that reduced and/or compromised the available electricity generation capacity of power plants, such as (but not limited to) reductions in operational efficiency, failure of a unit, problems with cooling towers, failures in control systems, significant degrading due to usage and lack of regular maintenance, and 'brain drain' of key technical expertise from the country. Even in the event of increased fuel availability, 35% of power generation capacity would still not be available due to technical factors.
16. *Lack of fuel*, which refers to shortages of heavy fuel oil (HFO), gas and diesel oil for power generation, which prevents the use of part of the available capacity in power generation facilities even if they are functioning.⁴⁸ Scarcity of fuel is caused by multiple factors, including: availability of budget resources; conflicting budget allocations and priorities between power generation and other sectors; loss of control by the government over part of its gas and oil fields; disruption of alternative oil and gas supply lines through imports by sea or land; and fewer available markets for procurement due to sanctions, conflict or other political reasons. As noted earlier, fuel scarcity is also caused by policies of prioritization of imported oil quantities, as well as by corruption and war economy dynamics, which have created a parallel black market of both diesel and gas at higher prices. Even if technical issues were resolved, power generation capacity would require higher allocations of fuel.

Figure 4: Analysis of electricity generation capacity (2011–2022)



Analysis of the electricity generation capacity, Syria (2011–2022), expressed in % over total installed capacity in power plants.
Source: Ministry of Electricity, triangulated with other sources.

Figure 4 shows the changes to ‘utilized’ versus ‘unutilized’ power generation capacity, reflecting the differing incidence of technical, conflict and input (fuel) factors from 2011 to 2022. Technical and conflict factors have had and still are major impediments to the use of power generation compared to fuel. Based on this analysis, and in the absence of changes to the current circumstances, the Syrian government will not be able to significantly step up electricity production in its power plants in the near future. This has reverberations for the sustainability of the humanitarian response in the country and access to basic services by the Syrian population.

3.2.2 WHAT IS CAUSING THE LOSS IN POWER GENERATION CAPACITY?

Oxfam’s analysis attempted to quantify the main factors contributing to the decline in power generation capacity chronologically, in order to identify its most immediate causes (at the time of writing). In pursuit of this objective, the gathered data was input into a tool that facilitated the construction of a causal chain specifically designed for this study.⁴⁹ The analysis conducted could not establish with sufficient level of confidence whether there was enough availability of financial resources and allocated public budget to address power generation shortages. Challenges to carrying out technical repairs, fuel shortages and power generation losses due to the conflict result from events occurring between 2011 and 2022 across various temporal ranges (from distant to immediate).⁵⁰ Addressing the immediate key causes collectively could lead to an augmented electricity production capacity of 8,321 megawatts (MW).⁵¹

The following are the primary underlying causes of the loss in power generation capacity, as summarized in Table 5. First, some power generation capacity is not available due to distant causes, linked to events that took place between 2011 and 2017, whose effects persist and have not yet been resolved. Three such causes are notable:

- Conflict is the direct, necessary and sufficient reason for the Syrian government losing control of part of its power generation capacity, which to date remains out of its control (1,802 MW of electricity production capacity).⁵² It is beyond the scope of this paper to examine the status of power generation facilities in areas outside of government control, which are reported as functioning to some degree. As per US and EU sanctions exceptions, power generation facilities in areas outside of Government of Syria (GoS) control can be maintained and repaired, provided that this still complies with other regulations, including export control regulations, counter-terrorism measures and so forth.⁵³
- Agreed projects for constructing new power generation facilities (for an expected additional capacity of 1,150 MW) halted in 2011 as a direct result of sanctions imposed by the EU and United States. Those projects have not resumed, and these prohibitions are still in force today.⁵⁴
- Due both to geopolitical considerations and sanctions, the import of electricity into Syria stopped at the onset of the conflict and did not resume.

Figure 5: Main factors limiting electricity generation in government-controlled areas of Syria⁵⁵

MAIN KEY FACTORS	DISTANT CAUSE (2011-2021)	IMMEDIATE CAUSE (2022)
Power generation facilities that shifted back under GoS control, but severely damaged, cannot be repaired	Conflict since 2014	Technical factors (sanctions)
Technical failures cannot be repaired in power generation facilities under GoS	Sanctions since 2011	Technical factors (sanctions)
Lack of fuels to run functioning power generation facilities under GoS control	Conflict GoS loses access to oil/gas fields due to conflict since 2013	Lack of fuels (conflict and sanctions)
It is not possible to build new electricity facilities	Conflict and sanctions since 2012	Sanctions
Import of electricity from neighbouring countries did not resume	Conflict and sanctions since 2012	Distant causes still persist
Power generation facilities are out of GoS's control	Conflict since 2013	Distant causes still persist

NOTE

Summary analysis of main causes only. Availability of financial resources to the Government of Syria contributes to/impacts all the factors and causes listed and is therefore not included in the table. Dates refer to the year when the identified cause started to exercise pressure to an extent that could be objectively quantifiable. To keep the table at a reasonable length, events are not listed but rather grouped per type of cause. A detailed analysis of the events that occurred between 2011 to 2022 was carried out to reach these conclusions.

Source: Oxfam study conducted between October 2022 and May 2023

Second, some power generation capacity is not available due to more recent events (immediate causes). In particular, as at the end of 2022:

- Even if funds and fuel had become accessible, a total of 4,168 MW power generation capacity under the control of the government was non-operational and could not be repaired due to sanctions.⁵⁶ The technology used in these facilities cannot be easily substituted by technology from countries such as Iran or Russia (which are not bound by EU and US sanctions) without creating major issues of compatibility and lengthy execution of repairs.⁵⁷ Prior to 2019 for example, the UN humanitarian response included some vital emergency repairs, procuring spare parts and equipment from the international market.⁵⁸ However, no further intervention was carried out after 2020.⁵⁹ A number of these repairs are technically complex, and would take a long time to implement.⁶⁰ In the absence of viable alternatives, sanctions are a direct, necessary and sufficient cause of this loss, and also contribute to exposing the public system (as indicated in other research streams) to potential mechanisms of exploitation by profiteers from war economy.⁶¹
- Lack of input (heavy fuel and gas) rendered inoperable a total of 1,046 MW under the control of the government and technically available. The analysis conducted as part of this research shows that conflict is a direct yet distant cause limiting the availability of fuel for power generation, since the government lost control of part of its oil and gas reserves. However, it is not in itself sufficient to generate the existing gap. Conflict and sanctions are both direct causes of lack of fuel, but neither alone is sufficient to generate the existing gap. However, fuel scarcity for power generation is also caused by policies of prioritization of imported oil quantities, and also corruption and war economy dynamics, which have created a parallel black market for diesel and gas.⁶² In addition, particularly from 2017 onwards, fuel scarcity has been exacerbated by the disruption of the supply line of fuels from allies to the Government of Syria, caused by targeted security incidents to fuel convoys by road, oil tankers at sea, gas pipelines and refineries, financial sanctions, US maritime advisories, and seizure or disruption of oil shipments on grounds that they are suspected to have contravened sanctions.⁶³

It was beyond the scope of Oxfam's analysis to examine government decisions on allocating fuel and gas to power generation. From the data that was analysed, it is evident that both inputs are scarce in general, with gas being particularly impactful for power generation. As there is no available public data that clearly shows current availability of gas to the Syrian government, it is not possible to draw any solid conclusions on this matter. Even were fuel to become available, the distribution of input (heavy fuel and gas) would still depend on centralized, adequate decision-making.

3.2.3 ELECTRICITY TRANSMISSION AND DISTRIBUTION

In the governorates where Oxfam is working, 27% of the population remains disconnected from the public electricity network, also because part of the broader electricity network has not yet been restored in full from damage. In addition, the Syrian government's decision-making on distribution of electricity to different parts of the country is not clear, casting doubts on the governance system and prioritization. Oxfam's analysis supports earlier assessments that have identified the biggest obstacles to restoring the electricity transmission and distribution systems. These include: a deterioration of equipment due to obsolescence and lack of maintenance; lack of a skilled workforce; and damage due to destruction, sabotage as well as looting (particularly of cables in transmission and

distribution lines).⁶⁴ During the conflict, the government has worked to connect main public facilities such as hospitals, bakeries and water pumping stations to dedicated lines exempted from shedding.⁶⁵ However, these are costly interventions, requiring investments in equipment that is not always available.

In areas of Syria covered by this research, the recovery of the system requires repairs and maintenance of most of the available equipment and infrastructure for power transmission and distribution. However, there are multiple obstacles to achieving this:

- The longer that transmission and distribution lines remain inactive while waiting for necessary maintenance and repairs, the more they are exposed to looting, particularly of copper cables.
- There are challenges involved in importing key equipment to maintain or repair state-owned electricity transmission and distribution systems, such as step-up and step-down transformers and circuit-breakers.
- There is insufficient budget allocation from central government to state-run electricity companies, which limits the quality and quantity of repairs undertaken.

The type of equipment described above is also essential for connecting facilities that provide essential services (such as drinking water, water for agriculture and bakeries) to the line exempted from shedding. For example, as indicated by respondents and verified by Oxfam through its assessment, circuit-breakers are a vital part of the electricity network. These were mostly purchased from Europe before the crisis. The lifecycle of a normal circuit-breaker should be at least 10 years.⁶⁶ However, with the current frequency of electricity cuts, circuit-breakers need to be replaced after four years at most. As Western companies continued their non-engagement policy in Syria due to considerations that **weigh profit against costs and risks**, including sanctions-related risks, the market witnessed a shift towards China, with prices half those of European products and with easier import procedures. Nonetheless, this requires a harmonization between different technologies, which is complex. The 'brain drain' of experienced technical practitioners in Syria and lack of resources for research and development further raises issues of compatibility and leads to delays or system failures.

3.3 WHY IS THERE NOT ENOUGH WATER? THE WATER-ENERGY NEXUS

Operating water schemes without minimum secured levels of electricity is an impossible task.

According to UN OCHA, 'The lack of power supply remains one of the main barriers that affects the functionality of water systems and the distribution of water to households.'⁶⁷

In the areas where Oxfam works, while dependency on wells and water trucking has increased compared to pre-conflict levels, 65% of families surveyed continue to rely predominantly on the public water network. In some locations, due to lack of electricity, families are still depending on the public system but receive between 10% and 25% of the amount of water they used to receive before the conflict, an amount that is well below Sphere standards (15L per day per person for total basic consumption).⁶⁸ Lack of electricity also affects how often people receive water through the public network. Some

villages reported receiving water once every 2 to 3 weeks, others only once a month, while some reported only once every two months during summer.

The quantity of water available for human consumption is severely affected as a direct result of the compromised water-energy nexus.⁶⁹ In early 2023, although the public electricity grid reached all the water facilities visited by the research team, almost all experienced significant power outages, with hours of electricity as low as 1.5 hours per day.⁷⁰ In the absence of alternatives (to date, only a limited number of facilities are equipped with solar panels),⁷¹ electricity problems had consequences for three areas:

- *Functionality of the water system:* since the electricity supply was not continuous, the water systems ran discontinuously for half an hour each time electricity came through.
- *Predictability:* the unpredictability of the electricity schedule made it impossible to plan water distribution in different communities, which receive electricity from the national grid at different times.
- *Reliance on diesel generators:* due to fuel shortages, many facilities can operate (on average) an additional 1.5 hours per day on back-up generators.⁷² Before the crisis, in the areas where Oxfam works, all water pumping stations had back-up generators with enough spare fuel in case of emergency and enough electricity to pump water into the system for 16 to 20 hours a day continuously. The reliance on diesel-based energy has exposed the water system to risks of theft and vulnerabilities deriving from recurring fuel crises in the country. These elements, coupled with the deteriorating economic situation facing millions of people, have favored vicious cycles of corruption and smuggling of diesel on the black market, creating new incentives to maintain the status quo.

An alternative to piped water is water trucking.⁷³ As also indicated in earlier Oxfam research, purchasing trucked water is a last resort for families, given their limited purchasing power. It is also the least sustainable option in the medium-to-long term.⁷⁴ Increased costs of diesel and of spare parts to repair trucks directly impacts prices for water trucking. For example, while in 2019 one cubic metre of water delivered through trucks cost on average US\$0.50, in 2023 the price went up to approximately US\$10.⁷⁵ One cubic metre typically lasts no more than 10 days for a family of five. Families cannot afford to buy it three times a month, and have the bare minimum to survive, according to Sphere standards.⁷⁶ Therefore, in the absence of alternative sources of income, water usage is reduced to the bare minimum and water is bought on credit. Although not all water trucking business is done irresponsibly (from unsafe water sources) or by well-connected companies, to date this type of business lacks policies to ensure adequate standards and safeguards, with potential consequences for public health. As a result of these factors, even when water is available, it remains inaccessible. This is a reality lived by more than 4.7 million people in the governorates where Oxfam works.

"Yes, water quality is key, and we are doing what we can. But right now, what keeps us awake at night is people not having enough water to survive."

Civil servant, Syria, 2023



Fatima from rural Deir Ez-Zor. Photo Credit: Islam Mardini/Oxfam.

In recent years, the Ministry of Water Resources and Ministry of Electricity have scaled up efforts to connect more water stations to lines exempted from shedding, also thanks to the support of international humanitarian organizations.⁷⁷ These lines are temporary measures dedicated to public facilities only and do not extend to the communities where those facilities are located, to avoid tensions with other nearby communities not reached by the line with uninterrupted electricity supply. According to the findings of this study, this succeeded in resolving issues of water availability in the targeted areas. However, this is not always technically feasible and financially possible, especially if done without support of humanitarian organizations. There are also restrictions on imports of electricity equipment needed to deliver these projects, which makes them lengthy to implement. Furthermore, if connections are not fully implemented along all the water schemes, or are delayed, this may generate resentment between communities receiving different quantities of water and may even become a pull factor for internal migration from one area to another. Finally, these types of interventions put even more pressure on the capacity of the electricity system to produce and distribute electricity.

The challenges faced in the water-energy nexus are coupled with lack of spare parts to operate, maintain and repair water facilities. According to those who were interviewed as part of this research, Syrian regulations on imports, sanctions and export controls represent a significant impediment to securing access to consumables and equipment in the water sector.⁷⁸ These measures limit the ability of all service providers, including humanitarian actors, to supply vital spare parts and to seek external technical expertise to repair major water infrastructure.⁷⁹ In the past, most of the water facilities used imported technology, mainly from European countries,⁸⁰ so their repairs and maintenance depend on the import of spare parts from abroad. Since 2021, the Syrian private sector has faced increasing government restrictions on the import of goods. Also, when the conflict started, most European-based suppliers gradually disengaged from the Syrian market, prompted by decreasing profit margins and the chilling effect of sanctions, particularly on financial institutions. Correctly or not, as a matter of law, most of the individuals interviewed for this research indicated sanctions as one of the main causes for European-based suppliers disengaging, particularly from the Caesar Act onwards.⁸¹ Oxfam's analysis suggests that the main way for the public water system to receive adequate supply of spare parts and

equipment is through humanitarian aid channels, although this has implications for longer-term sustainability and ownership. However, internal as well as external restrictions make the price of tools and equipment two to three times more expensive than they should be, even when imported for humanitarian projects, due to the cumulative effects of the factors already described.

3.4 WHY DOES FOOD COST SO MUCH? THE WATER-ENERGY-FOOD NEXUS AT PLAY IN THE FOOD SUPPLY CHAIN

There is ample literature demonstrating how Syrian people's vulnerability to food insecurity has significantly deteriorated, particularly in the past two years. This has gone hand-in-hand with decreased agricultural production and disruption of the food supply chain within the country, as well as reduced funding from the World Food Programme (WFP) for food distribution, and the effects of the war in Ukraine.⁸² The results of Oxfam's analysis indicate that the energy crisis is one of the main underlying causes of disruption of the food supply chain. There are three main reasons for this.

First, the energy crisis is contributing to undermining the recovery of the agricultural sector due to increased costs of irrigation, mechanization and transport. Lack of energy supply (electricity and/or diesel to run water pumps) to water systems is the underlying cause of unreliable irrigation systems, while the increasing price of diesel affects the running of machinery and transport costs within the supply chain. These factors play an important role in reducing the extent of cultivable land and changes in the type of crops cultivated. This is in addition to other challenges, including land contaminated by landmines and other unexploded ordnance, climate change, and increased prices of other inputs. For example, in 2022, in all areas surveyed, increased costs for harvesting and transport led some farmers to decide not to harvest their crops. While this situation could be ameliorated to some degree by using renewable energies (particularly solar) at more water pumping stations that are used for agriculture, this is not sufficient to address the impacts of the pervasive energy crisis. In early 2023, the situation in heavily damaged locations in Rural Damascus, Aleppo and Deir-Ez-Zor was similar to areas in Lattakia that did not suffer any war-related damage.

Second, lack of electricity increases costs for state-run food facilities. For example, bakeries are forced to operate on diesel generators for more than 15 hours a day. For the public bakeries surveyed as part of this study (eight), the cost of government-subsidized diesel for one year was estimated at between US\$80,000 and US\$84,000 – a cost that before the crisis was negligible.⁸³ This cost detracts from investing those resources in other priority interventions. The situation of flour mills is similar.

Finally, lack of electricity and diesel represents the main factor negatively affecting the food industry due to its impacts on the costs of production. For example, a small-sized food processing business representative indicated that their factory requires 17,000 litres of diesel per month to run, to compensate for the lack of electricity, costing almost US\$24,000 – a 400% increase compared to 2019.⁸⁴ The costs of energy are so impactful on food production that it becomes impossible to produce food in the country, and to meet internal demand at reasonable prices, particularly when it comes to SMEs.

For women interviewees who had managed to establish their own business, the past two years saw not only the collapse of their income, but of their economic independence, losing their ability to support themselves and their family financially, make autonomous economic decisions, and have control over their economic resources. Their profit became

as meagre as US\$3 a month, which is not even sufficient to buy 10 eggs, let alone support a household.⁸⁵

“Producing one kg of eggplants costs me nowadays up to 20,000 SYP, which is one fifth of the monthly salary for a public employee. Who will have enough purchasing power to buy a kg eggplant in the market or the maqdous we prepare?”

Business owner, female, Syria, 2023

As internal production of food has struggled, the import and export of food has been equally challenged. This is partially due to the limitations imposed by internal regulations and government policies in terms of import and export procedures and monopolies in food imports.⁸⁶ In addition, technically, all sanctions on Syria allow for the import of food.⁸⁷ However, the impact of sanctions on international financial and logistic services (i.e. the shipping industry) makes the process very cumbersome, prohibitively expensive and unreliable.⁸⁸ Due to complex and time-consuming Syrian import regulations, and fears of violating sanctions, buyers reported having to go through several steps and use different routes, which increases the transactional costs of the supply chain. A schematic example of this is contained in the following section. These factors lie at the core of the increase of prices for food products in the country, the impacts of which reverberate across the lives of millions of people. These are contributing to a further narrowing of food exports from Syria, while at the same time pushing businesses to consider closing and relocating to a third country (for those that can afford to do so).

“I did not have the opportunity to study in my life. This business gave me the sense of fulfilment and realisation I always missed. I achieved something in my life. Now that it is at stake, it is as if my whole life is at stake.”

Small food processing business owner, female, Syria, 2023

3.5 NAVIGATING COMPLEX LEGAL FRAMEWORKS

As seen in earlier sections, multiple factors challenge the recovery of the WEF nexus, including having to navigate complex national and international legal frameworks. This section does not aim to provide a detailed account of all applicable national or international measures that affect the WEF nexus. Instead, it focuses on those aspects that came up repeatedly during the study, both in the literature review and during primary data collection and analysis. It limits itself to providing a broad guiding framework relevant to the issues covered in the paper as a whole.

3.5.1 NATIONAL REGULATIONS AND POLICIES

From 2020 onwards, in the absence of changes to state revenues, alongside sanctions and the continuation of the conflict, the Central Bank of Syria issued increasingly stringent domestic regulations and policies, including tight import and export regulations.⁸⁹ These were issued in parallel with the spillover effects of the Lebanon crisis into Syria and those of the Caesar Act, and the accelerated worsening of an already compromised domestic economic performance. These policies tried to stabilize macroeconomic dynamics vis-à-vis external shocks (such as increases in the wheat price due to the war in Ukraine), and to

protect the national currency from severe depreciation.⁹⁰ The policies enacted tried to address challenges in financing imports critical to the WEF nexus, such as those of food and petroleum products.⁹¹

The government also acted to address fiscal pressure, issuing changes to fiscal and monetary policies and regulations to adapt to market changes, which limited the predictability and transparency needed by the private sector to adequately plan and adjust to changes. Such examples include the penalization for the use of foreign currency, set price ceilings for some specific commodities that cannot be overstepped, strict import and export controls, protective trade procedures, alongside others, all in the main objective of controlling the high depreciation of the local currency. For example, traders can either finance importation using their own resources of foreign currency outside of the Syrian banking system which could subject them to questioning and penalization or take advantage of the voluntary import financing platform created in 2021 by the Central Bank of Syria to facilitate importation activities. The platform required importers to deposit for months half of the value of imported goods/products in Syrian Pound when submitting a financing request to obtain an import license, leaving the deposit subject to currency fluctuation and severe loss in value. In August 2023 the platform was amended to allow for deposits in foreign currency, limiting loss in value, and later terminated in August leaving space for a new mechanism of imports funding. These policies negatively affected the private sector (especially SMEs), public spending and household budgets, further hindering the country's recovery. The measures introduced avoided more severe levels of depreciation of the national currency, but not its pass-through to inflation.⁹²

Correctly or not as a matter of the law, the interviewees who participated in this study indicated that these regulations and their application had a negative effect on the capacity of the private sector to continue doing business in Syria. Experts consulted for this study explained that the problem is not necessarily with the measures that were taken as such, given the macroeconomic condition of the country; the problem has been more about timing. If these measures had been introduced before 2019, and therefore before both the Lebanon Financial crisis and the Caesar Act, businesses could have absorbed the shock and could have had time to adapt. Instead, the measures came after those two events, with the result that SMEs have been worst affected. As indicated by other studies, in some instances this is contributing to weakening competition in the market, widening pre-existing monopolies, and exposing the market to further exploitation.⁹³ To address this critical situation, there is a need to carve out space for dialogue with all actors including the Syrian government to ensure that future policies will not hinder the recovery of the WEF nexus.

3.5.2 INTERNATIONAL LEGAL FRAMEWORKS

Sanctions imposed by the United States and EU represent another source of complexity that must be navigated, alongside counter-terrorism measures and sanctions imposed by the UN Security Council.⁹⁴ Sanctions and restrictions on exports into Syria have existed since before 2011.⁹⁵ From 2011, the EU and the United States significantly expanded the scope of the restrictions in their sanctions, explaining that the objective was to induce meaningful behavioral change by the Syrian government.⁹⁶ As indicated by the EU, it has put in place targeted sanctions against the Government of Syria and its supporters 'to halt repression and increase pressure in support of a lasting political settlement of the Syrian crisis in line with UNSC Resolution 2254'.⁹⁷ Similarly, the United States indicated in Act 1 of the Caesar Act that it introduced new sanctions on Syria since 'the Government of Syria's human rights abuses constitute an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States'.⁹⁸

Sanctions also sit alongside a range of other regulations, such as export controls and those relating to anti-money laundering and counter-terrorism financing. Syria also represents one of the most severe examples of the financial sector 'de-risking' and wider private and not-for-profit sector 'over-compliance', impacting negatively on humanitarian action and supply chains of essential goods and services, despite humanitarian exemptions in place.⁹⁹ These restrictions have impacts on the WEF nexus in Syria.¹⁰⁰

Within this framework, both the EU and the United States issued exemptions and general licences to protect humanitarian aid and key sectors such as food and water from the consequences of their restrictive measures.¹⁰¹ Humanitarian exemptions to US financial sanctions have incrementally and more explicitly covered the provision of funds or assets necessary for progressively delivering a wider range of humanitarian activities in Syria by aid organizations. For example, in November 2021, the US Office of Foreign Assets Control (OFAC) modified the general licence already contained in the 31 Code of Federal Regulations (CFR) 542, more clearly specifying that NGOs are authorized to engage in the purchase of refined petroleum products of Syrian origin for use in Syria, and certain transactions with the Government of Syria.¹⁰² Similarly, in the aftermath of the earthquake that hit the country in February 2023, the EU and the United States adopted important time-bound exemptions to the restrictions in financial sanctions, extended by the EU only for another six months.¹⁰³ As highlighted in recent research, these steps facilitated further reflection on how to continue ensuring that sanctions do not impact the humanitarian situation in Syria.¹⁰⁴ These steps were also the result of more sustained and constructive dialogue over recent years between the United States, the EU and humanitarian responders in Syria.¹⁰⁵

However, aid responders benefitting from humanitarian exemptions continue to operate in a highly regulated environment. For example, the exemptions did not cover restrictions in trade sanctions – the essentially comprehensive ones adopted by the United States that cover the (re)export of goods with more than 10% US content. Similarly, these exemptions have provided limited comfort on more sensitive sectors. This is the case for the energy sector – which is vital both for the functioning of water systems and the food supply chain – and for the livelihoods of people in Syria.¹⁰⁶ Hence, the complexity of the EU and US sanctions systems has also affected the capacity of the private sector and financial institutions to act in support of humanitarian activities and to support the WEF nexus more generally. As indicated earlier in the paper, when the private sector and financial institutions had to assess the risks of carrying out transactions in Syria against expected profit, decisions increasingly went in the direction of disengaging from the country. These decisions were taken also out of fear of incurring civil or criminal penalties, of being added to the list of designated persons by either the United States or the EU, or of incurring US secondary sanctions.¹⁰⁷

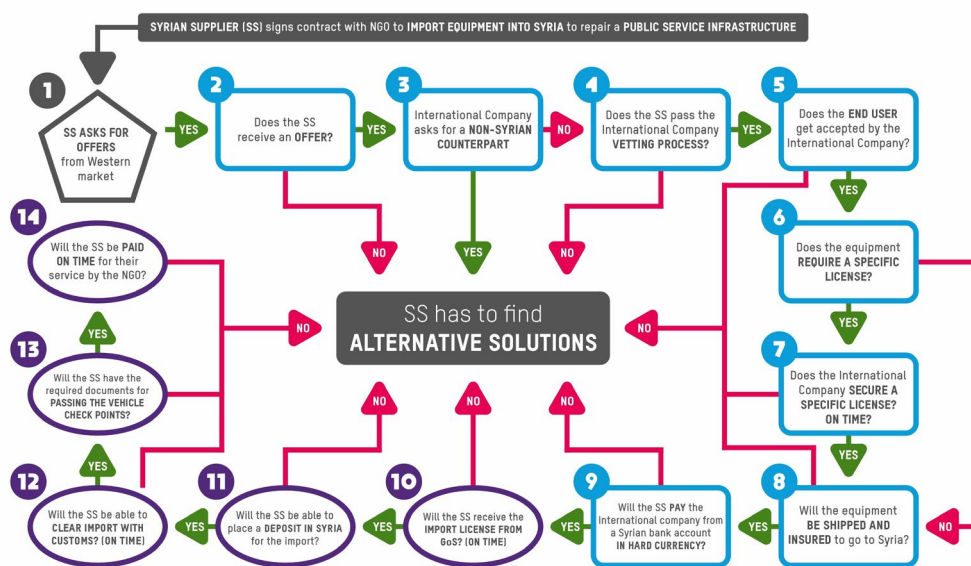
The result of the analysis conducted by Oxfam highlights the following tensions between the WEF nexus, sanctions, and their broader consequences:

- Designation of certain Syrian state entities vs the capacity of actors to perform in support of the WEF nexus when activities are linked to state-owned public services (i.e. electricity and water provision):¹⁰⁸ designations by both the United States and the EU include state-owned entities responsible for the provision of energy, and key banks in Syria (including the Central Bank). The United States has adopted a broader approach, by designating the Government of Syria as a whole.
- Restrictions on the energy sector vs the availability of fuels and electricity in Syria: the import, refining, transport and selling of petroleum products in Syria is a monopoly of state entities designated by both the EU and the United States. These restrictions equate to a de facto prohibition to export petroleum products to Syria by persons and entities subject to either jurisdiction, with US secondary sanctions further expanding the reach of its restrictions. These measures were accompanied by designations

(particularly by the United States) of vessels and companies allegedly found to export petroleum products to Syria.

- **Restrictions on trade with Syria vs the timely import of commodities, technology, services and equipment that are vital for the WEF nexus:** the US export control regulations have had more far-reaching effects than the restrictions put in place by the EU, also due to secondary sanctions.
- The chilling effect of sanctions on the private sector is exacerbated by **sanctions on some parts of the Syrian banking system and the risk of being exposed to US secondary sanctions vs the supply of goods and services from the international market vital for the WEF nexus.** In the experience of those interviewed by Oxfam, international private sector actors have been increasingly reluctant to carry out Syria-related transactions. This is true also for EU and US-based financial actors and companies exporting equipment and spare parts for water and electricity systems and the food supply chain. The chilling effect implies that regulations are sometimes unclear, uncertain or overbroad, which can lead people to refrain from engaging in permissible actions because they are unsure whether they will be legally sanctioned, even if the entity they would contract with are non-sanctioned. **At the base of this are considerations that weigh profit against costs and risks.**

Figure 6: The chilling effect: an example from Syria



Note: The blue rectangles are the international legal frameworks, and the purple ovals are the domestic regulations and policies. The figure shows how both interact. Source: Collated by the author from interviews carried out during an Oxfam research study, conducted in 2023.

The considerations made on national and international legal frameworks affect different steps of a procurement process that requires import of goods or services in Syria. According to scholars, sanctions also contribute to shrinking the market size, widening the space for a shadow economy to flourish, and creating fertile ground for monopolies of the market, exploitation by war economy and corruption.¹⁰⁹ Each step of these processes (see Figure 6) entails an increased cost for carrying out that transaction and an increased risk of exposure to sanctions or breaches of the national legislation. If the transaction is ultimately carried out, the final cost of the import of the equipment is at least two and a half times higher than the market price, and it will be lengthy in execution. The figure shows the obstacles involved in carrying out a standard transaction, as reported by interviewees.¹¹⁰

4 THE WATER-ENERGY-FOOD NEXUS AT HOUSEHOLD LEVEL: A DEEPLY COMPROMISED NEXUS

According to UN OCHA, ‘income insufficiency and degradation of livelihoods, diminished purchasing power, the contraction of the economy, lack of basic services, inflationary trends in key goods and services, widespread low productivity of inputs, and the impact of sanctions on availability and prices of basic commodities, specifically fuel, will continue to affect people’s ability to meet their most basic needs’.¹¹¹ The lack of water, energy and food plays a key role in exacerbating the condition of families in Syria today. This is why it is important to understand the interplay between these sectors at household level.

4.1 IMPOSSIBLE CHOICES PUSHING PEOPLE TO ADOPT NEGATIVE COPING MECHANISMS

In the parts of Syria where Oxfam works, the economic condition of families is in line with the overall situation in the country.¹¹² As costs for food, water, electricity and transport go up, and despite breadwinners taking on multiple jobs, families are left to make impossible choices to survive.¹¹³ Almost two-thirds of families (62%) reported cutting back on essentials, including reducing quantities of food purchased, heating, electricity, water and transport. The findings of Oxfam’s assessment show that approximately 1.6 million people reported relying on cutting quantities of food purchased as a main coping strategy to deal with lack of income at household level.

“The backup option became the main and only option.”

Employee in a public water facility, Syria, 2023

The economic condition of families has a direct impact on 1.3 million boys and girls under the age of 18 estimated to be living in the areas in Rural Damascus, Aleppo and Deir-Ez-Zor, where Oxfam works. In these areas, 8% of families reported taking the impossible decision of cutting back on boys’ and girls’ education as a coping strategy, so that boys could support the family or girls could marry early to overcome economic difficulties. The average monthly reported income of the families resorting to these coping mechanisms is less than US\$80. In the absence of alternative viable options to restore families’ resilience, this trend is bound to increase.

Expenditures directly related to the WEF nexus account for the biggest proportion of household expenditure each month. Eighty-two percent of household expenditure each month goes on water, food, energy and transport. Food costs, which used to account for less than 50% of a family’s monthly expenses before the crisis, now reach almost 70%, but this still does not fully cover needs. The average reported monthly income of families in the areas where Oxfam works is US\$40, with at least two family members working full-time.¹¹⁴ As at March 2023, a household of five required US\$298 to meet monthly basic needs, of which US\$113 was for food.¹¹⁵

As families become even more vulnerable, the population becomes increasingly dependent on external support. In the areas where Oxfam works, more than 35% of families taking part in this research reported placing additional expectations on the government

and on humanitarian organizations to cope with their current living conditions, increasing their level of dependency. Of the 4.2 million people living in these areas, more than half depend on food assistance delivered on a regular basis by humanitarian organizations, and more than 70% depend on subsidized bread from public bakeries.

4.2 ENERGY POVERTY AT HOUSEHOLD LEVEL: UNAFFORDABLE ALTERNATIVES

Energy Poverty: a definition

To date, there is no universally agreed definition of what energy poverty means (Anuga and Njenga, 2022). However, this paper follows the broad definition of energy poverty as “a situation in which households are unable to access essential energy services and products” (European Commission, 2023). Lack of access is found in “all conditions where there is a lack of adequate, affordable, reliable, quality, safe and environmentally sound energy services”, which should act in support of the early recovery of Syria and the self-reliance of its population (Habitat for Humanity, 2022).

Energy poverty levels reported in recent UN reports are similar to those verified by Oxfam in its data collection.¹¹⁶ In the areas assessed in Lattakia, Aleppo, Deir-Ez-Zor and Rural Damascus, almost 5.3 million people live with less than two hours of public electricity per day, 27% are disconnected from the public electricity grid, and 10% do not have any alternative electricity source at home. In some areas, people have been living in this condition for the past six years. Apart from lack of electricity, the other major challenge is lack of predictability in availability of electricity supply. There is no longer a schedule for electricity shedding, and families are unable to predict the times when electricity will be available. A functioning fridge and washing machine are now a luxury out of reach for more than 6.3 million people in those four governorates.¹¹⁷

Particularly from 2021 onwards, electricity shortages went in parallel with growing scarcity and a drastic increase in the prices of diesel and gas for domestic use, both in the formal as well as the black market. In the absence of effective social and economic safeguards for vulnerable families and with decreasing subsidy levels, families turned to the public electricity sector when electricity is available to run electric appliances to substitute for those previously run with petroleum products (stoves, air conditioning units, etc.).¹¹⁸ Similarly, in order to contain monthly expenditures, families cut back on heating costs or resorted to burning wood, plastic, ‘old clothes and shoes’, and any other items available so that they could keep warm in winter, at an environmental and health cost.¹¹⁹

Families tried to secure alternative sources of electricity for their basic needs. Almost 60% of families surveyed rely on batteries, recharged when electricity is available from the public network, but this can barely power LED lights and phone chargers during shedding hours of public electricity. In some areas in Aleppo and Rural Damascus, families are purchasing electricity at exploitative prices from privately run communal generators.¹²⁰ All they can afford are 1–2 amperes (amps) per living unit, which is barely enough to power a few bulbs and recharge mobiles, and this can sometimes cost more than half of a family’s monthly income.¹²¹ Some families have resorted to installing solar systems.¹²² However, this option remains inaccessible to most families due to high prices for purchasing, installing and maintaining the equipment as well as for practical reasons, especially in urban areas where available space to install solar panels is scarce.¹²³



Nawal, a mother from Aleppo shows how she burns plastic bags and bottles to fire the heater, since she cannot afford the costly and scarce fuel for heating. Photo Credit: Dania Kareh/ Oxfam.

As electricity has become increasingly scarce, and as alternative options remain unaffordable, the effects have reverberated across the other two elements of the nexus: food and water. At household level, families secure and preserve both water and food without counting on a dependable source of energy. For example, even when water is available through the public network or wells, families are unable to pump it into water tanks or house-level water systems due to lack of electricity. Similarly, lack of electricity to run fridges impacts families' ability to safely store and process food. More than 20% of families surveyed reported no longer buying food in bulk due to lack of safe storage options, and hence purchasing goods at a higher price. Similarly, families started to consume food they have bought based on what is going bad, irrespective of dietary and health considerations.

It is beyond the scope of this report to investigate the environmental impacts of energy poverty at household level. However, to date, Syria does not have regulations for the disposal of core equipment used by households, such as batteries and solar panels. Similarly, increased reliance on diesel-powered generators has severe consequences for air quality and pollution. The same is valid for improvised sources of heating and the increased reliance on cutting down trees for firewood.

4.3 ENERGY POVERTY, PROTECTION RISKS AND SOCIAL COHESION

Analysis of the data collected indicates that increased vulnerability exposes families to a wide range of protection risks, including child, early or forced marriage, forced recruitment and association of children in armed forces and groups, gender-based violence, economic exploitation, emotional distress, depression, family separation and child labour.¹²⁴ Increased vulnerability also has psychosocial effects on women, children, young people, people with disabilities and elderly people.

"I have children, and the washing machine. But one full cold cycle of washing takes between two to three days to complete due to electricity cuts. I need to wash all the rest by hand before or after working hours. I will go crazy one of these days."

Female teacher, Syria, 2023

4.3.1 THE IMPACT ON WOMEN

When supporting people experiencing energy poverty with unaffordable alternatives, it is important to recognize and address the deep-rooted gender inequalities at play. Women, who have been assigned the socially-constructed gender role of caretakers and homemakers, bear the brunt of energy poverty. Lack of electricity makes household tasks such as manual laundry and food preparation both physically demanding and time-consuming, leaving women in particular with little opportunity to work, spend time with their children, or engage in other meaningful pursuits. Oxfam's analysis reveals that for thousands of families, the unpredictable electricity cycle disrupts the sleeping cycle of females, who have to stay awake at night waiting for electricity so that they can do housekeeping, including cooking. This contributes to perpetuating the gender norms that confine women to the domestic sphere, limiting their agency and reinforcing societal expectations that devalue their contributions beyond the confines of the home.

According to community members interviewed by Oxfam in agricultural areas, conflict and its consequences result in women and adolescent girls taking on the almost complete responsibility for both the family and its agricultural endeavors. Notably, the shortage of energy means that numerous farming tasks, which were automated prior to the crisis, are now undertaken manually by women, disproportionately affecting them and affecting gender dynamics and inequalities. These tasks encompass activities such as manually weeding cultivated fields, spreading manure, excavating water channels, fixing damaged water channels and ploughing.

"One woman works now as ten men used to before the crisis. They became tractors, they became the living tools to farm in Syria."

Male farmer, Syria, 2023

In multiple instances, women have taken on the role of primary breadwinner, often juggling multiple jobs or increasing their work hours to earn sufficient income for their household. For those women who have land, they not only cultivate their own land but also work as daily labourer for others who own land, to maximize their earnings. In the agricultural sector, a female daily labourer earns around US\$0.20 per hour, with the maximum daily earnings reaching up to US\$3.00. However, this income is insufficient to cover the cost of a single meal for a family of five. Most of the women interviewed for this research reported that their daily income is not enough to cover the costs of transport to go to work in the fields, which had become exorbitant due to the energy crisis. Yet they go to work anyway in the hope of securing some free food while working on farms.

In these and other similar contexts in Syria, women's productive and reproductive workloads leave them no time to spend with their children. In the words of one woman interviewed for this study, 'Raising kids is becoming impossible. In the past, my mother used to read me a book before sleeping. Now, I am so exhausted at the end of the day, and when my kids go to bed, I have not even started my housework. I do not read a book to them before sleeping. It breaks my heart, but I simply cannot.'¹²⁵ Reportedly, hardship persists for women even as they age. Older women continue to work on the land well into their advanced years to provide for their families, exacting a significant physical and emotional toll. One older woman interviewed for this study said, 'I wish to die as soon as possible and end this pain'.¹²⁶

The disproportionate impacts of energy poverty on women require humanitarian actors to adopt gender-responsive approaches to address the challenges they face as energy poverty persists and deepens.

4.3.2 THE IMPACT ON CHILDREN

It is estimated that more than 1.6 million boys and girls under the age of 18 live in the areas where Oxfam works in Syria. For more than 250,000 of them, lack of electricity translates into increased fears, especially at night.¹²⁷ For the same reason, approximately a quarter of them do not go outside the house after dark. For instance, in rural areas, WASH facilities are frequently situated outside of households. In the absence of electricity, young boys and girls avoid using these facilities at night out of fear of potential assaults. Similarly, they avoid going outside at night due to the lack of street lighting caused by electricity shortages, which is reported to have amplified security risks such as kidnapping and theft.¹²⁸ This situation is further aggravated by the decreased accessibility and affordability of public transportation due to fuel shortages.



Fadia, 40, from Misiyf, rural Hama. Photo Credit: Islam Mardini/ Oxfam.

Energy poverty has been identified as a significant contributing factor that jeopardizes the health of girls and boys. This is primarily attributed to the absence of adequate heating during colder months and the deterioration of hygiene standards resulting from water scarcity.¹²⁹ Furthermore, in areas reached by Oxfam's work, lack of electricity is a major obstacle to learning at home for more than 250,000 children.¹³⁰ Participants in the Oxfam study highlighted that the absence of electricity and its repercussions for girls' and boys' lives also affect their psychosocial wellbeing. Families have reported that their children frequently display feelings of sadness, experience disrupted sleep patterns, and even exhibit early signs of depression.

"My child suffers from asthma, and we are unable to operate the ventilator due to lack of electricity".

Father, Syria, 2023

Children in all regions of Syria face various vulnerabilities. This is also true for rural areas under the control of the government in Deir-Ez-Zor and Aleppo. Before the crisis, children used to engage in agricultural work after school or during school breaks. However, the interviews highlighted a concerning trend whereby an increasing number of children are no longer attending school.¹³¹ According to respondents, this is especially noticeable among students who tend to drop out of school as they attain a basic level of reading and writing skills, usually around fourth or fifth grade. Home conditions that are not conducive to learning are reported to be a contributing factor. For example, more than 40% of children face difficulties in studying at night due to the absence of electricity.¹³² Additionally, a quarter of the families interviewed mentioned that their children are not studying after school due to the lack of electricity.¹³³ These unfavourable learning environments are compounded by heightened responsibilities within the household, which expose children to increased risks of engaging in child labour. Reportedly, some of these children are required to help tend their family's land and assist with farming alongside their grandparents, especially if their parents are absent because they are working in other governorates to supplement the family income.

4.3.3 THE IMPACT ON PEOPLE WITH DISABILITIES AND ELDERLY PEOPLE

The impacts of lack of electricity for people with disabilities and elderly people are even more concerning. In the areas where Oxfam works, estimates suggest that over a million people are either elderly or have a disability, or both. More than half of those individuals experience hygiene and health-related consequences directly attributed to the absence of electricity.¹³⁴ These include not being able to operate appliances necessary for health support (such as ventilators), not washing regularly, and experiencing sickness, especially during winter months. Families have raised concerns about challenges in preserving medicines during hot months without a functioning refrigerator. Often, these medicines spoil due to high temperatures and cannot be replaced due to insufficient family income. Signs of depression were reported for over 35% of people with disabilities and elderly individuals. These signs encompass consistent expressions of wanting to die, diminished social interactions, and limited mobility, all of which contribute to their reluctance to visit peers and seek medical attention when they are unwell.¹³⁵

4.3.4 THE IMPACT ON MALE YOUTH

Male youth in Syria constitute one of the most vulnerable population groups,¹³⁶ primarily due to conflict and lack of sustainable livelihood opportunities – factors that greatly influence their life choices. Throughout the crisis in Syria, many young men have either left the country or have gone into hiding to escape forced conscription. Others are serving in the military or being recruited by non-state armed groups. Many of those who survived the conflict bear physical injuries and deep emotional distress, while others lost their lives or are still missing.¹³⁷ Before 2011, in all the rural areas covered by this paper, male youths used to contribute to the family's agricultural activities, either after school hours or in summer months. By early 2023, the situation had changed significantly. In the areas surveyed, the male youth population had dwindled, also due to the aforementioned factors. The energy crisis, both in terms of lack of electricity and fuels as mentioned above, has further exacerbated the limited access to employment and the social and cultural opportunities that could help reduce distress among male youth. Those that have stayed in the area and are able to work, do so for at least 12 hours a day. This leaves no time for catching up with education and with other aspects of life. As an example, prior to 2011 in a particular area, a cultural centre operated by the community experienced a

monthly influx of nearly 800 young males with a diverse range of educational backgrounds. They engaged in activities such as studying, reading, and participating in cultural events. However, at the time of the research, there were less than 50 visitors a month, predominantly consisting of university students.

Insights from community members surveyed highlight that male adolescents are more susceptible to risky behaviours, such as spending time with negative influences on the streets or experimenting with substances. The vast majority (85%) of community members who participated in Oxfam's focus group discussions in Deir-Ez-Zor reported that they believed there was a connection between substance abuse among adolescent boys and the lack of healthy indoor activities during power cuts, as well as the lack of employment and opportunities to socialize.

"Home should be a sanctuary where one returns to seek a refuge from daily struggle. But the lack of electricity has turned homes into hell, leading to heightened levels of tension within families. This has resulted in frequent conflicts and emotional outbursts."

Member of the community, male, Syria, 2023

4.3.5 THE IMPACT ON SOCIAL COHESION

Energy poverty disproportionately affects people who are already vulnerable, who are less able to adapt to energy shortages than those who are better off financially. Energy poverty also increases inequality, which, in the long term, can have important consequences for social cohesion, both within and between communities.¹³⁸ Oxfam's study findings reveal that the availability of public electricity is dire in all the surveyed areas of Lattakia, Deir-Ez-Zor, Rural Damascus and Aleppo, regardless of the extent to which these areas were affected by the conflict. However, this perception differs among communities. Even when the disparities between communities are slight or non-existent, the energy deficit is acutely felt across significant social divisions, such as rural versus urban areas, different villages, or even within the same village or town. Lack of transparency in the Syrian government's decision-making processes on electricity distribution exacerbates these perceived inequalities. This paper concurs with other assessments indicating that energy poverty is becoming an additional stressor on social cohesion, with potential long-term implications for future reconciliation within the country.¹³⁹

"We survived the war, should we die from hunger now? Or keep depending on food baskets from organizations?"

Mother, Syria, 2023

5 THE WATER-ENERGY-FOOD NEXUS: MITIGATING TRADE-OFFS AND FOSTERING SYNERGIES

The Syrian conflict requires a comprehensive peace solution that is driven and owned by the people of Syria. However, until that time comes, Syrians should have unimpeded access to basic services. At present, the trade-offs between energy-water-food are bringing essential services on the brink of systemic collapse.

Syrians, along with the humanitarian response aimed at supporting them, have managed to navigate the multiple complexities in the country to a certain extent – as long as both the public and private sectors continued to operate at a reasonable level. With the increasing systemic collapse of both, the situation has become increasingly untenable.

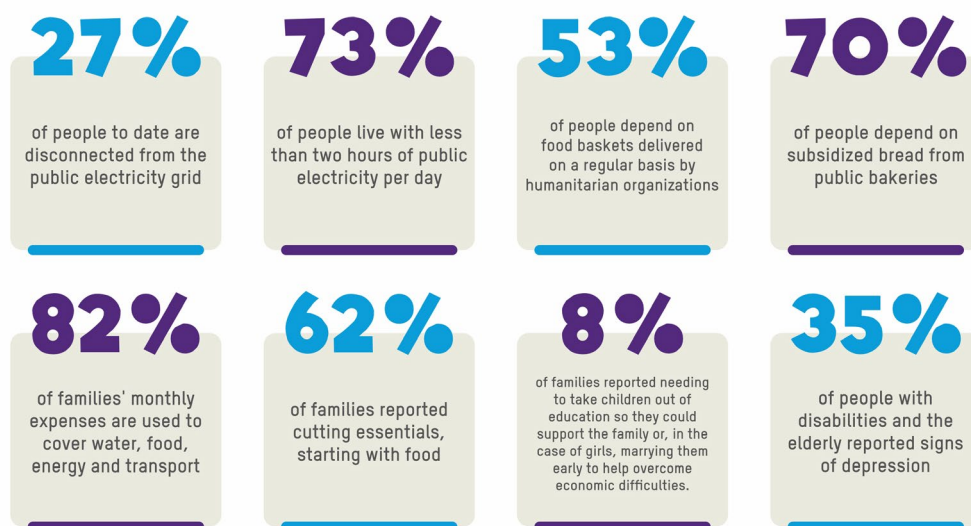
The analysis advanced by this discussion paper does not have the ambition to cover all the factors affecting the situation of the WEF nexus in Syria and their possible solutions.¹⁴⁰ For example, albeit outside of the scope of this document, the circumstances in other areas of the country not under government control are equally dire. Hence, a similar analysis for those areas would merit urgent attention, which could also provide parallel or complementary solutions. Similarly, the analysis of how to strengthen state institutions to counteract the effects of war economy and corruption would benefit from further attention, by also drawing lessons from existing literature on Syria and other countries in the Middle East.¹⁴¹ The paper focuses on those aspects that directly impact and limit Oxfam's work in the country; those that have not necessarily been explored in depth by earlier research; and those that emerged repeatedly during the literature review and primary data collection and analysis. Based on the findings of Oxfam's study, and to contribute to the ongoing dialogue on possible remedies to address the challenges connected to the WEF nexus in Syria and foster synergies between these three sectors, we advance some initial thinking on the following key questions.

5.1 HOW CAN THE WATER-ENERGY-FOOD NEXUS APPROACH HELP IMPROVE PEOPLE'S ACCESS TO FOOD AND WATER?

Intervening in the water and food sectors requires also addressing energy scarcity, which could bring immense relief to millions of people in Syria today. Operating water schemes without minimum secured levels of electricity, mostly due to the limited power generation capacity, is an impossible task. Similarly, the energy crisis is one of the main underlying causes of the disruption of the food supply chain; it impacts on the recovery of the agricultural sector and increases the costs of state-run food facilities and food industries, making it impossible to meet demand at reasonable prices. The lack of water, energy and food plays a key role in exacerbating the condition of families and the critical decisions they make for their survival. This is why understanding the interplay between these three sectors at systemic and household level could be a more effective way to inform decision-making and address basic needs related to the WEF nexus. Adopting a WEF nexus

approach more consistently could help improve people's access to food and water. The following suggestions could function as a starting point for further discussion.

Figure 7: Key figures from the areas where Oxfam works



Source: Based on Oxfam data gathered during the research phase of the 2023 study.

The WEF nexus approach can help to deliver more sustainable and effective interventions. In the absence of longer-term solutions, the broader energy situation – specifically availability of electricity – is bound to remain unattended. Hence, in the short term, finding more localized solutions is urgent. It is also key to preventing further degradation of the living conditions of the population in Syria, preventing the systemic collapse of the WEF nexus, and reducing the risk of further displacement within and beyond the country. More targeted humanitarian interventions could consider:

- *Enhancing the skills and capabilities* of public energy, water and food sector personnel to maintain and operate the systems that provide basic services.
- *Tightly monitored and well-targeted interventions* to transparently restore the technical capacity in vital power generation facilities, like those implemented prior to 2020, and maintain or repair the electricity transmission and distribution system.
- *Ensuring that water and food-related projects are sustainable from an energy perspective*, and that these take into account issues around social cohesion and conflict-sensitivity.
- *Early recovery programmes to restore Syrians' access to reliable basic services and sustainable livelihoods* within a framework of long-term and multi-year financial support to activities within the WEF nexus. These could be based on priorities identified by this study, where access to food and water is addressed together with access to electricity, as one cannot work without the other two.
- *Implementing pilot projects on the WEF nexus*, including on renewable energy, with the participation of the private, public and non-profit sectors through alternative financial mechanisms such as trust funds (provided that Do No Harm safeguards are applied).¹⁴²

- *Seeking clarity on what is and is not permissible in light of sanctions and export controls* in terms of imports into Syria of equipment and/or technology essential for the functioning of the WEF nexus (equipment for water systems and food processing, spare parts for the electricity system, etc.).¹⁴³ For example, while continuing to ameliorate well-framed humanitarian exemptions, other options could be explored, accountable to the concerns and interests of all actors involved, including the private sector, humanitarian responders and governments.¹⁴⁴
- *Systematic monitoring of energy poverty, its interaction with the water and food sectors, and related protection risks and negative coping strategies*, to guide interactions with stakeholders who can address the WEF nexus condition.

However, the severity of needs of the Syrian people cannot be addressed effectively and at scale only by delivering localized humanitarian interventions. Addressing the needs of millions of people for water and food without also addressing the energy crisis is an almost impossible task. As discussed earlier in this report, tackling the causes that hinder the recovery of the energy sector at macro and systemic level will require comprehensive and longer-term dialogue and engagement. The WEF nexus approach could be key to broadening that dialogue and expanding the range of possible solutions.

5.2 ARE THERE REALISTIC OPTIONS TO HELP ADDRESS THE ENERGY CRISIS IN THE COUNTRY?

"There is not one thing that this conflict has not changed. We work, and work, and work, but our situation does not change, it just gets worse."

Male farmer, Syria, 2023

Addressing the energy crisis in Syria does not have one single standalone solution, and certainly humanitarian organizations cannot come up with solutions on their own. From the analysis conducted in this paper, a 'one-solution-fits-all' approach would simply not work.

For example, reaching sustainable and transparent *ad-hoc* agreements between parties to the conflict on resource-sharing may address at least part of the shortcoming in electricity. However, this approach on its own would offer minimal motivation for conflicting parties to establish lasting agreements on resource-sharing without accounting for the interests generated by the war economy; and without exploring ways to further mitigate the consequences of financial sanctions, export control regulations, and the Syrian domestic legal framework for the energy sector more broadly.¹⁴⁵

Similarly, a technical dialogue on financial sanctions and export control regulations, which explores clear pay-offs, incentives and safeguards, would not alone be sufficient to address some of the challenges around electricity that have been explored in this report.¹⁴⁶ That dialogue would need to be accompanied by parallel efforts to ensure better governance of the sector, with equitable distribution of electricity by state-owned companies, and a revision of consumers' electricity tariffs, accompanied by social safeguards. This could also help address electricity distribution and transmission issues.

In parallel, this could allow the transparent importation of vital spare parts, capacitating energy sector public personnel and facilitating energy imports into the country. In turn, this approach could make solutions more sustainable in the long term and could mitigate the risk of exposing the state electricity sector to monopoly by just a few providers who are able to navigate the complex legal frameworks, or to manipulation to serve particular political agendas.¹⁴⁷

Finally, in the short term, solar energy could be an option to provide electricity to families and, to some extent, to water systems and agriculture. Whenever economically and logistically viable, Syrians have resorted extensively to installing solar systems. In the past few years, a number of legislative steps have been taken to encourage increased interaction between the public and private sectors on renewable energy.¹⁴⁸ However, these will take years to materialize. This paper does not propose resolving the electricity crisis by substituting state-operated electricity systems with individually owned solar installations. Although solar energy could serve as a crucial complementary remedy, it could hardly substitute the country's fossil-based electricity production.

The advancement of renewable energy should be pursued alongside tackling the obstacles that hinder fair competition in the sector. In general, renewable energy did not have a particularly successful history in Syria before the conflict.¹⁴⁹ In addition, the public are reluctant to adopt solar energy due to lack of standards, the sector being monopolized by a few providers, poor quality of materials, and high prices. The import of solar energy systems is also subject to lengthy and expensive customs procedures, while the effects of sanctions and export controls affect market size, payment channels and the number of international companies willing to trade with Syria.

In this context, it is the opinion of the experts interviewed for this research that realistic options to address Syria's energy crisis can only be explored through dialogue.

5.3 HOW MUCH CAN DIALOGUE ACHIEVE?

The approach used in this paper aims to kick-start a discussion to explore all potentially available options to overcome the existing trade-offs and foster synergies between energy, water and food. In turn, this could help devise more granular solutions that should also factor in the substantial political economy changes that have occurred in the country.¹⁵⁰ In the context of Syria, dialogue is challenging. For example, discussions about sanctions have frequently been manipulated to serve particular political agendas. However, this engagement is key to preventing any further deterioration of the humanitarian situation in the country, including in relation to the impact on the WEF nexus. The alternative to dialogue is to leave millions of people in Syria deprived of their basic needs, which could also create spill-over effects well beyond the country at a time when tensions are already extremely high in the region. In this context, and according to experts interviewed as part of this Oxfam research, dialogue could enhance transparency and resolve some of the tensions between international and national legislative frameworks, their application, and early recovery needs in the country.

To make progress in identifying and implementing solutions, a constructive multi-layered engagement should account for the views of all stakeholders involved in the delivery of the humanitarian response in Syria, their donors, countries and inter-governmental organizations that apply sanctions on Syria and the Syrian government. That engagement should also involve local authorities and independent civil society stakeholders.

Dialogue could build on previous positive experiences and start by addressing the tensions identified earlier in this paper between legal frameworks and people's needs. For example, more sustained and constructive dialogue over the past few years between the

United States and the EU and humanitarian responders in Syria has created space for action. In the aftermath of the earthquake in February 2023, this contributed to the provision by both the EU and the United States of important time-bound exemptions to their autonomous measures to enable timely and unhindered humanitarian response. It is also through dialogue that humanitarian agencies have carved out more access to people in need despite the multiple lines of controls, interests at play, and different behaviours and conducts of parties to the conflict. These examples could serve as a stepping-stone to carve out and work on similar spaces in-country to navigate the frictions identified in this report between Syrian regulations, their application and the WEF nexus.¹⁵¹ Similarly, constructive engagement is key to overcoming challenges related to the WEF nexus that have been exacerbated by sanctions, while at the same time devising adequate safeguards. These should act in support of humanitarian actors and the private sector when engaging with designated public bodies or supplying vital equipment, spare parts and technical advice in Syria.¹⁵²

ANNEX 1: RESTRICTIONS, EXEMPTIONS AND IMPACTS OF EU AND US SANCTIONS RELEVANT TO THE WEF NEXUS IN GOVERNMENT-CONTROLLED AREAS OF SYRIA

	US	EU	Examples of assessed impact
<i>Export controls</i>	<p>Started in 2004.¹⁵³</p> <p>Main prohibitions on trade to Syria in:</p> <p>All items on the Commerce Control List.¹⁵⁴</p> <p>Products of the United States, other than food and medicine classified as Export Administration Regulation (EAR)99, with some exceptions.¹⁵⁵</p> <p>For non-US items, if the value of incorporated US-origin controlled content exceeds 10% of its total value.¹⁵⁶</p> <p>Exemptions: For food and medicines classified as EAR99, with some exceptions. Office of Foreign Assets Control (OFAC) humanitarian general licences do not exempt from these prohibitions.</p> <p>Specific licensing: For all the other items, a licence is required. There is a general policy of denial for exports and re-exports to Syria of items subject to these restrictions.¹⁵⁷</p>	<p>Started in 2011.¹⁵⁹</p> <p>Restrictions on trade to Syria in:</p> <p>Goods, services and technology that may be used directly or indirectly for the internal repression of the Syrian people.¹⁶⁰</p> <p>Sale, supply or transfer of key equipment and technology for the oil and natural gas industry in Syria.¹⁶¹</p> <p>Sale, supply, transfer or export equipment or technology to be used in the construction or installation of new power plants in Syria.¹⁶²</p> <p>Exemptions: Protective items can be temporarily exported to Syria for exclusively personal use of UN personnel, personnel of the Union or its member states, representatives of the media or humanitarian and development workers and associated persons.¹⁶³</p> <p>Derogations: Can be granted by the competent authorities of each member state as stipulated in the EU legislation, also on humanitarian grounds.¹⁶⁴</p>	<p>Broad impact: Directly or indirectly impact the timely export of commodities, technology, and equipment to Syria, which are vital for the WEF nexus.</p> <p>Specific examples:¹⁶⁵</p> <p>Software used for the functioning of control and distribution of electricity and water provided by the public sector [US].</p> <p>Computer and laptops used by humanitarian responders, personnel in the public administration and private sector [US].</p> <p>Control systems for the electricity and water distribution systems managed by the public sector [US].</p> <p>Specific valves extensively used in the power generation system produced by the international company M00G, which cannot be substituted by other technology [US].¹⁶⁶</p> <p>Circuit-breakers for public electricity system [US].</p> <p>Pipes for main public water systems [US].</p> <p>Step-up and step-down transformers for public electricity and water systems [US].</p> <p>Chlorine for purification of water in public distribution systems (UE and EU).</p> <p>Large generators normally used in main water stations and power generation facilities by the public sector with US technology incorporated [US].</p> <p>Fertilizers containing dual-use chemicals [US and EU].</p> <p>Export controls also impact suppliers of these goods outside of the US jurisdiction due to both the risk of US</p>

	US	EU	Examples of assessed impact
	<p>However, the Bureau of Industry and Security (BIS) may review several categories of items on a case-by-case basis, which include 'items necessary for the support of the Syrian people, including, but not limited to, items related to water supply and sanitation, agricultural production and food processing, power generation, oil and gas production, construction and engineering, transportation, and educational infrastructure'.¹⁵⁸</p>		<p>secondary sanctions as well as the 10% US content rule.</p>
<p><i>Financial sanctions (including asset freezing, prohibition to providing services to Syria or to designated entities)</i></p>	<p>Started in 2004.¹⁶⁷</p> <p>Prohibition to export, re-export, sale, or supply, directly or indirectly, from the United States, or by a US person, wherever located, of any services to Syria and any new investments in Syria.¹⁶⁸</p> <p>Asset freeze of and prohibition of having transactions with the Government of Syria and its owned and controlled entities, including the Central Bank of Syria.¹⁶⁹</p> <p>Prohibition of having transactions with the main state-owned oil and gas companies and refineries, and other entities owned or controlled by those entities.¹⁷⁰</p> <p>Prohibition of having transactions with a number of Syrian financial institutions, including the Commercial Bank of Syria in 2004 and the</p>	<p>Started in 2011.¹⁷⁴</p> <p>Asset freezing and restrictions on financing, directly or indirectly:</p> <p>Designated main state-owned petroleum companies and refineries, and any other entity owned or controlled by those entities.¹⁷⁵</p> <p>Designated Syrian financial institutions, including the Commercial Bank of Syria in 2011 and the Central Bank of Syria in 2012.¹⁷⁶</p> <p>Other designated entities and persons.</p> <p>Provide, directly or indirectly, financial or technical assistance in relation to any project of construction or installation in Syria of new power plants for electricity production.¹⁷⁷</p> <p>Exemptions (introduced in 2023):¹⁷⁸</p> <p>Funds and economic resources belonging to designated natural or legal persons can be made available to ensure the timely delivery of humanitarian assistance or to support other activities</p>	<p>Broad impact: directly or indirectly impact the capacity of humanitarian actors and private sector to supply goods and services to Syria if connected to the public sector.</p> <p>Specific examples both due to EU and US sanctions, for transactions not restricted by export controls described above:¹⁸³</p> <p>Export of petroleum products to Syria de facto has been prohibited under both sanctions' programs, contributing to energy shortages in the country.¹⁸⁴</p> <p>Public sector has been unable to import (directly and in a timely manner) items not covered by trade restrictions (i.e. essential spare parts, equipment, and technical advice to maintain or repair essential public water, energy and food infrastructure) and to access insurance, transport and financial services (including, for example, bank guarantees) related to the import of these items.</p> <p>Syrian enterprises, particularly SMEs, based inside Syria have encountered multiple challenges in accessing international financial services.</p> <p>International tenders for items not covered by export regulations launched by the public sector and humanitarian organizations failed due to lack of offers by the international market.</p>

	US	EU	Examples of assessed impact
	<p>Central Bank of Syria in 2012.¹⁷¹</p> <p>Prohibition of having transactions with Syrian public authorities responsible for ports and shipping.¹⁷²</p> <p>General licence: Exemptions for non-commercial, personal remittances, official activities of international organizations and services in support of NGO activities.¹⁷³ These do not cover items restricted by export control regulations, which hence require a specific licence by BIS.</p> <p>Specific licensing: It needs to be requested to and obtained from OFAC.</p>	<p>that support basic human needs where such assistance and other activities are carried out by identified entities in the EU legislation.¹⁷⁹</p> <p>NGOs can access goods and services offered by those designated under the EU restrictive measures.¹⁸⁰</p> <p>Member states can provide financial support for trade with Syria for food, agriculture, medical and other humanitarian purposes.¹⁸¹</p> <p>Derogations: Can be granted by the competent authorities of each member state as stipulated in the EU legislation, also on humanitarian grounds.¹⁸²</p>	<p>Planned construction of new power plants with already secured lines of credit were not implemented.</p> <p>Syrian private sector supplying the humanitarian response in activities related to the WEF nexus faced recurring challenges to the direct and timely import of items not covered by trade restrictions (for more details on items and sectors restricted refer to the example of the public sector above).</p> <p>Import of gas did not materialize in recent years due to US sanctions.</p> <p>Import of electricity from neighboring countries in future, if resumed, would need to be authorized with specific licensing from OFAC.</p> <p>Seeking international technical advice by the Ministry of Electricity for repairing and/or maintaining existing power plants and working on renewable energies has been difficult due to US sanctions.</p> <p>Seizure of oil shipments at sea deemed to export oil to Syria.</p>
<i>Restrictions on petroleum products of Syrian origin or originating from Syria</i>	<p>Started in 2011.¹⁸⁵</p> <p>Prohibition of the purchase, import or transport of crude oil and petroleum products of Syrian origin or originating from Syria.¹⁸⁶</p> <p>General licence: For official activities of international organizations and services in support of NGO activities.¹⁸⁷</p> <p>Specific licensing: It needs to be requested to and obtained from OFAC.</p>	<p>Started in 2011.¹⁸⁸</p> <p>Prohibition of the purchase, import or transport of crude oil and petroleum products of Syrian origin or originating from Syria.¹⁸⁹</p> <p>Exemption: For identified entities in the legislation, including NGOs, if it is 'to provide humanitarian relief or assistance to the civilian population in Syria, provided that such products are purchased or transported for the sole purposes of providing humanitarian relief in Syria or assistance to the civilian population in Syria'.¹⁹⁰</p> <p>Derogations: Can be granted by the competent authorities of each member state as stipulated in the EU legislation, also on humanitarian grounds.¹⁹¹</p>	<p>Broad impacts:</p> <p>Public budget negatively impacted by these measures.¹⁹²</p> <p>Contributing factor to the energy crisis in the country.</p>

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NOTES

- ¹ See (Simpson and Jewitt, 2019, p.2) Examples from the authors are: water for food and food for water, energy for water and water for energy, and food for energy and energy for food.
- ² This paper also builds on the work of (Hameed, 2019; Daher et al., 2021; Keulertz and Mohtar, 2022; Lazaro et al., 2022).
- ³ See (UN Office for the Coordination of Humanitarian Affairs, 2022a, p. 8).
- ⁴ For instance, see (Batatu, 1999, 1984, 1981; Chatty, 2018; Gordon, 2022; Musarurwa and Kaye, 2016; Reilly, 2019; Trombetta, 2022, 2013; Vignal, 2021; Daher, 2019; Hallaj, 2021; Mehchy et al., 2022).
- ⁵ UNSCR 1636 (2005) concerning the 2005 terrorist bombing in Beirut, Lebanon; UNSCR 2199 (2015) which prohibits any trade in antiquities removed from Syria since 15 March 2011; UNSCR 2253 (2015), which imposes sanctions on ISIL/Da'esh and Al-Qaeda, including both ISIL/Da'esh as an organization and individual, named IS members, and prohibits trade and commerce with IS and named members.
- ⁶ It is beyond the scope of this section to analyse the reasons for the application of different sanctions programs on Syria and the effectiveness they have had thus far against their set objectives. For some reflections on these aspects see, for example, (Giumelli and Ivan, 2013; Seeberg *et al.*, 2015; Morgan, 2019; International Crisis Group, 2020; Oxford Analytica, 2020; Alalwani and Shaar, 2021; Erfan, 2021; Cardwell and Moret, 2022).
- ⁷ For example, a number of states, such as Norway, Switzerland and the UK, have adopted sanctions similar to those adopted by the EU.
- ⁸ These include embargoes on the provision of weapons or on equipment that might be used for internal repression; restrictions on the import of other goods; travel bans; and financial sanctions prohibiting making funds or assets available directly or indirectly.
- ⁹ (Harvard Law Review, 2020, p. 2).
- ¹⁰ These include not only coping mechanisms to avoid destitution but also criminal and informal activities and international trade and financial transactions connecting the economy inside the country with the global marketplace.
- ¹¹ This statement is corroborated by the research conducted by other scholars; see, for example, (Butter, 2015; Nasyrov *et al.*, 2018; Hatahet and Shaar, 2021; Seifan and Alhosain, 2021; UN Habitat, 2022).
- ¹² Power generation capacity, or installed power generation capacity in this paper, is intended as what is usually referred to as 'nameplate capacity'.
- ¹³ This approach draws its methodology from the guidance provided by the 2004 OCHA Handbook on Sanctions Assessment.
- ¹⁴ See for example (Dahi et al., 2022, p. 10).
- ¹⁵ Please see the definition provided in the disclaimer number 10 of this paper.
- ¹⁶ See, for further reference, (Oxfam and Danish Refugee Council, 2019; Oxfam and Norwegian Refugee Council, 2020).
- ¹⁷ See (UN Office for the Coordination of Humanitarian Affairs, 2022a).
- ¹⁸ See (UN Office for the Coordination of Humanitarian Affairs, 2022b, p. 25).
- ¹⁹ See (Rish, 2022; UN Office for the Coordination of Humanitarian Affairs).
- ²⁰ See (The Carter Center, 2020; Rish, 2021; Syrian Law Journal, 2021; The Syria Report, 2021; Akil and Shaar, 2022).
- ²¹ See (Aoun and Parvez 2023) for a more comprehensive assessment.
- ²² See (Hatahet and Shaar, 2021; Daher, 2022b).
- ²³ See (Carnegie Endowment for International Peace, 2015). The analysis of the data before the crisis relied predominantly on available secondary data that at times may have concealed vulnerabilities within Syria. To mitigate this risk, the research tried to triangulate information across multiple reports, and verify inconsistent information during interviews.
- ²⁴ These called all parties involved in the Syrian crisis to step up efforts to restore the population's access to basic services, including water, sanitation, health, education and electricity. UN Security Council Resolutions 2585 (2021), 2642(2022), 2672 (2023).
- ²⁵ See, for example, (Alalwani and Shaar, 2021).
- ²⁶ The areas under Syrian government control have an estimated population of approximately 14.5 million, accounting for 66% of the country's total estimated population. Data analysed from Humanitarian Needs Assessment Programme (HNAP) and UN OCHA datasets updated up to November 2022.
- ²⁷ (Bessler, Hugh and Garfield, 2004).

- ²⁸ The interviews were conducted directly by the international consultant hired for the study in different parts of the country (Rural Damascus, Homs, Hama, Lattakia, Aleppo, Banyas, Deir-Ez-Zor). A number of interviews were conducted with experts outside Syria. The respondents were 76% male and 24% female. Their profile varied: 16 with legal expertise; 116 with food supply chain expertise; 62 with energy expertise; 48 with water expertise; 86 to inform context analysis. Fifty percent of respondents were stakeholders from the private sector; 13% were experts from academia or the aid sector; 37% were technical staff in the Syrian public sector.
- ²⁹ The sample size utilized has 95% level of confidence and 4% margin of error, with a population proportion of 64% vis-à-vis the total population living in Government of Syria-controlled parts of the selected governorates and vis-à-vis the total population living in those areas.
- ³⁰ To this end, a dedicated section of the methodology looked at mitigating and reducing the risk of biases in the responses of the participants taking part in surveys and interviews. The methodology was then applied during the data collection.
- ³¹ The main elements considered in the analysis were: major events that affected the power plant (major technical failures, destruction, and so forth); overall available capacity [MW]; capacity gap due to technical reasons [MW]; capacity gap due to external factors [MW]; utilized capacity by Public Establishment for Electricity Generation (PEEG) [MW]; capacity gap due to lack of input [MW]; total gross electricity produced [GWh/y]; operational efficiency [%]; efficiency of the facilities [%]; number of operating hours [h].
- ³² This represents the 30% of the total population living in Government of Syria-controlled areas and the 58% of the population living in government-controlled parts of Lattakia, Rural Damascus, Aleppo and Deir-Ez-Zor. In the governorates where Oxfam works, the estimated overall population is above 7.2 million.
- ³³ See in particular (Mehchy *et al.*, 2022). For further analysis, see (Abu-Ismaïl *et al.*, 2011; Achy, 2011; Goulden, 2011; Makki, 2018; Mehchy and Turkmani, 2021).
- ³⁴ Before the civil war broke out, there had been cuts to fuel subsidies. For an analysis of these issues, see (Almohamed and Birner, 2019).
- ³⁵ Until the end of 2018, the availability of diesel and gas at subsidized prices started to decrease, while theoretically remaining unrestricted in terms of quantities allocated per family. Quotas were introduced between 2016 and 2018 in some governorates, testing the system of 'smart cards'. The system was rolled out across the country from 2019 onwards, and from that time, quotas and more intended controls were gradually introduced (AW, 2020; North Press Agency, 2021; Alderzi, 2022; Daher, 2022a). These cards were issued by the Ministry of Internal Trade and Consumers' Protection, for Syrian and Palestinian families, to be used inside Syria. When the project was initiated in 2019, its purpose was to enable citizens to purchase basic goods (food items and fuel for domestic use) at prices much lower than on the market. When it comes to subsidies, from 2022 onwards, Syrians are divided into two categories, both having family smart cards to be able to purchase commodities sold by public establishments: (1) families benefitting from full subsidies, who can purchase food and non-food items at heavily subsidized prices; and (2) families without subsidies, who have to purchase food and non-food items at higher prices than those in the above category, but still cheaper than the market price. Examples or categories excluded from the subsidies are: doctors, pharmacists, lawyers, engineers who have been practising the profession for more than ten years gas stations owners, owners of tourism companies, shareholders who have about 5% or more of the shares within the companies listed on the Damascus Securities Exchange, owners of private hospitals, medical centres and laboratories, owning a car made 2008 and later of a capacity higher than 1500 cc.
- ³⁶ This was also an issue that was present before the conflict. See (Daher *et al.*, 2022, p. 2).
- ³⁷ See (Daher, 2021, p. 7).
- ³⁸ The price of a 10kg gas cylinder is increased for the fully subsidized price from 11,000 Syrian pounds (SYP) to 16,500 SYP and for the partially subsidized price from 35,000 SYP to 51,500 SYP. The price of a 16kg commercial gas cylinder is set (with or without smart card) at 77,500 SYP. The Octan fuel litre price increased from 4,800 SYP to 7,600 SYP (23 May 2023).
- ³⁹ See (Daher, 2022a). The electricity tariff in Syria for household consumers is approximately 39 SYP/kWh, well below production costs as well as prices in other Mediterranean and Arab countries (Almohamed and Birner, 2019). This tariff is equal to US\$0.005 /kWh with exchange rate at 7,200 SYP/US\$. Considering that at the time of writing, electricity generation in Syria was heavily reliant on heavy fuel oil (HFO), the cost of kWh produced from fuel oil is between 0.18 and 0.2 US\$/kWh (calculations of technical experts consulted). See also (Krepl *et al.*, 2020) for additional insights on the issue. For comparison only: the price for household electricity is: Iraq 0.013 US\$/kWh, Jordan 0.1 US\$/kWh, Italy 0.46 US\$/kWh, Spain 0.37 US\$/kWh, Greece 0.19 US\$/kWh, Turkey 0.08 US\$/kWh, United Arab Emirates 0.08 US\$/kWh (data publicly available on the internet). For lines on voltage level of 0.4/20 kV and above exempted from load shedding, for industrial and commercial purposes, the price was raised to the equivalent to 450 SYP/kWh. For hotels, the price was increased to 800 SYP/kWh.
- ⁴⁰ The smallest-scale consumer in Syria is estimated to require between 480 and 500 kWh per month. As a matter of comparison, at the time of writing, figures for other countries were USA 886 kWh/m, Turkey 235 kWh/m, Lebanon 215 kWh/m, Iraq 104 kWh/m, Jordan 160 kWh/m, Spain 446 kWh/m, Italy 417 kWh/m (figures gathered by the author from internet sources).
- ⁴¹ The issue of fuels availability in the country will be covered later in the paper.
- ⁴² This statement is corroborated by the research conducted by other scholars; see, for example, (Butter, 2015; Nasyrov *et al.*, 2018; Hatahet and Shaar, 2021; Seifan and Alhosain, 2021; UN Habitat, 2022).

- ⁴³ For further reference, please note that the electricity generation system in Syria is primarily under the responsibility of the Public Establishment for Electricity Generation (PEEG) under the Ministry of Electricity (83% of the power generation system). The system is fed by three facilities run by the Ministry of Petroleum and Mineral Resources (2%) and by three hydropower facilities under the responsibility of the Ministry of Water Resources (15%). These figures do not include the electricity produced by the three facilities under the responsibility of the Ministry of Petroleum and Mineral Resources as data was not available from 2017 onwards. However, prior to that year, these facilities contributed only 2% of the overall gross electricity produced each year in the country. Hence, the absence of this data has rather limited impact on the overall conclusions of this paper.
- ⁴⁴ In the absence of a sound and up-to-date energy master plan, the estimated demand is based on figures provided by the Ministry of Electricity and compared with findings of others working in the sector. For a reflection on the challenges involved in accurately estimating electricity demand in-country, see (Hatahet and Shaar, 2021, p. 25).
- ⁴⁵ See also (Butter, 2015; Nasyrov *et al.*, 2018; Alwazah *et al.*, 2020; Hatahet and Shaar, 2021; Seifan and Alhosain, 2021).
- ⁴⁶ Power generation capacity, or installed power generation capacity in this paper, is intended as what is usually referred to as 'nameplate capacity'.
- ⁴⁷ Based on findings of the Oxfam study that informs this paper. These factors are calculated on the total nameplate capacity installed (at the time of writing) in Syria to generate electricity. It does not account for other components, such as import of electricity from neighbouring countries or plans for the construction of new power plants. The capacity loss in facilities which are, at the time of reporting, under government control but were affected by destruction or sabotage due to conflict is categorized here under conflict factors.
- ⁴⁸ The electricity generation system in Syria primarily relies on fossil fuels (94% of electricity produced in 2011).
- ⁴⁹ This approach draws its methodology from the guidance provided by the 2004 OCHA Handbook on Sanctions Assessment.
- ⁵⁰ The model proposed by Bessler *et al.*, (2004) categorizes events and causes according to their chronological proximity to the outcome of interest (in this case, the deficient power generation capacity in government-controlled parts of Syria). Those are defined as proximal or distal in light of the time period in which they occurred. In order to keep this paper focused and at a reasonable length, categorizations and definitions were simplified.
- ⁵¹ This would encompass importing electricity from neighbouring countries; reconnecting facilities to the national grid that are outside government control at present; rebuilding destroyed facilities; repairing power plants that are out of order; building new power plants; and making fuel available.
- ⁵² An event or cause is sufficient if no other events are required for the outcome to occur. An event or cause is necessary if it is a condition for the outcome to happen.
- ⁵³ The EU restrictive measures do not prohibit the repair of facilities generating electricity that pre-existed before the conflict. The US authorized this type of activity with the GL22 as long as the facilities remain outside of the control of the Syrian government.
- ⁵⁴ Funds for these projects were allocated prior to the start of the conflict by a number of international development financial institutions, and were blocked as a result of sanctions, becoming inaccessible to the government. In the last three to four years, projects for new power plants were discussed between Syria and Iran/Russia, and were picked up to some extent by media. However, it has not been possible, within the scope of this paper, to verify this information. For further reference in regards to the applicable restrictions, see Annex 1. See also art.12 of the Council Regulation (EU) No 36/2012; The construction of a new power plant in Syria would equate to knowingly providing significant financial, material, or technological support to the Government of Syria. The US prohibits transactions with the Government of Syria, which is responsible for public electricity generation and distribution in the country. Hence, restrictions listed in 31 CFR 542 apply to this activity. The prohibitions of the Caesar Act make it applicable also to non-US persons.
- ⁵⁵ In the table, the statement 'it is not possible to build new electricity facilities' refers to what is explained in the main body of the report. Specifically it refers to "agreed projects for constructing new power generation facilities (for an expected additional capacity of 1,150 MW) halted in 2011". The table offers a summary of the results of the broader analysis conducted in the study commissioned by Oxfam and conducted between October 2022 and May 2023.
- ⁵⁶ This is mostly due to US export control regulations and financial sanctions. The EU sanctions do not affect the maintenance of already existing power plants per se. However, bank de-risking of EU-based financial institutions has impacted payments to EU suppliers by both the public and private sectors in Syria, which received services and/or goods.
- ⁵⁷ Based on interviews with technical sectoral experts at national and international level between January and May 2023.
- ⁵⁸ For example, see (United Nations Development Programme, 2017).
- ⁵⁹ Technical experts interviewed for this paper indicated that this was mostly due to the entry into force of the Caesar Act.
- ⁶⁰ It is relevant to flag that this type of intervention would require technical assessments in-country first, feasibility studies, and agreement with Syrian counterparts prior to starting the procurement process. This alone, in the experience of those interviewed for this study, could easily take up to a year. The procurement process, which often entails the manufacturing of specific parts from zero, could take another year or more, particularly if licensing is needed from sanctions authorities. Finally, the spare parts would need to be transported, installed and tested on site under close technical supervision. All of this requires additional time.

- ⁶¹ On this point, see (Hallaj, 2021; Mehchy and Turkmani, 2021; Mehchy *et al.*, 2022). Please also note that sanctions are not a sufficient cause to generate the overall gap in the country in 2022, as the government would still need to secure and then allocate sufficient levels of resources to repair the facilities and fuel to run this capacity.
- ⁶² This point draws on the analysis proposed also by (Shaar, 2019; Beeri, 2022).
- ⁶³ See Annex 1 for additional details on designations and US maritime advisories. For incidents at sea (seizure of oil tankers) see (Subedi, 2021, pp. 255–76).
- ⁶⁴ See (Seifan and Alhosain, 2021). It is acknowledged that there are also factors related to losses in the system. However, albeit covered by the Oxfam study, these are not covered in this paper to keep it at a focused and reasonable length.
- ⁶⁵ Shedding, or load shedding, is a controlled way of rotating the available electricity between different areas, by interrupting the supply of electricity, often on a rotational basis. These measures are introduced when demand for electricity exceeds the available supply and in order to protect the power infrastructure.
- ⁶⁶ 10,000 operations, 50 times full fault operations.
- ⁶⁷ See (UN Office for the Coordination of Humanitarian Affairs, 2022a, p. 112).
- ⁶⁸ Sphere standards available at: <https://handbook.spherestandards.org/en/sphere/#ch001>
- ⁶⁹ See, for example, (ICRC, 2021; Rish, 2022). According to respondents interviewed for the study conducted by Oxfam, this is the range needed by water schemes to ensure that water reaches all segments of the water system without interruptions, allowing scheduling distribution in different locations.
- ⁷⁰ A very limited number of water facilities covered by Oxfam’s study were recently connected to electricity lines exempted from shedding with the support of humanitarian organizations.
- ⁷¹ This is due to multiple reasons ranging from feasibility, costs, sustainability, national and international regulations on trade, and so forth.
- ⁷² However, in most cases, these had sufficient capacity to run water stations at only half of their capacity.
- ⁷³ This used to be done even before the crisis, but mostly only in remote rural areas in summertime, which had still to be connected to the main network, or in connection with water scarcity due to droughts. With the start of the crisis, water trucking became an essential business. Vicious and remunerative economic cycles flourished around the delivery of drinking water by trucks in many parts of the country (Daher, 2022b).
- ⁷⁴ See, for example, (Oxfam and Danish Refugee Council, 2019, p. 14).
- ⁷⁵ Prices change from one location to another due to distance of delivery point from source and availability of electricity to pump water at delivery point.
- ⁷⁶ See (Sphere Project, 2023).
- ⁷⁷ Main big water stations have always been prioritized, with lines of electricity exempted from shedding throughout the conflict.
- ⁷⁸ Specifically on sanctions, see (UN Office for the Coordination of Humanitarian Affairs, 2022a, p. 85).
- ⁷⁹ This conclusion was verified during data collection and is supported by the literature. See, for example, (ICRC, 2021).
- ⁸⁰ This is based on the data collected for the study as well as Oxfam’s operational experience in the country. During the study, other factors emerged. For example, conflict, displacement, death, age turnover (retirement) and low salaries severely reduced the number of employees working in the water systems visited. This limits the capacity of the facilities to monitor the water schemes, run them and deliver the required maintenance on time. A further aggravating factor affecting the quantity of water reaching end users is illegal connections by unauthorized users. In order to keep this paper focused and at a reasonable length, these factors will not be explored further in this paper.
- ⁸¹ As reported by most of the interviewees during the study conducted by Oxfam. The Caesar Act stands for the Caesar Syrian Civilian Protection Act.
- ⁸² See (UN Office for the Coordination of Humanitarian Affairs, 2022a, p. 26). For WFP reduced funding, refer to (World Food Programme, 2023a).
- ⁸³ Calculations by the author based on the answers collected during field visits. Exchange rate applied equal to 7,200 SYP/US\$.
- ⁸⁴ The quantity accessible as subsidized price from the government at 700 SYP per litre is equal to 2,500 litres a month. They need to purchase the rest from the parallel market, which is not a risk-free exercise given that in Syria this is illegal. The price paid in 2023 per litre of fuel in the parallel market was equal to SYP 14,500 per litre.
- ⁸⁵ Reported 20,000 SYP, applied exchange rate 7200 SYP/US\$.
- ⁸⁶ See also (Daher, 2020).
- ⁸⁷ See Annex 1 for additional details. See also (Lyme, 2012, p. 61).

- ⁸⁸ See (Kanfash, 2022). This was also indicated during a number of interviews conducted to inform this report. For instance, there are well-documented instances of failures in importing food and grains in recent years (FAO 2021, p. 31). Ismail *et al.* (2019) provide a very thorough analysis of the causality existing between the energy sector shortcomings and the food security index, linking them both to sanctions. Financial sanctions influence international logistic and financial sectors either directly (if the transactions involve blocked entities like governmental bodies) or indirectly, due to the chilling effect and overcompliance. For additional reference, see Annex 1.
- ⁸⁹ The most important step taken, in legislative terms, was the 2021 Central Bank of Syria Resolution 1070/2021, later modified by decision number 1292/LA dated 14 October 2021, which revised import and export regulations. See also (Rish, 2021; Syrian Law Journal, 2021; The Syria Report, 2021). This resolution and its modification regulate the process for funding the import of raw materials into the country, processed through money exchange companies. It relates to the documentation and requirements that shall be provided by the importer and the exchange company. The decision imposes limitations on the merchants for importation, including ceilings for import of certain goods, depositing an equivalent value of the foreseen transaction in a financial institution in the country until well after the completion of the transaction, and so forth. The modification provides some liberty to the importers of raw materials.
- ⁹⁰ See (Aoun and Parvez 2023, p. 20).
- ⁹¹ See (Makki, 2020).
- ⁹² See (Aoun and Parvez 2023). The exchange rate pass-through is the effect of exchange rate changes on domestic inflation.
- ⁹³ See in particular (Mehchy *et al.*, 2022). For further analysis, see also (Abu-Ismaïl *et al.*, 2011; Achy, 2011; Goulden, 2011; Makki, 2018; Mehchy and Turkmani, 2021).
- ⁹⁴ Other countries have applied sanctions to Syria. Some countries have tended to follow the US and EU systems for their own autonomous measures. For example, a number of states, such as Norway, Switzerland and the UK, have adopted sanctions similar to those adopted by the EU.
- ⁹⁵ See further analysis at (Hersh, 2003; Moret, 2015; Arslanian, 2019; Daher and Moret, 2020; The Carter Center, 2020; Alalwani and Shaar, 2021; Davis and Ness, 2022).
- ⁹⁶ See (Alalwani and Shaar, 2021).
- ⁹⁷ See (European External Action Service (EEAS), 2020, p. 2).
- ⁹⁸ See (U.S. Department of the Treasury, Office of Foreign Assets Control (OFAC), 2013a, p. 3). The *Caesar* Syria Civilian Protection Act of 2019 (Act, p. 1) was signed into law by US Congress on 21 December 2019 (EO 13894 of 14 October 2019). The Act is due to expire in December 2024 (The Carter Center, 2020). See also (The Carter Center, 2020; U.S. Department of State, 2020; Diakonia International Humanitarian Law Center, 2021).
- ⁹⁹ In connection to sanctions, financial de-risking refers to situations where financial institutions terminate or restrict commercial relationships with customer categories to mitigate the risk of being exposed to sanctions. See also (Leclerc, 2023, p. 7).
- ¹⁰⁰ A more granular summary of relevant EU and US sanctions affecting the water-energy-food nexus in Syria is provided in Annex 1.
- ¹⁰¹ For exemptions for food and medicine to the US export control regulations see 15 CFR 746.9; for the provision allowing EU member states to provide financial support for food, agriculture, medical and other humanitarian purposes see art.18.3 of the Council Decision 2013/255/CFSP. See 31 CFR 542.516 for general license for NGOs, which includes activities in support of the WASH sector. See also (European Commission, 2017; European Union, 2023). For additional reference, see Annex 1 of this report. See also (Human Rights Watch, 2023b).
- ¹⁰² See 31 CFR 542.516(a).
- ¹⁰³ See the guidance provided by DG-ECHO regarding Syria on its website. EU exemption/derogation provisions are in (EU) No. 36/2012 art. 6a(1) and 16a(1) (exemptions); art. 16a(2) (derogation) and in Council Decision 2013/255/CFSP art. 6 and 28a. For further reference see (European Council, 2023; European Union, 2023; OFAC, 2023c, 2023a).
- ¹⁰⁴ See (Leclerc, 2023; Moret, 2023).
- ¹⁰⁵ Annex 1 of this paper provides a more granular account of EU and US sanctions restrictions and exemptions, and a list of examples. For the interpretative guidance to restrictive measures on Syria issued by the EU, please see (Council of the European Union, 2016, 2017; European Commission, 2017, 2021a, 2021b; European Union, 2023). For the interpretative guidance to US sanctions please see (U.S. Department of the Treasury, Office of Foreign Assets Control (OFAC), 2010, 2013b, 2013a, 2014a, 2014b, 2015, 2016, 2022a, 2022b). The analysis of these has been widely covered in the existing literature and will not be analysed further by this study. See, for example, (Aita, 2020a; Walker, 2020; Norwegian Refugee Council and UNICEF, 2022;).
- ¹⁰⁶ The only general licence which contains an explicit reference to electricity infrastructure and clean energy is the GL22 issued in 2022 (U.S. Department of the Treasury, Office of Foreign Assets Control (OFAC), 2022b). However, this was issued with territorial restrictions, and valid only for areas outside the control of the Government of Syria.
- ¹⁰⁷ According to interviews with sectoral experts between February and April 2023. This reflects also the opinion of the majority of those interviewed for this paper. Correctly or not as a matter of law, interviewees associated US secondary sanctions with the entry into force of the Caesar Act. In the view of the experts interviewed, this Act became particularly impactful and known also due to the amplifying effect it received through the media. The risk of being exposed to US

secondary sanctions has a dual dimension: first, it exposes non-US persons to the risk of being added to the list of US blocked persons for having conducted transactions prohibited by the US sanctions. This means, in practice, that all property and interests of these persons in property with a link to the US are blocked and may not be transferred, paid, exported, withdrawn, or otherwise dealt in. A designation of any person on the US Specially Designated Nationals (SDN) list, even in the absence of interests within the United States, would be a significant setback for any business. It would translate into becoming a pariah of the international banking system, insurance systems and the US banking circuit. This risk is not new and not specific to Syria only. It can be traced back to the language of Executive Order No. 13399 of 2006. Legal practitioners, interviewed in March 2023, indicated that this Executive Order introduced a language that for the first time, in effect, introduced the concept of secondary sanction as in the ability of the US authorities to add to the SDN list persons (both US and non-US) that had made available resources to designated persons in Syria. This generated a degree of risk (and fear) for those that were dealing with Syria even outside the US 'nexus'. Although the actual designation of non-US persons under this Executive Order did not materialize, what this authority did in effect was to start creating the risk of secondary sanctions. The Executive Order allowed for blocking properties and properties' interests for persons assessed by the Secretary of Treasury in the US as having 'materially assisted, sponsored, or provided financial, material, or technological support for, or goods or services in support of, any such terrorist act, bombing, or assassination attempt, or any person designated pursuant to this order' (Executive Order No. 13399, sec. 1, (B), (iii)). The blocking applies also to any entities that are owned, directly or indirectly, 50% or more by one or more blocked persons. This language has been used for the first time in this Executive Order, and then systematically replicated in any following new Executive Order. Second, it exposes non-US persons to the risk of incurring sanctions, in the form (for example) of civil and criminal penalties. These are stipulated in the Caesar Act. As stipulated in Section 206 of the International Emergency Economic Powers Act (50 U.S.C. 1705), these range from civil penalties (in an amount not to exceed the greater of (1) \$250,000; or (2) an amount that is twice the amount of the transaction that is the basis of the violation with respect to which the penalty is imposed) to criminal penalties (consisting of, upon conviction, a fine of not more than \$1,000,000, or if a natural person, imprisonment for not more than 20 years, or both.' See also (Aita, 2020b; Schaar, 2021).

¹⁰⁸ Sanctions imposes restrictions on dealing with people who are listed by a government or a multi-lateral body. Under the legislation they're referred to as "designated persons".

¹⁰⁹ See, for example, (Mehchy and Turkmani, 2021, p. 32).

¹¹⁰ The steps summarized in the figure have been gathered through interviews with the Syrian and international private sector during data collection. The interviews took place between January and April 2023 and covered 63 people and 48 interviews. The listed steps/challenges were consistently reported during the course of the interviews.

¹¹¹ See (UN Office for the Coordination of Humanitarian Affairs, 2022a, p. 70).

¹¹² Baseline reference of values before the crisis was collected during the household survey as described in the methodological section of this report. The information gathered was fact-checked with relevant available statistics, including those of the (Central Bureau of Statistics - Syria, 2009).

¹¹³ Baseline values and changes in trends over the years of these negative coping mechanisms have not been systematically monitored. The survey carried out to inform this study could represent a baseline for future assessments in the same areas looking at negative coping mechanisms to overcome economic hardship.

¹¹⁴ Data collection was carried out in Syrian pound (SYP) values, converted to US\$ using 7,200 SYP as the conversion rate.

¹¹⁵ This is referred to as the Minimum Expenditure Basket (MEB). See (World Food Programme, 2023b).

¹¹⁶ See (UN Office for the Coordination of Humanitarian Affairs, 2022a, 2022b). For further insights on definitions of energy poverty, see (Anuga and Njenga, 2022; Habitat for Humanity, 2022; European Commission, 2023).

¹¹⁷ Having a functioning fridge or running the washing machine was the normality for an average Syrian family before the conflict.

¹¹⁸ This trend was present even before the conflict, due to reduced costs of public electricity fees.

¹¹⁹ Interview with a Syrian family, April 2023.

¹²⁰ Five percent of surveyed families.

¹²¹ With one ampere, a family can power two bulbs and one mobile phone. The cost for one ampere from a communal generator for 12 hours of electricity a day is US\$18 per month – 45% of the average household's monthly income, as reported by respondents in the survey conducted by Oxfam.

¹²² More than 12% of surveyed families.

¹²³ For example, to have a dignified standard of living, a family would require a solar system of 55 kW, which costs approximately between US\$6,000 and US\$7,000 (14.5 years' worth of income for an average Syrian household) and requires between 20 and 25 square meters of roof space. A system like this would enable them to simultaneously run lights, a TV, fridge, washing machine (cold water only), fans and chargers for phones and laptops.

¹²⁴ From the data collected, it is not possible to carry out a quantitative analysis of these risks. However, these are elements that came up repeatedly in the qualitative data collected through the survey and semi-structured interviews.

¹²⁵ Interview with a farmer in Syria, March 2023.

¹²⁶ Interview with a farmer in Syria, March 2023.

- ¹²⁷ Data from Oxfam’s household survey and semi-structured interviews conducted between February and April 2023.
- ¹²⁸ Data from Oxfam’s household survey and semi-structured interviews conducted between February and April 2023.
- ¹²⁹ According to the data collected, this affects more than half a million boys and girls under the age of 18 in government-controlled parts of Syria where Oxfam is working.
- ¹³⁰ For example, this is due to a lack of electricity to study during dark hours or not going to school if school starts too early when it is still dark and there is no street lighting.
- ¹³¹ Focus group discussion with farmers and community members, Syria, April 2023.
- ¹³² Data from the household survey conducted in Aleppo and Deir-Ez-Zor governorates, February to April 2023.
- ¹³³ Data from the household survey conducted in Aleppo and Deir-Ez-Zor governorates, February to April 2023.
- ¹³⁴ Data from Oxfam’s household survey and semi-structured interviews conducted between February and April 2023.
- ¹³⁵ Throughout semi-structured interviews and focus group discussions conducted in Syria from February to April 2023, elderly participants consistently expressed their desire to end their lives as a means to escape the suffering and challenges they are enduring.
- ¹³⁶ Although a broader array of studies is available concerning male youth refugees in neighbouring countries such as Jordan and Lebanon, there is relatively less comprehensive analysis focusing on their vulnerabilities within Syria. However, this fact does not downplay the gravity of their situation within the country, encompassing all areas of control. For an early analysis of this, see (Davis *et al.*, 2014).
- ¹³⁷ The Oxfam programme has received ad hoc information (outside the scope of the study conducted) indicating that often, male youth enrol in master’s programmes at universities solely to delay conscription until they can secure immigration or seek asylum in a third country. Others resort to intentionally gaining excess weight to qualify for exemption. Even for those naturally exempt, they encounter ongoing challenges in obtaining the necessary documentation within bureaucratic processes to prove their eligibility, leaving them exposed to the constant fear of detention until they can do so. This creates increased distress among youth in all the locations of Oxfam’s operations.
- ¹³⁸ See, for example, (UN Office for the Coordination of Humanitarian Affairs, 2022b, p. 11).
- ¹³⁹ See, for example, (UN Habitat, 2022, p. 56).
- ¹⁴⁰ For further reference see the Disclaimer at point four.
- ¹⁴¹ For example, important lessons have been drawn from the Iraqi and Lebanese context. See, for example, (Ramirez *et al.*, 2021; Charaoui and Akhazzan, 2023; Mansour *et al.*, 2023; Sharif, 2023).
- ¹⁴² This builds on the suggestions advanced by (Mehchy and Turkmani, 2021).
- ¹⁴³ For example, during the interviews conducted between February and April 2023, it became apparent that personnel in humanitarian and international organizations, the private sector in Syria, financial operators and donors were unclear on whether specific goods and services needed to address the water-energy-food nexus issues were restricted by US export controls or EU trade restrictions.
- ¹⁴⁴ For example, humanitarian responders could work together and: compile a list of equipment and tools that are essential to address needs in core humanitarian sectors, including those of the water-energy-food nexus; seek clarity on whether items on the list are restricted due to export controls or financial sanctions regulations; explore whether sanctions could incorporate alternative systems such as a customized model licence designed for emergencies and natural disasters, time-bound transaction notification systems, and so forth; and devise adequate safeguards from corruption and aid diversion, which shall include vetting of suppliers and contractors against the list of blocked entities.
- ¹⁴⁵ This is due to the impracticability of conducting repairs and ensuring the functionality of electricity infrastructure, oil and gas fields, and supply lines within the existing legal frameworks, their effects on different actors and their application, as discussed in this document.
- ¹⁴⁶ At present, sanctions provisions such as those contained in the Caesar Act will change only if a list of conditions are met. These conditions would take years to complete (i.e. the possibility for the ‘safe, voluntary, and dignified return of Syrians displaced by the conflict’ is achieved), functioning as a disincentive for behavioural changes on the part of the Syrian government. The current unilateral sanctions systems of the EU and the United States do not contain other specific practical incentives or preconditions for their change, other than the issuing of specific licences and derogations on specific transactions (i.e. import of an important spare part).
- ¹⁴⁷ See recommendations proposed by (Mehchy and Turkmani, 2021, p. 37).
- ¹⁴⁸ See (Maleh *et al.*, 2012; SANA, 2021a, 2021b, 2022a, 2022b; Syrian Ministry of Electricity 2021; International Solar Alliance, 2022).
- ¹⁴⁹ See (Krepl *et al.*, 2020).
- ¹⁵⁰ As indicated by Mehchy and Turkmani (2021, p. 35) in their work when referring to the ‘sanctions trap’.

- ¹⁵¹ Examples of issues that should be discussed are: looking at reforms within the Syrian legal framework and domestic policies to ease internal restrictions affecting the prices of imported equipment and spare parts; reducing the burden on micro, small, and medium businesses; establishing a transparent subsidy system considering vulnerable groups, including widows, single women, elderly people, and people with disabilities; supporting vital sectors like agriculture, industry, water, and health; and prioritizing the distribution of limited energy resources to ensure that the most vulnerable individuals are not left behind.
- ¹⁵² Interviews with experts in February, March and April 2023. See also (Human Rights Watch, 2023c, 2023a; Moret, 2023).
- ¹⁵³ See 15 CFR 746.9. In 2004, the Bureau of Industry and Security (BIS) implemented the US sanctions on Syria pursuant to the Syria Accountability and Lebanese Sovereignty Restoration Act of 2003 and the International Emergency Economic Powers Act of 1977.
- ¹⁵⁴ See 15 CFR 746.9 and 15 CFR Part 774.
- ¹⁵⁵ See 15 CFR 746.9.
- ¹⁵⁶ See 15 CFR Part 734.
- ¹⁵⁷ This means that the Bureau of Industry and Security (BIS), which is under the US Department of Commerce, is unlikely to grant the required licences related to military end use or end users in Syria unless they fall within the stated exemptions.
- ¹⁵⁸ See 15 CFR 746.9 (c)(2).
- ¹⁵⁹ Main legal references are the Council Decision 2013/255/CFSP and the Regulation (EU) No 36/2012.
- ¹⁶⁰ See Chapter I of the Council Decision 2013/255/CFSP and Chapter II of the Regulation (EU) No 36/2012. See also Regulation (EU) No 2022/1 of the European Parliament and of the Council of 20 October 2021 as regards the list of dual-use items. For reference, see also the EU Common Military List adopted by the Council on 21 February 2022. For broad guidance see (EU-Lex, 2020).
- ¹⁶¹ See art.8 2013/255/CFSP and art.8 of the Council Regulation (EU) No 36/2012. The EU prohibits the sale, supply or transfer of key equipment and related technology, technical assistance, training or other services, financing, and financial assistance for any sale, supply, transfer or export for key sectors of the oil and gas industry. These are refining, liquefied natural gas, exploration and production. The prohibition extends to enterprises in Syria or to Syrian, or Syrian-owned enterprises engaged in those sectors outside Syria. See also Annex VI of the (EU) No. 36/2012 detailing the equipment and spare parts covered by the prohibition.
- ¹⁶² See art.12 of the Council Regulation (EU) No 36/2012. Its Annex VII provides a list of equipment that cannot be exported into Syria to build new power plants (namely steam turbines of an output exceeding 40 MW; gas turbines of an output exceeding 5 000 kW; all electric motors and generators of an output exceeding 3 MW or 5,000 kVA).
- ¹⁶³ See art.2.2 of the Council Regulation (EU) No 36/2012.
- ¹⁶⁴ See, for example, art.2 and art.10 of the 2013/255/CFSP and art. 2.2, 2.3 and 4 of the Council Regulation (EU) No 36/2012.
- ¹⁶⁵ These examples were collected during the study conducted by Oxfam to inform this paper and to represent the experiences of the people interviewed between February and April 2023.
- ¹⁶⁶ Interview with sector experts, February 2023, Syria. See also <https://www.moog.com/investors/esg/trade-compliance.html>.
- ¹⁶⁷ OFAC designated the Commercial Bank of Syria and the Syrian Lebanese Commercial Bank under the authority of the USA PATRIOT Act of 2001. Main legal reference is the 31 CFR 542, which codified various legal authorities, as stated in its introduction.
- ¹⁶⁸ See 31 CFR 542.206 and 31 CFR 542.207.
- ¹⁶⁹ The prohibitions are listed in 31 CFR Part 542 Subpart B while the definition of Government of Syria is in 31 CFR 542.305.
- ¹⁷⁰ The following are the main designated authorities: General Petroleum Corporation (GPC), Syrian Petroleum Company, Syrian Company for Oil Transport, Syrian Gas Company, the Baniyas Refinery Company, the Homs Refinery Company, Public Establishment for Refining and Distribution. Please refer to OFAC Portal for further reference (OFAC, 2023b).
- ¹⁷¹ See 31 CFR 542.305(a) and (OFAC, 2004).
- ¹⁷² The following are the main designated Syrian authorities: General Directorate for Syrian Ports, Lattakia Port General Company, Tartous Port General Company, Syrian General Authority for Maritime Transport, Syrian Chamber of Shipping. Please refer to OFAC Portal for further reference (OFAC, 2023b).
- ¹⁷³ See 31 CFR 542.512-.513 and .516.
- ¹⁷⁴ Main legal references are the Council Decision 2013/255/CFSP and the Regulation (EU) No 36/2012.
- ¹⁷⁵ For a complete list please refer to the (European Commission, 2023b). Among the designated entities, there are Al Furat Petroleum Company, General Petroleum Corporation (GPC), Deir Ez-Zor Petroleum Company, Ebla Petroleum Company, Syrian Petroleum Company, the Syrian Company for the Storage and Distribution of Petroleum Products, the Baniyas Refinery Company and the Homs Refinery Company.

- ¹⁷⁶ For a complete list, please refer to (European Commission, 2023b).
- ¹⁷⁷ See art.12 of the Council Regulation (EU) No 36/2012.
- ¹⁷⁸ See art.16a of the Council Regulation (EU) No 36/2012. For further analysis, see also (Human Rights Watch, 2023c, 2023a; Moret, 2023).
- ¹⁷⁹ See art.16a of the Council Regulation (EU) No 36/2012. For further analysis, see also (Moret, 2023).
- ¹⁸⁰ As above.
- ¹⁸¹ See art.18.3 of the Council Decision 2013/255/CFSP.
- ¹⁸² See, for example, art.2 and art.10 of the 2013/255/CFSP and art. 2.2, 2.3 and 4 of the Council Regulation (EU) No 36/2012.
- ¹⁸³ These examples were collected during the study conducted by Oxfam to inform this paper and to represent the experiences of the people interviewed between February and April 2023.
- ¹⁸⁴ There is no prohibition preventing the Syrian government from importing petroleum products per se. However, the import, refining, transport and selling of petroleum products in Syria is a monopoly of the state. This is done by the entities designated by both the EU and the United States. Hence, the EU and US restrictions equate to a prohibition to export petroleum products to Syria by persons subject to either jurisdiction. US secondary sanctions also expose to the risk of sanctions persons not subject to its jurisdiction. According to the analysis conducted, the United States designated and/or sanctioned numerous oil shipping companies, vessels, and other institutions allegedly found in breach of its sanctions programme. The United States also issued three consecutive maritime advisories on petroleum products shipment into Syria to alert persons globally to the significant US sanctions risks for parties involved in such petroleum shipments (OFAC, 2018, p. 1). In the advisories issued in 2018 and 2019, OFAC also provided a non-exhaustive list of vessels that allegedly delivered oil to Syria from 2016 onwards (77 in total). In the view of experts consulted in March and April 2023, these advisories further increased the chilling effect for oil shipment into Syria, without necessarily having to do the 'bureaucratic lifting' of adding those vessels, or companies owning them, to the SDN list. By listing those vessels in the advisories, the private insurance sector, financial institutions, the maritime industry and ports authorities around the world have been made aware of the consequences of any facilitation of those entities (sanctions and risk of being added to the SDN list). Legal advice was sought to compare the list of vessels in the OFAC advisories with the list of designated entities. The conclusion of the analysis shows that there is only a minimal correlation between the two (a few of the vessels listed in the advisories have been designated by OFAC). However, some of the vessels listed in the advisories were blocked as property owned by companies that were designated in those years for shipping petroleum products into Syria.
- ¹⁸⁵ Main legal reference is the 31 CFR 542, which codified various legal authorities, as stated in its introduction.
- ¹⁸⁶ See 31 CFR 542.208-.209.
- ¹⁸⁷ See 31 CFR 542.513 and .516.
- ¹⁸⁸ Main legal references are the Council Decision 2013/255/CFSP and the Regulation (EU) No 36/2012.
- ¹⁸⁹ See art.5 of the Council Decision 2013/255/CFSP and art.6 of the Council Regulation (EU) No. 36/2012.
- ¹⁹⁰ Art. 6 of the Council Decision 2013/255/CFSP and art.6a of the Council Regulation (EU) No. 36/2012. For further analysis, see also (Moret, 2023).
- ¹⁹¹ See, for example, art.2 and art.10 of the 2013/255/CFSP and art. 2.2, 2.3 and 4 of the Council Regulation (EU) No 36/2012.
- ¹⁹² The energy sectors were also key for the government's revenue, given that oil exports, together with food exports, comprise almost 50% of Syria's annual GDP (World Bank Group, 2017, p. 77). Therefore, these sectors were fundamental for the economic stability of the country. Europe used to have considerable influence over the energy sector, particularly after the increased pressure by the United States on Syria through the introduction of sanctions from 2003 onwards. European companies not only bought crude oil, but also sold refined products, technology and spare parts (Hatahet and Shaar, 2021, p. 19).

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