



Food and Agriculture
Organization of the
United Nations

Counting the cost

Agriculture in Syria after six years of crisis



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Overview

Despite six years of crisis in Syria, agriculture remains a key part of the economy. The sector still accounts for an estimated 26 percent of gross domestic product (GDP) and represents a critical safety net for the 6.7 million Syrians – including those internally displaced - who still remain in rural areas.

However, agriculture and the livelihoods that depend on it have suffered massive loss. Today, food production is at a record low and around half the population remaining in Syria are unable to meet their daily food needs.

Against this background, the Food and Agriculture Organization of the United Nations (FAO) has conducted the first comprehensive nationwide assessment on the cost of the war to the agriculture sector. The assessment interviewed more than 3 500 households and conducted focus groups in over 380 communities to establish the impact and get a clearer understanding of the type of support required to kick-start the recovery.

The findings revealed that USD 16 billion has been lost in terms of production, along with damaged

and destroyed assets and infrastructure within the agriculture sector. The assessment also estimates that, depending on the scenario, between USD 11 to 17 billion would be required to kick-start the recovery of the agriculture sector.

Even though the crisis is not over, the conditions for investing in the recovery of the sector are present in many areas of the country. Such investment will not only reduce the need for humanitarian assistance but also stem migration and encourage the return of migrants. If productive farming areas are neglected, more people will be forced to leave already depopulated rural areas making eventual recovery harder, longer and more costly to achieve.

The international community must start addressing new ways of rebuilding livelihoods during a crisis. Despite the potential of agriculture to address mounting food availability and access constraints, very little has been invested to support recovery of the sector. Failure to provide adequate support will continue to exacerbate food insecurity and irreversibly compromise agriculture-based livelihoods.

KEY FINDINGS



USD 16 billion

financial cost of damage and loss in the agriculture sector (2011–2016)



USD 11–17 billion

estimated cost of rebuilding the agriculture sector over a three-year period

↑ 75%

households

still grow food for their own consumption

94%

communities

felt that increased support to agriculture would reduce internal and external migration

Importance of agriculture in Syria

Modern crop cultivation and domestication of livestock was born in Syria 8 000 years ago in the fertile crescent between the Tigris and Euphrates rivers and has played a central role in the lives and livelihoods of the peoples of this area ever since.

When Syria became a republic in 1946, agriculture was by far the most important sector of the economy and was only displaced from its position as the number one sector in the late 1990s. In 2001, agriculture made up as much as 27 percent of the GDP, and despite falling to 19 percent of GDP in 2011, it still made up more than twice the share of manufacturing. In the same year, the rural

population of Syria was just under 50 percent and agriculture employed 26 percent of the economically active population.

Even during the crisis, agriculture has remained an important part of the economy – the sector is still the second largest contributor to GDP (after government services). Within the context of a shrinking economy, agriculture has been remarkably resilient and is (unofficially) estimated to now account for at least 26 percent of GDP, illustrating that the sector acts in some respects as a safety net providing food and income in a context of insecurity, market closures and disruptions and shortages of critical goods and services.



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A comprehensive picture of the impact of the crisis on agriculture

To date, a clear picture of the impact of the six-year crisis on agriculture has been lacking. The studies that do exist are limited in geographical and/or historical scope. Given its central importance and critical role in eventual economic recovery, it is important that a clear understanding of the extent of the damage and economic loss in agriculture is provided. Such understanding will give a solid basis for providing support now and for planning the recovery of the sector.

Against this background, a nationwide assessment has been undertaken; the first in a series that will be conducted as more access and information becomes available. The objectives of the assessment were to:

- 1. understand the financial cost of damage and loss¹ which has occurred in the agriculture sector during the six years of crisis (2011–2016);**
- 2. gain an accurate understanding of the implications of damage and loss for agricultural livelihoods at household and community levels; and**
- 3. identify priorities and options for recovery.**

METHODOLOGY

The assessment took place in the autumn of 2016, and consisted of three basic tools:

- 1.** Secondary data collection on various aspects of agriculture at the governorate level.
- 2.** Focus group discussions (FGDs) at community level (*FGDs were conducted in 383 villages selected from 61 out of the 63 districts in rural Syria*).
- 3.** Structured household questionnaire (*sample size of 3 557 households spread across 61 districts in the country*).

The study pioneered an adaptation of damage and loss methodology (normally used in situations of sudden onset disasters) in the context of a protracted crisis now entering its seventh year. It had a truly nationwide coverage and blended primary and secondary data to provide a picture that is both broad in terms of geographical coverage and deep in terms of understanding of the reasons behind observed impacts and how the impacts have evolved over time.

¹ Damage is defined as total and partial destruction of infrastructures and assets, the value of which is estimated by replacement or rehabilitation costs at current prices, while loss is calculated by comparing the actual value of production flows from each subsector on a yearly basis with what would have been if there had been no crisis. This definition is the one used in the UN/EC/World Bank Post Disaster Needs Assessment (PDNA) methodology and is restricted strictly to damage and loss of production and productive assets. Other parts of the agricultural value chain (e.g. agro-industry, value of lost exports etc.) are not covered, as these are normally catered for under other parts of the PDNA such as trade or commerce.

Impact of the crisis on rural livelihoods

KEY FINDINGS

↑ **75%**

households

still grow food for their own consumption

90%

households

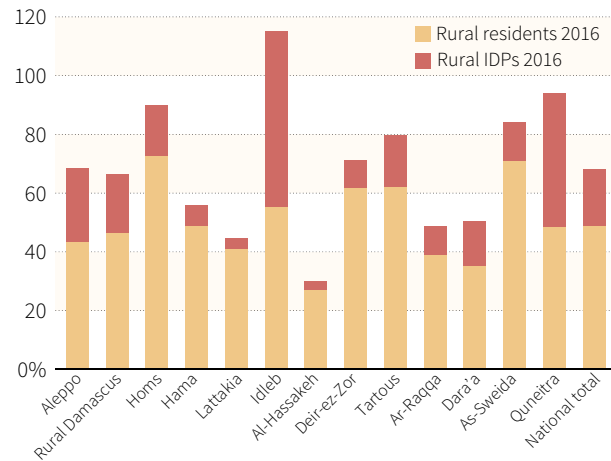
now spend over half of their income on food

The most striking impact of the crisis is on displacement, with a third of the population – over six million people – internally displaced in 2016. Displacements have aggravated the rural-urban outmigration trend that was already present before the crisis. Less than 70 percent of the 2011 rural population still lived in rural areas in 2016 (4.7 million residents and 2 million internally displaced people [IDPs]), while the urban population slightly increased between 2011 and 2016. Even among non-IDP households still living in rural areas, 20 percent had one or several members who had migrated out since the beginning of the crisis, mainly for economic reasons. Interestingly, the level of remittances reaching rural areas has not increased significantly since 2011, suggesting that migrants have difficulties generating income and/or sending remittances to their families.

Non-IDP households still living in rural areas depend on agriculture as their main livelihood, with around 80 percent involved in annual crop production, 60 percent in perennial crop production and 60 percent also in livestock rearing. For IDP households, the percentages are lower.

Despite the huge impact of the crisis on agriculture, the two main sources of income in rural areas remain the sale of agricultural production and livestock. Over

RURAL POPULATION IN 2016 compared to 2011



75 percent of rural households still grow food for their own consumption and more than a third of rural households rely on their own production for over a quarter of their food requirements.

At the same time, there has been a very significant decrease in net income due to higher production and marketing costs, and very constrained purchasing power as the index of food consumer prices increased by 800 percent between 2010 and 2016². As a result, 90 percent of households now spend over half of their income on food, against 25 percent before the crisis. In addition, only 25 percent of households still have access to finance from any source, against 60 percent before the crisis.

² Source: Syrian Central Bureau of Statistics.

Impact of the crisis on agriculture subsectors

KEY FINDINGS



USD 16 billion

financial cost of damage and loss in the agriculture sector (2011–2016)



More than USD 1 billion

damage and loss registered in each of six governorates experiencing the biggest impact

Agricultural production has experienced significant loss, particularly affecting rural farming and herding families. This is forcing people to migrate or to look for other sources of income. Vast areas of agricultural land with orchards or crops have been destroyed and farmers are facing shortages of agricultural inputs (seeds, fertilizers, fuel to power irrigation pumps, etc.) or are unable to afford them due to soaring prices. In addition, irrigation structures have been damaged, along with processing and storage facilities, farming equipment and agro-sector buildings.

The overall financial cost of damage and loss in the agriculture sector over the 2011–2016 period is estimated to be at least USD 16 billion, which is

equivalent to just under one third of Syria's GDP in 2016. The governorates with the largest loss were Al-Hassakeh, Ar-Raqqa, Rural Damascus, Deir-ez-Zor, Dara'a and Idleb, each registering over USD 1 billion of damage and loss. In terms of subsectors, annual crops registered the largest share of lost production (economic loss), followed by livestock. Conversely, the livestock subsector accounted for the highest proportion of damage (as manifested in the value of livestock deaths) followed by perennial crops (as measured by the value of destroyed trees). The cost of damage to irrigation systems and other kinds of agricultural infrastructure, such as buildings, is estimated at USD 3.2 billion, which is still a provisional figure until the full extent of damage can be better assessed.



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Crops

KEY FINDINGS



USD 7.2 billion
total damage and loss
in crop production

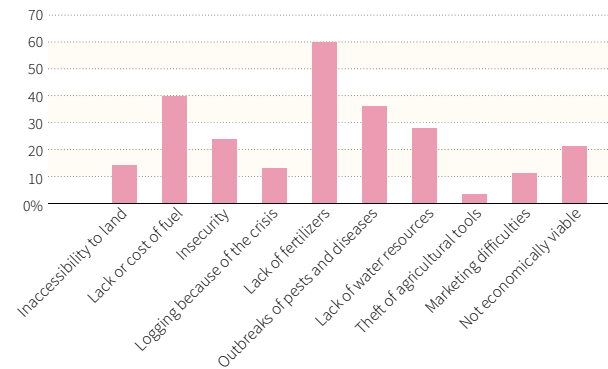


USD 903 million
total value of destroyed crops

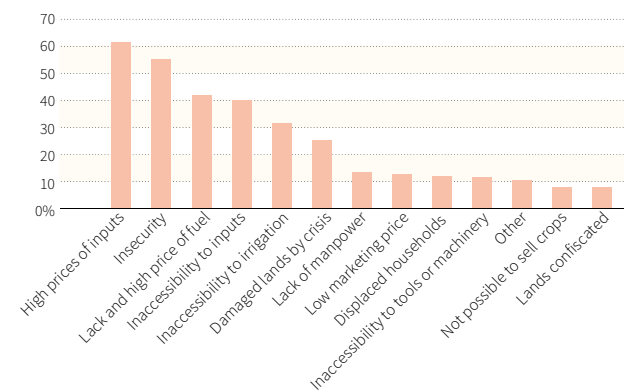
For the households interviewed, the area cultivated decreased by 30 percent on average, and 50 percent for irrigated land. Some 30 percent of resident households interviewed had stopped crop production entirely due to high prices of inputs and insecurity. For IDP households, this figure was nearer 40 percent. The main constraint for those households still in farming was poor access to production inputs and in particular fertilizers, followed by issues related to irrigation, (with lack of access to fuel pumps) and drought.

Nearly 60 percent of households are involved in perennial crop production. Significant damage to tree plantations were reported in Dara'a, Rural Damascus, Aleppo and Ar-Raqqa due to destruction caused by the crisis, but damage might be also under-estimated. In total the value of destroyed crops is estimated at around USD 903 million, equal to 13 percent of total recorded damage to the agriculture sector. Total loss for perennial crops is estimated at about USD 1.5 billion. About 60 percent of households reported that lack of fertilizers was a critical production constraint for perennial crops, lack of fuel, outbreaks of pests and diseases and lack of water resources were also listed as important constraints.

MAIN CONSTRAINTS TO PERENNIAL CROP PRODUCTION as reported by households interviewed



MAIN REASON REPORTED BY HOUSEHOLDS for reducing area cultivated



“

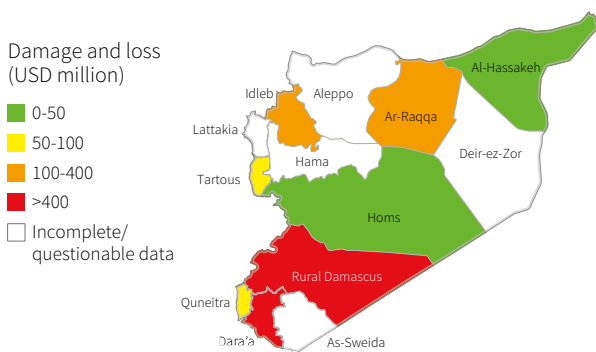
My one hectare land is the only livelihood asset I have, and farming is the only activity I can do to earn a living to support my family of seven. I am desperately struggling to get some farming seeds to cultivate my land so I can stay in my home village

”

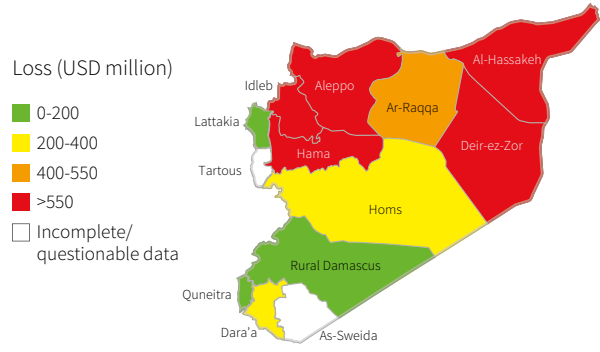


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DAMAGE AND LOSS TO PERENNIAL CROPS



LOSS OF ANNUAL CROPS



ANNUAL AND PERENNIAL CROPS

Annual crops include a range of important food (wheat), fodder (maize and barley) and cash (cotton, tobacco, spices and sugar beet) crops.

Perennial crops include almonds, apples, apricots, cherries, citrus, figs, grapes, nuts, olives, peaches, pears, pistachios, plums and pomegranates.

“

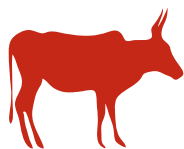
My herd is my lifeline, but ever since the current crisis, I have started to get desperate as I have lost over 70% of my herd due to animal diseases

”



Livestock

KEY FINDINGS



USD 5.5 billion
cost of damage and loss to
the livestock sector

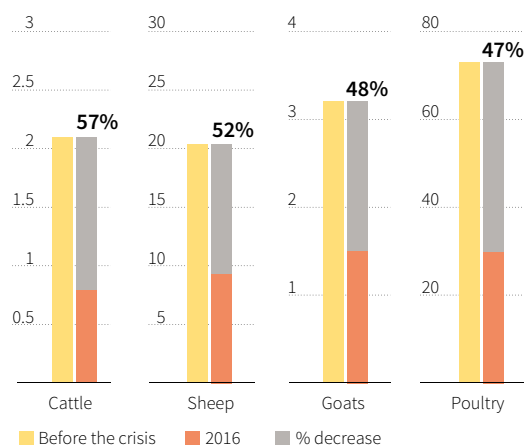
60%

households
reported that the main reason for
the decrease in animal ownership
was the sale of animals

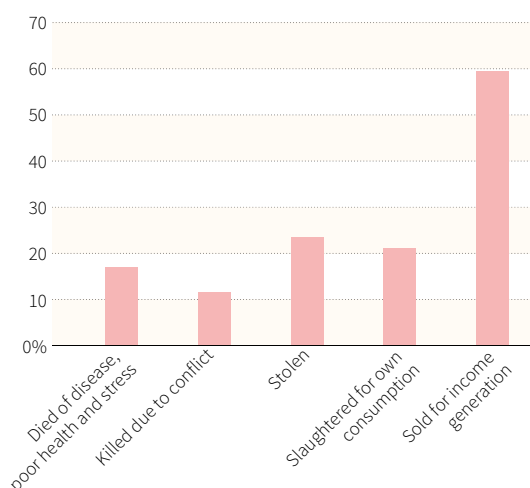
Livestock production played a vital role in the Syrian economy before the crisis, contributing 40 percent of the total agricultural production and absorbing 20 percent of rural employment. It generated approximately USD 450 million per year due to exports, with Syria being a significant exporter of sheep to the Kingdom of Saudi Arabia and the Gulf States. Sheep comprised the majority of the livestock population before the crisis, while cattle and goat populations were smaller, and commercial poultry was an important source of employment. In addition, the sector contributed substantially to the nutrition of the poor, especially that of rural women and children and was an important livelihood for women, as well as food security of the rural population.

The assessment found that the livestock sector suffered high damage and loss amounting to USD 5.5 billion. The proportion of the shrinking rural population involved in livestock rearing has decreased over the course of the 2011–2016 period, and the actual number of animals per household has fallen dramatically, especially for cattle. The loss of animals, either by death due to poor living conditions, killed or stolen was particularly high in Al-Hassakeh, Deir-ez-Zor, Lattakia, Quneitra and Rural Damascus.

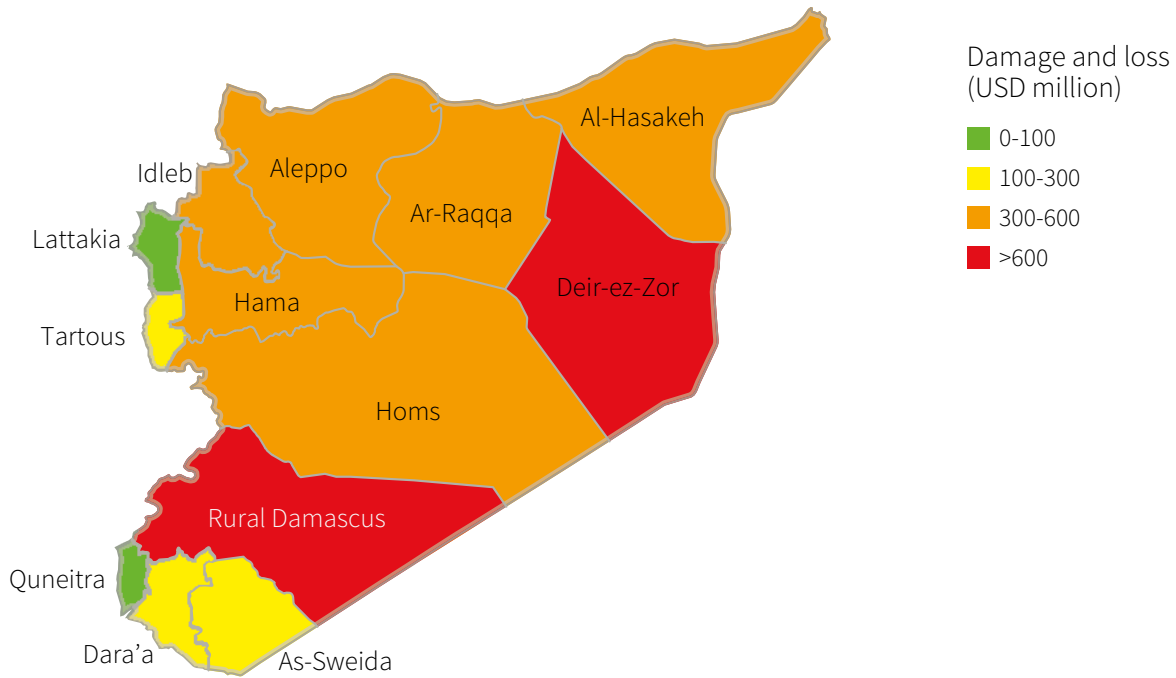
AVERAGE LIVESTOCK OWNERSHIP AT HOUSEHOLD LEVEL and proportion of decrease



MAIN REASONS FOR REDUCTION IN ANIMAL OWNERSHIP



DAMAGE AND LOSS TO LIVESTOCK



Fisheries

Due to the scarcity of resources and the low natural productivity of inland fishery, the fishery and aquaculture sector plays a minor role in the Syrian economy. In relation to this, it is important to note that the water area in Syria, including marshes, consists of only 1 610 sq km which represents approximately 0.9 percent of the total area of the country. The information available indicates that the total value of damage and losses is about USD 80 million. By far the largest reported loss were in Idleb (about USD 58 million), followed by Hama (USD 15.4 million) and Ar-Raqqa (USD 4.8 million).

KEY FINDING



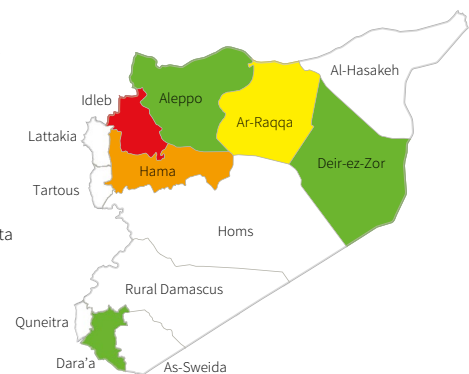
USD 80 million

total value of damage and loss in the fishery sector

DAMAGE AND LOSS OF FISHERIES

Damage and loss (USD million)

- 0-1
- 1-10
- 10-20
- >20
- Incomplete/questionable data



Agricultural inputs

KEY FINDINGS

85%

communities

said support has either decreased significantly or stopped entirely

↑25%

households

lack access to seeds

↑50%

households

lack access to fertilizers

40%

farming households

lack access to fuel

Before the start of the crisis, the agriculture sector was highly centralized and subsidized. Government expenditure on agricultural subsidies was substantial, amounting to about 3 percent of GDP in 2011. After six years of crisis, the Government's ability to support farmers has been highly affected. For the vast majority of communities visited as part of the assessment, support has either decreased significantly (44 percent of communities interviewed) or stopped entirely (41 percent). Input sources have consequently changed. Households rely instead

on own production (seeds and manure) or on the market, but still have insufficient access. More than 25 percent of households overall (and 70 percent in Ar-Raqqa and Deir-ez-Zor) reported lacking seeds, and more than 50 percent lack access to fertilizers, while 35 percent do not use fertilizers at all. Pesticides are now mainly sourced from informal markets, resulting in the use of poor quality and sometimes dangerous products. Pests and diseases were reported as being of particular concern for perennial crop production.



“
Yes, I am poor,
but agriculture support will
reduce some of my suffering to
provide income that will help
my children
”

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Irrigation, other agricultural infrastructures and assets

KEY FINDINGS



USD 3.2 billion
cost of damage to agricultural infrastructures and assets

60%

households
reported significant damage to infrastructures

A large array of elements contribute to agricultural assets and infrastructure. Assets can include items such as tractors, trucks and other agricultural machinery, while infrastructure includes cooperatives and government buildings, commercial farms, veterinary clinics and animal sheds, greenhouses, storage and processing facilities, as well as irrigation canals and wells.

The total damage to agricultural infrastructure and assets is estimated at USD 3.2 billion, accounting for almost half of the total damage to the agriculture sector. Overall, 60 percent of households reported significant damage to infrastructures, and this figure rises as high as 70–90 percent in some governorates concentrated in the most irrigated areas (i.e. Al-Hassakeh, Aleppo and Ar-Raqqa).

The agriculture sector in Syria relies heavily on irrigation, in particular in the northern governorates of Al-Hassakeh, Aleppo and Ar-Raqqa, as well as Deir-ez-Zor along the Euphrates. Before the crisis, some 65 percent of total cereal production was reliant

on irrigation. After six decades of increasing and inefficient use of water for irrigation, the consumption became unsustainable, placing the country under the water scarcity line. The decrease in water resources and increased occurrence of droughts are now a major concern for the agriculture sector.

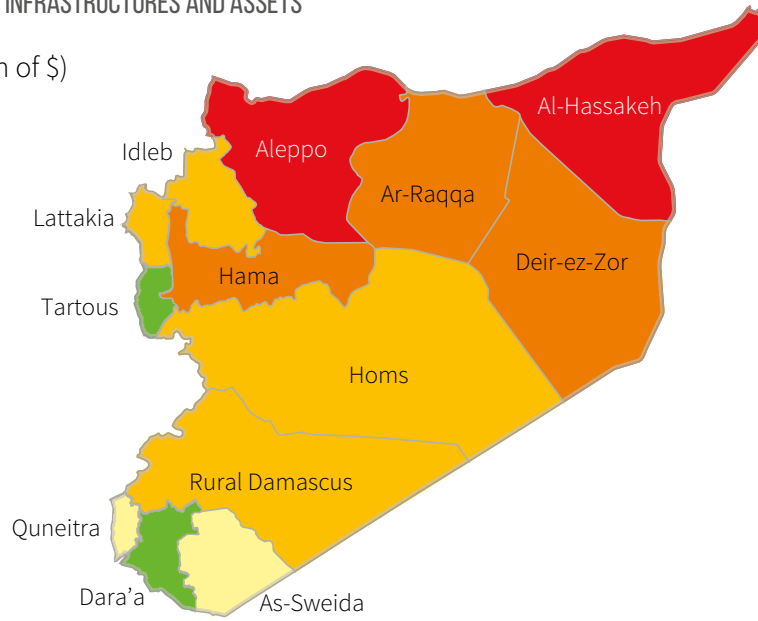
Overall, 20 percent of households lost access to irrigation entirely, while 40 percent of households still have access to irrigation but face higher costs due to increased prices and lower quantities of fuel, resulting in the use of a smaller amount of water.

The number of households that lost access to different types of assets necessary for crop and livestock production was relatively low (10 percent), however most were unable to utilize these assets – mainly due to non availability and high price of fuel. Communities also reported a significant decrease in functional rural infrastructures – such as markets and banks (30 percent), health and education, as well as government buildings – confirming a strain on access to social services.

DAMAGE TO IRRIGATION, INFRASTRUCTURES AND ASSETS

Damage (in million of \$)

- 0-50
- 50-100
- 100-250
- 250-500
- >500



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The cost of recovery

From humanitarian aid to addressing the needs of households for recovery

KEY FINDINGS



USD 11–17 billion

Initial cost of rebuilding the agriculture sector over a three-year period



USD 5 billion/year

Cost of humanitarian aid to the international community

94%

communities

felt that increased support to agriculture would reduce internal and external migration

Rural households are very clear about what they require to enhance or resume their agricultural production. For annual crops, perennial crops and livestock the pattern is similar and reflects a general assumption that agricultural production can be kick-started effectively, even under current conditions.

- **First phase:** the emphasis is on the provision of inputs (in particular fertilizer and seeds in the case of crops and feed and medicines for livestock); and
- **Second phase:** the emphasis is on credit, marketing and processing support as well as asset repair.

The estimated costs of meeting the agricultural recovery needs expressed in the household interviews and the community focus groups will vary according to the scenario foreseen over the next few years. The assessment has adopted the three most likely of five scenarios posited by the United Nations Economic and Social Commission for Western Asia³ to provide a guide to the possible financial implications. Under a “no change” scenario, the assessment estimates that the costs over a three-year period would be of the order of USD 11 billion at 2016 prices. Due to an assumed partial return of rural migrants from urban areas and abroad, this total increases to USD 14.9 billion

under a “partial return to peace” scenario, and to USD 17.1 billion under a “transition to peace” scenario. Under each scenario, estimated costs include a 20 percent margin for administrative and operational costs and a 30 percent margin for “building back better”. Livestock sector recovery accounts for between 43–47 percent of total recovery costs depending on the scenario, while annual crops account for between 29–33 percent and perennial crops between 24–26 percent⁴.

Assuming that the next two-three years are not blighted by serious drought and/or a dramatic deepening of the crisis, ramping up investment in crop and livestock production from 2017 onwards could dramatically reduce the need for humanitarian aid, which is currently costing the international community around USD 5 billion⁵ a year. In addition, these investments could have a significant impact on internal and external migration.

3 Strategic Policy Alternatives Framework (SPAF), ESCWA, Jan 2017 (pp 32-33).

4 All irrigation and agricultural infrastructural repair costs are apportioned between sub-sectors and Governorates as appropriate according to a formula which takes into account the level of damage which is estimated to have occurred combined with proportion of land covered (for irrigation only).

5 Source: Syria 3RP

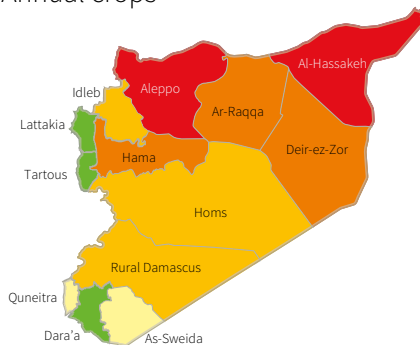
Of the community focus groups interviewed, 94 percent said that if they received agricultural support this would either discourage people from leaving rural areas and/or encourage them to come back. The breakdown is as follows:

- 56 percent said it would reduce the level of people leaving rural areas;
- 22 percent said it would attract people to return from outside the governorate;
- 16 percent said it would attract people to return from outside the country; and
- Only 6 percent of community groups felt that there would be no impact.

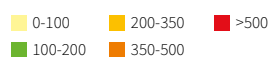
With the diminution of income from other sectors (such as oil and mining), the contribution of agriculture to the national economy is now greater, and offers opportunities to contribute to economic recovery of the country. Failing to support agricultural livelihoods could prevent the return of IDPs to their rural homes and lead to continued rural-urban migrations, threatening the social stability and success of peace-building efforts. Under such circumstances, supporting agricultural livelihoods becomes both feasible and necessary.

COST OF RECOVERY 2017–2020*

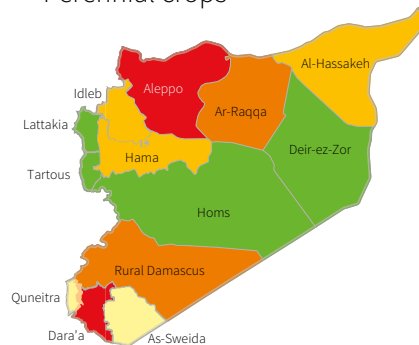
Annual crops



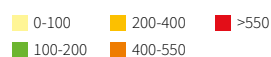
Cost of recovery (USD million)



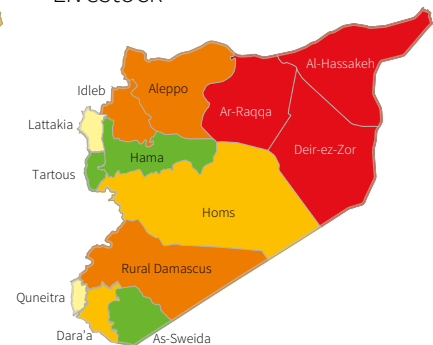
Perennial crops



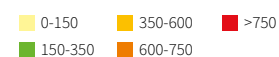
Cost of recovery (USD million)



Livestock



Cost of recovery (USD million)



*These costs apply to a *partial return to peace* scenario



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How it can be done

Paving the way for the development of a recovery strategy

In a situation where so much has been destroyed and so many people have been displaced or have lost their livelihoods, any attempt to prioritise areas for support will be contested. Nonetheless, with such vast needs for support, prioritisation of some sort will be necessary. In terms of the value of known and estimated damage and loss in the sector, coupled with vulnerability and poverty, governorates can be categorised into the following tiered category:

TIER 1 Governorates are those in which damage and loss in agriculture is high (above USD 1.5 billion) and where at least one of two simple vulnerability indicators⁶ are high or very high.

TIER 2 Governorates are those in which the total damage and loss is still very substantial (between 0.7 and 1.5 billion) irrespective of vulnerability indicators.

TIER 3 Governorates that have registered the lowest levels of damage and loss (under USD 0.5 billion). In these governorates there has been limited fighting and so the effects of the crisis have been mostly indirect.

Priority for crop and livestock support

Tier 1 Aleppo, Al-Hassakeh, Ar-Raqqa, Deir-ez-Zor,

Tier 2 Rural Damascus⁷, Homs, Idleb, Hama, Dara'a, Quneitra⁸

Tier 3 Al Sweida, Lattakia, Tartous

⁶ Vulnerability indicators used from this survey are the proportion of households spending over 75 percent of their income on food and the proportion of households with only one source of income.

⁷ Using the classification scheme adopted in this report Rural Damascus is on the borderline between Tier 1 and Tier 2.

⁸ Quneitra is included here because although the overall total of damage and loss is below USD 0.5 billion, the actual cost per capita is second only to Dara'a.

Building back better

Sustainable production and empowering farmers in the value chain

An important consideration for recovery of the agriculture sector is the question of production incentives, and the linked issues of irrigation and climate smart agriculture. While water use must be revised to avoid depletion of aquifers, irrigation is still essential for most rural households. Syrian agriculture will need to adapt to reduced use of water for irrigation, while at the same time coping with increased temperatures and more frequent droughts.

To tackle this effectively, the water management approach will need to include the following elements:

- adaptation of crop selection patterns to maintain economic profitability – this could mean a movement away from high water intensity crops to more water efficient / drought tolerant crops such as pulses and spices;
- adoption of conservation agriculture methods to reduce needs in water and fertilizers, including landscape-based approaches; and
- improved efficiency of irrigation systems.

In addition, consideration should be given to adjustments in the delivery modalities of

agricultural services. Experience from the former Soviet Union has shown that more localised provision of agricultural services such as credit, extension and marketing support can lead to improved agricultural production and food security. To be a success, however, such kinds of adjustments must come with significant capacity building of local state institutions combined with continued support to allow the development of private entrepreneurship.

One possibility for the future is that some of the services formerly provided by the Government may be provided by the private sector. As such, there will be a need to build the capacity of farmers to sell their own production through value chain approaches (post-harvest management, food processing and preservation and marketing), as well as promoting the development of income-generating activities .

If done sensitively, investments in the agriculture sector will not only revitalize agricultural production, but will also foster social cohesion and stability.

9 FAO, 2016, Plan of Action for Syria 2016-2017.
http://www.fao.org/fileadmin/user_upload/rme/docs/plan_of_action_syria_2016_2017.pdf

