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United Nations Office on Drugs and Crime



RESEARCH BRIEF

**Does the increase in opium poppy cultivation
contribute to food insecurity in Afghanistan?**



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Introduction

Afghanistan faces one of the worst food insecurity crises worldwide. Wheat plays a vital role in maintaining food security in Afghanistan as it accounts for at least 60 percent of the calorie-intake of the population in the country¹. Afghanistan is not self-sufficient in wheat production and the amount of wheat imported in 2020 equalled some 10 percent of its wheat domestic supply in the same year². While the economic efficiency of guaranteeing food self-sufficiency is debatable³, wheat self-sufficiency is pivotal for Afghanistan. The food insecurity crisis in the country is associated with difficulties in securing wheat imports and distributing them equitably. Excessive dependence on other countries for wheat supply makes Afghanistan particularly vulnerable to recently experienced supply disturbances, causing shortages and large price spikes.

Opium poppy cultivation limits the food self-sufficiency of Afghanistan, reducing agricultural land that could otherwise be dedicated to cultivating wheat. In 2020, opium poppy occupied the second largest agricultural area after wheat. Farmers may shift from wheat cultivation in favour of opium poppy and vice versa, depending on the availability of wheat in markets, the expected economic returns from opium compared to those of wheat and several other factors.

This paper aims at drawing attention to the links between the food insecurity crisis and high levels of opium poppy cultivation in Afghanistan. While UNODC research has shown that opium cultivation is driven by multiple factors including poverty and that the income of opium is mostly used to buy food⁴, this research brief discusses if raising opium poppy cultivation can reduce the availability of domestic production of wheat, resulting in increased food insecurity. In the last 5-10 years the need for wheat imports could have been reduced considerably if land dedicated to opium poppy could have been used to cultivate wheat. In addition, the use of agricultural inputs (fertilizer, labour, etc.) appears to have shifted from wheat to opium poppy in recent years, thereby further reducing wheat production.

This paper is only part of the extensive evidence that UNODC has provided over the years on the dynamics of the opium economy and its impact on rural development. This analysis on opium versus wheat cultivation is intended to inform rural development and drug policies in Afghanistan with a view of providing the best conditions to farmers to reduce food insecurity and increase food self-sufficiency, while relying on sustainable livelihoods as alternatives to opium poppy cultivation.

¹ <http://extwprlegs1.fao.org/docs/pdf/afg189837.pdf>

² FAOSTAT. TRADE. Crops and Livestock Products (Afghanistan). Wheat Import Quantity. Estimated data using trading partners database. <https://www.fao.org/faostat/en/#data/QCL>

³ See for example <https://www.fao.org/3/i5222e/i5222e.pdf>

⁴ UNODC, Afghanistan opium survey 2019, Socio-economic survey report: Drivers, causes and consequences of opium poppy cultivation, Afghanistan Opium Survey 2018 - Challenges to sustainable development, peace and security

Wheat is the most important crop for food security in Afghanistan

Afghanistan is one of the countries with the highest hunger levels and greatest need for additional efforts to eliminate food insecurity in the world. The latest Global Hunger Index (2021) ranks Afghanistan 103rd out of 116 countries⁵. After the change in Government in August 2021, hunger levels increased substantially in the wake of job losses, lack of cash, and soaring food prices⁶. These challenges added to long-standing economic and security problems and recent and on-going major droughts and floods. The World Food Program states that more than half of the population does not consume enough food and without a solution to the economic crisis, acute malnutrition is only expected to worsen⁷.

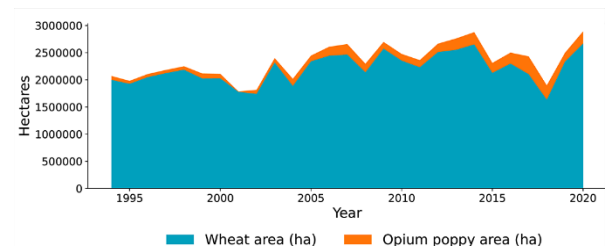
Wheat is by and large the most important licit crop in Afghanistan (with 2,670,000 hectares harvested in 2020), followed by vegetables (168,000 hectares), rice (148,000 hectares) and maize (140,500 hectares)⁸. In the small farming systems predominant in Afghanistan, most of these crops are utilized for self-consumption⁹ making wheat the most important crop for food security. Despite being the dominant food crop in Afghanistan, local wheat production does not meet domestic demand. Afghanistan imported about 500,000 tonnes of wheat (equivalent to around 10 percent of domestic production) to meet internal requirements in 2020¹⁰.

Opium poppy uses land that could be otherwise used for wheat production in Afghanistan

Opium poppy cultivation utilizes a large portion of agricultural land that could otherwise be used for wheat cultivation. **Opium poppy occupies the second largest agricultural area after wheat** (with 224,000 hectares in 2020)¹¹. Opium poppy cultivation increased dramatically over the last two decades. In 1997, the total opium poppy area

(58,000 hectares)¹² represented only 3 percent of the total harvested wheat area. By 2017, the opium poppy area (328,000 hectares)¹³ was equivalent to 16 percent of the total harvested wheat area in Afghanistan. Thus, increased opium poppy cultivation implies a decrease in areas potentially dedicated to wheat, resulting in a **reduction of domestic wheat for consumption**, rising local food prices, and increasing food insecurity.

FIGURE 1 Area (ha) under wheat cultivation and opium poppy cultivation in Afghanistan, 1994-2020



Source: FAOSTAT and UNODC's Afghanistan opium poppy monitoring reports.

Along with increases in opium poppy cultivation, wheat imports rose significantly since the 1990's. In 1997, Afghanistan imported 140,000 tonnes of wheat¹⁴ and by 2017, the country imported five times more wheat (728,000 tonnes)¹⁵. **In 2017, if land under opium poppy cultivation had been used to cultivate wheat instead of opium poppy, domestic wheat production would have increased to 667,000 tonnes¹⁶, almost equalling the total amount of wheat imports that year, making Afghanistan nearly food self-sufficient.**

FIGURE 2 Wheat production and imports, compared to potential production if wheat had been cultivated instead of opium poppy in Afghanistan (tonnes, 1994-2020)



Source: FAOSTAT, World Bank, and UNODC's Afghanistan opium poppy monitoring reports.

⁵ <https://www.globalhungerindex.org/afghanistan.html>

⁶ World Bank. 2022. "Afghanistan welfare monitoring survey. Round 1"

⁷ <https://www.wfp.org/emergencies/afghanistan-emergency>

⁸ <https://www.fao.org/faostat/en/#data/QCL>

⁹ Tiwari et al. 2020. "Wheat area mapping in Afghanistan based on optical and SAR time-series images in Google Earth Engine Cloud environment" *Front. Environ. Sci.*

<https://doi.org/10.3389/fenvs.2020.00077>

¹⁰ FAOSTAT. TRADE. Crops and Livestock Products (Afghanistan). Wheat Import Quantity. Estimated data using trading partners database. <https://www.fao.org/faostat/en/#data/QCL>

¹¹ UNODC. 2020. "Afghanistan Opium Survey 2020. Cultivation and Production"

¹² *Ibid*

¹³ *Ibid*

¹⁴ <https://www.fao.org/faostat/en/#data/QCL>

¹⁵ <https://www.fao.org/faostat/en/#data/QCL>

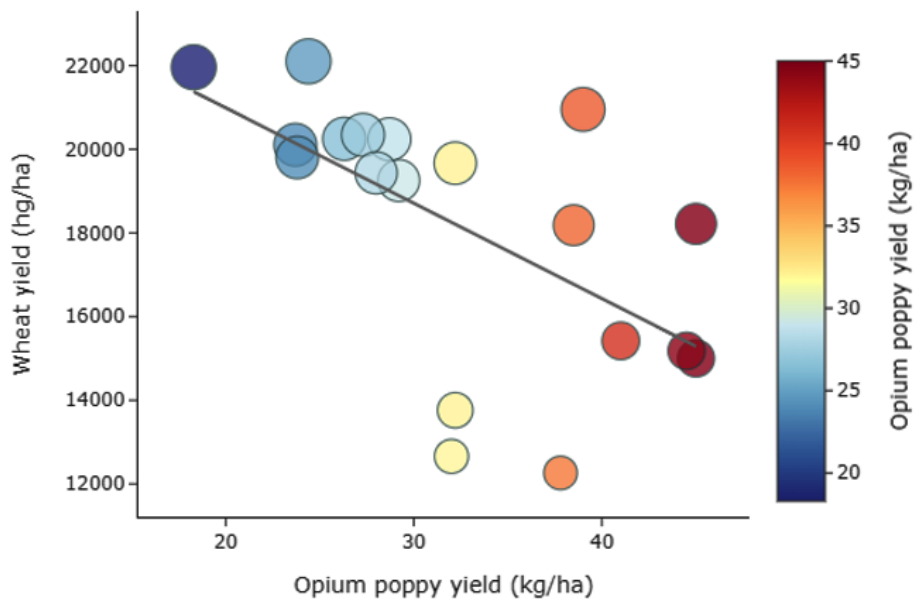
¹⁶ Calculated by multiplying the total opium poppy area (hectares) in 2017 reported by UNODC by the wheat yield (tonnes/hectare) in 2017 reported by FAO.

Low wheat yields are associated with high opium poppy yields

Afghanistan now has less wheat availability per inhabitant and lower food self-sufficiency compared to 20 years ago. While technical assistance programmes, including the supply of certified seeds, fertilizers and technical training resulted in improved wheat yields, which contributed to increased food availability, the country is still far from achieving wheat self-sufficiency. Over the last two decades wheat yields increased by 60 percent (from 12,764 hg¹⁷/hectare in 1997 to 20,342 hg/hectare in 2017)¹⁸. But during the same period, the Afghan population grew by 87 percent (from 19,357,130

in 1997 to 36,296,100 in 2017)¹⁹, while the area dedicated to wheat saw a slight reduction (from 2,124,000 hectares in 1997 to 2,104,400 hectares in 2017)²⁰. Another concern is that with shrinking economic resources, **farmers seemed to decrease agricultural inputs dedicated to wheat (which means lower wheat yield) to dedicate to opium poppy (which means high opium poppy yield and productivity)**, inadvertently exacerbating food insecurity in Afghanistan. Thus, not only does opium poppy occupy agricultural land that could be potentially used for wheat production, but there may also be a shift of agricultural inputs (fertilizer, labour, etc.) from wheat to opium poppy. The below graph shows that high opium poppy yields are associated to low wheat yields.

FIGURE 3 Relationship between wheat yield (hg/ha) and opium poppy yield (kg/ha) in Afghanistan, 2002-2020



Note: hg corresponds to hectograms (1 hg = 100 grams). Wheat production is officially reported in hg and wheat yield in hg/hectare (see <https://www.fao.org/faostat/en/#data/QCL>). The Pearson correlation between wheat yield and opium poppy yield is -0.5912 with a p-level=0.01 (meaning the correlation is statistically significant or not just due to chance). Source of raw data: FAOSTAT and UNODC's Afghanistan opium poppy monitoring reports.

¹⁷ hg corresponds to hectograms (1 hg = 100 grams). Wheat production is officially reported in hg and wheat yield in hg/hectare (see <https://www.fao.org/faostat/en/#data/QCL>)

¹⁸ <https://www.fao.org/faostat/en/#data/QCL>

¹⁹ <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=AF>

²⁰ <https://www.fao.org/faostat/en/#data/QCL>

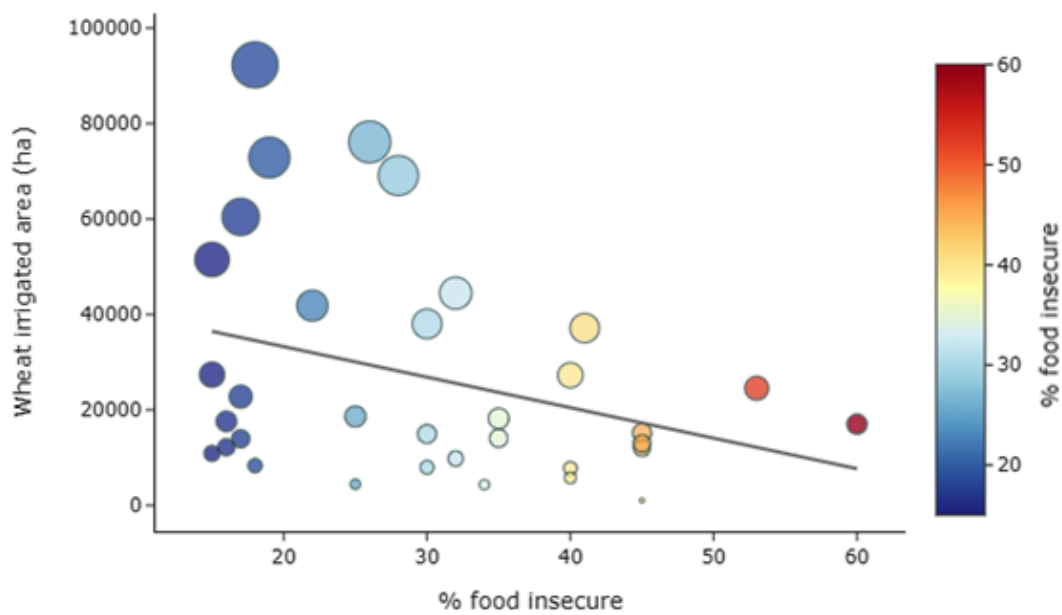
What to do?

Despite the domestic food crisis, provinces with the largest irrigated wheat areas have some of the lowest percentages of food insecure inhabitants.

Investments in alternative development projects²¹ with a focus on increasing the cultivation of licit crops with enhanced varieties

resistant to droughts and improvements in irrigation infrastructure, can help to control the current food crisis in Afghanistan. In conclusion, reductions in opium poppy cultivation, along with investments in alternative development, can help Afghanistan achieve food self-sufficiency and address the current food insecurity crisis.

FIGURE 4 Relationship between wheat irrigated area (ha) and percentage of the population classified as food insecure per province in Afghanistan, 2017



Note: “the percentage of the population classified as food insecure” (in the graph title) and “% of food insecurity” (in the graph legend) correspond to the population classified as in food crisis or in an emergency situation by the Integrated Food Security Classification (IFC-Afghanistan)²². The Pearson correlation between wheat irrigated area (ha) and % food insecure per province is -0.3311 with a p -level= 0.05 (meaning the correlation is statistically significant or not just due to chance). Source of raw data: SERVIR-HKH initiative²³ and IFC-Afghanistan²⁴.

²¹ Alternative development projects aim to decrease opium poppy cultivation by providing farmers with profitable licit income generation alternatives. The income generated by the licit alternatives provide incentives for farmers to voluntarily cease opium poppy cultivation.

²² Integrated Food Security Classification (IFC) – Afghanistan (by several UN agencies funded by the EU). 2017. “Acute food insecurity situation overview”.

²³ <http://geoapps.icimod.org/afwheat/>

²⁴ *Ibid.*