

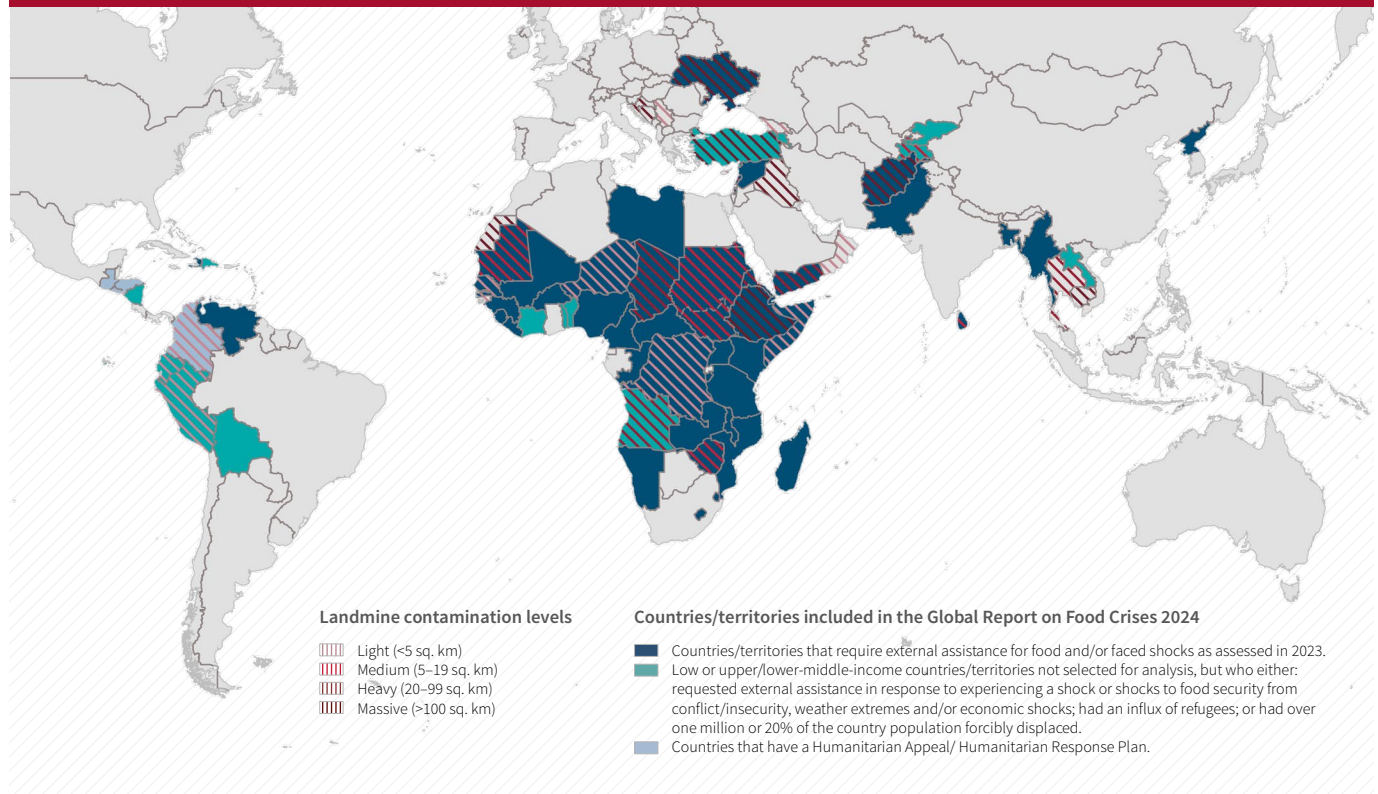


### The reach of explosive contamination

The persistent threat of landmines and explosive remnants of war (ERW) continues to endanger lives and disrupt food security long after conflicts have ended. These hazards affect 67 countries and territories, with an estimated 60 million people exposed, particularly in rural areas where roads, borders and farmland are

contaminated. Rural populations are disproportionately at risk, as the dangers limit access to essential farmland and grazing areas. Additionally, many of the countries reporting high levels of landmine contamination and explosive ordnance victims are also grappling with severe acute food insecurity, affecting over 146 million people.

**Figure 1. Food insecurity and landmine contamination levels**



Note: Refer to the disclaimer on the last page for the names and boundaries used in this map.

Source: The Monitor. 2024. Dynamic Map. In: *Landmine and Cluster Munition Monitor*. [Cited 11 October 2024]. <https://the-monitor.org/dynamic-map>

Food Security Information Network and Global Network against Food Crises. 2024. *Global Report on Food Crises 2024*. Rome. [www.fsinplatform.org/grfc2024](http://www.fsinplatform.org/grfc2024)

### Impact of landmines and ERW on agriculture

Beyond the immediate physical threat posed by landmines, farming and grazing lands are also at risk of long-term soil degradation due to the disruption of the soil ecosystem. ERW can disturb soil structure, reducing fertility and limiting agricultural productivity. While some

traces of contaminants may remain, the primary concern lies in the overall impact on soil health, which ultimately affects food security, food safety and the livelihoods of farming communities.

## Integrating agricultural recovery within mine action efforts

Current humanitarian mine action efforts primarily address surface-level contamination, with little emphasis on the deeper impacts on soil quality, watershed networks and ecosystem disruption. However, technical support can play a crucial role in helping communities adapt agricultural practices to the conditions of cleared land and ensure its return to productive use. By integrating guidance that considers the long-term agricultural potential of the land, mine action efforts can better align with the needs of farming communities. For example, tailored approaches, such as careful use of heavy machinery and attention to soil structure in areas with sensitive terrain, can help preserve soil health and promote sustainable recovery. This collaborative approach ensures that mine action not only removes hazards, but also supports the revitalization of agricultural areas, maximizing its contribution to food security and rural livelihoods.

## Connecting output to outcome: mine action as a foundation for agricultural recovery

Improving the synergies between mine action and agriculture can significantly contribute to restoring, stabilizing and enhancing rural food production and safety. The Food and Agriculture Organization of the United Nations (FAO), with its expertise in agricultural assessments, soil and water sciences, land restoration, and best farming practices, focuses on:

- prioritizing demining efforts based on agricultural potential and needs;
- investigating, quantifying, and mitigating chemical contamination; and
- safely reintegrating lands into agricultural use and sustainable food systems.



FAO is working towards scaling up agriculture-aware mine action in priority countries to return land to productive use through the following phased approach:



**Remote assessment** using satellite-based imagery to identify soils at high risk of acute degradation and contamination, including craters and bomb-turbation areas, in the absence of mine action support.



**Support for clearance efforts and prioritization** of demining areas, in partnership with sister agencies and Mine Action Operators. This approach focuses on critical needs, promotes agriculture-aware mine action protocols, prevents contamination of underground water sources by war-related pollutants, and protects valuable soils that are invaluable for food security and environmental protection.



**Soil and water testing** to identify contamination or degradation resulting from land warfare.



**Awareness and sensitization** to inform mine action partners, farmers and agricultural services extension workers about necessary practice upgrades.



**Restoration of production and food security**, including the provision of inputs, and technical and financial support to help farmers restore soil health and adapt crops to potential degradation. This enables rural families and small-scale farmers to recover land for productive use, regain self-sufficiency and reduce reliance on humanitarian aid.

## Country experience from Ukraine

### Context

Ukraine is considered one of the most heavily contaminated countries in the world, with over a third of its territory affected by the ongoing war. To date, 5–10 percent of the country's area is estimated to require proactive area clearance, among which 139 000 km<sup>2</sup> of agricultural land is affected. Notably, 80 percent of this land is black soil, vital for global food security and carbon sequestration and key in the fight against climate change. Efficient rehabilitation of ERW-affected arable land is a crucial element of Ukraine's economic recovery.

### Objective

Since March 2023, FAO has been working in partnership with the World Food Programme in Kharkivska, Khersonska and Mykolaivska oblasts to safely recover land for productive use. This joint effort aims to support rural families and smallholder farmers to return to self-sufficiency and reduce their reliance on humanitarian assistance.

### Results

Since the beginning of the initiative, 23 720.6 km<sup>2</sup> of soil has been remotely analysed, identifying 99.1 km<sup>2</sup> of bombturbated soil with 3.56 million m<sup>3</sup> of soil displaced by shelling. A total of 1 039 079 craters were found, destroying 8 725 hectares of black soil cultivated by rural households.

Together with the Government of Ukraine, FAO has identified 127 smallholder farmers, each managing an average of 64 hectares, for support with techniques designed to recover lost soil fertility and mitigate risks associated with production nonconformity. These techniques include maintaining soil pH and adapting crop varieties. Providing farmers with the financial means to implement these techniques is also critical for restoring agricultural productivity and building resilience within rural communities against land degradation and food insecurity.

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