



إتحاد الغرف التجارية الصناعية الزراعية الفلسطينية

Federation of Palestinian Chambers of Commerce, Industry & Agriculture

## **Ad Hoc Report #2**

### **Reviving Agriculture Sector in Gaza, A Path to Food Security.**

**February 18, 2025**

## 1 Introduction:

Agriculture is a crucial sector in Gaza Strip, providing food security, employment, and economic stability to thousands of families. With limited access to imports and high dependency on local food production, agricultural activities play a vital role in sustaining the population. The sector supports not only farmers but also workers in related industries such as food processing, transportation, and trade. However, the ongoing war has severely impacted this sector, leading to devastating consequences for food availability and livelihoods.

Over the past six years, the Gaza Strip managed to achieve near-complete self-sufficiency in vegetable crops, with local food supplies for vegetables reaching 115% at reasonable prices, except for garlic and carrots, which were allowed to be imported at times to meet market demand. However, as a result of the repercussions of the recent war on the agricultural sector, characterized by the bombing and levelling of vast areas of farmland planted with these crops, the self-sufficiency rate has dropped significantly, and meeting market needs has to be done through relatively expensive imports.

There is a huge gap (a famine) in the local production of most agricultural goods and products; for example, the current self-sufficiency rates for vegetables and fruits are 20% and 15%, respectively. The loss in production is due to the Israeli targeting and destroying 80% of the tree horticulture sector and 85% of the vegetable sector. In addition, during the war the occupation targeted a very large number of livestock farms producing meat, milk, and eggs, causing losses of up to 95%. This led to a lack of the availability of these products, which in turn caused their prices to soar, with self-sufficiency rates for livestock products such as table eggs and poultry being only 2% and 4%, respectively. As for the fisheries sector, the damage was extremely severe, as the occupation directly targeted the port, fishermen's vessels, boats, and fishing nets, which resulted in the near-total destruction of this sector, with losses reaching 98%.

The Food and Agriculture Organization (FAO) has conducted comprehensive assessments to evaluate the impact of war on agriculture in Gaza. Using high-resolution satellite imagery and remote sensing, the reports highlight extensive damage to cropland, greenhouses, livestock farms, and irrigation systems, severely affecting food production and livelihoods. This report provides a detailed breakdown of the damages and urgent recovery needs.

## 2 Greenhouse Damage:

Total Greenhouses Affected: 56.5% (737.1 hectares out of 1,305.3 hectares).

- **Rafah:** most Affected Region (149.8 hectares were damaged).
- **Khan Younis:** 35% (176 hectares) of greenhouses affected; some repurposed as emergency shelters.
- **North Gaza:** 8.28% of agricultural land destroyed, with most greenhouses and croplands rendered unusable.
- **Gaza City:** 5.65% of irrigation wells damaged, causing severe water shortages and making farming nearly impossible.

**Impact:** Disruption of vegetable and fruit production, leading to increased food insecurity and shortages.

### 3 Cropland Damage

Total Cropland Destroyed: 67.6% (10,183 hectares out of 15,053 hectares).

- **Khan Younis:** Largest affected area (6,623 hectares, 61.5% of total cropland).
- **North Gaza:** Highest proportion of destruction (3,920.46 hectares, 38.5% of total cropland).
- **Crop-Specific Losses:**
  - Orchards and Trees: 71.2% (6,302 hectares) destroyed, with Gaza suffering the most (86.2% loss, reducing orchards from 2,115 ha to 293 hectares).
  - Field Crops: 67.1% (2,005 orchards) damaged.
  - Vegetable-Producing Lands: 58.5% (1,875 orchards) affected.

### 4 Damage to Livestock and Poultry Farms

#### Agricultural Infrastructures losses:

Total Agricultural Infrastructures Damaged: 1,772 structures.

- **Home barns:** 645 destroyed.
- **Broiler farms:** 625 destroyed.
- **Sheep farms:** 502 destroyed.

#### 4.1 Poultry Sector Losses:

Total Chickens Lost: Approximately 3.2 million birds due to destroyed farms and supply chain disruptions.

- **Chicken Farms:** 425 destroyed, leading to a severe drop in local poultry production.
- **Egg Production Facilities:** 220 affected, significantly reducing egg availability and leading to price surges.
- **Hatcheries:** 75 facilities damaged or rendered non-functional, impacting future poultry supply.
- **Feed Supply Disruptions:** Many feed storage facilities were damaged, making it difficult for remaining farms to sustain livestock.

**Impact:** Loss of livestock, disruption of meat and dairy production, and severe economic hardship for farmers.

### 5 Water and Irrigation System Damage

- Agricultural Wells Affected: 52.5% (1,188 out of 2,261)
- Most Affected Region: Gaza City, with 67.8% of well damaged.
- Loss of 42,500 square meters of solar panels
- 12 out of 14 recovery wells destroyed.

### 5.1 Relationship with Agriculture:

- The destruction of irrigation infrastructure and wastewater treatment facilities has drastically reduced the availability of clean water for farming, making it difficult for farmers to sustain crops and livestock.
- The lack of proper wastewater management increases the risk of soil contamination, leading to degraded agricultural lands and lower productivity.
- Water scarcity, exacerbated by the destruction of these systems, directly impacts food security by reducing the volume of crops that can be grown and harvested.
- The destruction of irrigation wells and wastewater treatment facilities has led to severe water shortages, further compounding agricultural challenges.
- Contaminated water sources threaten soil fertility and crop safety, increasing long-term food insecurity.

## 6 Agricultural Areas Available and Suitable for Cultivation

### 6.1 Statistics on Suitable Land:

- **Total Suitable Land:** Approximately 4,870 hectares remain potentially cultivable with immediate interventions.
- **Partially Damaged Croplands:** 2,500 hectares can be restored through proper rehabilitation efforts.
  - **Khan Younis:** 1,200 hectares of farmland can be cultivated with irrigation restoration.
  - **Central Gaza:** 800 hectares of viable farmland could be revitalized with essential support.
  - **Rafah:** 870 hectares, including greenhouse areas, have strong potential for recovery.
- **Undamaged or Slightly Affected Greenhouses:** 430 hectares across southern Gaza and coastal areas remain viable for production.
- **Urban and Peri-Urban Farming:** Approximately 500 hectares of small-scale farming areas in urban centers could contribute to food production if rehabilitated.
- **Irrigated Lands with Functioning Wells:** 47.5% of agricultural wells are operational, enabling areas with water access to be prioritized for immediate planting.
- **Reclaimed Lands:** Some agricultural lands in northern Gaza and less affected pockets in the south could be rehabilitated with seeds, fertilizers, and irrigation systems.

### 6.2 Restoration Priorities:

- **Greenhouse Rehabilitation:** Rebuild destroyed greenhouses and provide essential farming supplies.

- **Cropland Recovery:** Provide seeds, fertilizers, and agricultural equipment to restore productivity.
- **Livestock and Poultry Support:** Rebuild animal shelters and support livestock farmers.
- **Water Infrastructure Repair:** Restore damaged wells, irrigation systems, and wastewater treatment plants.

## 7 Polluted Land Due to War

- **Water and Sanitation Collapse:** Gaza's wastewater treatment plants have ceased functioning, resulting in untreated sewage contaminating beaches, coastal waters, and soil. This is introducing harmful pathogens and chemicals into the environment, threatening public health.
- **Debris and Solid Waste:** The war has generated around 39 million tons of debris, including hazardous substances like asbestos and unexploded ordnance. This poses immediate health risks, especially as debris clearing is a challenging and hazardous task.
- **Soil and Water Contamination:** Munitions containing heavy metals have contaminated soil and water, posing long-term risks. The destruction of infrastructure, including solar panels, risks further soil contamination from heavy metals like lead.
- **Long-term Risks:** The environmental damage, including groundwater contamination from tunnels and the collapse of critical infrastructure, will likely continue to affect Gaza for years, complicating recovery efforts.

## 8 Soilless Intensive Agriculture

- In Gaza, agriculture has faced severe challenges since the outbreak of war. The destruction of vital infrastructure, including irrigation systems and greenhouses, has devastated local farming. To address the challenges of damaged & polluted soil and limited space for traditional farming, soilless intensive agriculture (like hydroponics) is seen as a potential solution. This method uses less land and water, making it suitable for Gaza's current constraints.
- Hydroponics could allow farmers to grow crops in controlled environments, particularly in areas where soil is heavily polluted or unusable due to the war. While this method is still developing in Gaza, its benefits include the ability to conserve water critical given the reduced functionality of water sources and the possibility of crop production in smaller spaces, such as urban and peri-urban areas. However, the necessary infrastructure, including supplies and technical expertise, remains scarce. Despite these hurdles, the long-term prospects of soilless agriculture provide hope for restoring food production and food security in Gaza.

## 9 Agricultural and Livestock Interventions in Gaza

Ensuring food security is a fundamental priority in addressing the challenges faced by local communities. Gaza's agricultural sector has been severely impacted by war, with widespread destruction of farmland, greenhouses, and irrigation systems leading to significant drops in local food production. The reliance on imports has increased dramatically, making food access more challenging and expensive for residents. This report outlines strategic interventions in agriculture and livestock farming aimed at enhancing food availability and supporting small-scale farmers and breeders. The proposed initiatives focus on urban agriculture, farmland restoration, livestock protection, and poultry farming as urgent measures to bridge the food gap.

### 9.1 Agriculture Interventions

#### 9.1.1 Urban Agriculture

Urban agriculture plays a crucial role in local food production, environmental sustainability, and food security. The following interventions are proposed:

- **Provision of Emergency Agricultural Inputs:** Distributing seeds, fertilizers, and farming tools to support citizens in urban areas.
- **Intensive Agriculture:** Spreading, encouraging and supporting vertical and soilless farming options (hydroponics, aquaponics, semi-hydroponics) as an important and effective options in urban agriculture, due to the widespread destruction and pollution of agricultural lands as a result to the bombs that fell on them, in addition to occupying of more than 55 Km<sup>2</sup> of the area of Gaza Strip as a buffer zone, the vast majority of which is agricultural lands.
- **Training and Advisory Services:** Offering guidance on modern farming techniques such as hydroponics, aquaponics, and semi-hydroponics.
- **Advocacy for Essential Agricultural Materials:** Facilitating the entry of necessary supplies, including seeds, fertilizers, artificial soil, and modern farming equipment.
- **Rehabilitation and Operation of Plant Nurseries:** Enhancing local seedling production to support sustainable agriculture.
- **Sustainability Approaches:** Agroforestry and improved fallow techniques can enhance urban agricultural land, improving crop productivity, soil retention, and biodiversity while preventing land degradation. Additionally, Gaza needs to focus mainly on vegetable cultivation to contribute to achieving food security for the population. Priority crops include tomatoes, potatoes, cucumbers, onions, and other essential vegetables that form the backbone of local food supplies.

#### 9.1.2 Restoration and Replanting of Damaged Farmlands

Restoring agricultural land is critical for large-scale food production and self-sufficiency. Key initiatives include:

- **Assessment of Damage and Needs:** Conducting studies to evaluate soil degradation and infrastructure damages, including irrigation systems and storage facilities.

- **Rehabilitation of Damaged Greenhouses:** Restoring infrastructure to resume crop production.
- **Land Reclamation and Replanting:** Revitalizing farmland affected by destruction and resuming cultivation.
- **Restoration and Replacement of Irrigation Networks:** Repairing damaged irrigation systems to enhance efficiency and sustainability.
- **Opening and Clearing Agricultural Roads:** Removing debris and improving accessibility to farmland.
- **Support for Small Farmers:** Providing grants and interest-free loans to facilitate agricultural recovery and operations.
- **Integration of Modern Irrigation Techniques:** Implementing smart irrigation solutions such as drip and sprinkler systems to optimize water use.

### 9.1.3 Energy and Water Infrastructure Support

- **Renewable Energy Solutions:** Installing solar-powered irrigation and water pumping systems to reduce reliance on conventional energy sources.
- **Repair and Maintenance of Wells:** Restoring damaged wells and ensuring clean water access through desalination and water distribution networks.
- **Sustainable Water Management:** Conducting regular water quality monitoring and providing training for sustainable well operation.

## 9.2 Livestock Farming Interventions

### 9.2.1 Poultry Farming Development

Given its short production cycle, poultry farming is a key sector for rapid food supply restoration. The proposed interventions include:

- **Rehabilitation and Operation of Hatcheries and Poultry Farms:** Restoring production capacity in affected facilities.
- **Advocacy for the Importation of Fertilized Eggs:** Ensuring a stable supply of broiler and turkey eggs for hatcheries.
- **Support for Small-Scale Breeders:** Providing feed and essential farming inputs to aid recovery.
- **Financial Assistance for Farmers:** Offering grants and interest-free loans to support the re-establishment of poultry farms and hatcheries.
- **Sustainable Breeding Techniques:** The introduction of hatchery improvements, advanced feed management, and access to fertilized eggs to stabilize poultry production.
- **Structured Financial Aid Strategies:** Investment in poultry farming infrastructure, including interest-free loans and funding for small breeders.

### 9.2.2 Livestock Protection and Support

FAO has expressed deep concern over the significant losses in Gaza's livestock population, including cattle and poultry. Their reports emphasize the urgent need for interventions such as restocking herds, distributing emergency

feed supplies, and implementing veterinary support programs. Additionally, FAO has highlighted the importance of sustainable livestock management and disease control initiatives to ensure long-term sector resilience. They recommend urgent action to protect remaining livestock and rebuild the sector. Key interventions include:

- **Providing Feed and Veterinary Kits:** Distributing feed and medical supplies to protect and support remaining livestock.
- **Supporting Herd Restocking:** Restocking lost livestock, especially sheep and goats, which are essential for local nutrition.
- **Infrastructure Support:** Rebuilding livestock facilities, including shelters and water tanks, to sustain herders and farmers.
- **Veterinary and Health Services:** Establishing mobile and fixed veterinary clinics to offer essential healthcare services.
- **Disease Prevention Programs:** Implementing vaccination campaigns and disease surveillance measures to protect animal health.
- **Farmer Training Programs:** Educating livestock breeders on best practices for animal husbandry, disease control, and sustainable feeding strategies.

### 9.2.3 Fisheries Sector Recovery

- **Rehabilitation of Fishing Infrastructure:** Restoring Gaza's fishing industry faces significant challenges, including funding constraints, access restrictions, and geopolitical barriers. Limited financial resources hinder infrastructure rebuilding efforts, while political restrictions on fishing zones and imports further complicate recovery. Addressing these issues requires coordinated efforts between international donors, local authorities, and humanitarian organizations to ensure sustainable rehabilitation. Repairing ports, storage facilities, and damaged boats to enable sustainable fishing activities.
- **Support for Fishermen:** Providing financial assistance, fishing equipment, and training on sustainable fishing techniques.
- **Expanding Fishing Zones:** Advocating for increased fishing access and implementing marine resource management plans.
- **Market and Economic Support:** Strengthening fish markets and cooperative networks to enhance economic resilience in the fishing sector.

## 10 Conclusion

Specific proposed interventions focus on both short-term emergency relief and longer-term agricultural and livestock recovery. A strategic focus on urban agriculture, land restoration, and poultry farming could significantly improve food security and resilience in Gaza in the face of ongoing challenges. By supporting smallholder farmers and livestock keepers with financial assistance, infrastructure reconstruction, and technical expertise, the agricultural sector in Gaza could be revitalized to meet immediate and future food needs.

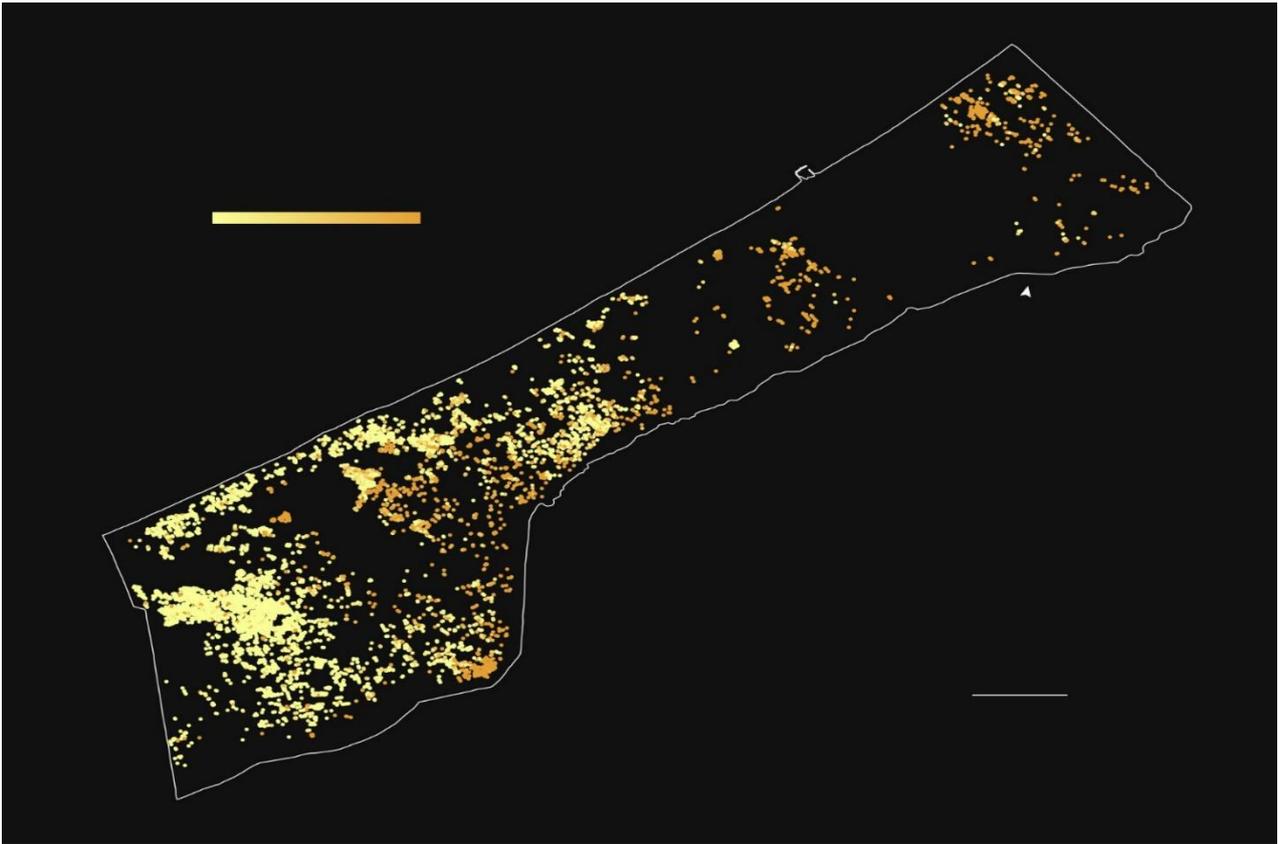
## 11 Agriculture damage photos



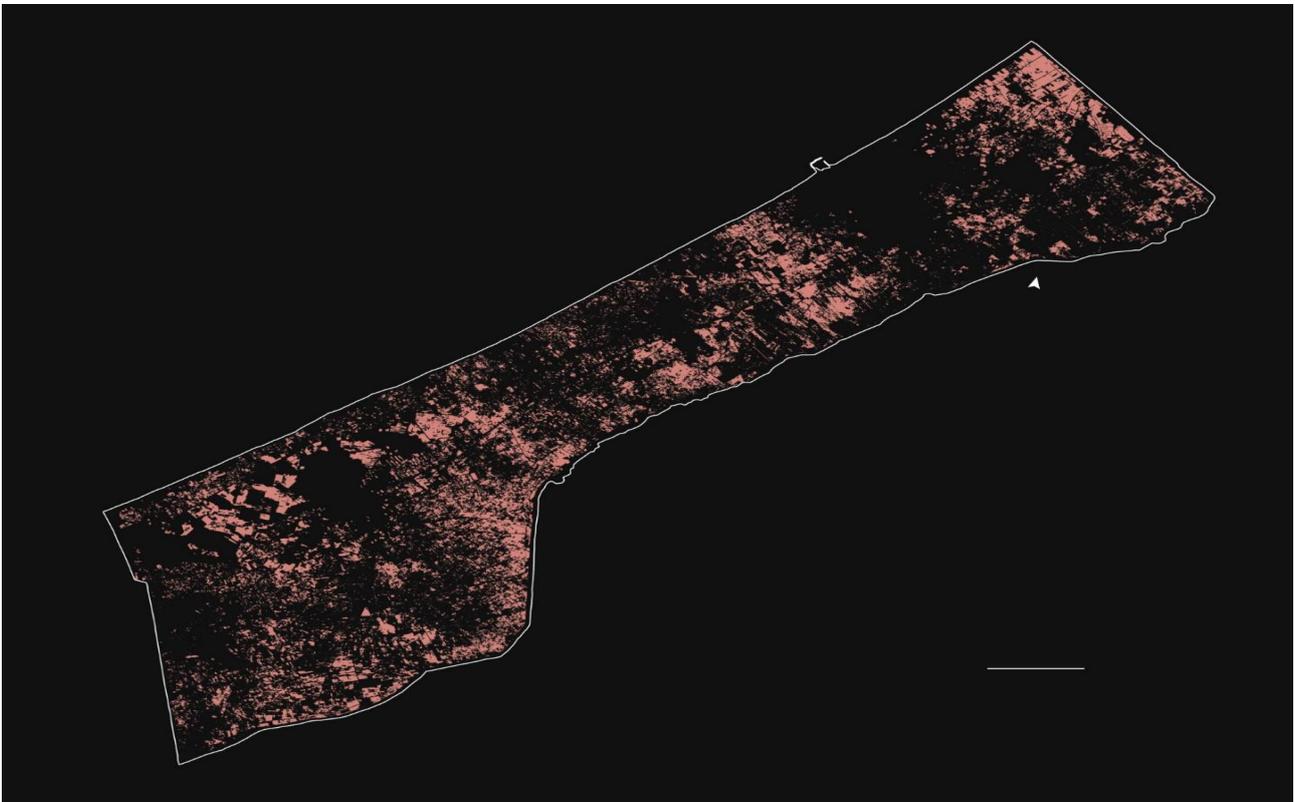
Satellite imagery taken by Planet Labs shows damage to tree crops east of Maghazi. ( <https://www.washingtonpost.com/>)



Satellite imagery taken by Planet Labs shows damage to greenhouses south of Gaza City. ( <https://www.washingtonpost.com/>)



Damage to greenhouses in Gaza. ( <https://www.washingtonpost.com/>)  
Source: He Yin, March 21/2024



Damaged agricultural land in Gaza ( <https://www.washingtonpost.com/>)  
Source: UNOSAT, April 24/2024