



مركز الميزان لحقوق الإنسان
AL MEZAN CENTER FOR HUMAN RIGHTS

FACTSHEET

The Electricity Crisis in Gaza and its Effects on Agriculture

GAZA, January 2018

INTRODUCTION

Having run out of fuel, on 16 April 2017, the Palestinian Energy and Natural Resources Authority (PENRA) in Gaza announced that it would cease the operation of Gaza's electricity plant.¹ The shutdown meant a reduction in electricity for Palestinians in Gaza to only four hours a day. Gaza's population subsequently experienced an unprecedented deterioration in humanitarian conditions that has only slightly improved with the start of winter when less electricity is used. With daily blackouts extending to between 12 and 20 hours a day, the authorities struggle to deliver even basic services to Gaza's two million residents. The negative effects are reflected in the delivery of water, sanitation and medical services, in economic development, and broadly, in the realization of basic human rights.

At the heart of the affected sectors is agriculture. With long, hot summers, crops require frequent irrigation, which is heavily dependent on the availability of electricity to pump groundwater through the irrigation systems. Although alternative energy sources are available, they are generally too costly for farmers to acquire. Once harvested, the market-ready goods are easily perishable without refrigeration.

Without being able to irrigate and store their goods, farmers have experienced devastating financial losses, which has impacted the financial viability of the entire agricultural sector and hindered people's access to food. Israel, the occupying power that has kept Gaza under tight closure/blockade for more than ten years, imposed a number of measures that critically restrict the import of agricultural materials and tools, particularly iron pipes used for building greenhouses. The Israeli military also frequently carries out chemical spraying activities² and ground incursions into agricultural fields along the borderline between Gaza and Israel with armored bulldozers. These practices have caused lasting damage to Gaza's arable land and has forced some farmers to abandon their trade.

The agricultural sector is vital in Gaza for the relief that it brings in the form of food security and development through job creation. In 2016, the Ministry of National Economy indicated in its Economic Activities Report that 23 percent of the workforce in the Gaza Strip is employed in agriculture. Ergo, the sector is considered a crucial tool to the realization of human rights in the Gaza Strip, including the rights to an adequate standard of living, food, and work.

This fact sheet explores the effects of Gaza's protracted electricity crisis on the agricultural sector in the Gaza Strip. The details outlined below are derived from, and try to give voice to, the experience of people and stakeholders whose living and working conditions have been affected by the crisis.

¹ Available online in Arabic at this [link](#)

² In 2015, Israeli army admitted carrying out aerial spraying of herbicides in an interview with +972 ([link](#)). In 2017, activist supplied B'tselem with video footage of an Israeli plane spraying herbicides along the border with Gaza (video available [here](#)).

The Origins of the 2017 Electricity Crisis

Gaza's electricity supply comes from three sources: 1) Gaza's power plant, which is dependent on a steady supply of fuel and spare parts, 2) through power lines from Israel, and 3) through power lines from Egypt. The electricity situation in Gaza drastically deteriorated at the beginning of Israel's full closure/blockade of Gaza in 2007. Since then, the population has witnessed a steady reduction in the provision of electricity. The three major military assaults on Gaza, in 2008/09, 2012 and 2014 respectively, have compounded the ever-degrading conditions and hindered access to even basic services.

The April 2017 deterioration in conditions was sparked when the Gaza Power Generating Company (GPGC), a private sector company that owns and operates the power plant in coordination with the PENRA, ceased operation of the power plant due to a shortage of fuel. The Hamas-led authorities in Gaza and the Palestinian Authority have long disagreed on the funding and taxation setup for the fuel necessary to run Gaza's power plant. Shortly afterwards, the Palestinian Authority cut funding for the electricity that is received through the power lines from Israel. As a consequence, Israel cut the already-low supply of electricity by 35 percent, which left the population facing prolonged blackouts for up to 20 hours a day.

While the situation is a reflection of Israel's restrictions and control of Gaza, the current crisis is also attributable to the long-standing dispute between the Palestinian Authority in Ramallah and Hamas-led authorities in Gaza³, where the formation of a unity government has seen some progress since October 2017. The recent power shortages and increased demand for electricity means that this crisis remains the most challenging hurdle in alleviating civilian suffering in Gaza. Outlined below is the chronology of the events that led to the present situation:

- 16 April 2017: PENRA in Gaza announces the total cessation of the power plant operations due to the shortage of fuel.
- 27 April 2017: The Palestinian Authority cuts funding of Gaza's electricity which is supplied by Israel Electric Corporation through ten power lines running from Israel into Gaza after failing to agree on a funding and taxation of fuel plan with Hamas-led authorities. When operating in full capacity, the ten power lines from Israel channels roughly 120 megawatts of electricity, making it the biggest source of electricity in the Gaza Strip.
- 11 June 2017: The Israeli cabinet approves a plan to reduce the electricity supply by at least 35 percent of the supply that is paid for by the Palestinian Authority and international donors, and provided to Gaza through power lines from Israel.
- 19 June 2017: Israeli authorities commence with a five-day plan to gradually reduce electricity provision by eight megawatts per day until they reached the target reduction.
- 21 June 2017: Following an agreement between Hamas and the Egyptian authorities, a first batch of Egyptian fuel trucks entered Gaza. The fuel is loaded into GPGC tanks and enables Gaza's power plant to be restarted.

³ PHROC Press Release, Palestinian Human Rights Organizations denounce the decision to reduce the power supply to the Gaza Strip. Available here: <http://mezan.org/en/post/21938> 20 June 2017

- 6 July 2017: PENRA in Gaza announces that the supply of electricity through power lines from Israel has been reduced by 55 megawatts.⁴
- September 2017: The amount of fuel imported from Egypt is estimated at 40 million liters. Most of the imported fuel is used exclusively to run the power plant by GPGC.⁵

Following the above developments, Gaza's electricity supply is reduced to 140 megawatts, while the amount required to meet the needs of the population is 500 megawatts.⁶ Meanwhile, the fuel imports from Egypt are irregular and unreliable as they depend on the security situation in the Sinai and the political climate.

The electricity crisis became critical when the deputy director of PENRA in Gaza announced cessation of the Gaza power plant operations in mid-April 2017. The crisis was further deepened after the Palestinian Authority decided to cut funding for Gaza's power provision, prompting Israel to reduce its electricity supply to Gaza by 55 megawatts.

Agricultural Sector in Gaza

The agricultural sector in Gaza is primarily limited to three main, interrelated production systems: agronomy and horticulture, i.e. the cultivation of vegetables, fruits, cereals, flowers, etc.; livestock production; and fishery. Below is an overview over the production capacity of Gaza's agriculture sector:

- The number of paid workers within the agricultural sector amounts to 62,751. There are also 20,145 agricultural workers engaged in family farming of privately owned land.⁷
- Agricultural production in Gaza almost covers the needs of the local market: the production of crops covers 96%, the production of poultry covers 95%, the production of olives 80%, and the production of citrus covers 50% of the needs of the local population.⁸
- The number of agricultural holdings, being a techno-economic unit of agricultural production⁹, in the Gaza Strip amounts to 20,402, with 13,909 holdings for crop cultivation, 3,362 for livestock grazing (mainly limited to poultry, sheep and cattle), and 3,131 for mixed use.¹⁰

⁴ PENRA, Gaza, 6 July 2017, reduction of electricity by Israel reaches 55 megawatts: 19 September 2017: <https://goo.gl/JMjTQz>

⁵ Shaqfa, Khalil, director of the General Directorate of Petroleum at the Ministry of Finance in Gaza, phone interview with Al-Mezan's researcher, Basim Abu Jay: 17 September 2017.

⁶ PENRA

⁷ Ministry of National Economy, General Directorate of Studies and Planning, Economic Activities in 2016, March 2017.

⁸ Abu Shammala, Nabil, head of the General Directorate of Studies and Planning at the Ministry of Agriculture, interview with Al-Mezan's researcher, Basim Abu Jay: 29 November 2017.

⁹ An agricultural holding is an economic unit that measures production within a branch of agriculture, including livestock production. This unit also includes the complete or partial use of land, without taking into consideration matters of land ownership and legal status. An agricultural holding is a unit of arable land that is not less than either one acre of land for open cultivation of crops, or half an acre of land for protected cultivation. An agricultural holding for livestock production is a farm that includes any number of cows or camels, five or more sheep, 50 or more poultry, birds or rabbits, or 3 or more beehives. A mixed agricultural holding is one that includes both crop and livestock production, provided that the same labor and equipment are used in catering both.

¹⁰ Palestinian Central Bureau of Statistics (PCBS) and Ministry of Agriculture, Gaza, (Agricultural Census 2010 – final results, Palestinian Territory), December 2011.

The Repercussions of the Electricity Crisis on Agricultural Sub-Sectors

Agronomy

The electricity crisis has caused a sharp reduction in the amount of water used for irrigation to up to 50-60%. The most affected areas are Al-Fukhari village and Abasan town in eastern Khan Younis district where the water supply reduction has been estimated at 60% compared to 40% in other districts in the north.¹¹ The inconsistency in the supply of power, which can provide as little as three to four hours a day, has led to sporadic irrigation and resulted in considerable damages to crops.¹²

Due to the electricity crisis, the cost of a cubic meter of irrigation water has risen from 1 ILS to 1.7 ILS. At times, farmers have to procure water from as far away as a distance of 15 kilometers, which incurs the increased cost of transportation. Farmers in Gaza's border areas are particularly reliant on water sources that are set at a distance from the buffer-zone where powering on water pumps at night after a day of blackouts may incur security issues for the farmers due to their proximity to the Israeli military. Border areas are also heavily impacted during military escalations into Gaza—and often witness massive destruction of private property.¹³



Potato crops are cultivated on an area amounting to between 1,700-1,900 acres, where 30,000-35,000 tons of potatoes are produced annually; 23,000 tons are then stored in 62 refrigerated storage units. With persistent and extended electricity blackouts, these refrigerators cannot keep the potatoes fresh for long. The high cost, and at times the unavailability, of power generated from alternative energy sources increase the possibility of such losses.¹⁴

Failing to sufficiently irrigate crops negatively affects the quality of the products and thus reduces their competitive value.¹⁵ Many farmers have seen major drops in crop production due to the sharp lack of irrigation water. Some have decided to stop farming until the electricity crisis is resolved.¹⁶

¹¹ Unpublished releases of the Ministry of Agriculture, obtained by Al Mezan's researcher Gharib Al-Sinwar on 17 September 2017.

¹² Union of Agricultural Work, 9 July 2017, Electricity Crisis Threatens Food Security in the Gaza Strip, retrieved 20 September 2017: <https://goo.gl/jKjom4>

¹³ Thabit, Wael, head of General Directorate of Plants and Quarantine Protection, Ministry of Agriculture, phone interview with Al Mezan's researcher Basim Abu Jay, 23 September 2017

¹⁴ Ibid

¹⁵ Thabit, Wael, head of General Directorate of Plants and Quarantine Protection, Ministry of Agriculture, phone interview with Al Mezan's researcher Basim Abu Jay, 23 September 2017

¹⁶ Al-Laham, Ashour, head of Palestinian Farmers Association, interview with Al Mezan's researcher Gharib Al-Sinwar.

Other challenges farmers face include the threat to personal security while they farm the lands close to the border with Israel—this area is considered ‘access restricted area’ or “buffer-zone” and is enforced through the use of live fire by Israeli forces. The restrictions on movement imposed by Israel in the access restricted areas prevent farmers from accessing their land and moving freely during nighttime hours when the few hours of electricity is often connected, which further reduces the farmers’ ability to perform the necessary irrigation of their crops.¹⁷

Livestock Production and Fishery¹⁸

Broiler chickens: Each month, farmers in the Gaza Strip raise roughly 2.5 million chickens in closed facilities. In the summer, the increased power cuts mean a reduction in air conditioning used inside the farming facilities. The lack of air conditioning in hot weather causes the mortality rate of livestock to rise significantly. Due to the electricity crisis and the resulting increase in costs and period of breeding, the farmers sustain monthly losses amounting to up to 6.25 million ILS (million 1.49 EUR).

Egg-laying chickens: Farmers in Gaza keep approximately 800,000 egg-laying chickens, which produce 16-17 million eggs every month. The power cuts have incurred a loss of 872,000 ILS (208,121 EUR) for farmers monthly, which includes the loss of 25,000 chickens, due to the lack of warming lamps and air conditioning to adjust temperatures. In addition, the egg-production capacity has been decreased by ten percent.

Turkey: Around 40,000 turkeys are raised in the Gaza Strip on a monthly basis. So far, the power cuts have caused farmers to lose a total of 92,000 ILS (21,957 EUR), and endure a cost increase amounting to 12,000 ILS (2,864 EUR). The mortality rate of animals has risen by two percent above the standard rate; this means, for example, that 800 turkeys are dying monthly during periods of high temperature in facilities that have sporadically functioning air conditioning.

Hatchery: There are 18 hatcheries in the Gaza Strip where three million chicks are hatched every month. The Ministry of Agriculture has estimated that the financial losses of hatcheries caused by the electricity crisis amount to 1.125 million ILS¹⁹ (268,500 EUR). These losses are the direct, combined result of increased production costs due to the reliance on generators and decreased production rate.

Dairy cattle grazing: There are roughly 2,500 dairy cows in Gaza, and they produce about 500 hectoliters of milk a day. Owing to increased production costs, which include a high cost of running fuel-powered electricity generators, farmers lose roughly 300,000 ILS per month (71,601 EUR).

¹⁷ Field interviews with farmers in border-approximate areas by Al Mezan’s Monitoring and Documentation Unit researchers, 20 September 2017.

¹⁸ Ibid: Ministry of Agriculture.

¹⁹ Ibid

Fisheries: There are four gilt-head sea bream fish farms and two fish hatcheries for the artificial breeding of fish in the Gaza Strip. The fish farmers lose roughly 170,000 ILS per month (40,574) due to increased operational costs to clean and circulate the water. For example, fish-farmers need approximately 1,000 liters of fuel to power generators that keep the fish farms supplied with electricity.

“CAAB has three refrigerators—with measurements of 64m², 70m² and 80m² respectively—that are used to store potatoes, carrots, lemons, and other crops. The storage period lasts about four months. In the summer of 2017 when the electricity crisis in Gaza was at its worst, CAAB was forced to run a 150 kWh electricity generator. Since we could not keep it running for longer than 12 consecutive hours [due to the threat of overheating] the damage to the stored crops was extensive, while the cost of storing increased significantly.”

Testimonials

Jamal May, an experienced accountant at the Cooperative Agricultural Association – Beit Hanoun (CAAB), spoke about the difficulties he faces in storing fresh products amidst the ongoing electricity crisis:

Farmer Mohammed Al Farra, 50, shared his experience of working in plant production:

“I cultivate 42 acres of land in a former Israeli settlement in Khan Younis district and grow different sorts of vegetables. Due to the electricity crisis, I had to buy a generator to irrigate my crops. I spend roughly 800 ILS (190 EUR) on fuel every day, which is an added cost to production.”

According to Al Farra’s estimation, in addition to the ongoing closure/blockade of Gaza and restrictions on movement of goods and people, the use of alternative energy sources has raised the cost of plant production by 30%, thereby hindering access to basic products

Farmer Mohammed Abu Meddin, 47, shared his experience in poultry breeding:

“I have a plot of land of about 10 acres located in the Middle Gaza district. I grow vegetables on seven acres and I planted olive trees on the rest of the land. I also have two chicken farms, each on 600m² where I breed 3,000 chickens. The irrigation of my crops is highly dependent on electricity-run pumps that draw ground water into irrigation pipes. However, since the blackouts began, I have been forced to rent a generator not only to pump the water, but also to run the air conditioning system in the farms to keep the chickens alive. The daily cost to rent a five-kilowatt generator amounts to 340 ILS (81 EUR), and I have to keep it running for ten hours every day. While the electricity crisis deteriorated, I decided to stop growing some crops, for example eggplant and zucchini, which require frequent irrigation.”

Conclusion

Gaza's closure/blockade, the Palestinian internal split, and the resulting electricity crisis have seriously affected all aspects of life in Gaza—and notably agriculture, Gaza's most vital economic sector. With long blackouts, the agricultural sector is forcibly underdeveloped, which influences people's access to their basic right to food.

The economic de-development of Gaza is rooted in the illegal closure/blockade of the Gaza Strip and further entrenched by the electricity cuts. The increased costs of agricultural production are borne by Gaza's population while poverty and unemployment rates soar to unprecedented levels. This means that people have less access to locally produced food. The food that is available is more expensive, which increases the economic burden of households that are already struggling financially.

The availability and supply of electricity, which is essential for the provision of various basic services, is extremely important for agricultural production and for the effective access to the right to food as well as a host of other social and economic rights. As effective access to these rights is seriously impeded, it can ultimately lead to the violation of the rights to life and dignity.

Based on the data laid out in this factsheet, Al Mezan recommends that:

1. Palestinian political actors dissociate economic and service sectors from political disputes and work together to formulate and implement effective, reliable, and sustainable solutions to the electricity crisis.
2. Palestinian parties ensure that the Palestinian internal reconciliation agreement is implemented successfully, and that parties retract all punitive measures, including those relating to electricity.
3. The international community honor its obligations towards the population in the Gaza Strip, an occupied territory enduring a humanitarian crisis, by putting pressure on the Israeli authorities to lift the closure/blockade and ensure that Palestinians have access to their basic human rights.
4. The international community, led by the United Nations, must take serious measures to spark economic development in Gaza. These measures must include support to economic sectors through e.g. encouragement of foreign investments in the occupied Palestinian territory.
5. Palestinians in Gaza, especially the poor and the unemployed, must be provided with every possible local and international support to guarantee a life of dignity and economic security.