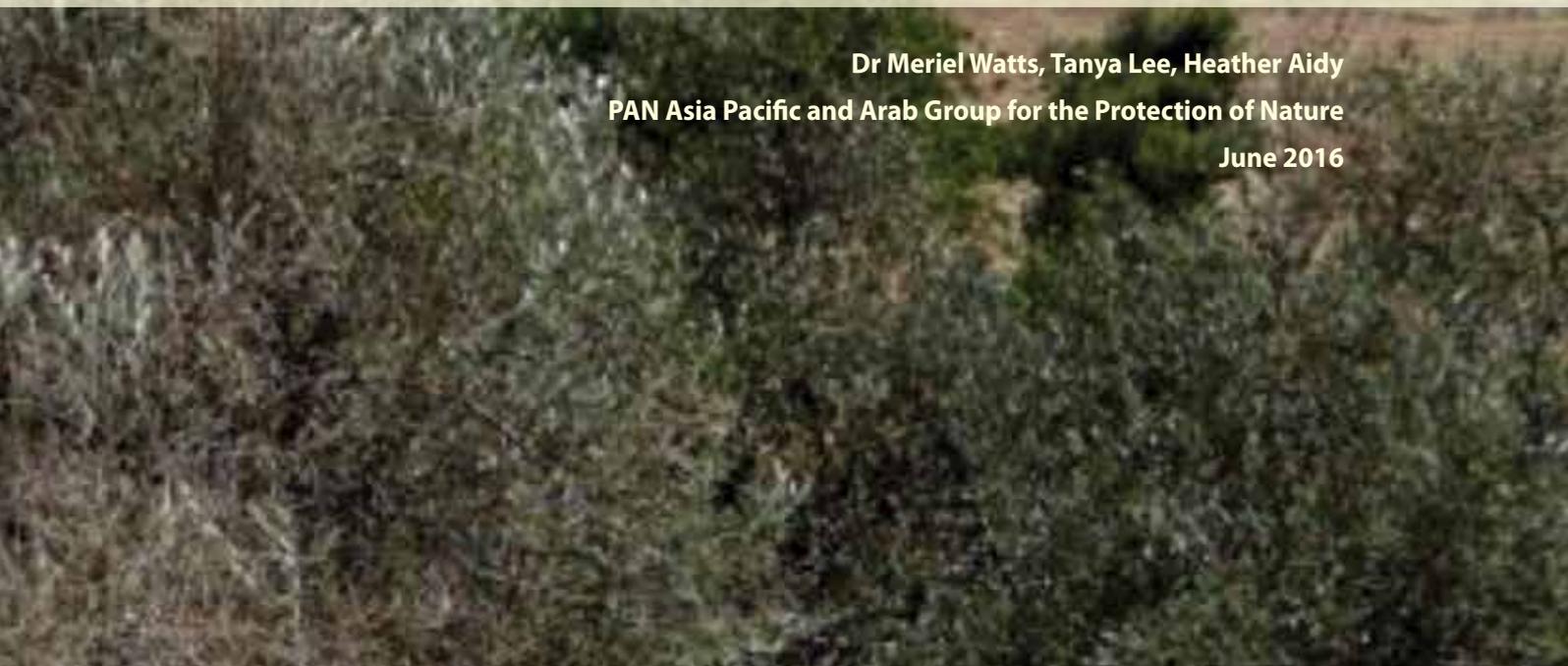


# **Pesticides and Agroecology in the Occupied West Bank**

Conclusions from a Joint APN-PANAP Mission  
in Palestine, May 2016

**Dr Meriel Watts, Tanya Lee, Heather Aidy**  
**PAN Asia Pacific and Arab Group for the Protection of Nature**  
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Photos: Meriel Watts unless otherwise specified



## Overview

In May 2016, representatives from Arab Group for the Protection of Nature (APN) and PAN Asia Pacific (PANAP) undertook a visit to the Occupied West Bank in Palestine that was facilitated by the Palestinian Farmers Union and Palestinian Voluntary Work Committee. One of the main purposes of this visit was to assess the human rights and environmental implications of the manufacture and illicit trade in pesticides into the Occupied West Bank from inside the Green Line (refer to the next section for an explanation of this terminology). Much of the material in this report was obtained from site visits and discussions with government officials especially the Environmental Quality Authority, union leaders, workers, farmers, pastoralists, medical personnel, educators and students in Hebron, Qalqilya, Salfit, Tubas, Jericho and Tulkarem Governorates.



*Palestinian pastoralists beside an encroaching illegal Israeli agricultural settlement, Northern Jordan Valley, Tubas*

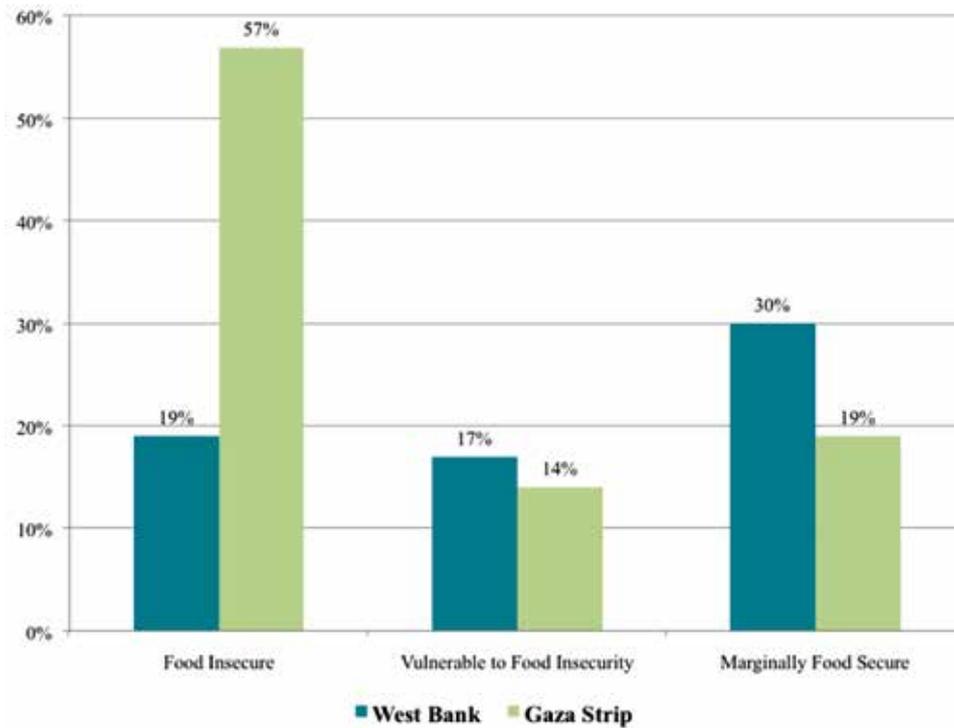
Agriculture forms a critical part of the Palestinian economy and society for a variety of reasons, including employment, food security, and prevention of encroachment by illegal Israeli settlements.<sup>1</sup> However, farming is significantly hindered by the imposition of the military occupation of Palestine by Israel and the activities of illegal Israeli settlers. This prevents Palestinians from, amongst other things, maximising their agricultural opportunities. As a result, food security is a significant concern, with more than 25 percent of Palestinian households identified as food insecure.<sup>2</sup>

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<sup>1</sup> Ministry of Agriculture. 2009. The Palestinian Agricultural Sector Strategic objectives and priority interventions (General Guidelines). Palestinian National Authority. <http://www.apis.ps/documents/AGR%20PRIOR%20MOA11-05-09-LAST.pdf>

<sup>2</sup> Summary of Preliminary Results of SEFSec 2013-2014: More than one fourth of households are food insecure in Palestine. Palestinian Central Bureau of Statistics. <http://www.apis.ps/up/1449644615.pdf>

**Table 1: Food Insecurity in the West Bank and Gaza Strip (% Population)**



*Source: Palestinian Central Bureau of Statistics, FAO, UNRWA and WFP. 2013.  
Socio-Economic and Food Security Survey: West Bank and Gaza Strip.*

APN and PANAP representatives heard about and witnessed a number of serious problems relating to agriculture, including:

- the presence of banned highly hazardous pesticides;
- the discharge of raw industrial and domestic sewerage from illegal Israeli settlements in the Occupied West Bank directly onto Palestinian grazing lands and olive groves;
- the dumping of solid waste on Palestinian farmland by Israeli settlers and settlement-affiliated companies;
- the deliberate poisoning and shooting of Palestinian livestock by Israeli settlers and army personnel;
- the expropriation of farmland for Israeli military and other purposes;
- the denial of access to and/or exorbitant charges for farmers to use local water resources (such as aquifers) and to access pumps inside the Occupied West Bank reserved for supplying settlements;
- the leaching of chemicals from Israeli industrial and agricultural operations into water resources;
- the destruction of livestock housing and farmers' homes by settlers under the watch of the Israeli military;
- the requirement for some farmers to have permits to access their own farmland, which are not always possible to obtain; and
- Israel's building of the concrete Apartheid wall,<sup>3</sup> which cuts farmers off from their land in some places, and in other places causes flooding because of its interference with natural water flows.

<sup>3</sup> Also known as the Separation or Annexation Wall: a concrete barrier in violation of international law that weaves its way through Palestine in departure from the 1949 Armistice Line.



- a) *Palestinian olives affected by sewerage flow from nearby settlement in Hebron Governorate; these olives cannot be used for food purposes any more*
- b) *Waste dumped and partially burned on Palestinian grazing land by illegal Israeli settlement; Northern Jordan Valley, Tubas*

These human rights infractions are of profound significance to Palestinian farmers, society and economy. Many have been reported to the United Nations Special Mechanisms on Human Rights,<sup>4</sup> and are reflected in a recent UN Resolution passed in the Human Rights Council focussed on Israeli settlements in the Occupied Palestinian Territory.<sup>5</sup> This report takes a specific look at concerns related to the impacts of pesticide in the Occupied West Bank.



*Local water denied to Palestinians, Northern Jordan Valley, Tubas*

<sup>4</sup> Re: Denial of the Rights to Life, Livelihood and Self-Determination of Indigenous Pastoralists in al Hadidiya and Ein al Beida, Tubas Governorate, Occupied West Bank (Palestine). Communication Submitted to UN Special Rapporteurs: Ms Victoria Tauli-Corpuz, Ms Hilal Elver, Mr Léo Heller, Mr. Baskut Tuncak, Mr. Danius Puras, Mr. John Knox; 17th May 2016.  
 Re: Human Rights Implications of Israel's Barkan Industrial Park on Bruqin and Haris Residents, Salbit Governorate, Occupied West Bank (Palestine). Communication Submitted to: Mr. Baskut Tuncak, Mr. Danius Puras, Mr. John Knox; 17th May 2016.

Re: Human Rights Implications of the Geshuri Industrial Complex on the Residents of Tulkarem, Occupied West Bank (Palestine). Communication Submitted to: Mr. Baskut Tuncak, Mr. Danius Puras, Mr. John Knox; 17th May 2016.

Re: Human Rights Implications of the Jayyous Landfill on Palestinian Residents in Jayyous and Azzun, Qalqilya Governorate, Occupied West Bank (Palestine). Communication Submitted to: Mr. Baskut Tuncak, Mr. Danius Puras, Mr. John Knox; 17th May 2016.

Re: Implications of Illicit Transport of Unregistered Pesticides into the Occupied West Bank (Palestine). Communication Submitted to: Mr. Baskut Tuncak; 17th May 2016.

<sup>5</sup> <http://panap.net> and <http://apnature.org>

A/HRC/31/L/39, 22nd March 2016. [http://www.un.org/ga/search/view\\_doc.asp?symbol=A/HRC/31/L.39](http://www.un.org/ga/search/view_doc.asp?symbol=A/HRC/31/L.39)

## The Political Context

In order to understand the impacts of pesticide trade and dumping on Palestinians, it is necessary to understand the unique political context in which Palestinian agriculture is currently embedded.

After war broke out over the disputed creation of the Israeli state in 1948 in what was until then known as the British Mandate of Palestine, an armistice agreement was signed by Israel, Egypt, Jordan, Lebanon and Syria. The agreement established a demarcation line, commonly referred to as the Green Line, between lands held by Israeli forces and those of its Arab neighbours (Gaza and the West Bank) after the 1948 Arab-Israeli war.

During the Six-Day War of 1967, Israel took control of Gaza and the West Bank and, since that time, the Israeli military has occupied the Palestinian lands and has enabled the establishment of illegal colonies/settlements exclusively for Israeli Jews in violation of international law.

In 1993, Israel and the Palestinian Liberation Organisation<sup>6</sup> signed the first Oslo Accord, intended as a temporary five-year arrangement that would serve as a basis for future negotiations. 'Oslo' saw the establishment of the Palestine Authority, which was given limited self-rule over parts of the Occupied West Bank and Gaza, and divided the Occupied West Bank into three zones, known as Areas A, B and C:

- Area A: under civil administration and security control of the Palestinian Authority – 17.7% of the land
- Area B: under Palestinian Civil administration and Israeli security – 18.4%
- Area C: under full Israeli civil administration and military control; this area contains the Israeli colonies and roads linking these and the Israeli military zones – 60.9%
- Nature reserves – 3%

Despite the intended short-term nature of the Accords, these divisions still remain in place today.

While Palestine was officially recognized as a state by the United Nations General Assembly in 2012, it does not have defined borders nor does it have sovereignty over its own territory; for these and other reasons, many in the international community continue to refer to the West Bank and Gaza as the Occupied Palestinian Territories.

To date, Israeli settlements, bypass roads, closed military and security zones and the Apartheid Wall have taken a total of 2,179 km<sup>2</sup> of the West Bank,<sup>7</sup> which is 5,860 km<sup>2</sup> in size, including 14 km<sup>2</sup> for industrial zones and 93 km<sup>2</sup> of agricultural land.<sup>8</sup>

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<sup>6</sup> The Palestine Liberation Organisation was recognised as the sole legitimate representative of the Palestinian people by the Arab League in 1974; Jordan severed all legal and administrative ties with the West Bank in 1988.

<sup>7</sup> Land Research Centre. March 2015. *Al-Intihakat Al-Israelieh lilhuquq Al-Falasteenieh Fe al-Ard w al-Sakan* [Israeli Violations of Palestinian Land and Housing Rights - 2014 Annual Report]. Jerusalem.

<sup>8</sup> Human Rights Watch. 19th January 2016. "Occupation Inc: How Settlement Businesses Contribute to Israel's Violations of Palestinian Rights." <https://www.hrw.org/report/2016/01/19/occupation-inc/how-settlement-businesses-contribute-israels-violations-palestinian>



*Israeli military near Ramallah*

## **Pesticide regulation**

In 2010, the Palestinian Authority Central Bureau of Statistics described the use of pesticides in the West Bank and Gaza as “excessive”, risking reduced soil fertility and water pollution. It noted then that “In the West Bank the annual rate of use of agricultural fertilisers reached 30,000 tons of chemical fertilisers and manures, and the annual rate of use of pesticides reached to 502.7 tons, consisting of about 123 types, 14 of them are internationally banned for health reasons”.<sup>9</sup> However, a national survey of pesticide use in 2011 indicated a trend of decreasing use over the period 1996 to 2007.<sup>10</sup> And in 2012, the Palestinian Authority promulgated a strict regulation on the management of pesticides.<sup>11</sup>

The regulation set the basis for registering both pesticides and traders of pesticides. It established a scientific committee to determine the types of pesticides that can be used and to monitor and control their quality. The committee is also charged with publishing each year, and distributing to stakeholders, a record of the pesticides registered and cancelled and the reason for cancellation.<sup>12</sup>

The regulation prohibits the use of pesticides that are:

- i. banned for use in the Occupied West Bank
- ii. banned for use in their country of origin for health or environmental reasons
- iii. classified by the World Health Organization or the US Environmental Protection Agency as causing cancer or birth defects or genetic mutations, or severe toxicity to humans or animals
- iv. groundwater pollutants.

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<sup>9</sup> PCBS. 2010. “The Palestinian environment to where?” Press release, World Environment Day. Palestinian Central Bureau of Statistics. [http://www.pcbs.gov.ps/Portals/\\_pcbs/PressRelease/Envirm-DayE.pdf](http://www.pcbs.gov.ps/Portals/_pcbs/PressRelease/Envirm-DayE.pdf)

<sup>10</sup> Rashed Al-Sa’ed, Asa’d Ramlawi, Amjad Salah. 2011. A national survey on the use of agricultural pesticides in Palestine. *Int J Environ Studies* 68:4:519-29.

<sup>11</sup> Issue 99. Council of Ministers Resolution No. (9) for the year 2012: Pesticides System. 27/2/2013. Reference Number: 99-2-2013, Fatwa and Legislation Office. Palestinian Authority. <http://faolex.fao.org/docs/pdf/pal126498.pdf>

<sup>12</sup> We have been unable to find the records of cancellations.

Registered pesticides can be cancelled for reasons, including:

- i. new properties emerging after registration
- ii. if it appears that the use of the pesticide in the local conditions may cause local damage to the environment
- iii. if as a result of random sampling the pesticide does not meet the specifications or technical regulations
- iv. registration is cancelled in the country of origin
- v. prohibition is recommended by official international organisations.

Additionally, there are strict conditions regarding the import of pesticides:

- i. importers must have written consent from the Ministry of National Economy
- ii. label must be in Arabic
- iii. dealers must have a licence
- iv. dealers must have full Palestinian citizenship
- v. the shop must have a full-time engineer who holds:
  - a Bachelor's degree in agricultural science, or
  - a degree or diploma from an agricultural institute, with not less than ten years of experience in this field
- vi. the trader must keep records of types and amounts of pesticides, and their source.
- vii. pesticides must be in their original container.

Other conditions that apply include that all pesticides traded must have an official stamp from the Ministry of Agriculture on the container before distribution.

### **Some pesticides for which approval has been revoked**

acephate	chloropicrin	isofenphos
alachlor	chlorothalonil	malathion
aldicarb	chlorpyrifos	methamidophos
amitraz	cyhexatin	methiocarb
atrazine	daminozide	methyl bromide
azinphos-methyl	dazomet	monocrotophos
carbofuran	diazinon	oxadiazon
carbosulfan	dichlorvos	paraquat
brodifacoum	dicofol	parathion methyl
bromacil	endosulfan	pymetrozine
bromoxynil octanoate	hexaconazole	tebuconazole
carbaryl	imazaquin	

*Sources: list of banned pesticides, 2011, Ministry of Agriculture website;  
lists of approved pesticides for 2103-2014 and 2015-2016*

## Illegal trade in pesticides

Palestinian officials endeavour to run a process of strict control over pesticide importation and use, with tight control on registration and approved dealers, including frequent audits of shops. However, their efforts are severely undermined by the existing political situation – in particular, the refusal of Israel to allow the Palestinians to enforce Palestinian law, the failure of the Israeli military to allow Palestinians to police their border, and the failure of the Israelis themselves to stop the illegal trade. As a result, there is a very sizeable trade in illegal pesticides into the Occupied West Bank. Reportedly, most of these pesticides are destined for use in Area C, concentrated in the agriculturally productive zones within the Jordan Valley, by-passing the registered shops. It is estimated that as much as 50 percent of pesticides used in the country are illegal. The Palestinian authorities do their best to stop this trade but are only able to take action to stop the trade in Area A. When they are able to seize illegal pesticides, Palestinian authorities prosecute traders and submit a report under the Basel Convention, which both the Palestinian Authority and Israel have ratified.



*Palestinian officials unloading illegal pesticides seized in 2012. Credit: EQA*

Despite the challenges outlined above, the Palestinian authorities have had some success in thwarting the illicit trade. Just two weeks before our visit, government officials had seized a truckload of pesticides in Qalqilya, including:

- six 20 litre containers of endosulfan (trade name Thionex 35EC), manufactured inside the Green Line by Adama, previously Makhteshim Agan and now a subsidiary of China's state-owned ChemChina. It is date-stamped 11/2014. In 2011, endosulfan was listed under the Stockholm Convention on Persistent Organic Pollutants for global phase out of manufacture and use. Israel has ratified the Convention but not the amendment listing endosulfan.
- Dukatalon, a paraquat and diquat mixture manufactured by Syngenta, Switzerland.
- Simazole Plus (simazine +diuron +amitrol)
- products containing malathion, oxamyl and propquinazid.

None of these active ingredients are approved by the Palestinian Authority.



Banned endosulfan from Adama, Israel, 2016



The only label on this pesticide container was handwritten

Other products in Qalqilya, and in a temporary storage site in Hebron, were confiscated due to incorrect labels, fake labels, expired product, unapproved product with an approved active ingredient, and lack of the Ministry of Agriculture seal. In Qalqilya, we observed a number of 20 litre containers with no label at all, just handwritten Arabic script directly on the container, thought to have come from an illegal pesticide manufacturer in an Israeli industrial complex established inside Area C.

The seized products originated not just with Israel companies, but also with well-known transnational corporations such as Syngenta, DuPont, Dow and Bayer:

- Talus – Almandine Corporation, Gotthardstrasse 3, 6300 ZUG, Switzerland
- Viva – oxamyl – Everspring Jakarta, Indonesia
- Gaol – oxyfluorfen – Dow
- Dursban – chlorpyrifos – Dow
- Score – difenoconazole – Agrica/Syngenta
- Mesurol – methiocarb – Bayer
- Bayfidan – triadimenol – Bayer (fraudulent MOA stamp)
- Metasystox – oxydemeton-methyl – United Phosphorus Ltd, India
- Sportak – prochloraz – Bayer
- Tracer Ultra – spinosad – Dow
- Meron – lufenuron – Agrica
- Agriron – abamectin – Agrica
- Dynone – propamocarb HCL – Bayer, Germany (expired)
- Condor – 1,3-dichlorpropene – Dow
- Metamor 510 – metam sodium – unknown

Through their companies, countries implicated in the illegal trade include Germany, USA, India, Indonesia, China and Switzerland; and in the case of China, the government itself through its ownership of Adama.

Other illegal pesticides reported to APN and PANAP found in the Occupied West Bank (but not sighted during our mission) include aldicarb (Temik) used to replace methyl bromide, Folidol (parathion), Tamron (methamidophos) and Mesurol (methiocarb).

There are an estimated five tonnes of illegal pesticides, seized since 1995, in a secure central warehouse awaiting removal. But Palestine has no means to dispose of them safely and, to date, Israel has refused to accept its responsibility for this problem by taking back and appropriately disposing of these stocks.

Government officials representing health, environment and agriculture ministries, as well as academics, explained the attempts to regulate and phase out methyl bromide, an ozone-depleting fumigant strictly regulated by the Montreal Protocol. Methyl bromide is no longer on the Palestinian Authority's 2015-16 list of approved pesticides, and Israel has ratified the Montreal Protocol. Yet methyl bromide is illegally brought in from inside the Green Line.



*Banned Dukatalon (paraquat + diquat) from Syngenta  
Credit: Tanya Lee*

## **Manufacture of pesticides in illegal settlements**

There are a number of illegal industrial settlements within the Occupied West Bank. Information on what they manufacture is typically inaccessible as the Israel Civil Administration refuses to disclose such details to the Palestinian Authority. As a result, it is unclear how many factories inside these zones are in fact manufacturing pesticides. One that is known to do so is Geshuri & Sons.

The Israeli-operated Geshuri Industrial Complex at Tulkarem, in the Tulkarem Governorate, contains a cluster of agrochemical and other chemical manufacturing plants but is named after the largest factory, operated by Geshuri & Sons, known to produce agrochemical compounds. The precise number of factories currently operating and their primary production lines remain largely undisclosed, but are thought to include plastics, adhesives and cylinders for methyl bromide, as well as pesticides and fertilisers. Reportedly, companies headquartered in Israel, as well as abroad, operate within the industrial zone.

After the Geshuri Factory was initially closed down inside the Green Line by an Israeli court order in 1982 due to the unacceptable levels of chemical contamination it was causing to the surrounding area, the business relocated to Area C of the Occupied West Bank, adjacent to the Palestinian community of Tulkarem, in a move facilitated by Israel's Civil Administration. Since that time, land within the jurisdiction of Tulkarem has been encroached upon and seized by the Israeli military to allow for the expansion of this complex.

Representatives from the municipal hospital, government and trade union federation all emphasised the lack of information to which they have access about the types of products being handled and produced at Geshuri, and the resulting lack of certainty about the chemical contaminants affecting the air, water, and soil and peoples' health. The situation exists for a potential Bhopal-type accident with disastrous effects on the neighbouring Palestinian community, if chemicals such as methyl isocyanate

or other highly hazardous chemicals are being used/produced in this complex. Without the verification of which chemicals are being manufactured and handled, residents of Tulkarem are deprived of key information needed to better understand the health implications and environmental damage resulting from the operations of the industrial complex. They can rely only on anecdotal accounts that the site is producing, among others, chemicals banned in other countries. As a consequence, they live in constant fear of what may happen to them, given the contamination levels to which they are exposed, as well as the risk of a serious industrial accident. Reportedly, workers at the site, who are primarily Palestinians from Tulkarem, also have limited information about the hazardous chemicals they are handling.



*Geshuri & Sons, Tulkarem: is this a 'Bhopal' waiting to happen?*

### *Environmental impacts*

Tulkarem residents testified that the Geshuri industrial complex routinely dumps untreated toxic waste and garbage in the surrounding areas. Groundwater and soil in the area directly surrounding the factories are consequently contaminated, resulting in the loss of productive, fertile land for growing food and raising livestock. The Geshuri pesticide factory discharges a noxious liquid directly into several farms surrounding the site, including one where the owner is trying to manage growing fruits and vegetables organically. Productive land owned by Tulkarem residents has also been usurped in order to accommodate the expansion of the industries. Community members and government officials stated that the factories – which run nearly 24 hours, six days a week when the prevailing wind blows the fumes over the neighbouring Palestinian community – close down during the four or five days of the year when the wind blows toward the Green Line.

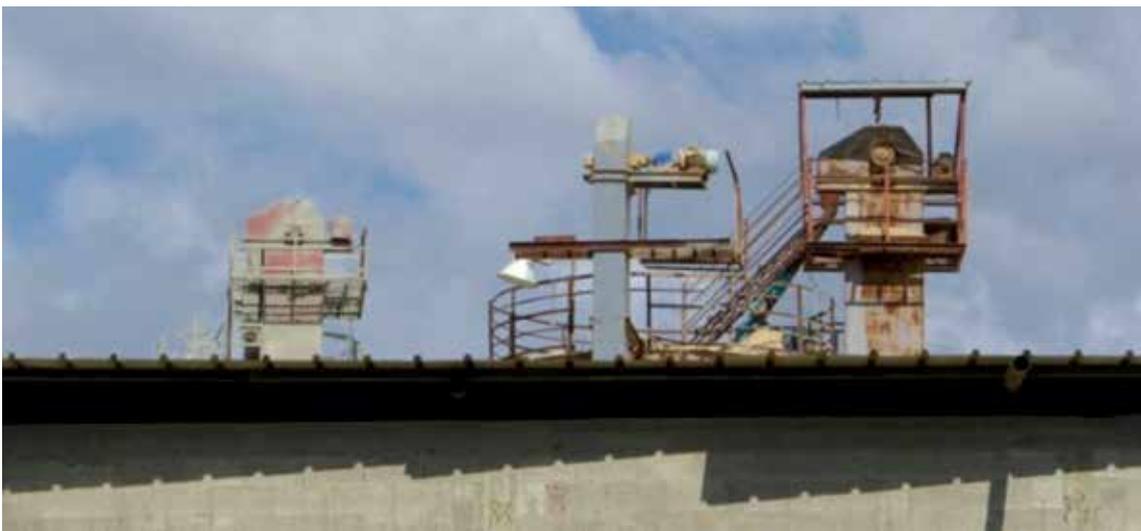
### *Worker health and safety*

According to a spokesperson from the Tulkarem Hospital and to representatives of the Ministry of Health, workers employed at Geshuri and residents living in Tulkarem anecdotally have significantly higher rates of respiratory diseases and cancer (lung cancer and leukaemia), and of conjunctivitis as well as other eye diseases, than in other nearby municipalities. They also noted that children have proportionately higher rates of asthma in comparison to similar aged populations in the surrounding towns. However, there has been inadequate health monitoring because of a lack of access to the necessary resources.



*Discharge from Geshuri pesticide factory through a Palestinian organic farm*

Community members with whom we spoke in Tulkarem estimate that there are currently approximately 400-500 people employed within the Geshuri Complex, most of whom are Palestinians from the surrounding areas. The complex effectively functions as a military zone closed to any form of monitoring and trade union activity due to its location within Area C and protection provided by Israel's Civil Administration. As a result, working conditions are reportedly deplorable with low wages and no health and safety regulations. Working 12-hour shifts but being paid for eight hours is apparently the norm. Meanwhile, workers are said to commonly feel ill due to heavy exposure to hazardous chemicals. Those with whom we spoke recounted deaths of labourers from industrial accidents, factory fires, and instances of people dying from cancer. Evidently, workers are under intense pressure not to disclose the situation they face or any information to which they may have access about products they handle, for fear of withdrawal of their work permits. Given the possibilities of severe repercussions, workers refrain from raising many questions.



*Geshuri Industrial Complex: poor workers' conditions*

## *Community impacts*

The Geshuri Complex is very close to two universities and seven schools that together serve a total of 11,000 students. Students, teachers and the principal of the Fatima Al-Zahra' School provided first-hand testimonies to APN and PANAP of ill health directly related to the operations of the factories, explaining that they are unable to go outside during breaks or lunch and often cannot complete their physical education classes or morning exercises due to the noxious gases emitted in the vicinity of their school. According to the school's principal, fumes have intensified over the last three months. Students and teachers alike also noted that their situation should not be seen as isolated from the other schools within 500 metres of the industrial complex.

Frequent student absenteeism is attributed to the health impacts of the industrial zone. The students, teachers and principal all explained that a high percentage of children have respiratory problems, headaches, skin rashes and blurry or irritated eyes. They also reported that at least one student at their school has been diagnosed with leukaemia.

In an ongoing effort to take collective action in defence of their rights, the students of Fatima Al-Zahra' School have initiated an online petition to demand the EU ban imports from the Geshuri Complex, and hoped to be present at the EU Commission to discuss their concerns in June 2016.

Because of the lack of information on the nature of the plants within the Geshuri complex – except for the pesticide factory – and the nature of the chemicals being used and produced, it is impossible to identify whether the health and environmental impacts referred to above result from the pesticides factory and/or others – but most likely they can be attributed to the cumulative environmental health impacts of the factories operating in the Geshuri Complex.



*Official from Palestinian Authority and headmistress and students from a school in Tulkarem, describing the effects of the emissions from the Geshuri Industrial Complex*

## Inhumane use of pesticides by Israeli settlers

Pesticides are also being used as a weapon in the ongoing war by illegal Israeli settlers against Palestinian farmers. In the Northern Jordan Valley, Tubas Governorate, Palestinian farmers of al Hadidiya report their livestock have been poisoned by Israelis from nearby settlements of Ro'i and Beka'ot. Settlers are evidently spraying a type of pesticide on their grazing land, and also mixing it with hay they feed to the livestock, resulting in sudden death and miscarriages. Since 2013, about 200-300 animals have been killed on 14 farms in al Hadidiya area. The farmers reported that veterinary medical analyses identified the cause of poisoning. Waste pesticide containers were found dumped in their grazing lands, including Syngenta's Vertimec (abamectin), Adama's Roundup (glyphosate), Agrica/Valient Bio-Science's Pro-Gibb (gibberellins). This poisoning and waste dumping takes place alongside numerous other abusive acts against the farmers at the hands of Israeli settlers and military, including their homes and livestock shelters being repeatedly torched, livestock intentionally run over, fodder crops torched, waste thrown in their rainwater collection tanks, prevention of access to water for themselves and livestock, and other abuses.<sup>13</sup>



*Syngenta's Vertimec (abamectin) and other garbage dumped by Israeli settlers on Palestinian grazing land. Northern Jordan Valley, Tubas*

## Health and environmental issues

There is no reliable data on either contamination of the environment with pesticides or effects on human health, primarily because the Occupied West Bank lacks the facilities and resources to carry out these studies. Israeli army personnel surrounding the illegal settlement sites physically prevent Palestinians from collecting and analysing water and soil samples from locations near the settlements. Furthermore, Israel imposes severe restrictions on importing technical equipment into the West Bank that could be used in the analysis of any such samples.

About 10,000 Palestinians work in agricultural settlements in Jordan Valley, several hundreds of whom are reported to be children. The Palestinian labourers usually work in closed greenhouses where the exposure to pesticides is amplified. They are often given the task of spraying, but do not have proper

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<sup>13</sup> For more details on these other abuses see the letters to the UN Special Rapporteurs referred to in footnote 4 and *Human Rights and Toxic Chemicals in the Occupied West Bank (Palestine): Conclusions from a Joint APN-PANAP Mission in Palestine, May 2016 on the human rights and corporate accountability implications of the use, production, and dumping of pesticides, and the dumping of industrial and domestic waste.* <http://panap.net> and <http://apnature.org>

equipment to protect themselves, and cannot access any compensation or benefits for work-related illnesses or injuries.

During the mission, APN and PANAP heard anecdotal accounts linking pesticide exposure with cancer, male infertility, impacts on the nervous system, respiratory problems including asthma, and peeling skin / skin allergies.



*Illegal Israeli agricultural settlement in the middle of Palestinian grazing lands, Northern Jordan Valley, Tubas*

## Agroecology

It is now internationally recognised that the future of agriculture, and food security, lies in turning away from the currently predominant high input chemical-intensive approach and instead adopting an approach that works more closely with the ecosystem, providing farmers with better incomes, a cleaner environment and a healthier life. Following the listing of endosulfan for a global phase-out by the Stockholm Convention's<sup>14</sup> Conference of Parties in 2011, the Parties agreed that the priority for replacing endosulfan should be ecosystem-based approaches to pest management, in preference to replacing endosulfan with another chemical. The Convention's POPs Review Committee developed a guidance document on non-chemical alternatives to assist countries.<sup>15</sup> More recently, the Fourth International Conference on Chemicals Management (ICCM4), in recognising that highly hazardous pesticides (HHPs) "*cause adverse human health and environmental effects in many countries, particularly in low-income and middle-income countries*", encouraged stakeholders to address HHPs at the local, national, regional and international levels "*with emphasis on promoting agroecologically-based alternatives.*" And in 2016, the International Code of Conduct on Pesticide Management's Guidelines on Highly Hazardous Pesticides<sup>16</sup> specifically prioritised biopesticides and non-chemical approaches

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<sup>14</sup> Stockholm Convention on Persistent Organic Pollutants. <http://chm.pops.int/Default.aspx>

<sup>15</sup> UNEP. 2012. Evaluation of non-chemical alternatives to endosulfan. Persistent Organic Pollutants Review Committee. UNEP/POPS/POPRC.8/INF/14/Rev.1.

<sup>16</sup> FAO & WHO. 2016. International Code of Conduct on Pesticide Management: Guidelines on Highly Hazardous Pesticides. Food and Agriculture Organization of the United Nations Rome. <http://www.fao.org/publications/card/en/c/a5347a39-c961-41bf-86a4-975cdf2fd063/>

to pest management as alternatives to HHPs, noting that a needs assessment should be carried out for HHPs. If agroecological or non-chemical methods are adequate, then HHPs should be phased out.

Agroecology, which includes organic growing, involves managing ecological relationships and promoting key ecological processes, while diversifying crops, conserving resources and minimising toxic inputs. A wide range of agroecological practices are employed, aimed at:

- providing the most favourable soil conditions for plant growth by enhancing soil biological activity and soil organic matter, and recycling nutrients through organic matter decomposition; and
- enhancing beneficial biological interactions and synergies to promote, especially, those that regenerate soil fertility and provide pest management without resorting to external inputs.

We were not able to gain an understanding of the extent to which agroecological practices are used in the Occupied West Bank. However, there seems to be a general willingness to adopt these practices amongst many farmers. There was also considerable interest expressed by government officials and farmer union spokespeople in implementing agroecology to reduce dependency on pesticides. Several reports suggest that organic farming is becoming increasingly popular with farmers.<sup>17</sup> A recent report from the International Federation of Organic Agriculture Movements (IFOAM) shows that Palestine has the third highest percentage of farmland under organic management in the Asian region (behind Timor-Leste and Sri Lanka).<sup>18</sup> The report provides the following figures for the State of Palestine:

- 6,896 hectares in organic certification by 2014
- Of this, 90% is in olives (4,397 ha fully converted and 1,794 ha in conversion)
- 71 ha in cereals and 4 ha in vegetables
- 1.9% of land is in organic agriculture (in contrast with Israeli's 1.3%)
- This is a 8.5% increase since 2013/14
- 1,096 organic producers
- 38 organic processors

Worldwide, there is a wealth of information on agroecological approaches to pest management that remove the need for highly hazardous pesticides such as those being illegally trucked into the Occupied West Bank.<sup>19</sup> However, because many agroecological practices are context-specific and cannot be prescribed as pesticides are, there is a need for research in the Palestinian territories on effective methods, as well as assistance to farmers to help with implementation.<sup>20</sup> Numerous case studies have shown how farmers benefit financially from a shift to agroecology. The Palestinian Authority is taking very important steps in reducing HHPs, and international assistance with agroecology could further support these steps. It is in the interests of farmers, communities, countries and the world as a whole to replace HHPs with ecosystem approaches to pest management, based on agroecological science.

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<sup>17</sup> See for example: Organic Farming Boom in Palestine. 2nd December 2016. file:///Users/meriel/Desktop/Organic%20Farming%20Boom%20in%20Palestine%20\_%20Green%20Prophet.html

<sup>18</sup> Source: FiBL survey 2016. In Willer, Helga and Julia Lernoud (Eds). 2016. *The World of Organic Agriculture. Statistics and Emerging Trends 2016*. Research Institute of Organic Agriculture (FiBL) and IFOAM – Organics International.

<sup>19</sup> For example PAN's recent book: Watts MA, Williamson S. 2015. *Replacing Chemicals with Biology: Phasing out Highly Hazardous Pesticides with Agroecology*. An electronic version can be downloaded at <http://www.panap.net/campaigns/hhps/international-instruments/saicm/iccm4/post/2675>. Or a hard copy or CD can be obtained from PAN Asia Pacific at [panap@panap.net](mailto:panap@panap.net)

<sup>20</sup> See for example, IPAM - the International Peoples Agroecology Multiversity – recently launched by PAN Asia Pacific. <http://ipamglobal.org/>



Em Ismael in her organic field, Dair Balut

### Case Study: Organic Coop in Dair Balut

In **Dair Balut** we met with Em Ismael, the field manager for a cooperative of 20 farmers, both men and women, farming organically. This is a success story emerging from the collaborative efforts of the Environmental Quality Authority, Ministry of Agriculture, farmer unions, NGOs, and trainers from the Palestine Agricultural Relief Committee (PARC), as well as the sheer determination of individuals, like Em Ismael, who joined the cooperative. Em Ismael was able to take part in a 10-day training course in Sweden and is now keen to teach other women.

The cooperative owns 15 dunums of land (1.5 hectares), and has some additional rented land. Each person has his or her own piece of land to cultivate.

Working with Fairtrade, they make a variety of products as well as growing crops. Finding markets for fresh produce can be a problem so if they have excess cucumbers during the harvest season they make pickles. After the cucumber season, it's *maftool* time. Maftool, made from wheat, is similar to couscous, only larger. To supplement their own crop of wheat, they bring in additional organic wheat from Jenin. Others plant *za'tar* (thyme), and a third group keep bees. In the future they may plant avocados.

Previously, some of the farmers used a lot of chemical fertiliser, but they started to experience negative effects on plant growth and health. Now they use small amounts of chicken manure and bring in compost from PARC. Having noticed how this improves growth, they are learning to make it themselves, starting with kitchen scraps. They had also noticed pests becoming resistant to the insecticide Dursban (chlorpyrifos).

Agroecological techniques they employ include:

1. Choosing the right time to plant
2. Spraying a solution of garlic and black pepper for aphids on okra, three times at weekly intervals
3. Releasing a biological control to eat the aphids
4. Spreading ashes to control a pest (unnamed) on okra
5. Controlling the disease *Fusarium* in tomatoes by resting the land from both tomatoes and cucumbers, and instead planting sesame, turmus bean (lupins) and lentils
6. Using extracts of weeds (tayoun and qurrais) for repelling pests; one of these successfully repels bees/wasps from ripening grapes



Weed used to repel bees/wasps from grapes

## Recommendations

The international community should bring pressure to bear on Israel to:

1. Dismantle the Geshuri pesticide factory, and the other factories in the industrial settlements, under the guidance of a team of international and Palestinian experts, in order to prevent further health and environmental damage, and to remediate the land and return it to Palestinians.
2. Vacate all agricultural settlements on confiscated farmland, remove all pesticides that are not approved by the Palestinian Authority, remediate soil and water resources, and return the land to Palestinians.
3. Take concerted action in regard to the landfills and waste sites inside the West Bank that were established and used by Israelis, including: removing the wastes and transporting them back to Israeli facilities inside the Green Line for appropriate treatment; remediating contaminated soil and rehabilitating the surrounding land; treating and rehabilitating associated contaminated water sources; and returning the land unconditionally to the rightful Palestinian owners.
4. Cede control of borders to the Palestinian Authority so that it can halt the illicit trade in highly hazardous pesticides.
5. Take back and dispose of – inside the Green Line and in an environmentally safe manner – the confiscated pesticide stocks.
6. Provide publicly accessible information on all fertilisers and pesticides produced inside the illegal industrial settlements (such as through a regularly updated online database), and fertilisers and pesticides used inside the illegal Israeli settlements within the Occupied West Bank.
7. Halt all forms of human rights abuses of Palestinian farmers in the West Bank, Gaza and in the Naqab region inside the Green Line, including confiscation of land, discharges onto their lands, contamination of water resources, intentionally maiming, shooting and poisoning livestock, and housing demolitions.
8. Immediately assist the Palestinian authorities to carry out extensive epidemiological, and case-control studies with regard to pesticide exposure, and to monitor for environmental contamination by pesticides.

All opportunities to provide the Palestinian people assistance to enable their widespread uptake of agroecology, including organic farming, should be pursued, including but not limited to the following:

1. FAO should rapidly institute, in conjunction with the Palestinian authorities and civil society organisations, an in-depth plan to address needs including Farmer Field Schools, farmer-to-farmer exchanges, information resources, research and extension, drawing on international and national resources and NGOs with experience in agroecology.
2. NGOs should work directly with Palestinian farmers and farmer organisations, as appropriate, to assist the implementation of agroecology.
3. International solidarity networks for Palestine should include a fund for the development of agroecology in the Occupied West Bank and Gaza.

The international pesticides industry should:

1. Halt the export of pesticides and pesticide-related chemicals to Israel until irrefutable guarantees are provided by Israel that these agrochemicals will not be traded into – or used within the illegal settlements inside – the Occupied West Bank.
2. Ensure that agrochemical corporations with subsidiaries and investments in manufacturing facilities located in the settlements take action to immediately respect international law and withdraw unconditionally from the West Bank.



*Organic crops, Dair Balut, Salfit*





**PAN Asia Pacific (PANAP)**, one of five regional centres of the Pesticide Action Network, is dedicated to the elimination of harm upon humans and the environment by pesticide use and the promotion of biodiversity-based ecological agriculture/ agroecology. PANAP works together with more than 100 partners to advance food sovereignty, gender justice and environmental sustainability.

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Arab Group for the Protection of Nature

**Arab Group for the Protection of Nature (APN)** is a member-based non-profit organisation concerned with the protection of the environment and natural resources against all hazards including the destructive impacts of foreign wars and occupations.

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