



PROBLEMS OF **MINI-LANDFILLS** IN TAJIKISTAN



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PRESENTATION CONTENT

history

problems

volume

Village #1

mini
polygons

awareness



HISTORY OF MINI-LANDFILLS IN TAJIKISTAN



- Intensive development of agriculture (cotton monoculture) since the 1930s
- Development of new lands since the 1960s
- Centralized planning and supply of pesticides
- Lack of special landfills for disposal
- Lack of information about the dangers of pesticides

HISTORY OF MINI-LANDFILLS IN TAJIKISTAN



- Expired pesticides were buried on the territory of pesticide warehouses (depth 1 to 5 meters)
- During the Soviet period, warehouses were isolated from the population, access was limited
- After the collapse of the USSR, warehouses were privatized
- The lands of most warehouses were sold for private development
- People disposed of waste (remaining pesticides) on their own by burying them
- Currently, more than 200 mini-landfills are known throughout Tajikistan

VILLAGE №1 JAIHUN DISTRICT

- Exceedance of Maximum Permissible Concentration (MPC) of DDT: **1'000 times** (MPC – 0.1 mg per kg)
- 4 families on the verge of survival
- Resettlement with the support of the Committee for Environmental Protection, FSD, Green Cross Switzerland, and Khukumat of the district
- Site now empty but awaiting clean-up



JAMOAT ZIRAKI KULYAB DISTRICT

- Storage of obsolete pesticides
- Exceedance MPC for arsenic: **83'000 times**
- Up to 20'000 empty obsolete pesticide containers (drums, plastic bottles, and torn bags)
- 17-22 October 2018 clean-up campaign. Up to 12 tons of obsolete pesticides and containers removed
- Warehouse completely cleared



FORMER PESTICIDE WAREHOUSE NOSIRI KHUSRAV, J. ISTIKLOL

Amounts of contaminated materials:

- Pesticides: 138.9 tons
- Highly contaminated soil: 546 tons

Affected Population: 1'233

Budget:

- Cleanup costs: \$ 68'000

Project duration: January 2020



FORMER PESTICIDE WAREHOUSE JOMY, SHEROBOD

Exceedance MPC of DDT: 22'33450 times

Volumes of contaminated materials:

- Pesticides: 9.5 tons
- Highly contaminated soil: 255 tons

Affected Population: 800

Budget:

- Cleanup costs: \$ 49,000

Dates: January 2020



THE VOLUME OF CONTAMINATION OF SOIL AND OBSOLETE PESTICIDES



It is impossible to assess the total volume of OP in mini-landfills without excavation

A lot of archive information was lost during the civil war in the 1990s

Some estimations are that in Vakhsh landfill alone, up to 33'000 tons of obsolete pesticides were buried. However, a lot of the materials have disappeared because of waste mining and resale of OP on street markets

VILLAGE #1 FAO PROJECT

- "Village No. 1" mini-landfill is located in Jaihun district
- The site was formerly used as a central pesticide store
- Water from an irrigation channel right besides the site is used by the residents (about 2,000 people) for household needs and as drinking water
- 4 families living on the site were resettled by FSD, CEP and Green Cross Switzerland



VILLAGE #1 FAO PROJECT

- A detailed site investigation of the Village #1 mini-landfill was made in 2018
- Unclear information whether site surface layer has been disturbed between 2018 and 2022
- Peshsaf with directions by FAO International Consultant on Contaminated Soil undertook composite sampling of surface layer in September 2022
- Analysis in European lab for metals, hydrocarbons, organic chlorinated pesticides, polycyclic aromatic hydrocarbons
- Analysis showed no changes

[illegible]

VILLAGE #1 FAO PROJECT

- Peshsaf with FAO International Consultant on Contaminated Soil updated in late 2022 the site management plan, developed clean-up scenarios and associated budgets for excavation and removal of Village #1 landfill
- All materials will be excavated in 2023 and brought for temporary storage to Vakhsh landfill in a form which makes further treatment easy (OP in skips/containers, less concentrated materials in separate soil cells, one for each material stream)
- GEF-UNEP project 9421 is currently assessing national options for disposal of obsolete pesticides. Less concentrated materials could remain in soil cells or be bio-/phyto-remediated



	Topsoil (0 – 0.5 m bgl)	Subsoil (> 0.5 m bgl)	Total m³	Total tons
Pure pesticides	5 m³	5 m³	10	10
Soil with admixture of pesticides above SC low POP content south part of the site	$270 \text{ m}^2 \times 0.5 = 130 \text{ m}^3$	$200 \text{ m}^2 \times 1.5 = 195 \text{ m}^3$	325	455
Soil with admixture of pesticides above SC low POP content warehouse floors	$700 \text{ m}^2 \times 0.05 = 35 \text{ m}^3$	-	35	49
Soil contaminated > industrial limit values	$6,000 \text{ m}^2 \times 0.5 = 3,000 \text{ m}^3$	$1,000 \text{ m}^2 \times 0.5 = 500 \text{ m}^3$	3,500	4,900

AWARENESS RAISING

Four awareness-raising workshops were organized and held in the regions of Tajikistan affected by mini-landfills during the week of 7-11 November 2022 together with FAO representatives

DUSHANBE BOKHTAR
JAIHUN TURSUNZADE

Information materials on risks by mini-landfills developed in English and Tajik



CHILDREN NEED YOUR SPECIAL CARE AS THEY ARE IN DANGER BECAUSE:

- Children's organisms are able to absorb and store a large amount of pesticide residues (calculated per kg of their body weight) through inhalation, food consumption and contact of the skin of the hands and body with various objects.
- Children can get easier in contact with chemicals as they play on soil and often lick their hands.
- Children do not pay attention to warnings.
- Being smaller, children breathe air with higher levels of pesticide concentration (because the pesticides are heavier than air).
- The immune system of children is weaker than that of adults.
- Synthetic pesticides, which cause hormonal imbalance, affect children stronger.
- Children's cells divide faster due to their rapid growth and development, which, as a result of exposure to toxic chemicals, can cause cancer.
- A small amount of pesticides can have a serious effect on the mental development of children.

Therefore, children are much more susceptible to exposure of pesticides and obsolete pesticides than adults. You need to apply above precautions and particularly NEVER EVER allow your children to be and play around or inside a pesticide landfill or store.

IF YOU FIND OUT POISONED AREAS OR TOXIC CHEMICAL DUMPS, INFORM LOCAL AUTHORITIES (GOVERNMENT, COMMUNITIES) AS WELL AS REGIONAL ENVIRONMENTAL PROTECTION DEPARTMENTS.

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AWARENESS RAISING

Participants feedback:

The negative effect of pesticides is observed on public health;

The negative effects of pesticides are learned at such educational seminars;

Residual pesticides in the soil affect the quality of the crop, jeopardizing the export of products to other countries;

The population is ready to take part in the cleanup process and provide support.



FUTURE PLANS

- Upgrade Vakhsh landfill to receive excavated materials from mini-landfills (work ongoing)
- Tender and excavate Village #1 mini-landfill
- Undertake additional detailed site assessments of top risk mini-landfills and develop related management plans
- Clean up additional sites
- Continue awareness raising seminars March 2023, CEP information video, distribute information materials



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