



a toxics-free future

www.ipen.org

ipen@ipen.org

International SAICM Implementation Project (ISIP)

In 2010, in an effort to demonstrate SAICM implementation via IPEN Participating Organizations, IPEN launched an International SAICM Implementation Project, also known as ISIP. ISIP aims to mobilize resources for initial enabling activities pertaining to national priorities, in keeping with the work areas set out in the strategic objectives of section IV of the SAICM Overarching Policy Strategy.

In particular, the ISIP supports the Governance objective of SAICM's Overarching Policy Strategy paragraph 26, which calls for enhanced "cooperation on the sound management of chemicals between Governments, the private sector and civil society at the national, regional and global levels."

In addition, ISIP builds on the 2008-2009 Global SAICM Outreach Campaign to raise awareness about SAICM and strengthen collaboration among the public interest, health and labor sectors.

ISIP Objectives

ISIP's four objectives include:

- Promoting the need for sound chemicals management
- Advancing National SAICM Implementation
- Promoting global SAICM implementation by global civil society
- Building capacity among NGOs developing countries and countries with economies in transition

Title of activity: Identification of pesticide hotspots in Sirdarinsky region, Uzbekistan

NGO: "ARMON" Women Environmental Law Centre

Country: Uzbekistan

Date: December, 2010

Elements of SAICM Covered:

Identify, explain problem, make initial recommendations on how to address the problem, may be linked to public awareness-raising about the issue; Facilitate the identification and disposal of obsolete stocks of pesticides and other chemicals (47, 68)

Provide a physical description of the site

The pilot area is located in Golodnaya Steppe, at the distance of 150 km to the West from Tashkent, at the left bank of Syr Darya River - the second largest river of the Central Asia (see Fig. 1) Chirchik River is the largest tributary of Syr Darya River at the territory of Uzbekistan. Gulistan is the administrative centre of the oblast, the oblast also includes several large townships such as Bakht, Shirin and Yangier. Shirin was constructed by Japanese PoWs in 1940, where Farkhad Hydropower Plant was constructed later (in 1945 - 1956).

Syrdaryinskaya oblast includes 9 districts: Alkaltynskiy, Bayautskiy, Mekhnatabadskiy, Mirzaabadskiy, Saykhunabadskiy, Syrdaryinskiy, Shafar Rashidovskiy and Khavaskiy.

The oblast borders Kazakhstan (North-west) and Tajikistan (East).

The field survey of Mirzaabadskiy OPs burial site allowed to reveal that the site fence is damaged, the area is not guarded and excavated concrete enclosure structures lay at the site near trenches where obsolete pesticides were buried earlier. The pesticides were mostly stolen. It is dangerous to come near the trenches, as soils are unstable there. Due to rising groundwater levels, pesticides packaging is seriously affected by corrosion. According to local residents, at high winds, a strong smell of pesticides is felt at long distances from the site, and some cases of self-ignition of OPs were observed there.

Local residents themselves unearth the site to get pesticide containers and use them for household purposes and in cultivation of melons, watermelons, cotton and wheat. Empty containers are used to prepare feedstuffs for sheep and cattle.

Mirzaabadskiy OPs burial site is opened up, some chemicals were stolen, while the rest are being dispersed by winds, rain and solar radiation. Levels of DDT and its metabolites in soils at distances over 1 km from the site exceed MACs in 20 - 23 times.

Inadequate water management practices in the oblast resulted in rising groundwater levels. As the chart below shows, groundwater levels rose from 14.7 m in 1958 to 1.6 m in 2010. As a result, pesticide containers are under the impact of high moisture levels, at high daytime temperatures (45 - 50°C) toxic fumes intensively release - shepherds said that under impacts of these fumes, cows and sheep stiffen.

Due to prevailing winds in the area, the highest contamination zone extends to Gulistan. Assessments of soil DDT and HCCH contamination levels were made by comparative analysis of soil MACs (Uzbek Sanitary Rules and Norms # 0191 – 05), set as 0.5 g/t for DDT and 0.1 g/t for HCCH.

Give a history of the site

From the Soviet period, Syrdaryinskaya oblast was a major cotton-producing region. Since the 1960s, numerous water intakes and drainage systems were constructed there to use water from Syr Darya River for irrigation of cotton fields. Local residents literally fought the deadly battle for cotton. In September, every year, cotton fields were sprayed by defoliant. In the past, butiphos, chloprophos and other pesticides were sprayed from the air, while now agriculture aviation is applied only by some separate farms and - as local residents said - defoliant are now predominantly sprayed manually.

Cotton harvesters (mainly women and adolescent students) start work at the fields only a day after application of defoliant.

In Septembers, the incidence of hepatitis and acute intestine disorders sharply increase; however officials do not stop the application of chemical defoliant at cotton fields.

Description of the chemical characterization

According to the Ministry of Agriculture and Water Management of Uzbekistan, more than 240 kg of nitrogen, 109 kg of phosphorus and 69 kg of potassium in fertilisers were applied per 1 hectare of cotton fields. In 1967 - 1987, application of fertilisers at irrigated lands of Syrdaryinskaya oblast reached 315 - 435 kg/hectare, or 20 times over the standard. The range of applied pesticides included 50 - 75 organochlorine and organophosphorous chemicals, including aldrin, endrin, heptachlor, dieldrin, toxaphene and DDT. Archive materials suggest that in late 1980s, in Syrdaryinskaya oblast of Uzbekistan, pesticide loads reached 54 kg of active

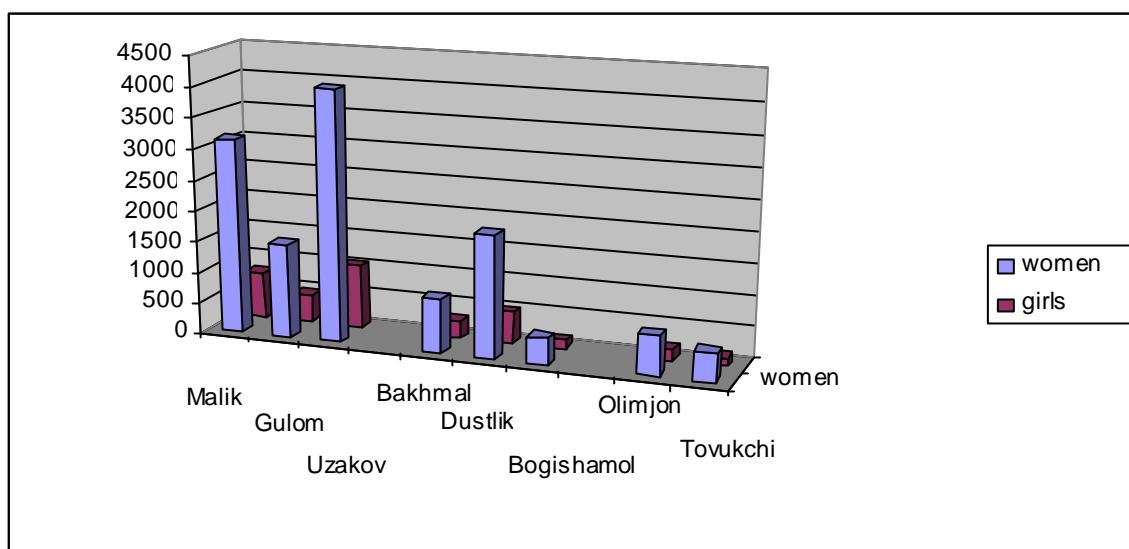
ingredients per hectare (compared to the republic average of 10 kg/ha) without accounting for copper and sulphur-based pesticide preparations.

According to official information of relevant local bodies, all pesticide burial sites in the territory of Syrdaryinskaya oblast have been already cleaned and rehabilitated, while OPs from these sites and OPs-contaminated soils were collected and buried. Our field research works sought to ascertain whether these official statements are true. The field research allowed us to ascertain the following facts:

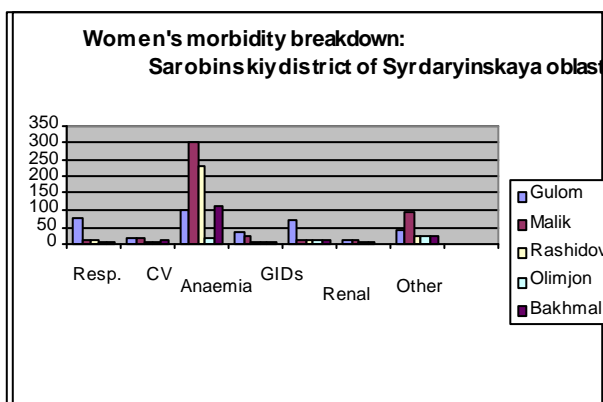
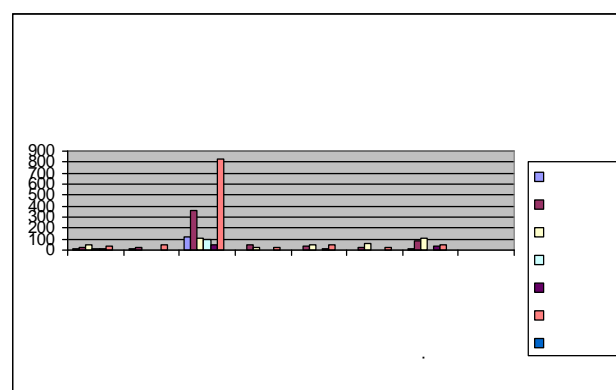
- In the territory of Syrdaryinskaya oblast, Mirzaabadskiy underground chemicals burial is located. The burial site contains overall 270 tons of chemicals in an area of 5 hectares. According to official data, the site contains methylmercaptophos, benzophosphate, and BI-58. However, archive materials suggest that the burial site contains some quantities of zineb, pentathiuram, kelthane, fazolon, granosane, sodium propionate, succinic acid, DDT, copper chloride, copper trichlorophelolate, omight, SK-9, arasan, amine salt, kataran, uzphen, dentrboceline, pretazine, phosphamide, ustiks, uzphen, SUMI-8, basta, and prometrine.
- Mirzaabadskiy toxic chemicals burial site was opened in 1968. According to Uzkimircsonat, the last batch of chemicals was buried there in 1986.
- Chemicals storage facilities were identified in Sardobinskiy, Syrdaryinskiy, Pakhtaabadskiy, Mirzaabadskiy, Gulistanskiy, Yangierskiy, Gulistanskiy, Yangierskiy and Khavaskiy districts of Syrdaryinskaya oblast.
- In Syrdaryinskaya oblast, pesticides are applied at cotton fields both from the air and from the ground.
- Earlier, the list of applied agricultural chemicals reached more than 50 brands, but now pesticides are applied more rarely. However, as local residents admit, now magnesium chlorate and OPs are intensively applied as defoliant at cotton fields.
- Mass media outlets regularly promote application of magnesium chlorate as a safe alternative to DDT, butiphos and HCCH.
- On sites of former agricultural aviation airstrips, 7 pesticide storage facilities were identified with residual quantities of pesticides.
- Areas of former agricultural aviation airstrips are used now as fields for cultivation of cotton, wheat, vegetables, melons and watermelons.
- Soils contain residual amounts of DDT, HCCH at levels in tens times higher than applicable MACs. To make these lands acceptable for application, the upper level of soil should be removed to the depth of 2 m.

Description of the environmental and health consequences

A preliminary assessment of health impacts of the environmental contamination there was made at the base of morbidity data (inc. morbidity time series) for women of reproductive age and children under 14 in Syrdaryinskaya oblast from 1995 to 2005. See below information on numbers of women of reproductive age and girls under 14 in the following human settlements: G. Gulom, T. Malik, Rashidov, Olimjon, Bakhmal, Dustlik, Uzakov, Kushchinor, Tovukchi, Bashigamol and TMT of Syrdaryinskaya oblast:



Number of women of reproductive age

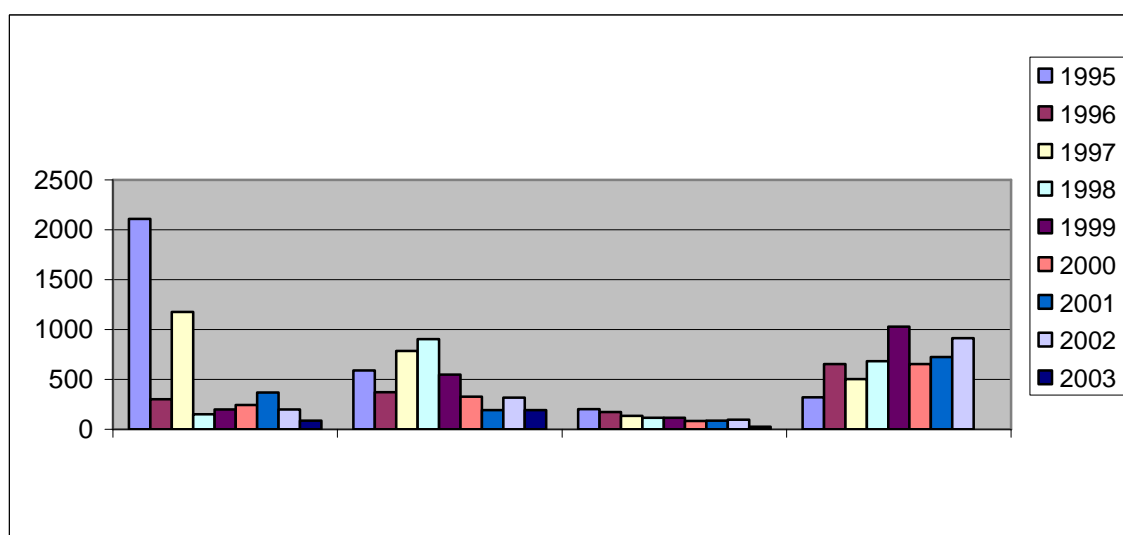


We attempted to conduct mapping of the morbidity data to identify the most heavily affected locations. Let us look at Table 1.

Human settlements	Numbers of women	Resp. diseases	CV and hemopoietic diseases	Anaemia	Gastric-intestine diseases	Renal failure	Endocrine disorders	Other
Gulom	1534	73	16	97 (6.7%)	35	71	9	41
Malik	3161	8	17	302 (9.6%)	22	13	14	92
Rashidov	3038	10	6	232 (7.6%)	6	12	5	24
Olimjon	658	6	3	17 (2.6%)	5	12	6	19
Bakhmal	884	6	7	108 (12.2%)	5	9	2	20
Dustlik	1970	7	11	115 (5.8%)	3	5	3	17

	Uzakov	4067	28	30	360 (8.6%)	4	34	30	87
	Kushchinor	3460	54	2	119 (3.4%)	3	52	63	109
	Tovukchi	464	8		98 (21.2%)	6	6		5
	Bogshishamol	428	14		47 (11%)	6	9		35
	TMT	3532	35	52	830 (23.5%)	30	51	19	49

In 10 recent years, the following diseases were found to rise in Syrdaryinskaya oblast: chronic bronchitis, acute pesticide poisonings, toxic hepatitis, silicosis, cochlear neuritis (diminished hearing), brucellosis, allergic dermatitis and other diseases of skin and hypodermic tissues, gastric-intestine and endocrine disorders, blood circulation and hemopoietic diseases.



Health impacts of the environmental pollution are obvious; however, one should not rule out sharply falling living standards, nutrition quality and inadequate drinking water supply as well.

The below table shows morbidity data for women of reproductive age of Sardobinskiy district (located in close proximity to Mirzaabadskiy burial site).

	Years										
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Anaemia	4370	4930	5218	4620	5017	4568	4855	4394	4144	4347	3968
Cardiovascular diseases	868	861	836	738	855	657	678	754	784	674	539
Urogenital disease	560	518	619	583	524	554	520	558	607	640	508
Gastric-intestine disease	373	427	498	471	566	470	512	549	583	632	383
Respiratory diseases	72	30	143	197	253	214	245	337	263	212	225
Endocrine diseases	104	108	56	252	81	158	179	225	157	132	145
Nervous system disorders	483	616	616	872	692	779	743	788	839	861	936
Other											

Description of who is responsible for the site

The state system of emergency response and prevention operates under control of the Cabinet of Ministers of Uzbekistan. Responsible bodies in charge of chemical security include:

- The State Committee of Uzbekistan for Environment
- The Ministry of Public Health
- The Ministry of Emergency Response
- The Ministry of Interior
- "Uzкимiesanoiat" State Facility
- Local authorities

As one can see, there are numerous authorised bodies in charge but actually nobody is responsible for OPs management.

Description of the plans for cleanup

It is necessary:

- to conduct monitoring, inventories and certification of Mirzaabadskiy burial site and all former pesticide storages;
- to estimate actual amounts of OPs;
- to strengthen control over application of chemicals;
- to identify which pesticide preparations are produced domestically and which are imported; and
- to conduct an assessment of technical quality of OPs burials at the territory of Syrdaryinskaya oblast and identify measures necessary to ensure chemical security.

Project Outcomes:

Description of the activity conducted

In order to assess public awareness in the sphere of chemical security, two seminars were conducted - in Sardoba township (April 2010) and in Tashkent (August 6 - 7).

The seminars allowed us to collect valuable information on the interrelations between governmental bodies, businessmen and farmers. In particular, the seminars demonstrated:

- Low legal and environmental awareness by the country's residents;
- Low public consolidation due to the information vacuum and strong social inequality (income differentiation); and
- Legal nihilism and growing social contradictions.

In the course of these seminars, participants referred to numerous social, economic and environmental problems. However, according to the seminar participants, the most pressing ones include:

- Low public awareness of chemical security matters;
- Low recourse capacity of local communities;
- Low potential sanctions for officials who fail to comply with the due laws and regulations, including in particular the ones pertaining to ensuring chemical security and maintaining due technical quality of Mirzaabadskiy burial site;
- Lack of the rule of law; and
- Governmental bodies fail to ensure safe residential drinking water supply, notwithstanding major loans for water supply purposes provided by ADB, the World Bank, the Islamic Bank, etc.

Impact on target groups:

Participants of the seminars developed the following project proposals:

- **"Clean Water" project** to address water supply problems of Kushchinor township with 3460 inhabitants.

- **"Mirzachyl" project** to implement works for assessment of real technical quality of Mirzaabadskiy burial site, including drilling a monitoring well to check groundwater levels and to estimate levels of pesticides in groundwater.
- **"Energy for all" project** to design and assemble a wind-and-solar generating unit, as due to frequent blackouts in local villages their residents face serious problems in cooking and drinking water treatment.
- To conduct trainings on matters of adverse health and environmental impacts of OPs for representatives of local communities and NGOs, in addition to officials of relevant governmental bodies.
- To develop a series of methodological manuals for dissemination among rural residents who directly deal with pesticide preparations.
- To train trainers - representatives of NGOs - for further public awareness-raising on basics of chemical security and methods of protection of environmental rights.

Impact on target policies:

We continue lobbying for accession to the Stockholm Convention and the Aarhus Convention.

Deliverables, outputs and/or products:

Publishing information materials on health and environmental impacts of OPs in 8th and 12th issues of "Environmental Security and Public Initiatives" newsletter (the newsletter is published with support of OSCE Project Coordinator in Uzbekistan).

NGO Recommendations for next steps:

- It is necessary to conduct bacteriological and chemical quality analysis of water and check whether water quality meets applicable state standards.
- Local residents consume drinking water with salinity of 3.0 to 5.0 g/l or 46.12%;
- In locations of OPs burial sites and former agricultural aviation airstrips of Syrdaryinskaya oblast, levels of DDT metabolites vary from 2 to 25 MACs (3.2 - 7.5 MACs for DDE).
- While there is a trend of decreasing levels of contamination by organochlorine pesticides (by 5 - 30%), absolute measured levels of pollutants still remain high.
- Monitoring results suggest that maximum levels of organochlorine pesticides at sites of former agricultural aviation airstrips in the oblast vary – at average- from 1.5 to 29 MAC's.