

MILIEUKONTAKT INTERNATIONAL

Obsolete pesticides in Armenia

Cooperative solutions from government and civil society



Inception visit to Armenia 7-13 May 2006

*Elimination of acute risks of obsolete pesticides in Moldova, Georgia and Armenia
Yerevan / Amsterdam, May 2006*



Tauw

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I Introduction

Between 7 and 13 May 2006 Jacobiene Ritsema, Wouter Pronk, Berto Collet and Boudewijn Fokke visited Armenia on an inception mission in the framework of the project Elimination of the acute risks of obsolete pesticides in Moldova, Georgia and Armenia. Jacobiene Ritsema and Wouter Pronk represent the Dutch environmental NGO Milieukontakt International. Berto Collet is a technical obsolete pesticides expert and Boudewijn Fokke is a senior project manager with the international consulting and engineering company Tauw bv.

The overall aim of the project is:

- Transfer of knowledge to local communities on inventory and repackaging of obsolete pesticides and after care of old storage facilities;
- Repackaging of obsolete pesticides according to FAO standards in defined regions in Armenia;
- Remediation of old storages.

Goal of the visit was to get a picture of the problems around obsolete pesticides in Armenia and assess the opportunities to start a multi-stakeholder pilot project in a defined project area for safeguarding obsolete pesticides and reduce their actual potential environmental impact. From the Armenian side the mission was prepared and organized by the leading NGO “Armenian Women for Health & Healthy Environment” (AWHHE), which is the only focal point of IPEN (International POPs Elimination Network) on the Stockholm Convention in Armenia.

In order to get a picture of the problems around obsolete pesticides in Armenia the Dutch team met with representatives of the most important Armenian environmental organizations active in the field of obsolete pesticides and representatives of the Ministry of the Nature Protection and the Ministry of Agriculture. Furthermore the team visited eight obsolete pesticides sites in the Ararat valley, the most important agricultural area of the country.

In this report you will find our provisional conclusions on:

- the environmental problems around obsolete pesticides in Armenia;
- the interest and capacity of Armenian environmental NGOs to qualify as implementing project partner for Milieukontakt;
- the role that the Armenian Ministry of the Nature Protection and the Ministry of Agriculture play in solving the problems.

Furthermore:

- reports of obsolete pesticides sites visited;
- reports of environmental organizations visited;
- a report on the stakeholder meeting on obsolete pesticides and the Milieukontakt project at the Caucasus Regional Environmental Center (REC) branch office in Yerevan.

We would like to thank all Armenian partners for receiving us and for their cooperation. Especially we would like to thank AWHHE for their help to prepare and organize our visit.



Left to right Berto Collet, Boudewijn Fokke, Jacobiene Ritsema, Lilik Simonyan

II Obsolete pesticides in Armenia

In order to get a good picture of the current situation on the storage of persistent organic pollutant and obsolete pesticides (POP's) information concerning the use and storage of POP's was gathered from different Armenian NGOs and Ministries during this inception mission. In addition seven storage sites and one dump site for pesticides were visited. Most of them located close to the capital in the Ararat valley. Among these sites there was huge landfill with 500 tons of obsolete pesticides buried on the territory of the Yerevan region.

Armenia signed and ratified the Stockholm Convention on Persistent Organic Pollutants. And each Party to the convention is required to develop a National Implementation Plan (NIP) describing how they will meet the obligations set by the convention. Unfortunately the Armenian NIP was not available for our delegation during the inception visit to the country. A draft version (2005) was presented only recently to the UNIDO in Geneva.



To our experience the problem of obsolete pesticides appears in every former Soviet republic. But during the first days of our visit to Armenia we were told that the problem is not that urgent in this country. The Ministry of Agriculture prepared a list of former Soviet pesticide storage sites. Our delegation visited several sites from this list. Our general conclusion is that the situation in these sites is serious and that possibly in other areas of the country the problem might be serious as well. On one of the locations that we have visited, the roof was leaking, the former pesticide store was totally broken down and the chemicals had contaminated the building materials; others were more or less well maintained. AWHHE showed us a huge landfill of buried obsolete pesticides. This dump is monitored by the the organization since 2000. The guarding fence was damaged. Due to erosion problems the landfill was moving down the hill in the form of a landslide towards a neighboring village and a dacha settlement located at not more than one kilometer away from the burial place.

More specially Berto Collet and Boudewijn Fokke have made the following observations:

Current situation

Seven storage sites and one dump site for pesticides were visited. All eight locations are situated in the vicinity of Yerevan. The area around Yerevan has a lot of fertile arable land and is in relation to other regions densely populated. It is expected that this area has and had the highest consumption of pesticides of Armenia. Consequently it will have the largest concentration of storage facilities of POP's and pesticides in Armenia.

From the information gathered and the eight sites visited we got the impression that quite a lot of small storage facilities were cleaned and that POP's were removed. They removed the POP's to central storage places like the Konstatin & Sisters LTD store in the Amavir region and landfills like the one in the Ararat region in the beginning of the 1980th.

Out of seven former storage sites visited, four had still POP's stored. It seems that indeed quite a lot of the former small stores for pesticides have been cleaned and the POP's are removed to dumpsites and central storages.

The former distribution centre of pesticides in Armavir is not cleaned. Pesticides were in the open air and if no adequate actions are taken the soil and groundwater will be polluted by pesticides. This store seems one of the largest concentrations of POP's in Armenia. But there are still smaller local distribution points with smaller amounts of POP's like the store Artashati Berriutyun. We have observed that also the smaller stores can be hazardous for the environment.

The landfill in the Ararat region environment is subjected to erosion processes such as mass movement and gully erosion. Migration of the landfill of more than ten meters has been observed since 1982. If no adequate actions are taken, the damaging of landfill by erosion will continue. The land surface, the soil, the groundwater and the surface water in the stream down slope the landfill will be polluted by POP's in the near future.

Inventory and repackaging

In a future inventory in Armenia a list obtained from the former director of the central store in Armavir (Konstatin & Sisters LTD) should be taken in account. This list contains all the locations where the pesticides were brought. It is expected that these are also the places where POP's can be found.

For the elimination of the acute risks of obsolete pesticides in Armenia we advice to carry out a pilot in the regions around Yerevan. The former distribution centre could be a first location for the pilot inventory and repackaging, because of the acute treat to the environment. Although the landfill was seen as a permanent solution for the POP's in 1982, we strongly advice to develop a strategy to safeguard the down slope land, surface and villagers from the possible future contamination with POP's.

Safe interim storage of repacked waste

Because the former distribution centre in Amavir has still storage buildings intact and quite a large amount of POP's has to be repacked, we suggest to use –if



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possible- one of the buildings at this site as a central store for the repacked POP's in Armenia. The selected storage building needs to be prepared in compliance with the FAO guidelines on storage of POP's before acceptance of the repacked waste.

For this interim storage of repacked waste the owner of the site (former director of the distribution centre) should of course be consulted.

III General impressions of stakeholders

The issue of obsolete pesticides is not a very 'hot issue' at the moment among environmental NGOs in Armenia. There are several NGOs that deal with the subject and in fact the problem of the landfill with 500 tons of obsolete pesticides near Yerevan was discovered and put on the public agenda by the NGO Armenian Woman for Health and a Healthy Environment. AWHHE was very concerned about health effects of pesticides in general and obsolete pesticides in particular. That's why monitoring, information, advocacy and lobbying campaigns on the pesticides issue are the main activities of this organization. According to the opinion of the AWHHE expert Lilik Simonyan stocks of obsolete pesticides could be found predominantly in a group of central storages of Armenia. During the first day of Milieukontakt's visit to Armenia we showed pictures of badly maintained Moldovan and Georgian obsolete pesticide stores and we were told that such problems were not known until now in Armenia.

Mr. Artashes Tadevosyan, assistant professor at the department of Public Health and Health Care from the Yerevan State Medical University stated however that he is well aware of the art of the problem. Tadevosyan told Milieukontakt as a public health specialist he is active in an environmental NGO the Center for Environmental Studies and that this NGO is actively raising funds to do something about the pesticides problem. The Environmental NGO Globus is active on the issue as well but unfortunately its director Nune Darbinyan was not in the country when Milieukontakt visited Armenia.

At the Ministry of Nature Protection Ms. Anahit Aleksandryan is responsible for obsolete pesticides. In a meeting with Ms. Aleksandryan, head of department of hazardous waste, focal point for the Rotterdam, Basel and Stockholm Convention and member of the Armenian interministerial commission for hazardous waste Milieukontakt was told that cooperation was only possible after the project was properly announced to the Minister of Nature protection and the inter-ministral commission for hazardous waste.

At the Ministry of Agriculture Karine Yesayan, Head of Horticulture Development Division had prepared a list with obsolete pesticides stores that could be visited by Milieukontakt and the Tauw experts. Ms Yesayan, however, told us that her department had limited staff and was not able to actively monitor the actual situation around the obsolete pesticides stores.

Unfortunately we were not able to meet with representatives of the Ministry of Health that has a say in the problem of obsolete pesticides in Armenia as well. During a next visit to Armenia Milieukontakt will arrange a meeting with this ministry to talk about the obsolete pesticides project in Armenia and the problem in general. This counts as well for other stakeholders not mentioned in this report.

IV Ministry of Nature Protection / Ministry of Agriculture

Ministry of Nature Protection

In Armenia a National Implementation Plan for the Stockholm Convention was drafted and adopted in February 2005 (plan 2005-2010). According to Ms. Aleksandryan this NIP does not contain an inventory of all obsolete pesticides – the Armenian Ministry only monitored the situation concerning chloro-organic pesticides for this document. In the monitoring soil, surface water, breast milk meat and other and food products nearby obsolete pesticides' stores were tested on contamination.

Copies of the NIP or any other document of obsolete pesticides inventory were not available for Milieukontakt. Asking Ms. Aleksandryan about the situation in the country on obsolete pesticides in former USSR stores, she stated that these stores were empty.

Armenia has no production of pesticides on its territory. In the past, two or three types of pesticides were produced in the Chemical Plant of Nairit during several years, starting from 1956.

Upon request of Ms Aleksandryan Milieukontakt agreed to send the project proposal and discuss it during the last day of the delegation's visit to Armenia, Friday 12 May 2006.

On the last day of the inception visit (12-05-06) the Milieukontakt delegation met again with Ms. Aleksandryan to agree on what should be done in order to really start the project activities in Armenia. Ms Aleksandryan stated that Milieukontakt should:

1. send a letter to the Minister of Nature Protection with the project proposal and asking to discuss the proposal in the Steering Committee for OP Disposal;
2. invite the Steering Committee to select a region for the pilot, invite NGOs to the same meeting for comment and input;
3. Send the inception mission report and the project proposal *Elimination of acute risks of obsolete pesticides in Moldova, Georgia and Armenia* to the Ministry.

Thus was agreed.

Ministry of Agriculture

Karine Yesayan – head of horticulture development division, department of plant production & protection, Ministry of Agriculture, member of the Armenian interministerial commission for hazardous waste.

Upon the request of representatives of AWHHE to the head of department of plant production and protection Karine Yesayan was assigned to compile a list of storages where obsolete pesticides were stored after the collapse of the Soviet Union and privatization of kolkhozes and sovkhoses in the country.

According to Ms Karine Yesayan, kolkhozes and sovkhoses in Armenia had only very small storages for pesticides, as they were regularly provided new materials, fertilizers and pesticides from one of the centralized regional stores, managed by "Haybarriutyune" (Armenian Plant Fertility Service, part of the ministry of Agriculture).

The remaining amount of (partly obsolete) pesticides they had left after privatization, was mostly sold by former kolkhoz and sovkhos employees. On the field trip we had already met a former

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pesticides store guard, who actually sold pesticides (some of them being expired) at his garage and advised farmers in the area on what to apply on which crops.

According to the compiled list of the ministry of Agriculture, an estimated total amount of 50 tons of obsolete pesticides was left in the centralized stores. The stores have also been sold to private owners. Another estimated 50 tons is still in private stores. These estimates were made by the Agricultural Inspectorate in all regions, 2-3 years ago. According to Ms. Yesayan, the ministry of Agriculture has no money and no staff to conduct a full inventory of obsolete pesticides. The list of the Agricultural Inspectorate contains stores in 5 regions of Armenia.

Waste history:

In 1972 the use and production of DDT was officially prohibited in Armenia.

In 1978 the use and production of DDT was officially prohibited in the USSR.

In 1982, stocks of obsolete pesticides that were stored in central stores, were buried at the burial near Artashat.

Early 1990-ties – decommissioning of sovkhoses and kolkhozes, transfer of property to private farmers.

V Armenian Civil society and obsolete pesticides

In order to get an impression of civil society in Armenia connected to the issue of obsolete pesticides we talked to representatives of the following NGOs that are concerned with the problem of obsolete pesticides or where willing to share their insights on the development of Armenian Environmental NGOs

1. Armenian Woman for Health and a Healthy Environment;
2. Association for Sustainable Human Development;
3. Center for Environmental studies;
4. Eco-Globe;
5. “KHAZER” Ecological and Cultural NGO.

They were chosen after consultation with AWHHE and John Vijgen from the International HCH and Pesticides Association (IHPA).

Not all organizations that have the potential to deal with the pesticides issue were visited. They will be identified later and visited during the next visits of Milieukontakt to Armenia.

Main objective of the visits was to get an impression of:

- the opinion of the NGOs regarding the situation on obsolete pesticides in Armenia;
- the capacity of the NGO movement in terms of project management, human resources and office facilities;
- the level of cooperation between the different organizations;
- relations between NGOs, government and other stakeholders.

Methodology used was open, none structured, interviews. The draft report of the inception visit was send to all respondents for corrections.

The main conclusions of our visit are that NGOs have capacity in all fields necessary to conduct the project. Several organizations have advanced facilities, trainers and communication tools. Within the capital there is specialization, networking and cooperation between civil society organizations. It is a case by case cooperation and there is no such thing as a national strategy meeting of civil society organizations on environment in Armenia. Knowledge on obsolete pesticides is rather limited within the NGO movement.

(Fort a detailed description of visited organizations please see annex 1)

VI Other institutions

Regional Environmental Center for the Caucasus (REC)

375025 Yerevan, Armenia
 Charenica str. 1 second floor
 Tel/fax (+374 1) 574743
 Email hovik.ghazaryan@rec-caucasus.org

Number of staff:	(9)
Representations:	Head Office in Georgia, Branch Office in Armenia, Project Office in Azerbaijan
Established in:	2005, REC Caucasus is established since 2000
Programmes:	Information and Public Participation Programme; Government Initiatives Programme; Sustainable Development Programme; NGO Support Programme;
Mission:	Building the civil society through promotion of public participation in the decision-making process, development of free exchange of information and encouragement of cooperation at national and regional level among NGOs, governments, businesses, local communities and all other stakeholders.

Hovik Ghazaryan – head of Armenian branch office

The Regional Environmental Centre for the Caucasus - REC Caucasus is an independent, not-for-profit, non-advocacy foundation registered in spring of 2000, to work for environment and sustainable development in the Caucasus region. REC Caucasus has been established within the framework of the “Environment for Europe Process”. The foundations Charter was signed by European Union and the countries of the South Caucasus represented by the authorized delegates of the ministries of environments. Founders came to an agreement to establish headquarters in Tbilisi to work on regional projects with the assistance of the representations in the countries. In 2005 REC Caucasus opened and registered its Armenian Branch office to implement its programmes on national level.

Work of the organization has been supported by the core funding provided by the EU. REC Caucasus financial and technical assistance has been provided by US EPA, Denmark, Germany, Switzerland, Italy, the Principality of Liechtenstein, Government of Netherlands.

Since its registration REC Caucasus Armenian Branch Office has been coordinating the implementation of REC Caucasus programmes in Armenia. At local level REC Caucasus Armenian Branch Office provided assistance in trainings and assessments to international organizations with environmental focus:

- Training on “Raising the effectiveness of environmental compliance assurance in Armenia for inspectorate managers financed by OECD;
- Training on environmental and social risk management in financial institutions in Armenia financed by EBRD

About the problem of Obsolete Pesticides:

REC has not been active in the field of Obsolete Pesticides or POPs. According to Hovhannes Ghazaryan the issue is quite sensitive, because obsolete and other pesticides might be sold by private persons without licensing and strong state control.

The report made within the LEAP project on the state of the environment in Ararat does not contain any figures about (obsolete pesticides) as there was no data on in National Statistical Service of Armenia. However, the NGOs involved in the LEAP expressed their interest to work on the issue together with Milieukontakt.

REC Armenia kindly proposed us their co-operation in terms of information dissemination through their network.

UNDP, Armenia

375010 Yerevan, Armenia
14, Petros Adamyan Street,
Tel (374 10) 56 60 73
Email: georgi.arzumanyan@undp.org

Number of staff: (?)
Established in: 1992
Themes : good governance and on capacity building for democratic governance) and Poverty Reduction
Methodes: Different forms of development cooperation and technical assistance

Georgi Arzumanyan - Sustainable development programme manager, environmental governance portfolio

The United Nations Office was established in 1992 in Armenia with a view to supporting and supplementing the national efforts in solving the most important problems of economic development and promoting social progress and a better standard of life.

According to Georgi Arzumanyan, sustainable development programme manager at the UNDP office, there is no inventory of obsolete pesticides, even no inventory of any waste product in Armenia. Chemical waste and pesticides can also be found at municipal waste sites. UNDP works with 5-year work plans (assistance framework) drafted together with the government in which priorities for 5 years are indicated. Annual budgets are drafted at the end of each year.

Since the independence of Armenia (beginning of 90-ties) there is no donor money available for waste issues. Only in 1998 the department of hazardous waste was founded. One EU funded pilot project for assessment of waste problems in two cities was implemented. The first law on waste was adopted only in 2004, under responsibility of Anahit Aleksandryan. No inventory on waste issues has been made, because of a lack of capacity. Statistics are absolutely outdated and people have now knowledge on how to deal with waste.

Even the amount of landfills in the country is not known. The UNDP has started a project together with the Ministry of Environment on identification of landfills in the country, enterprises dealing with waste (recycling) and a preliminary impact on Human health. According to Georgi Arzumanyan,

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Armenia is not familiar with any recycling technologies and there are no data on waste. This project started in March and will last until the end of 2006.

Georgi Arzumanyan indicated that it might be interesting to organize a TOT on inventory of OP for representatives of all 10 regions (Marz), as (lack of) inventory is a major problem in Armenia.

VII Conclusions

Concerning the inception visit

- The delegation managed to collect information, both on stakeholders as on obsolete pesticides, necessary to develop a project plan for the project on obsolete pesticides in Armenia;

Concerning obsolete pesticides

- An inventory of locations and storages is not available;
- On locations visited by the delegation the situation was sub standard. Pesticides were found more or less properly stored, but on other places lying in open air and water;
- A thorough overview on legislation and enforcement on pesticides in Armenia is needed.

Concerning the Government of Armenia

- The Ministry for the Environment is concerned with the issue,
- The Ministry of Agriculture is concerned with the problem as well and did some research and monitoring;
- Armenia did ratify the Stockholm Convention and the Aarhus Convention, both important as a legal base for this project.

Concerning Civil Society

- NGOs have capacity in all fields necessary to conduct the project;
- NGOs have advanced facilities, trainers and communication tools;
- There is specialization, networking and cooperation between NGOs;
- Knowledge on obsolete pesticides is limited within the NGO movement;
- There is no national strategy meeting of NGOs on environment in Armenia.

VIII Next Steps

May 2006 Letter to the Ministry for the environment announcing the project;
June 2006 Draft report will be send to involved stakeholders in Armenia. Reactions are welcome until the end of July;

Annexes

5. Description of NGOs visited
6. Small report on stakeholder meeting at the REC office;
7. Description of sites visited;
8. Addresses and contact information.

Annex 1 Description of NGOs visited

Armenian Women for Health and Healthy Environment (AWHHE)

375019 Yerevan, Armenia
Baghramyan 24 D, room 609
Tel (+374 -10) 523604
office@awhhe.am

Number of staff: 15
Other offices: no
Established in: 1999
Themes: Pesticides, in particular obsolete pesticides, health, sanitation, sustainable development
Methods: EIA, public awareness raising, research, monitoring, environmental education etc.

Elena Manvelyan, (Head of AWHHE)
Lilik Simonyan, (Expert and executive director)
Emma Anakhasyan, (Staff member)

NGO operating in POPs issues since 1999, when Elena Manvelyan was invited to a European EcoForum meeting in London to read a lecture on the environment of Yerevan and met representatives from IPEN (International POPs Elimination Network). Since 1999 AWHHE has become the Focal point of the Stockholm Convention in Armenia and participated in all international and national negotiations around POPs issues. In 2006 AWHHE became SAICM focal point in Armenia. SAICM is the Strategic Approach to International Chemicals Management. It is a policy framework for international action on chemical hazards. AWHHE collaborates with ministries responsible for and interested in the pesticides issue.

AWHHE started to actively monitor a chemical dump site near Yerevan, created in 1982 with an estimated amount of 500 tons of at least 60% persistent organic pollutants. A permanent monitoring and investigation of burial site has been carried out by AWHHE since 2000.

Lilik Simonyan, in earlier days Head of the pesticides department of the Armenian Ministry of Health, as well as AWHHE other members visited the dump site regularly in order to monitor the development of the site and its temporary rehabilitation, that started after a governmental decision N526 A, in April, 2004 initiated by AWEHHE. A fence was built around the dump site and other temporary measures were taken. At present the fence is already partly broken down. According to Lilik Simonyan (data from the Institute of Geology of Academy of Science of RoA), since 1982 the site has moved for 10 meters downwards, due to landslides.

Another known obsolete pesticides site is located in an area, the most important agriculture area of Armenia: Armavir Marz, Echmiadzin region, approximately 100 km south-east from Yerevan. Estimates for this collective obsolete pesticides storage count up to 200 tons. Here are no precise data on the conditions in this storage.

No risk analysis has been made for neither of the known sites. AWHHE did sampling in villages around the 500 ton landfill and found significant raise of contamination in soil around the dump site. The investigation of breast milk and food products in Ararat marz on residues of organochlorines was carried out. The level of contamination by organochlorines is the approximately the same in all regions of Ararat marz.

Association for Sustainable Human Development

375010 Yerevan, Armenia
Khandzhyana street 33 kv 18
Tel: (+374 -10) 1 522327
Fax: (+374 -10) 1 522327
Email: ashd@freenet.am

Number of staff:	9
Other offices:	no
Established in:	1996
Themes:	Sustainable development, LA21, GMO, biodiversity, environmental law and decision making, climate change, waste issues etc
Methods:	Public awareness raising, public actions, lobbying for better law and policy making monitoring, environmental education etc.

Karina Danilyan – former Minister of Environment.

Karina Danilyan participated in the 1992 Rio de Janeiro Conference on Environment and Development, after which she returned to Yerevan in order to implement the principles of sustainable development, as agreed internationally.

However, when she came across resistance and the impossibility of implementation of the Rio principles, she decided to leave the Ministry of Nature Protection and be active in the non-governmental sector. The Association for Sustainable Human Development was founded in 1996 and works mainly with decision makers on environmental issues in parliament, in the legal system and government. 'In contrast to most other NGOs we work deliberately top down,' says Karina Danilyan.

At present the main issue is to activate the Armenian national council for sustainable Development, which was formed years ago, but never conducted any meeting. The Association works on various issues, such as: GMOs, local agenda 21, WTO research projects. The Association is a member of the Sustainable Cities Network (at present construction work in Yerevan are worrying the citizens of the city), Ms. Danilyan is member of several advisory councils to the Prime Minister, the major of Yerevan (Council for Urban Development) and others.

According to Ms. Danilyan the issue of obsolete pesticides is a very important issue to tackle in Armenia.

Center for Environmental Studies

Yerevan State medical University
Department of Public Health and Health Care

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Mobile (+37491) 599898

Email: artashes.tadevosyan@meduni.am , tatevart@yahoo.com

Number of staff: (various numbers of student volunteers)
Other offices: no
Established in: (2003)
Themes: Public health, toxic waste and obsolete pesticides
Methods: Public awareness raising, monitoring, environmental education etc.

Artashes Tadevosyan

Artashes Tadevosyan is assistant professor at the Yerevan State Medical University, expert to the “National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs) in the Republic of Armenia” and “Developing and Sustaining an Integrated National Programme for Sound Chemicals and Waste Management in the Republic of Armenia” Projects, member of the Armenian interministerial commission for obsolete pesticides. During the Soviet times Tadevosyan was a Scientific team leader at the Armenian Branch of the All-Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers and Plastics, responsible for the Caucasus.

The NGO Center for Environmental Studies has a board of 77 people and recruits students for project implementation. Tadevosyan visited pesticides stores in earlier days, before the privatization in 1992-1993. According to Tadevosyan many of these stores have been emptied by their new private owners and the contents dumped in unknown landfills. A serious problem is also the use of former pesticides warehouse’s premises. He himself claims to have 5 kg of pesticides at his dacha and does not know what to with it (to illustrate the problem).

Tadevosyan holds the opinion that the problem of obsolete pesticides is an urgent problem for Armenia, with a potentially dangerous health risk. His organization is actively raising funds to do something about the problem. Tadevosyan stated that it would be very important to involve people with a background in medicine in any obsolete pesticides project because of the serious health risks.

Eco-Globe

375025 Yerevan, Armenia
Mkhitar Heratsi 18 kv 3
Tel (+374 10) 575527
Email: nuneemil@yahoo.com, armneap2@arminco.com

Number of staff:	6
Other offices:	no
Established in:	2001
Themes:	Sustainable development. Organic farming, certification of organic farm products, biodiversity. Environmental Impact Assessment. Water and Environment. Strategic Environmental Assessment.
Methods:	Public awareness raising, monitoring, environmental education, lobbying, training courses, coalition building, legislation, expertise, etc.

President of Eco-Globe, Dr. Nune Darbinyan, was not in Yerevan during the Milieukontkakt inception visit to Armenia, so we talked to the Eco-Globe staff member Eduard Hovakimyan.

Eco-Globe is very active in Armenia with broad environmental initiatives and issues. At the moment it is strongly involved in international cooperation for instance with the Dutch organization Avalon promoting of organic farming in Armenia.

The organization was established in 2001 and works on the regional, national level. International activities of the organization and the membership of environmental agricultural associations are suitable basis for transferring of international knowledge to the national and regional levels.

Eco-Globe is working together with Avalon on the development of structures in Armenia for organic agriculture training for farmers and representatives from trade organizations and is very active in awareness-raising among consumers and producers.

Nune Darbinyan and her colleagues also serve their expertise in environmental and agricultural issues to the number of international organizations, such as UNDP, FAO, UNECE, WB, TACIS, etc.

Organic farming a good example of sustainable development and in promoting and training for organic farming, Eco-Globe has a lot of experience with the problems caused by the traditional forms of industrial agriculture. The problem of obsolete pesticides was put on the agenda by Nune Darbinyan and 2003 during the Annual Meeting of the Dutch organization PSO – Capacity building in developing countries. At that stage Eco Globe had the intention to further raise the information among international donor community because of the urgency of obsolete pesticide issues in Armenia. Thanks to Eco-Globe the Armenian Ministry of Foreign Affairs made efforts to put the obsolete pesticides issue among priorities in the bilateral program of collaboration and assistance between Armenian and EU Parliament.

“KHAZER” Ecological and Cultural NGO

0002 Yerevan , Armenia
38 Saryan st kv 27
Tel (+37410) 534652
Emial: khazer@nature.am

Number of staff:	6
Other offices:	no
Established in:	1991
Themes:	Air quality, biodiversity, , climate change, energy efficiency, sustainable rural development
Methods:	Public awareness raising,public environmental assessment, monitoring, environmental education, lobbying, protest actions

Amalia Hambartsumyan

The Ecological and Cultural NGO “Khazer” has been established in 1991 by a group of activists that share the idea that by preservation and restoration of national traditions and the Armenian spiritual heritage will help the country to find answers to its environmental problems in a sustainable way.

The organization is active in cultural and environmental field. In the cultural field “Khazer” concentrates on preservation of medieval Armenian music. In the environmental field the NGO is active in the restoration of lake Gilly, inventory of cultural and environmental values in protected areas cultural and natural monuments, monitoring of the ozone layer and environmental sustainable development of small mountain villages.

In its work the organization regularly came across the problem of obsolete pesticides and across the irresponsible use of new pesticides due to a lack of knowledge about health and environmental dangers of pesticides. The organization holds the view that the problem of obsolete pesticides is an urgent problem for Armenia that should be solved. Sustainable development should be the real answer to such problems.

Khazer is as well very active in the field of environmental education in cooperation with UNEP. Since 1995 Khazer is distributing the UNEP magazine “Our planet” in Armenia.

**Annex 2 Stake holder meeting at the REC Caucasus office, 12
May**

Stake holder meeting at the REC Caucasus office, 12 May

On Friday 12 May Milieukontakt and Tauw representatives were kindly received by the Rec Caucasus for a public meeting to present the Milieukontakt project and the preliminary findings of the Milieukontakt mission to Armenia.

Milieukontakt gave a small introduction on the history and activities of the organization and on the obsolete pesticides activities in Moldova and Georgia.

Stakeholders were asked for an indication what to their preliminary assessment on what would be the priority region in Armenia to start the project. As a guiding principle Milieukontakt suggested the following criteria:

- The amount of not less than 60 ton of obsolete pesticides ;
- Pesticides that will not be removed by other organizations;
- The risk that the pesticides will end up in ground and drinking water;
- Willingness of local government to actively cooperate with stakeholders;
- Distance to inhabited centers;
- Distance to environmental valuable objects;
- The existence of active NGOs
- The risk that the pesticides could harm a commercially valuable object;

Several participants indicated their priorities and additions

- Ararat Valey – was mentioned by three participants in the meeting, being an area of intensive agriculture and the most densely populated area in Armenia;
- Besides our criteria the criterium of specific pesticides composition (chloro-organic as most hazardous) was mentioned;
- One of the participants mentioned that if the project would select Ararat region (part of Ararat Valey), it would be complementary to the LEAP program running over there and we could possibly incorporate it in that program (including small grants!);

Present at this meeting were:

Ministry for Nature Protection (Anahit Aleksandryan)
Department for Emergencies (Loudvig Nazaryan)
Rec Caucasus (Hovhannes Ghazaryan)
NGO Center for Environmental Studies (Artashes Tadevosyan)
NGO Association for Sustainable Human Development (Karine Danilyan)
NGO Khazer (Amalia Hambartsumyan)
NGO Ecoglob (Eduard Hovikimyan)
NGO EPAC (Aida Iskoyan)
NGO AWHHE, (Elena Manvelyan)
NGO AWHHE (Emma Anakhasyan)
NGO AWHHE (Lilik Simonyan)
NGO AWHHE (Luzine Babayan)
NGO Environmental survival (Dschuhi Sahakyan)

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ANNEX 06

Obsolete pesticides – Milieukontkakt inception visit to Armenia, May 2006

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1 Introduction

In the framework of the project 'Elimination of the acute risks of obsolete pesticides in Moldova, Armenia and Georgia'. Milieukontakt asked Berto Collet from Tauw to join this inception mission for supporting Jacobiene Ritsema and Wouter Pronk of MK as the technical obsolete pesticides expert. By the initiative and the expenses of Tauw, Boudewijn Fokke (Senior Project Manager of International remediation projects) joined the inception mission to be introduced to the pesticides problems in Armenia and to support this project.

The aim of the above mentioned project for Armenia is to safeguard obsolete pesticides and reduce their potential environmental impact. To reach this goal Milieukontakt wants to:

- Transfer knowledge to local communities on
- Inventory and repackaging obsolete pesticides
- After care of old storage facilities
- Inventory obsolete pesticides stores in a pilot project
- Repackaging of obsolete pesticides according to FAO standards in the same pilot project

The objectives of this interception mission were:

- To start the above mentioned project in Armenia
- To get an impression on the problems with the obsolete pesticides storage in Armenia
- To assess the opportunity to start a multi-stakeholder pilot project (inventor and repackaging obsolete pesticides) in a selected area

During the mission the tasks were divided as follow:

- The mission was managed by MK
- MK took care of all the contacts with NGO and different Armenian Ministries
- MK and Tauw visited eight sites where obsolete pesticides were or are stored and Tauw:
- Inventor the stoked pesticides
- Assess the storage facilities
- Assess on main lines the potential impact on the environment of the stored pesticides

In this report Tauw describes for each storage facility the:

- Details of the location of the site
- Quality of the storage facilities
- Estimated amounts of pesticides stored
- Potential risks

2 Landfill Ararat

2.1 Site location

Site number	: 1
Name of the site	: Landfill Ararat
Region	: Ararat
GPS coordinates	: Unknown
Distance to Yerevan	: Around 20 km
Accessibility	: Last 7 km dirt road
Owner of site	: City of Yerevan
Date of visit	: May 9th, 2006

2.2 Site description

Persistent Organic Pollutants and obsolete pesticides (here after POP's) are dumped in a landfill in the Ararat region in Armenia since 1982 (see Figure 2.1). The landfill is located in a valley subjective to severe erosion processes (gully, sheet and landslides). A small village, which is called Dzherashat, lays at a distance of around four kilometres down slope this landfill. A stream which is feed by rainwater, melting water and groundwater passing this landfill runs through this village. This stream flows to the river Getran and this river is a tributary of the river Razdan.

The village Dzherashat has only summer houses and they belong to the Ministry of Geology and Transport. The houses are now permanently occupied by refuges from Azerbaijan. The water of the stream is used for watering the gardens of these refuges.

2.3 Amounts dumped

POP's in powders and liquids in original packaging are dumped in this landfill. The landfill is approximately 15 meters wide and 120 meters long and is around three meters thick. This gives an amount of 5,400 m³ of POP's dumped. AWHHE told us that according to the documents more than 500 tons of POP's are dumped. The bottom of the landfill is covered with a clay layer of 0.75 meters before they dumped the POP's. The dump itself is capped with a clay layer of 1.5 meters.



Figure 2.1 Landfill in the Ararat region

2.4 Potential risks

2.4.1...1.1 Environment

The landfill is subjected to erosion processes such as mass movement, landslides and gully erosion (see Figure 2.1 and 2.2). A migration of the landfill due to landslide of more than ten meters has been observed recently.

Several measurements to control the erosion processes such as surface drainage on the borders of the landfill and deviation of the above slope surface water have not stopped the landslide of the landfill.

It is expected that if there are no adequate actions taken, the damaging of landfill with the POP's by erosion will continue. The land surface, the soil, the melting water, the groundwater and the surface water in the stream will be polluted by the stored POP's in the near future.

We observed molehills and cow dung on the landfill. We assume that POP's are entering the environment and food chain. The exposure to the environment will increase, if adequate actions are not taken.

Recently according to the governmental resolution soil, groundwater and surface water samples are taken and analyzed. Only the concentrations of halogenated hydrocarbons in the soil samples were high and above the Armenian accepted levels.



Figure 2.2 Landslides near POP' dump

2.4.1...1.2 Livestock

The whole dump was fenced and guarded in the past. The watchman's hut and the fences are destroyed and the dump is no longer guarded. Cattle can freely enter the landfill because of absence of a proper fence. We observed cow dung and packaging materials on the surface of the landfill during our visit (see Figure 2.3). Direct contact of cattle with POP's is likely. Through the cattle, grazing on the landfill POP's are entering the food chain.



Figure 2.3 possibly packaging materials on the surface of the landfill

2.4.1...1.3 Human health

People (children) can freely enter the landfill because the fence is destroyed and there is no guard. As mentioned above we observed possibly packaging materials on the surface of the landfill during our visit. Direct contact of people (children) with POP's is possible.

3 Gerandir farm

3.1 Site location

Site number	: 2
Region	: Kotayk
GPS coordinates	: Unknown
Distance to Yerevan	: Around 15 km
Accessibility	: Asphalt road
Owner of site	: Private
Date of visit	: May 9th, 2006

3.2 Site description

A storage facility for seeds treated with pesticides was located on this farm in the old days. From this farm the treated seeds were distributed to the farmers. The pesticides used for treatment of the seeds were removed and transported to a landfill a long time ago. The store was cleaned and demolished (Figure 3.1). The site is now owned by a private cattle farmer. The buildings are used as stables and there were no signs of the presence of POP's.



Figure 3.1 Former distribution site of treated seeds

4 Gerandir forestry station

4.1 Site location

Site number	: 3
Name of the site	: Gerandir forestry station
Region	: Kotayk
GPS coordinates	: 40° 09' 23" N and 44° 39' 50" O
Distance to Yerevan	: Around 15 km
Accessibility	: Last 2 km unpaved road
Owner of site	: Ministry of Agriculture
Date of visit	: May 9th, 2006

4.2 Site description

This POP's storage facility is part of a small building belonging to the Ministry of Agriculture. The building is a station of the Research Institute of Forestry and Plant husbandry. From the appearance it looks as if this station is not in use any more. The fence around this station is destroyed and cattle can enter freely the area.

The building is four by eight meters large, has an attic with iron sheet roofing (see Figure 4.1). Half of the building is a storage facility for (broken) equipment, including left over pesticides and other chemicals. The other half of the building looks like a canteen.

The station is located in a small valley. Fruit trees are plant in the surrounding, and a groundwater well with a basin to collect groundwater is situated opposite the building on the other slope of the valley. The pumped groundwater was probably used by the station for irrigating the fruit trees and by the community farm for their cattle located a few 100 meters down slope. The community farm is abandoned. The area around the station is in use as pastures for cattle.

The POP's store was locked, the only window is broken and the roof of the building seems intact. Free entrance of the store is not possible. The wooden floor of the store was moist, and in the store are shelves with left over of pesticides and broken agricultural equipment.



Figure 4.1 Station of the Research Institute of Forestry and Plant husbandry

4.3 Amounts stored

100-150 kilograms POP's in total are present in the store, consisting of a few damaged cardboard drums (see Figure 4.2) with POP's, a few bottles (empty and full), small containers and empty packing materials and contaminated broken agriculture equipment. The cardboard drums contain Dinok (Dinitro-oxocresol) which is made in Russia.

4.4 Potential risks

4.4.1...1.1 Environment

The store is in moderate shape and rain and snow can only enter through the broken window. The amount of POP's stored is limited. It is expected that if the facility is not maintained the POP's may enter the surrounding environment by rain and snow entering the building. Presently there is no migration of POP's.



Figure 4.2 Damaged cardboard drums

4.4.1...1.2 Livestock

Cattle is grazing around the building direct contact of cattle with POP's is not possible presently.

4.4.1...1.3 Human health

Only authorized man can enter the store therefore direct contact of man with the POP's is not possible presently. Although the amount stored is small, people entering the store should wear Personnel Protective Equipment like gloves, boots/cover shoes and a dusk mask (hereafter PPE).

5 Garni shop

5.1 Site location

Site number	: 4
Name of the site	: Garni shop
Region	: Kotayk
GPS coordinates	: Unknown
Distance to Yerevan	: Around 30 km
Accessibility	: Asphalt road
Owner of site	: Private
Date of visit	: May 9th, 2006

5.2 Site description

This site is petrol station and shop for pesticides (see Figure 5.1). The pesticides were stored in a separate room which was locked. The storage room was well maintained but has hardly any ventilation. The amount stored was very limited and some of the pesticides which were available for selling were expired.



Figure 5.1 Shop for pesticides

6 Garni farm

6.1 Site location

Site number	: 5
Name of the site	: Garni Farm
Region	: Kotayk
GPS coordinates	: 40° 07' 22" N and 44° 43' 49" O
Distance to Yerevan	: Around 35 km
Accessibility	: Asphalt road
Owner of site	: Private
Date of visit	: May 9th, 2006

6.2 Site description

A storage facility and regional distribution centre for pesticides were located at this old community farm in the old days. From this location pesticides were distributed to other community farmers. In the beginning of the 1990th the community farm was sold in parts to private farmers. The pesticides were mainly sold and the part which was not sold was removed and transported to a central storage. The storage building was cleaned and demolished. The site where the store was located is now owned by private farmers. The former storage site is fenced with a wall, the gate was locked (see Figure 6.1). Behind the wall the land was bare with a few trees; the rest of the land was not in use. No signs of the presence of POP's were observed.

That the walled site was not in use intensively and that the area was not overgrown with weed is remarkable. The people present had not much information but it can not be ruled out that the soil is contaminated with POP's at certain spots.



Figure 6.1 The former storage site is fenced with a wall, the gate was locked

7 Berriutyun LTD Masis

7.1 Site location

Site number	: 6
Name of the site	: Berriutyun LTD Masis
Region	: Ararat
GPS coordinates	: 40o 04' 18" N and 44o 24' 20" O
Distance to Yerevan	: Around 20 km
Accessibility	: Asphalt
Owner of site	: Private
Date of visit	: May 10th, 2006

7.2 Site description

This storage facility is located on a former community owned factory where agricultural products were processed, packed and distributed. Besides these main activities pesticides were stored and distributed to neighbouring farmers. Pesticides were stored in three separate rooms and the total quantity stored was limited. The groundwater in this region is shallow, surface water is not present in the direct vicinity of the store.

We came across three rooms where pesticides and POP's were present during our visit. The chemicals (powders and liquids) were packed, in partly undamaged, damaged and deteriorated packaging. Powders and liquids were also spilled on the floors.

To discuss the site we gave the three stores the following numbers 6.1, 6.2 and 6.3. The stores are part of a large hall.

7.2.1...1.1 Store 6.1

This store is nine by six meters has two broken, bared windows and a metal gate, closed with a padlock. The store has a concrete floor and no roof, wind, sun, rain and snow enter the store. The floor was moist and covered with soil contaminated with POP's. POP's are in torn and damaged bags (Figure 7.1), rusted drums and containers. Pieces of asbestos roofing plates are scattered all over, in and outside the store. The bags with yellow powders are stacked on pallets, yellow and blue powder is spilled on the floor. The drums and other metal containers are all rusted and the content of the drums will spill or has already been spilled. This store is in a deplorable stage and is not managed at all. Due to the strong smell of pesticides, the open bags and drums, the spills and the contaminated soil covering the floor people should only enter the store using PPE.

People present entered the store and handled packaging without using PPE although they know that the chemicals stored are dangerous.



Figure 7.1 Damaged bags with powders stacked on pallets

7.2.1...1.2 Store 6.2

The store was locked and the roof is water proofed. This store is five by six meters and divided in two compartments. Pesticides together with POP's were stored here. Pesticides and POP's are sold to the public (see Figure 7.2). Equipment to sell is placed near the entrance of the store.



Figure 7.2 Selling point of pesticides

Ventilation is not present and inside the store the pesticides odour was pungent. The pesticides are stored in drums containers and bags which were intact. The store is managed and maintained, but the floor was covered with a thin layer contaminated soil.

Due to the strong smell of pesticides and the contaminated soil/dust on the floor people should only enter this store using PPE.

7.2.1...1.3 Store 6.3

The third room is actually not a store but a room with old and broken spare parts, electrical household apparatus with a few broken bags of POP's (see Figure 7.3) The room was locked, has a bared broken window and the roof is water proofed. This room is five by six meters and is connected to two other rooms. This part of the building is not maintained and also here pieces of asbestos roofing plates are scattered all over the place. Due to the strong smell of pesticides and the contaminated soil/dust on the floor and the broken apparatus, people should only enter this store using PPE.



Figure 7.3 Broken spare part, electrical household apparatus with a few broken bags of POP's

7.3 Amounts stored

7.3.1...1.1 Store 6.1

Unknown POP's (powders and liquids) in original packaging partly damaged are present in the store. We counted:

- 3 bags each of 15-20 kg with pink powder
- 60 bags each of 15-20 kg with yellow powder estimated volume is 6 m3
- 14 bags each of 25 kg with blue grains
- 3 empty rusted drum of 250 litres
- 2 m3 of empty bags and packaging
- 3 iron rusted buckets of 25 litres
- 5 empty bottles

7.3.1...1.2 Store 6.2

In total we counted in this store the following POP's:

- 16 bags with unknown yellow powder staged on pallets
- 17 containers and drums of different size with unknown liquids
- 1 m3 of empty bags and packaging

In this store were also several carton boxes with plastic containers, bags stacked on pallets with new pesticides ready for sale.

7.3.1...1.3 Store 6.3

In this room a few broken bags with unknown powders have contaminated the floor and some of the broken goods stored in his room.

In total we estimated that the following amounts were present in the three stores:

- 210 litres of unknown liquids
- 2,100 kg of unknown powders
- 5 m³ of empty packaging
- 2 m³ of contaminated soil

7.4 Potential risks

7.4.1...1.1 Environment

The main hazard to the environment is formed by the POP's in store 6.1. The POP's are and will be washed away by melting water and rain entering the store. Wind will disperse the POP's during the dry summers. The migration by wind and water will pollute the soil and groundwater around the store. The soil and groundwater under the store is or will be contaminated by rain and melting water entering the soil through cracks in the floor.

Livestock

The whole site was closed and cattle can not enter the place.

7.4.1...1.2 Human health

Store 6.1 and 6.3 are not maintained and people do not enter on a regular base these stores. Store 6.2 is used as a selling point of pesticides to the public. People entering (selling and buying) come into direct contact with POP's by inhaling contaminated dust and air. They will take traces of POP's to their homes by their shoes and clothes. People entering this store should use PPE.

8 Konstatin & Sisters LTD

8.1 Site location

Site number	: 7
Name of the site	: Konstatin & Sisters LTD
Region	: Amavir
GPS coordinates	: 40o 03' 59" N and 44o 16' 50" O
Distance to Yerevan	: Around 50 km
Accessibility	: Asphalt
Owner of site	: Private
Date of visit	: May 10th and 11th, 2006

8.2 Site description

This site is a former governmental storage facility and distribution centre for fertilizers and pesticides (see Figure 8.1). 1,500 workers and 500 trucks distributed these goods to smaller regional stores all over the country and from the regional stores the goods were distributed to the community farmers.

The site is now owned by the former director of the distribution centre. The former director submitted a list with all the places where his trucks brought the pesticides and fertilizers.

The owner is conveying the old community owned distribution centre in a large fish farm with tourist facilities. Large commercial fish ponds for breeding fish for the local market have been builded already. For the fish farm several groundwater wells of about 100-150 meters deep are installed. The groundwater is used to fill the concrete fish basins.



Figure 8.1 Former governmental storage facility and distribution centre for fertilizers and pesticides

At the back of the site are two long recently completely destroyed storage buildings and one small store not yet demolished with POP's in bags, drums, containers and jerry canes. The bags containers, jerry canes and drums are open, closed, empty, half full and full and most of them are partly or completely destroyed. Empty packaging, empty drums and other containers can be found all over the place. One store with at least 30 m³ of tins containing a phosphorus pesticide has been burned down completely.



Figure 8.2 Drums with POP's and rubble

The buildings were demolished for extending the fish farm. Rubble and asbestos pieces of roofing can be finding all over the place and also in between the POP's (see Figure 8.2). It was planned to install concrete fish ponds on the foundation of these old storage facilities. The plans have been cancelled because of the presence of POP's.

POP's are now in the open air and are spilled on the surface and have contaminated the rubble, the surrounding soil and most likely the shallow groundwater. Opposite the stores of the pesticides were the stores for the fertilizers. The fertilizers were brought by trainloads. The railroad is located on a rigid and one side of this rigid is completely covered with white consolidated powder which is said to be fertilizer.

The overall conclusion is that the whole former pesticides stores including the immediate surrounding are contaminated with POP's. And that due to demolishing the stores the amount of rubble contaminated with POP's has increased and the process of deterioration of the packaging has speed up. Large volumes of POP's will be dispersed in the surrounding environment by wind and water soon.

8.3 Amounts stored

For the inventory we have divided the site into the following 10 parts:

- 7.1 Empty herbicides drums
- 7.2 Burned tins with phosphorus pesticide
- 7.3 Empty pesticides drums and bags with calcium phosphate partly contaminated with POP's
- 7.4 Bags with Benzo Acid (preservative)
- 7.5 Empty pesticide drums

- 7.6 Drums full and half full with POP's
- 7.7 POP's powders on floor
- 7.8 POP's powders on floor
- 7.9 Small bags with compost (treated?)
- 7.10 Store with POP's in jerry canes

In total we have counted and estimated the following amount of POP's:

- 11,500 litres of POP's in liquids mainly stored in rusted drums and jerry canes
- 13,000 kilograms of POP's in powders mainly stored in bags severely deteriorated
- 120 m3 Benzo Acid stored in bags severely deteriorated
- 30 m3 burned tins with phosphorus pesticide
- 55 m3 empty packaging
- 15 m3 of small bags with compost (treated?)
- 40 m3 soil contaminated with POP's on the floors of the stores
- Not estimated amount of rubble contaminated with POP's
- Not estimated amount of contaminated soil with POP's under and around the stores

8.4 Potential risks

8.4.1...1.1 Environment

All the POP's in the open air and in damaged packaging form a direct threat to the environment. POP's are already washed by the melting water and rain water and enter freely the soil and will or have already polluted the shallow groundwater. It is not likely that the deep artesian wells for the fish farm will be contaminated with POP's.

Near the demolished POP's stores is an orchard with fruit trees. These fruit trees will grow on polluted groundwater.

POP's will enter and are entering the food chain and the environment by the birds (like storks) and other animals present at the site.

8.4.1...1.2 Livestock

The whole site was closed and cattle can not enter the place. But during our visit women were cutting grass and or herbs for consumption in the vicinity of the POP's stores.

8.4.1...1.3 Human health

People working on the site will inhale dust polluted with POP's. Dogs roaming around will bring POP's in the homes of the fish farm labourers present at the site. Especially children playing with these dogs are at danger.



Figure 8.3 Dogs roaming around bring POP's in the homes

9 Artashati Berrutyun

9.1 Site location

Site number	: 8
Name of the site	: Artashati Berrutyun
Region	: Ararat
GPS coordinates:	: 39o 56' 38" N and 44o 33' 12" O
Distance to Yerevan	: Around 50 km
Accessibility	: Asphalt
Owner of site	: Private
Date of visit	: May 11th, 2006

9.2 Site description

This site is an old community owned farm with a local distribution centre. The owners told us that the stock where the pesticides were stored in the old days was demolished and that all the POP's were brought to a landfill. But after continues asking people understood the purpose of our visit, they showed us three rooms were left over pesticides and POP's were present.

A canal for draining the excess of groundwater runs 45 meters north of the store. Shallow groundwater pumped from a borehole of ten meters deep is used by the livestock of the owner. This well is located 70 meters north East of the stores.

9.2.1...1.1 Store 8.1

In the first store is a room of eleven by twelve metres, has a waterproof roof, closed windows and a locked door. People owning the place store pesticides, spraying equipment, a frigid, fire wood and POP's in this room. The floor was partly covered with a thin layer of contaminated soil and powders were spilled at several spots. Quite a lot of empty packaging and pallets are also stored in this room.

9.2.1...1.2 Store 8.2

The second store measures 36 by 13 meters and has a waterproof roof, closed windows and a locked door. 20-30 drums of 100 litres with POP's are stored at that the back of this store. Dead mice were laying on the drums and floor of the store. POP's haven been leaking on the floor and the floor was covered with moist contaminated soil. Liquids can enter the soil and groundwater if the floor is not waterproof.

Pallets with wooden crates and cardboard container with yellow powders, intended to use for grape growing, are also stored in this room. The owner told us that the powders were never used. Most of the boxes and containers are damaged and powders are spilled on the floor. Quite a lot of empty packaging and pallets are also stored in this room.



Figure 9.1 Pallets with wooden crates and cardboard container with yellow powders

9.2.1...1.3 Store 8.3

The third store measures twelve by twelve meters, has a waterproof roof, closed window and a locked door. Bags and boxes with unknown POP's are scattered all over this store. The bags and boxes contain Dithaan M-45 and Benzo acid and unknown POP's. Some bags are open and powders are spilled on the floor. Quite a lot of empty packaging and pallets are also stored in this room.

Besides the POP's broken agriculture equipment was laying around in this store. All the stores are poorly ventilated and the smell of pesticides was significant. People should not enter the store without using PPE.

9.3 Amounts stored

In total we have counted and estimated the following amount of POP's:

- 360 litres of POP's in liquids mainly stored in rusted drums
- 4,200 kilograms of POP's in powders mainly stored in bags and boxes severely deteriorated
- 8 m3 of unknown powders
- 22 m3 empty packaging
- 10 m3 soil contaminated with POP's on the floors of the stores

9.4 Potential risks

9.4.1...1.1 Environment

Because the stores are locked and have waterproof roofs POP's will not easily spread outside. Nevertheless liquid POP's can or have enter the soil through cracks in the floor of the store. The groundwater can be or is already affected by percolating liquid POP's (especially store 8.2). Rodents (mice and probably rats) will bring POP's in the environment and food chain.

9.4.1...1.2 Livestock

The stored POP's are locked and livestock will not have direct contact with the POP's. Livestock is watered by the groundwater and the groundwater may or already is affected by POP's.

9.4.1...1.3 Human health

The owner and its family enter the stores without PPE and inhale dust and air contaminated with POP's. Firewood and equipment is stored in the first store and especially children fetching firewood will have direct contact with the POP's and bring the POP's in their homes.



Figure 9.2 Firewood in POP's store

10. Tables and figures



Figure 10.1 Map of Armenia with visited sites

10.2 Locations visited

In Table 10.2 we have summarized all the gathered data of the eight visited sites

Table 10.2

Site number	Name of site	Rayon	GPS coordinates	Liquids		Powders	Unknown powders	Empty packaging materials	Contaminated soil	Remarks
				Liter	kg					
1	Landfill Ararat	Ararat	40 08 34 N 44 37 02 E	-	-	-	-	-	Amount unknown	500 tons total
2	Gerandir Farm	Kotayk	-	-	-	-	-	-	-	Removed and cleaned
3	Gerandir Forestry station	Kotayk	40 09 23 N 44 39 50 E	-	40	-	-	80 kg	-	Experimental station fruit growing
4	Garni shop	Kotayk	-	-	-	-	-	-	-	Shop and petrol station
5	Garni farm	Kotayk	40 07 22 N 44 43 49 E	-	-	-	-	-	-	Removed and cleaned

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Site number	Name of site	Rayon	GPS coordinates	Liquids	Powders	Unknown	Empty	Contaminated	Remarks
				Liter	kg	m ³	m ³ or kg	soil materials	
6	Berriutyun LTD Masis	Ararat	40 04 18 N 44 24 20 E	210	2100	-	5 m ³	2	Old factory site
7	Konstantin & Sisters LTD	Armavir	40 03 59 N 44 16 52 E	11500	13000	120 m ³ benzyl acid 30 m ³ phosphors	55 m ³	40	Central store. Unknown Powders need to be checked (sampling, analysis)
8	Artashati Berriutyun CJSC	Ararat	39 56 38 N 44 33 12 E	360	4200	8 m ³	22 m ³	10	Former distribution centre. Unknown powders need to be checked (sampling, analysis)

ANNEX 4 – contact persons

ANNEX 06

Obsolete pesticides – Milieukontkakt inception visit to Armenia, May 2006

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Targetgroup	Contact person	position	address	tel	email
Ministries					
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Ministry of Agriculture, Plant production & protection department	Karina Yesayan	Head of Horitculture Development division	Government House 3, Republic Square, Yerevan Republic of Armenia, 375010	(374-10) 523-793, home(374-10) 723-722	pppdep@yahoo.com
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Armenia

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