

GENDER, CHEMICALS AND WASTE

Gender Dimensions of hazardous chemicals and waste policies under the Minamata, Basel Rotterdam and Stockholm Conventions



Case study Kyrgyzstan, 2019



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Impressum

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Introduction

In April 2019, a scoping study on Gender, Chemicals and Waste was carried out in Kyrgyzstan by the organisations WECF^{1} and BIOM^{2} to look at gender dimensions of the Basel, Rotterdam and Stockholm (BRS) conventions as well as the Minamata convention.

METHODOLOGY

The scoping study aimed to find answers to the following three key questions:

- How are women and men impacted differently in their health by hazardous chemicals and waste?
- How do occupations and roles at home and at work influence the exposure of women and men to hazardous chemicals and waste?
- What best practices with women and men's leadership exist to substitute and eliminate hazardous chemicals and waste?

As part of the scoping study, leading scientists, as well as scientific institutions and national authorities responsible for chemicals, waste, labour and social affairs, and UN representatives working in the country on gender and waste themes, were visited and interviewed.

Interview questions were prepared based on the desk research carried out in advance of the scoping visit by WECF and experts. The desk research identified publications in English, Russian and Kyrgyz on chemicals, waste and related gender data in Kyrgyzstan. Little data on the impact on gender issues were found, which necessitated additional interviews and meetings on this issue. In total ca. 15 publications were analysed and served to prepare the interview partners and the program of the multi-stakeholder meeting.

PROJECT COORDINATORS

^{1} WECF - nonprofit network dedicated to a gender just and healthy planet for all. Our international network consists of over 150 women's and civil society organizations implementing projects in 50 countries.

www.wecf.org/about-us

^{2} BIOM a public non-profit organization created in 1993, uniting on a voluntary basis young specialists, scientists and leaders involved in solving environmental problems of the Kyrgyz Republic and Central Asia. www.biom.kg

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On 16th April 2019 a stakeholder dialogue meeting was organized in Bishkek, Kyrgyzstan with 30 key experts from government, agencies, science and representatives of women and environmental organisations, where participants shared the latest research and developments in the area of chemicals, waste and the implementation of the BRS and Minamata conventions. The meeting aimed at exchanging views of stakeholders on issues of assessing the integration of gender aspects in the implementation of the priorities of the three chemical conventions in the country, identifying positive practices, problems and gaps at the local and republican levels.

Experts in the area of gender, chemical and waste, from WECF International and BIOM and EKOIS organised visits to the asbestos-cement factory town, the largest waste dump of the country, a plastic recycling plant, a wastewater plant, and meetings with village councillors near the waste dump site and informal waste scavengers and a plastic recycling company. In the months previously, visits of the Kyrgyz partners to the obsolete pesticide dumpsites, the mercury mining area and the cotton and tobacco growing areas had been carried out. The experts were accompanied by a photographer. The visits aimed to identify gender dimensions of chemical and waste hotspots, as well as good practices.



GENDER EQUALITY MEASURES

in the area of chemicals and waste



CHAPTER 1

GENDER EQUALITY MEASURES

Gender equality measures in the area of chemicals and waste

Kyrgyzstan's government has approved its national strategy on achieving gender equality up to 2020 and a National Action Plan on Achieving Gender Equality on June 27 2012 (No. 443). The same gender should not predominate in the staffing structure of state and local government employees. The gender equality strategy provides concrete monitoring and reporting formats for governmental agencies [1, 2]. The gender action plan includes plans for training of women in agro-technologies, introduction of gender-sensitive principles in personnel policy in state and municipal service, and gender-responsive monitoring and reporting formats, but not all agencies actively use the gender equality strategy and reporting in their work.

The Law of the Kyrgyz Republic "On State Guarantees of Equal Rights and Equal Opportunities for Men and Women", states that land rights are equally protected for persons of different sexes, the integration of a gender approach into state, regional and local development programs and strategies. The visits by the project experts to the different ministries and state agencies, showed that in practice, it is only the Ministry of Disaster Risk as well as the Ministry of Health that actively used the gender equality strategy and reporting in their work. The Ministry of Risk Reduction and Emergencies has a gender strategy, and targets and indicators on how women and men have different needs in disaster response. The ministry reports on their gender strategy to the central government (see section on good practices). One example is the gender responsive reporting on the flooding of the uranium tailings. Another examples is that the Ministry of Health has implemented projects on reducing dioxin emissions from medical waste burning, and is working on reducing mercury waste in the health sector (see section on good practices).

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As a conclusion from the expert visits to the State Agency for Environment and Forestry, it appears that the agency does not apply any gender equality measures. The state agency for environment has prepared the 2nd National Implementation Plan (NIP) for the Stockholm Convention (only available in Russian)[3] which has been submitted for approval to the government. Both the first as well as the second Stockholm NIPs do not propose any gender-responsive measures, unlike the NIPs of other countries which were studied. However, the NIPs take note of the fact that women and men may have different health impacts from Persistent Organic Pollutants (POPs), and the NIP make reference to the study on POPs found in breastmilk and the placenta of women working in the Southern cotton growing region [4]. In their presentations the state agency of environment also made reference to the survey by the project implementer BIOM, which has conducted a study on gender-differentiated data on the use of pesticides.

The agency for agro-chemicals prepared an overview of the of the staff working for the agency including in local offices which do agricultural training, by sex. According to the data of the agency, there are 50% women and men working in the main office in the capital, although all higher positions are occupied by men. In the rural offices an average of 80% of the staff are men, including 2 offices where there are no female staff members at all. The agency for agro-chemicals focuses on promoting the use of licenced pesticides, and presented the creation of a first training and resource centre, where most of the clients and people trained are men. In the interviews with the experts from WECF and BIOM, the agency explained that one of the reasons is that women's living in rural areas lack time to work outside the home, due their care tasks. The agency also gave the example of a few private pesticide shops that are located in front of Mosques and work with the Islamic bank, thus providing pesticides to farmers on credit for which they need to bring no guarantee other than a copy of their passport. It is estimated that most clients are men.



ISSUES OF CONCERN

relating to gender, chemicals and waste



CHAPTER 2

ISSUES OF CONCERN

LACK OF GENDER-DISAGGREGATED DATA AND AWARENESS

The average life expectancy of men in Kyrgyzstan is 8 years lower than that of women [5]. The available data on environmental health are based on occupational health research, which seems to indicate that men are more exposed to harmful chemicals in their workplace than women working in the same companies. Unfortunately, little data has been published in peer-reviewed journals.

MERCURY

Data has been requested from the State Agency on Environment and Forestry on the results of the GEF/UNEP funded projects on mercury and health. From the interviews with the Ministry of Health it became apparent that the data indicated much higher mortality caused by mercury exposure of men than of women. There seems to be no data on the impact on the health of women, men and children living in the surrounding communities near the mercury area. Informal gold mining also exists, but there is no data on the use of mercury. It is said that a type of 'acid' is used rather than mercury, but no hard data on what this acid might consist of could be found.

CHRYSOTILE ASBESTOS

During the period of the Soviet Union, the largest asbestos-cement factory was built in Kant, Kyrgyzstan. The factory is old. The Kant Asbestos factory is still in use, and it has two types of products, asbestos pipes and roof-slates and asbestos cement production. Both types of products are sold in Kyrgyzstan and Kazakhstan.



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Scientists confirm that ashes and containing asbestos dust are spread from the factory's chimneys over the surrounding agricultural land and the village Dmitrievka. Scientists suspect possible health problems and pollution of local food crops. The representative of the Ministry of Labour told the project experts that safe and controlled management of chrysotile is being ensured, but when requested to comment on the safe management of asbestos waste, the ministry could not provide an example. The scientists and environmental NGOs confirm that there is a total lack of information on the potential hazards of chrysotile asbestos. During the scoping study, asbestos waste was found lying around at homes and in streets, including where children play. In Kyrgyzstan, there is a lack of reliable peer-reviewed data on the health impacts of chrysotile asbestos on women, men and children from secondary exposure, nor on occupational health of workers [5, 6].



Children playing amongst asbestos waste and fumes from the asbestos cement factory spread over a nearby village and agricultural land

POPS IN AGRICULTURE

The project experts have identified data on organochlorine pesticides found in humans, including breastmilk and placentas. Scientific studies in the cotton growing areas of Kyrgyzstan have shown a relationship between exposure to these pesticides and health impacts on women and children. The scientists also have identified male infertility in particular in farm workers in the cotton and tobacco growing industries [7]. The agency for chemicals of the Ministry of Health does not have data on the continued use of POPs in agro-chemicals, and in the interview done by the experts for this project, it did not want to respond to the question if banned pesticides are still sold and used in the country. The interviews by the project experts indicate however that there is quite certainly a problem of illegal import and sales of obsolete pesticides. In the interviews with the village councils it became apparent that the majority of households have some type of agricultural activity for which they purchase chemicals on the market; these chemicals are mostly unlabelled. In a number of cases, the salesmen of the market will advertise their pesticide as 'DUST' which is the local word for DDT. It is unclear if the product sold is really DDT, or if it is just a marketing slogan.

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A survey by BIOM interviewing men and women on their use of pesticides shows differences in roles, responsibilities and exposure, and a total lack of awareness on the potential health effects. Women will often be responsible for rinsing the pesticide plastic containers and in some cases will reuse it in the household, or burn the containers as a source of energy. Men will more often be responsible for the application of the pesticides on the crops [8].



Pesticides are sold in markets and generalist stores along food items, often without labels in the local language and without health warnings and instructions

POPS FROM WASTE

Unintentional POPs – dioxins and furans – from waste burning are a great problem in the country. There is a lack of waste management everywhere, especially in the rural areas. In the capital city of Bishkek, containers for waste separation have been installed, but as the new waste facility is not ready, it continues to be brought to the 'waste mountain'. The waste dump burns 24 hours a day, and on and around the dump, poor families live who work as waste scavengers. The scavengers separate the waste and sell what is usable to recyclers; plastic, carton, metals and more. The European Bank for Reconstruction and Development (EBRD) has provided funding to transfer the waste mountain into a managed waste facility including more professional recycling, but there has been no visible progress made for the past 5 years, which is said to be due to a lack of political willingness including from the local authorities waste agency of Bishkek.



Many women are working in the smoke from burning waste, alongside men on the large waste 'mountain' of Bishkek collecting plastic and other waste to sell.

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During the visit to the waste mountain, the project experts did interviews with women scavengers. They confirmed the assessment of the representative of the ministry of labour, that many of the scavengers are women. The women earn between 200 to 500 Som per day (2,5-6,5 Euro), and do not wear protective gloves or other gear (some wore masks). Even though by law children are not allowed to work under the age of 16, the interview partners explained that children do engage as waste scavengers as well.

The story of one of the interviewed women scavengers is a telling example of how poverty and dangerous activities such as waste scavenging are closely linked. One of the interviewees explained that she migrated to Bishkek, and was now living in a home next to the waste mountain, under the fumes of the burning waste. She explained that her husband was an alcoholic and had no work, and that is why she is working on the waste mountain to earn money. Her 3 children do not go to school. They also often scavenge for food to eat, and for recyclables for which they can earn some money (including plastics, cables and packaged food that they will try to sell to the local market). The women waste scavengers told the interviewers that they were aware of 'risks' due to their work, and mentioned as examples collapsing waste or injuries such as cuts (recently one elderly woman was found dead on the waste dump). They mentioned that medical care in case of accident is available to them. They were not aware of hazardous chemicals in the air.

A survey from 2013 found that 44% of the waste recycling was done by homeless and 33% by pensioners, but did not give gender-disaggregated data [9].



The waste dump of Bishkek burns day and night, emitting hazardous POPs: waste scavengers and villagers are exposed to the toxic smoke, water and soil pollution.

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An area where progress has been made is reducing the burning of medical waste (see next section on good practices)[10]. However, the risk from obsolete pesticide dumpsites remains acute. Thanks to the great effort of local and international NGOs, 11 obsolete pesticide dumps have been repackaged (see good practice section). Experts know that there are many more obsolete pesticide burials, including non-identified one's. In one recent case, many sheep died from drinking water from the puddles in the village fields, where there was an obsolete pesticide dump. It is not known whether the remaining obsolete pesticide dumps have infiltrated into the drinking water supply of the communities living in the area.

NEW POPS

New POPs, such as flame retardant Deca BDE used in TV casing and car parts are increasing in the waste stream, alongside a growing stream of single-use plastic waste. The burning of synthetic textile waste for the heating of public baths (Banja's) is another concern. Plastic bottles and plastics bags are also widely used as 'fuel' for fires at home and in kitchens.

The UN Comtrade website indicates a sudden increase of imports of plastic waste scrap in 2017, which might be linked to China stopping all imports of mixed plastic waste. Non-stick frying pans are widely used, and there is no information about the hazards of Perfluorooctanesulfonic acid (PFOS) [11].

In the interviews for this project, the women's organisations indicated a great need for capacity building on the health hazards of new and old POPs. In particular on the problem of burning plastic and other waste at home, on the lack of sustainability of plastic 'recycling' and on the alternatives to POPs in plastics and cooking utensils (such as Teflon frying pans). Awareness raising is needed on how POPs build up in human breast milk and food, and which alternatives are less hazardous.



Plastic waste from cars, TVs and fridges often contain new POPs. Also old tyres and textile waste will emit POPs pollution when burned, but awareness is lacking.



MERCURY AND URANIUM MINING WASTE

The Khardaikan primary mercury mine was supposed to be closed, but it is unclear if this is the case. In any case the country has to address the toxic legacy of the mercury mining waste and mercury smelters around the city of Khardaikan with its 11,000 inhabitants. The mercury mining tailings and sludge are a threat to the surface and groundwater, and the agriculture in the area [12,13].

Even though radioactive waste is not a focus area of the Basel convention, it is an immense problem for Kyrgyzstan and all of Central Asia, and therefore we address this in the case study. The legacy of uranium mining in Central Asia remains a problem to this day, even four decades after the end of reprocessing.

Central Asia has been the main supplier of uranium for the Soviet nuclear industry for almost 40 years. About 1 billion tons of waste from the extraction and processing of radioactive ores is stored at tailing dumps and at the dumps of minerals functioning and abandoned uranium mines in Kazakhstan, Kyrgyzstan, Uzbekistan and Tajikistan. Radioactive materials and heavy metals seep into groundwater aquifers, spread in the air through the wind and are a risks for local populations through contamination of water and food. The population of these territories sometimes do not have external support (i.e. compensation) to deal with the hazards of living in these extremely polluted zones [14].

The problem of the tailing sites is that they are not secured well enough and that local inhabitants come to 'excavate' metal scrap and non-ferrous metals, cable and electrical products that are radioactive. They use these materials in and around their homes.

Anna Solomatina, of the Chui Environmental Laboratory in Kyrgyzstan said in an interview: "Women and children are the main recipients of radioactive exposure from uranium tailings. We were repeatedly convinced of this when we participated in the screening of residential homes in Mailu-Suu and Shekoftar where we measured levels of radiation. In the summer season, practically only women and children remain in such settlements. So it turns out that they get the full impact throughout the entire year [15, 16].

To address this problem, the uranium mining risk mitigation projects has been carried out with support of the World Bank, UNEP and the EU in the 2011-2012 period, to contain and secure the uranium mining tailings. However, the project has ended whilst large problems remain. According to the local experts I.Torgoev and Yu.Aleshin there are large and unsolved problems:

- A number of tailing sites continue to be subjected to intense river erosion, causing pollution of surface waters in the basin of the river Maily-Suu
- The majority of tailing sites located in river valleys of the Maily-Suu and Ailyampa-Say rivers still require urgent corrective measures or reclamation in the medium term
- A full removal (transfer) of radioactive tailings from the floodplains to safe areas and specially prepared sites are required.

GOOD PRACTICES

relating to gender, chemicals and waste



CHAPTER 3

GOOD PRACTICES IDENTIFIED

MEDICAL WASTE - GOOD PRACTICES

The Ministry of Health has done gender-responsive work in the area of medical waste reduction, including reduction of waste burning in open ovens, as well as replacing mercury-containing thermometers with electronic ones. The Ministry in cooperation with UNDP carried out a survey on roles, responsibilities and exposure to chemicals in medical waste management. About 80% of the health sector staff are women, and they are also the ones taking care of the medical waste. The survey found that despite the policies in place, medical waste was often badly managed. For example, mercury waste was mixed up with normal waste and put in wrong containers.

As a next step, still in the framework of the UNDP project 400 health workers (388 women and 12 men) in Bishkek medical centres were trained in cleaning, storing and transporting mercury-containing waste. As a result of the project the women handling hospital waste have received training and better equipment (well indicated, different sizes) which makes it almost impossible to mix up hazardous and normal waste or to have contamination [17].



In Bishkek, medical centres now collect thermometers and other hazardous waste separately and disinfect the waste.

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Previously medical waste would be mixed ,burned or dumped as in the example of this rural health centre (above), but now it is separated and safely treated.



There are over 300 medical and obstetric centres outside of the capital, in the rural areas of Kyrgyzstan which have not yet been trained, and where medical waste management continues to present a risk for infections, mercury and dioxin pollution [18]. As neither Kyrgyzstan nor other Central Asian countries have dioxin analysis laboratories, there are no measurements to show the effectiveness of the medical waste project. From the legal side, the Kyrgyz Government adopted “Instructions for the Management of Medical Waste in the Territory of the Kyrgyz Republic”[19] to streamline the collection and disinfection of medical waste and reduces the risk to personnel and the environment.

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The medical waste management project has engaged women, as they are responsible for 97% of the waste management in medical centers, and has shown a clear improvement not only in reduction of pollution, but also in a reduction of health risks for the medical staff managing the waste. It is recommended that this project is extended to the other 80% of the medical and obstetric centers across the country.

BIOMONITORING IN AREAS OF POPS PESTICIDES USAGE

The insecticide DDT was used widely in the rice and cotton fields of South Kyrgyzstan in the 1960s and 1970s, causing long-term pollution. In the Soviet era, several studies (which were not made known to the public) have concluded that in affected areas in Suzak, Osh and Jalal-Abad the development of teenagers was delayed by about two years and there was a higher incident rate of diseases and disorders such as premature birth, impaired pregnancy and fetal development, impaired development of the child, diseases of the endocrine, immune and reproductive systems and others. More recently, residues of persistent organic pesticides have been found in cord blood of pregnant women living in the mentioned areas (65.6%). The Scientific-Enterprise Union Medicine South* under the leadership of Dr R. Toichyev, has regularly monitored POPs in human tissues (e.g. breast milk, placentas and cord blood) of women and men who work and live in the agricultural areas polluted by DDT and other POPs pesticides. The study has shown statistical difference of illness level among women in the less-polluted control areas and these pesticides polluted areas.



[Dr. R. Toichyev is introduced by expert Zhakipova to present the results of the long-term biomonitoring of the populations of Suzak, Osh and Jalal-Abad at the multi-stakeholder meeting organised by BIOM as part of the scoping study.](#)

For populations living in the cotton producing areas that have high levels of contamination in their body ('body burden') from POPs pesticides such as DDT and Aldrin, a study has shown the health impacts on the liver and intestine flora. The study shows that Aldrin is particularly problematic. The study also looks at other pesticides listed in the Stockholm Convention and also identified medical and natural treatments that showed to have good results in addressing the health complaints [20, 21].

[*] Formerly known as Institute of Medical Problems, Osh, Kyrgyzstan

Key findings include the following:

- The percentage of placentas positive for organo-chlorine pesticide (OCPs) strongly depended on the residential area of the women surveyed.
- A high percentage of placentas with OCPs was found in pregnant women living in cotton-growing regions (65.6%)
- The highest percentage of OCP-positive placentas, 98.8%, in pregnant women living near pesticide dump sites, former pesticide storehouses, and agro airstrips that were in use until the 1990s.
- In contrast, OCPs were detected in only 2.7% of the placentas from pregnant women living in other areas [22].

There is a great demand from local populations about how to reduce the health impacts from these legacy POPs pollutants. A number of Kyrgyz NGOs, such as EKOIS and BIOM, have also promoted alternative pest-management methods, and carried out awareness-raising ways of local farmers to avoid POP pollution by, for example, using bio/organic fertilizers in agriculture [23]. These good practices have shown to be very important for the women and men who are farmers in the polluted areas, and the replication of these practices is recommended.

Indicator	Clean area	Cotton area
Cervical erosion	5	255
Percentage	0,69%	2,54%
Extra genital diseases	87	2541
Percentage	1,20%	25,33%
Anemia	354	3021
Percentage	48,76%	30,12%
Diseases of the genitourinary system	23	648
Percentage	3,17%	6,46%
Kidney diseases	20	370
Percentage	2,75%	3,69%

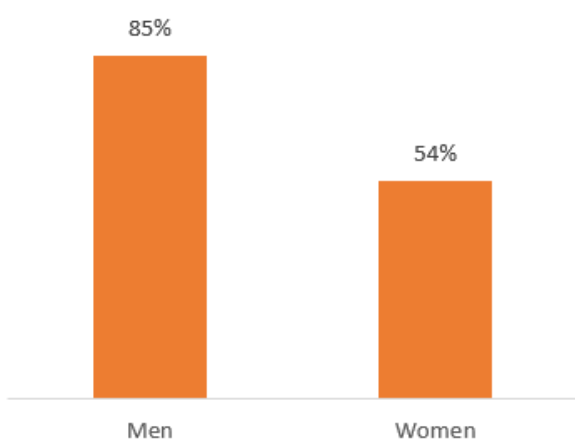
Long-term human bio-monitoring in the cotton growing areas where DDT, ALDRIN and other POPs pesticides were widely used can be correlated with higher levels of reproductive and other diseases in women and men.

GENDER SURVEY ON PESTICIDE USE

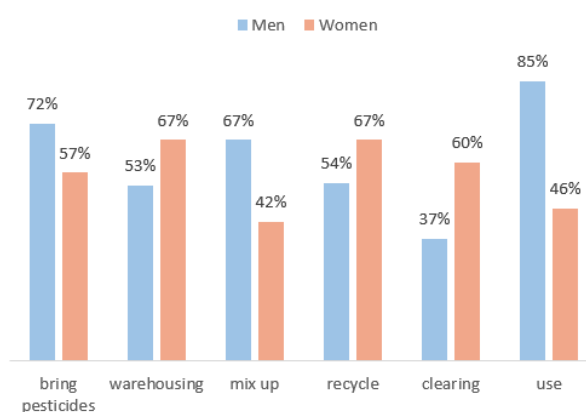
The environmental organisation BIOM has carried out a survey on the gender differences in pesticide use among rural communities in Southern Kyrgyzstan. A similar survey has been done by the women’s organisation ALGA in rural areas near Bishkek. These pesticide user-surveys are a good practice to be replicated. Users of pesticides often have a poor understanding of the impact this has on their own health or on the health of others. This undermines efforts to promote safer practices. Pesticide regulators and decision-makers also lack essential information on the scale and causes of the problem that would help them make more robust regulatory decisions. The NGO-led pesticide-user surveys aim to better understand the pollution and health issues linked to pesticide usage in Kyrgyzstan and to share the findings with regulators, affected communities and other important stakeholders.

Pesticide poisoning is quite common: 45% of respondents reported some type of symptoms that can be linked to pesticide poisoning, during or shortly after being in contact with pesticides. The findings of the pesticide-user survey (2015) in Kyrgyzstan give useful gender relevant data.

Work with pesticides



Task by gender



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There is a clear gender division of labor in agriculture and pesticide usage in particular.

- Men more often do the application of pesticides, mix pesticides or transport pesticides.
- Women more often clean/wash the pesticide spraying equipment, wash the pesticide containers and they also mix pesticides.
- Children are also involved in agricultural work, mostly boys. Over 20% of respondents were children who reported that they had felt symptoms which can be linked to pesticide poisoning. Children were involved in activities such as spraying with a manual backpack sprayer (24%), treating cattle with insecticides, cleaning pesticide equipment and mixing pesticides (24%).
- 74% of respondents said they have not been trained in the use of pesticides, security measures or use of protective clothing and equipment. Except for gloves and a scarf they tie instead of a mask, neither children nor adults use special personal protection gear.
- 94% of respondents said they did not re-use the pesticide package/containers again. The remaining 6% used the containers for the storage of fuels and also for further mixing the pesticide.
- 69% of respondents indicated that they burn the empty pesticide container/packaging in the field. 27% of the respondents discarded containers in the fields. 19% say they disposed of them to the waste collection and 11% responded that they first were washed and reused, before being discarded.
- 65% of respondents purchase their pesticides "where it is most convenient," for example, in rural stores where pesticides are sold along with household goods and food, or from mobile distributors who bring pesticides to the village. Currently, anyone can trade in pesticides, a license is not required. This makes it very difficult to verify the rumors of counterfeiting and smuggling of obsolete POPs pesticides.



INDIRECT EXPOSURE

Women washing the clothes of farm workers having sprayed pesticides can suffer health effects from exposure to hazardous pesticides.

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The survey also concluded that most often, people do not understand the basic instructions for the use of the pesticides purchased. They rely on information obtained either from the sellers or from neighbors and friends who grow the same crops. These pesticide-user surveys provide important insights into different exposure by gender and can be used to raise awareness for changes in behavior (e.g. personal protection gear, no re-use of containers) as well as to address the gaps in legislation.

OBSOLETE PESTICIDE BURIAL CLEAN-UP

Kyrgyzstan suffers from a Soviet-era legacy of many obsolete pesticide burials and dump sites. These burials with POPs pesticides such as DDT are often not well identified and the hazardous waste is a risk for pollution of water, soil, food and grazing animals. Containers with 5000 tons of banned pesticides in dumpsites have been identified in “Suzak A”, “Suzak B” and “Kochkor”.

An additional risk is that some people have started to open up the obsolete pesticide dumpsites, and have illegally started to dig open the buried containers with pesticides to sell them as new pesticides in local markets. This happened at the Suzak burial site. The government has not taken measures to contain and clean up the several hundred sites.

A good practice is the work done by the environmental organisation ‘Milieukontakt’ from the Netherlands, jointly with Kyrgyz experts. They funded the project “Elimination of acute risk of Obsolete Pesticides in Kyrgyzstan” and identified 26 obsolete pesticides deposits in the Southern region of Osh. Out of these, 13 dumpsites were identified as priority sites to urgently clean up to contain further pollution. These dump sites have already polluted agricultural land and pastures. Through the Milieukontakt project measures were taken to protect and close off the 13 obsolete pesticide dumps, and 11 of the sites were completely cleaned up, repackaged and are now safely stored, waiting for a solution for the safe destruction of these POPs.



Burial sites and storage areas of highly hazardous banned POPs pesticides such as DDT have been emptied by people wanting to use or sell these pesticides.

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As part of the work, sociological research was conducted among the women and men of the villages located close to the burial grounds, to assess the public awareness of the risks of the dumpsites. Practically all residents of these villages are engaged in livestock grazing, and a small part of the residents of Sadda and Kamyshbashi are engaged in agriculture.

The study showed a great lack of awareness among residents of the risks and potential harmful effects on public health from the obsolete pesticide dumpsites. Even though 72% of the respondents said they knew something was buried at the dumpsites, only 29% knew the burial contained obsolete pesticides (DDT) whereas another 36% believed it were old chemical fertilizers. Only in the village Tash Bulak 97% of the population was aware of the pollution risk from the pesticide dump in their area, as in 2010 many sheep and cows died and became ill from drinking water polluted with the old pesticides. Not only the animals, also 76 villagers who ate the meat became ill, and many are still under medical treatment.

This important project has shown the urgency of containing and cleaning up the other hundreds of obsolete pesticide dumpsites in the country. In particular it is very urgent to take measures to clean up the Kochkor pesticide dumpsite. It also showed the importance of awareness and engagement of women and men from the impacted rural communities.

The recommendation from the sociological survey is that a comprehensive gender analysis and human bio-monitoring measures should be done to understand the gender dimensions in such a project context. The gender analysis should include gender roles and responsibilities, access to resources (household income, productive resources: land, work) as a step to understanding different exposure and awareness levels.



Animals that drank from puddles contaminated by the old pesticide burial site became ill or died. The burial sites are often only barely closed off.

SOIL REMEDIATION

The Kyrgyz-Turkish Manas University, Plant Protection Department (Tinatin Doolotkeldieva) has developed and tested methodologies for remediation of soils polluted with POPs. They have demonstrated through tests how certain microorganisms can help to break down POPs residues in polluted soil. As a next step, specific plants are grown which can help to absorb POPs as a way for cleaning soil from hazardous chemicals. There is a great need for soil remediation in the former obsolete pesticide dumpsites and in the cotton and tobacco farming areas. The test phase was carried out in close cooperation with the state agency of environment but needs further expansion and support [24].

PET PLASTIC COLLECTION

According to statistics, each Kyrgyz citizen throws away more than 200 kilograms of garbage a year, of which 5–6% is plastic waste. The majority of plastic bottles used in Kyrgyzstan are made from PET plastic. Especially in rural areas, where there is no waste management system, these bottles are often used to light fires for heating and cooking. In the national park region of the Isykul lake where there are many tourists, plastic bottles often are brought to wild waste dumps. An inventory of 2018 has found more than 200 wild waste dumps in the country. Until recently there was one main factory producing PET bottles in Kyrgyzstan, and a second one has opened, selling to the main bottling companies such as Coca Cola and Nestle. PET bottles are not fully recyclable, as only about 20–30% of old material can be added to 70–80% of virgin material, therefore it is never truly sustainable. With an increasing use of plastic bottles and a lack of waste management, there are at least intermediate solutions as proposed by the PET recycling company “Agroprom holding”. The company is led by a female entrepreneur who was interviewed for the project. She buys the collected bottles, cleans them, sorts them for good quality, and then cuts them into small pieces which are sold to Russia. She has about 40 employees, a majority of which are women. The synthetic fibres are then used to fill jackets, pillows, bags and packaging [25].



PHASING OUT SINGLE-USE PLASTICS

On December 10, 2018, the Parliament of Kyrgyzstan came up with an initiative of the draft law “on the ban on the import, production, sale and use of plastic bags and plastic containers within the Isyk-Kol biosphere reservation zone”. The government supported this initiative. It is necessary to provide a detailed integrated mechanism for implementing the provisions of the proposed draft law. They also initiated the development of policies for monitoring the importation, production, sale and use of plastic bags and plastic containers. At the moment, the draft law has not yet been adopted and is under discussion[26].

ORGANIC FARMING AND MARKETS

The use of old pesticides is cheap and easy for small farmers in Kyrgyzstan, but organic production is developing as a good practice for avoiding POP pesticides. Ecological products produced without the use of chemicals have increasingly been the focus of high segment exports and tourisms, and eco-farmers are getting increasing visibility and support. An example is the company Ecomade which specializes in organic products from local Kyrgyz farmers, for example with EcoFarm, the first ecological farm in Kyrgyzstan. The co-founder of EcoMade is the social entrepreneur Ms. Jamila Imankulova, a good example of female leadership. In 2016 Ecofarm was opened which combines organic farming with education for school children. In the fall of 2017, it created the first organic orchard. In support of the ecological farmers, the government has adopted the Concept of Organic Agricultural Production Development for the period 2017-2022 [27, 28]. The Concept is aimed at an increase of the number of economic entities producing organic products to 1,700 farms, covering 7,000 hectares of land. The Concept is aimed towards a domestic market of organic products of 1.0 billion Kyrgyz Soms (14,3 million USD), and an export market potential of another 10 million US dollars.



ECO FARMING PIONEERS

Female entrepreneur Jamila Imankulova is one of the eco-farming entrepreneurs in Kyrgyzstan with orchards, shops and educational projects for school children.

AIMING AT ORGANIC FARMING NATIONWIDE

The Parliament of Kyrgyzstan (Jogorku Kenesh), instructed the government to develop a national plan for the production of agricultural policy products in the country, with the aim for the entire country to become 100% environmentally friendly within the next ten years [29]. The implementation plan stipulates that farmers should not use agrochemicals, organic chemicals, hormones, growth regulators, feed additives, GMOs, antibiotics or organic chemicals. Of course, this is one of the best practices worldwide.

DISASTER AND POISONING RISKS MITIGATION

The Ministry of Risk Reduction and Emergencies is working to reduce risks for women in emergency situations, and is also implementing a plan to achieve gender equality within the department of risk reduction. The Ministry has developed and adopted regulatory acts. The Plan on Gender Equality, order of the Ministry of Emergency Situations of the Kyrgyz Republic of November 17, 2012 No. 1005, includes provisions on the prevention, suppression and response to gender-based violence in emergency situations. In order to carry out work and monitor the implementation of the National and Departmental Plans, permanent commissions and working groups on gender issues have been established in the Ministry and its structural subdivisions [30, 31]. A number of gender responsive risk reduction projects have also been implemented. The Black Smith Institute and the Swiss Green Cross have done a campaign on purifying drinking water from uranium contamination in Mailuu-Suu. Water filters have been installed in maternity hospitals (photo) after which the immune system analysis of the women in the hospital has shown normalization of basic health data [32, 33]. These water filters may be used in other hospitals with contaminated water supply. More reports about the implementation of the gender equality regulations are expected in the near future.



RISK REDUCTION

The gender analysis has resulted in the installation of water filters in the maternity hospitals located in the municipalities where mining waste has polluted water sources.

RECOMMENDATIONS

on gender, chemicals and waste



CHAPTER 4

RECOMMENDATIONS

4.1. POLICIES

Political recognition and targets on gender and chemicals

- The National Implementation Plans for BRS or other conventions and agreements on chemicals such as for example SAICM (the Strategic Approach to International Chemicals Management), should include concrete gender-responsive activities
- National plans on chemicals shall consider women as actors of transformation, not only presented as a vulnerable group, even if attention is given to different exposures, health impacts and routes of contamination
- Gender aspects should be reflected in at least 50% of chemical safety targets, to ensure balance of all decision levels
- Gender equality should be achieved at all levels of decision-making regarding the management of chemicals (as targets, planning, indicators and budgets).

Enforce gender equality policies in all government agencies

Under the existing gender equality legislation (national gender strategy), all ministries and agencies should use gender tools including formats for budgeting and reporting. So far this is done only by some government agencies (e.g. on DRR).

- All government agencies that are not yet implementing the national gender strategy should do so (e.g. Environmental Agency, the Ministry of Agriculture etc.)
- Carry out public monitoring of the implementation of the gender plans of the state agency for environmental protection and forestry and other ministries and departments involved.

Gender certification and other institutional measures

- Development of a gender certification methodology for state, international, business and public institutions
- Promotion of the methodology, creation of a support system for organizations that have received gender certificates.
- Gender budgeting and reporting for all Ministries/Agencies dealing with Chemicals, Pesticides
- Implement Extended Producer Responsibility policies in a gender-responsive manner
- Support safe alternatives to chemical pesticides and insecticides and include promotion to women and men as target groups
- Ensure that occupational health regulations on chemicals and waste include specific measures relevant to the biology and gender roles of women and men

4.2. DATA

There is a lack of information, in particular on how women's and men's health is negatively and differentially impacted by hazardous substances such as banned (and not yet banned) pesticides, dioxins from burning waste, mercury in medical waste, products and tailings, asbestos in waste and products etc.

More gender responsive data

Special studies of woman health impacts from chemicals and waste are needed.

- Establish a special national safety plan on mitigation of the health impacts from pollutants.
- Conduct research on the effects on health of new POPs in particular, on their influence of women and men
- Human health is a essential, apply precautionary principles to new POPs as PFOA and ministry of health should set out study on differential exposure of women and men.

Gender disaggregated data

Gender disaggregated data is needed on different levels and pathways of exposure by women and men from different sectors

Gender analysis and impact assessments

- Analyse who is exposed to hazardous chemicals and waste by gender, social, age and other groups, why it happens (i.e. gender roles), what are the perceptions of the local population that is affected. It is very important to identify the level of vulnerability of women and men, this refers to who has access to sources of contamination/is exposed to diseases, why it happens (based on the gender roles in society), what are the perceptions of local women and men (that is potentially affected), what are the scientific facts that confirms the negative effects.
- Gender analysis should be done in the preparation phase of the project to enhance the understanding of gender issues

Independent data and awareness-raising

Use disaggregated data for target-group specific policy action. For example, studies showed that in regions with radioactive pollution, up to 75% of the population in small towns are women. Therefore the focus should be on permanent medical care and preventive measures for the toxic effects on women's and children's health. For example, this has been done in Mailuu-Suu:

- River beds fortified near dangerous uranium tailings (to prevent infiltration of uranium pulp).
- Protect vulnerable groups (children, pregnant) in polluted areas by installing filters for drinking water in kitchens in schools, kindergartens and women's hospital.

4.3. ACTIONS

Raising awareness

- Support of initiatives and information campaigns, especially among civil society to reduce the risks of pollution in everyday life
- Greater involvement of gender and human rights activists in the processes associated with the management of the POPs
- Promote special regulation/protocols as official applications to Law about radioactive compounds in Kyrgyzstan and include women as actors

Combine information with laws

Ban single use plastics accompanied by awareness raising campaign

- The state environment agency announced that there will soon be a ban on Single Use Plastics (SUP) in the Isykul Lake Nature reserve region. This is a good start but should be expanded to the rest of the country and needs to be accompanied by:
 - Awareness-raising campaigns on the damaging effects of plastics
 - Technical investments in separate collection and development and sales of safe alternatives to plastics
 - Extended producer responsibility of the food and beverage sector and the hotel sector to take back and safely manage plastic waste
 - Separate collection of plastics, car waste, e-waste
 - Close waste dumps

Campaign agro-ecology, against un-labeled pesticides

The Parliament adopted the target to switch to organic farming by 2030. Now it needs a public campaign on the hazards of pesticide use and the safer alternative agro-ecological methods, as well as policies to increase the market for organic products

Support new jobs for waste scavengers, especially women - transition to safe new jobs for waste scavengers

- The introduction of security requirements and the organization of a workplace monitoring system for men and women.
- Medical research of workers and children and those working in landfills and the provision of appropriate assistance
- Information dissemination and promotion of products of the Institute of Medical Problems on the removal of pesticides from the body through the pharmacy network of Kyrgyzstan

4.4. ACTORS

Ministrial staff

- Inter-ministerial coordination on gender & chemicals – organization of regular coordination to understand and take measures regarding gender-dimensions
- Introduction of clear responsibility in the Regulation on the State Agency for Environmental Protection and Forestry on gender responsive policies, measures and monitoring
- Strengthening the accountability of environmental governance - introduction of gender-responsive result indicators to national strategies and programs for managing chemicals and implementing chemical conventions

Staff of other authorities

- Build gender & chemicals capacity for staff of all authorities, national and local, inspectorates etc.
- Train authorities on how to integrate a gender analysis in the preparation phase of the project to enhance the understanding of gender issues.
- Train local self-governance on gender budgeting and auditing.

Civil society

- Support local environmental NGOs and Women's groups in the form of legal advice, small grants and trainings to raise awareness on gender and chemicals.
- Support with publically funded pilot initiatives to show the benefits of the cleaning up of chemicals and waste, and to develop non-chemical alternatives
- Provide media attention for local women and gender initiatives, for example through a regular award scheme

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