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Rapid Assessment:

*Healthcare Waste
Component of Global Fund
HIV/AIDS and TB Projects*

in Belarus



Rapid Assessment: Healthcare Waste Component of Global Fund HIV/AIDS and TB Projects in Belarus

Supplement to the Healthcare Waste Management Toolkit for Global Fund Practitioners and Policy Makers



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Author:

Jan-Gerd Kühling, Environment and Hygiene Consultant
ETLog Health GmbH, kuehling@etlog-health.de

Rapid Assessment Series Editor: Dr. Christoph Hamelmann

UNDP contact: Dr. Christoph Hamelmann, christoph.hamelmann@undp.org

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Abbreviations

| | | | |
|--------|---|-------|--|
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road (Accord européen relatif au transport international des marchandises Dangereuses par Route) | MSM | Men who have sex with men |
| ART | Anti-retroviral therapy | NFM | New Funding Model (of the GF) |
| DOTS | Directly Observed Treatment, Short-course | NGO | Non-governmental organization |
| GF | Global Fund to Fight AIDS, Tuberculosis and Malaria | PIU | Project Implementation Unit |
| GEF | Global Environmental Facility | PPP | Public private partnership |
| FSW | Female sex worker | PLHIV | People living with HIV/AIDS |
| HBV | Hepatitis B Virus | PMTCT | Prevention of mother-to-child transmission |
| HCV | Hepatitis C Virus | PR | Principal recipient |
| HIV | Human Immunodeficiency Virus | PSM | Procurement and supply management |
| HSS | Health system strengthening | PWID | People who inject drugs |
| IDU | Injecting drug use | SOP | Standard operating procedure |
| IEC | Information, education, communication | SR | Sub-recipient |
| LFA | Local Fund Agent | STI | Sexual transmitted infection |
| MDR-TB | Multidrug-resistant TB | SSF | Single stream of funding |
| M&E | Monitoring and evaluation | SSI | Small scale incinerator |
| MoH | Ministry of Health | SW | Sex worker |
| MoNREP | Ministry of Natural Resources and Environmental Protection | TB | Tuberculosis |
| | | UNDP | United Nations Development Programme |
| | | VCT | Voluntary counselling and testing |
| | | WEEE | Waste of electrical and electronic equipment |
| | | WHO | World Health Organization |

Acknowledgements

This assessment is part of the development of a toolkit to improve the planning and implementation of better healthcare waste systems in future projects financed and coordinated by of the United Nations Development Programme (UNDP). It builds on experiences collected from similar assessments in Bosnia and Herzegovina¹, Kyrgyzstan², Tajikistan³, Uzbekistan⁴, and Zimbabwe⁵ since 2013.

The assessment included an onsite visit in Belarus from 28 June to 3 July 2015. During the assessment, several UNDP GF projects sites have been visited and relevant stakeholder interviewed. I would like to extend my gratitude to all the individuals and institutions that contributed to the planning and execution of this assessment and would like to acknowledge the valuable input of the following participants, without whom this research would not have been possible:

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- 1 Kühling, J. Rapid Assessment: Healthcare waste component of Global Fund HIV/AIDS and TB projects in Bosnia and Herzegovina. Rapid Assessment Series Editor: Hamelmann, C. Istanbul, UNDP, 2015.
 - 2 Pieper, U. Rapid Assessment: Healthcare waste component of Global Fund HIV/AIDS, TB and malaria projects in Kyrgyzstan. Rapid Assessment Series Editor: Hamelmann, C. Istanbul, UNDP, 2015.
 - 3 Pieper, U. Rapid Assessment: Healthcare waste component of Global Fund HIV/AIDS, TB and malaria projects in Tajikistan. Rapid Assessment Series Editor: Hamelmann, C. Istanbul, UNDP, 2014.
 - 4 Kühling, J. Rapid Assessment: Healthcare waste component of Global Fund HIV/AIDS projects in Uzbekistan. Rapid Assessment Series Editor: Hamelmann, C. Istanbul, UNDP, 2014.
 - 5 Kühling, J. Rapid Assessment: Healthcare waste component of Global Fund HIV/AIDS, TB and malaria projects in Zimbabwe. Rapid Assessment Series Editor: Hamelmann, C. Istanbul, UNDP, 2014.
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1 Executive Summary

UNDP has been a long-term strategic partner of the Global Fund to Fight AIDS, Tuberculosis and Malaria (TGF) in Belarus and is acting as interim principal recipient (PR) for its grants. In order to deepen the understanding of the environmental impact caused by waste created through its GF project implementations, an onsite assessment of GF health projects with UNDP PR-ship was conducted in Belarus.

This report summarizes the results of the assessment which was conducted within the framework of the development of a toolkit to improve the planning and implementation of healthcare waste systems in future GF grants. Part A⁶ and Part B⁷ of the toolkit have recently been published and are already been used by the GF to inform its corporate scoping for the introduction of environmental safeguarding strategies. Part C (Waste Management Planning Guide) is under development. The lessons learned from this assessment will inform further updates to the toolkit and contribute to the development of Part C.

The assessment in Belarus was conducted from 28 June to 3 July 2015 and concentrated on the GF HIV/AIDS and TB grants. Both grants will be finalised under UNDP's PR-ship by the end of 2015. In future, the new grants will be managed by a new national PR.

The results showed that all partners involved are trying to follow the national regulations on the handling of medical waste (issued 2005)⁸. A good technical system for the collection and treatment of expired

pharmaceutical waste is in place. Shortcomings can be found in the management of sharps waste (used syringes and needles). The existing systems require repeated manual handling of the sharps waste, including the separation of needles and syringes by hand – a practice not recommended since several years ago. Protection and disposal equipment is only partly provided; especially sharps containers and safety boxes are missing and should be included in the next funding rounds. The available budget for waste management activities is insufficient and need to be increased to a realistic level. A separate budget line for healthcare waste disposal is recommended.

On national level, there is general agreement that the currently recommended healthcare waste practices are outdated and need to be reviewed. Of special concern are decontamination of potentially infectious waste by chlorine, better management of occupational health risks during waste management activities, clarification of the risk classes for infectious waste and the harmonization of the healthcare waste classification system with the national waste classification system. The establishment of a national healthcare waste management development plan for the next five years is recommended to coordinate prioritised activities. The funding of these activities as part of the GF health system strengthening activities should be considered. It is further recommended to link future GF healthcare waste activities into the planned GEF funded healthcare waste and mercury project.

Other recommendations include the provision of HBV vaccination to social workers and outreach staff and access to post exposure prophylaxis, the strengthening of the disposal systems for waste from IDU, the review of the selection of syringe sizes, sharps containers and safety boxes in procurement plans for needles exchange programmes. It will be further

6 Kühling, J., Hamelmann, C. Healthcare waste management toolkit for Global Fund practitioners and policy makers. Part A: Rational for environmental safeguarding policies and strategies. Istanbul, UNDP, 2015.
7 Kühling, J., Hamelmann, C. Healthcare waste management toolkit for Global Fund practitioners and policy makers. Part B: Waste stream concept development. Istanbul, UNDP, 2015.
8 SanPiN 2.1.7.14-20-2005 "Rules of medical wastes management" approved by Resolution of the Chief State Sanitary Doctor of the Republic of Belarus of 20 October 2005 No. 147.

necessary to include a budget for the safe disposal of unusable pharmaceuticals and to strengthen the usage of existing, advanced treatment options. The organization of a workshop for managers of GF grants from different countries on the management of waste generated during GF grant activities would support the experience exchange.

A detailed overview of recommendations, including suggested improvements and the justification of these activities is provided in chapter 6 of this report.

2 Assessed Projects

UNDP is a long-term partner of the GF and acts as interim PR in several countries, including Belarus. The implementation of these grants usually results in the generation of different waste streams which have a possible negative environmental and public health impact. To better understand the current situation, to minimize these impacts and to develop sustainable environmental strategies, assessments of the healthcare waste management of UNDP's GF grants are being conducted in the context of existing healthcare waste management systems at country level. The results of the assessments are used to improve the GF healthcare waste management of existing and future grants and to contribute to the improvement and further development of the Healthcare Waste Management Toolkit for Global Fund Practitioners and Policy Makers⁹.

The assessment of the GF grants implemented in Belarus by UNDP as PR was conducted in June 2015. The objective was to assess the current and planned waste management practices of the following projects¹⁰:

HIV/AIDS: BLR-H-UNDP

Name: "Ensure Universal Access of the Key Affected Populations in Belarus to HIV Prevention, Treatment and Care":

The Grant period is from 01.01.2013 and will last until 30.11.2015. The programme under this grant agreement consolidates the goals and activities of programmes funded under the Round 8 HIV grant (BLR-809-G03-H) and the Round 3 RCC HIV grant (BLR-304-G01-H) into a Single Stream of Funding (SSF). The programme has a country wide scope and is

embedded in the National HIV/AIDS programme for 2011-2015.

The overall goal of the Programme is to prevent the spread of HIV, especially among the vulnerable populations (PWID, MSM, FSWs and prisoners) and to ensure adequate treatment, care and support to people living with HIV/AIDS. The programme expand the coverage of the main vulnerable groups and improves the quality of services through capacity building of the non-governmental organizations (NGOs) servicing the beneficiaries. The Programme also expands the coverage of anti-retroviral treatment (ART), improves laboratory diagnostic and training of healthcare staff, and enhances the quality of care and support.

Service delivery areas (UNDP):

- ▶ Prevention
 - ▷ Counselling and testing
 - ▷ PMTCT
- ▶ Care and Support
 - ▷ Care and support for the chronically ill
- ▶ Treatment
 - ▷ ART and monitoring

Tuberculosis: BLR-S10-G04-T

Name: "Strengthening the Support to Vulnerable Groups and Population at Large under the National TB Control Strategy of Belarus and Expanding Access to Quality Diagnosis and Treatment of Drug-Resistant Tuberculosis" – Y4/5 called: "Introducing the Stop TB Strategy in Belarus with a particular focus on taking measures to combat multidrug resistant tuberculosis (MDR-TB)"

In Belarus, the TB burden remains high despite existing national efforts to combat the disease. There has been a progressive increase both in the number of MDR-TB cases and in the incidence of HIV-associated TB in the

⁹ see footnotes 6 and 7

¹⁰ All information has been extracted from the GF webpage: <http://portfolio.theglobalfund.org/en/Country/Index/KGZ>

recent years. The current grant agreement consolidates the goals and activities of the TB programme funded under Round 6 and 9 TB proposals based on the Single Stream of Funding (SSF) scheme. The goal of the programme is to reduce the burden of TB in Belarus, including scaling up the management of MDR-TB by enrolling higher number of patients in treatment with second-line drugs. The programme will achieve full integration of the DOTS strategy in the practical work of the national healthcare system, and support the National TB Programme (NTP) in Belarus from 2011 to 2014 by expanding the coverage and scope of the state-supported TB control activities. The programme also plans to provide trainings to medical staff and laboratory personnel from national TB control institutions and the general medical network and envisages to introduce an electronic TB recording and reporting system for collecting and monitoring TB clinical and epidemiological data.

The TB project is carried out as SSF (Round 9) and is already in the second phase that started on January 2014 and will run until the end of December 2015.

Table 1 shows the management structure of the GF projects.

Table 1: Management structure – GF projects

| Position | Organization |
|--------------------------------|--|
| Fund Portfolio Manager | Global Fund |
| Country Coordination Mechanism | National stakeholders and development partners |
| Principal Recipient | UNDP, Belarus |
| Local Fund Agent | KPMG Bulgaria OOD |

3 Background Information

Key Country Data:

Full Name: Republic of Belarus

Total Population (2013)*: 9,357,000

Area:** 207,600 sq km

Life expectancy at birth m/f (years)(2013)*: 66/78

Infant mortality rate (2014):** 3.64 deaths/1,000 live births

Hospital bed density (2010):** 11.3 beds/1,000 population

GDP – per capita (PPP) (2014 estimate):** \$18,200

Total expenditure on health as % of GDP (2012)*: 5.0

* World Health Organization Country Data (<http://www.who.int/countries/en/>)

** Central Intelligence Agency's The World Factbook (<https://www.cia.gov/library/publications/the-world-factbook/geos/as.html>) – current as accessed by the consultant in June 2015

Belarus is a landlocked country located in Eastern Europe, boarding Latvia, Lithuania, Poland, Russia and the Ukraine. Forests extend over much of the northern territory, while the south is characterized by vast tracts

of arable land. Belarus has a moderate continental climate with the average January temperature of -6°C and the average July temperature of +18°C. Average annual rainfall is 550–700 mm. Belarus is experiencing

Figure 1: Republic of Belarus, regions (with administrative centers)

The Republic of Belarus declared independence from the Soviet Union in December 1991. The country is divided into six regions which are named after the cities that serve as their administrative centers:

- Brest Region
- Homel Region
- Hrodna Region
- Magileu Region
- Minsk Region
- Vitebsk Region

The capital (Minsk city) forms a special administrative district. Each region and the capital city are further subdivided into districts.



Source: Wikipedia

negative population growth as the birth rates are falling and death rates are increasing largely due to non-communicable diseases.

Belarus has not introduced any form of compulsory social health insurance. The Ministry of Health has the overall responsibility for the health system and for the funding of tertiary level hospitals. The 6 regions and Minsk city are responsible for the funding and purchasing of primary and secondary care. The inherited Soviet Semashko health system¹¹ forms the basis of the current Belarusian health system and a commitment remains to the principle of universal access to health care. Only few privately owned service providers or NGOs are engaged in providing health services. Some ministries and large enterprises still operate their own health services but this is currently integrated into the general health system. The MoH plays the main regulatory role at all levels of the health system.

Public health is overseen by the State Sanitary Inspectorate with facilities in every administrative territory, and the Republican Centre for Hygiene, Epidemiology and Public Health which coordinates the prevention of different illnesses (such as HIV). TB and HIV are the main burden of communicable diseases, and the highest levels of MDR-TB in the world pose a particular challenge to the health system.

3.1 The Ministry of Health of the Republic of Belarus

The MoH is the key institution in the organization of the Belarusian health system. The MoH has the overall responsibility for the health system, although the funding and purchasing of primary and secondary care is devolved to the regional level (see figure 1). Highly specialized tertiary care hospitals are funded directly from the MoH budget. There are only a few privately owned service providers in the system and few NGOs engaged in providing services.

¹¹ The Semashko health system, named after the first minister of health of the USSR, is completely state-controlled and owned, including hospitals and practising doctors. Healthcare principally is free for everybody.

Health policy development and priority setting are centralized processes in the Republic of Belarus where the MoH is the key actor. Health planning and management functions are the sole responsibility of the MoH and largely integrated.

The MoH plays the main regulatory role at all levels of the health system, although regional and district governments are also key stakeholders as they are responsible for financing the system at their level. Decisions about capital and staffing levels are made by the regional or district healthcare departments, however the staffing payment levels are agreed centrally and the types of services offered are determined according to requirements issued by the relevant specialist branches in the MoH. Certain essential drugs are available free of charge, the import and purchase of these drugs are carried out centrally through the MoH.

For the financing of the services provided by the MoH, a portion of local revenues are sent to the central state budget from which the MoH receives its allocation and acts as the third-party payer for specialized tertiary care and vertical programmes (e.g. for TB and HIV/AIDS) for the whole population. The overall health budget allocation is set by the MoH and the Ministry of Finance in line with the will of the Parliament and the President.

The MoH is organized hierarchically: the Administration of the Central District Hospitals is subordinated to the regional-level health-care departments which are subordinated directly to the Ministry of Health and the District Executive Health Authority, but power is concentrated in Minsk, where most of the planning decisions are made. Figure 2 shows the organizational structure of the Belarusian health system.

3.2 Assessment strategy

Before traveling to the country, the consultant conducted a review of relevant and publicly available GF grant documents. The focus of the analysis was on waste streams, waste amounts, available waste treatment systems and disposal options in Belarus and the current procurement processes. Additionally, key project documents were provided prior to the onsite activities by the UNDP country office in Belarus.

Figure 2: Health – organizational structure in the Republic of Belarus¹²

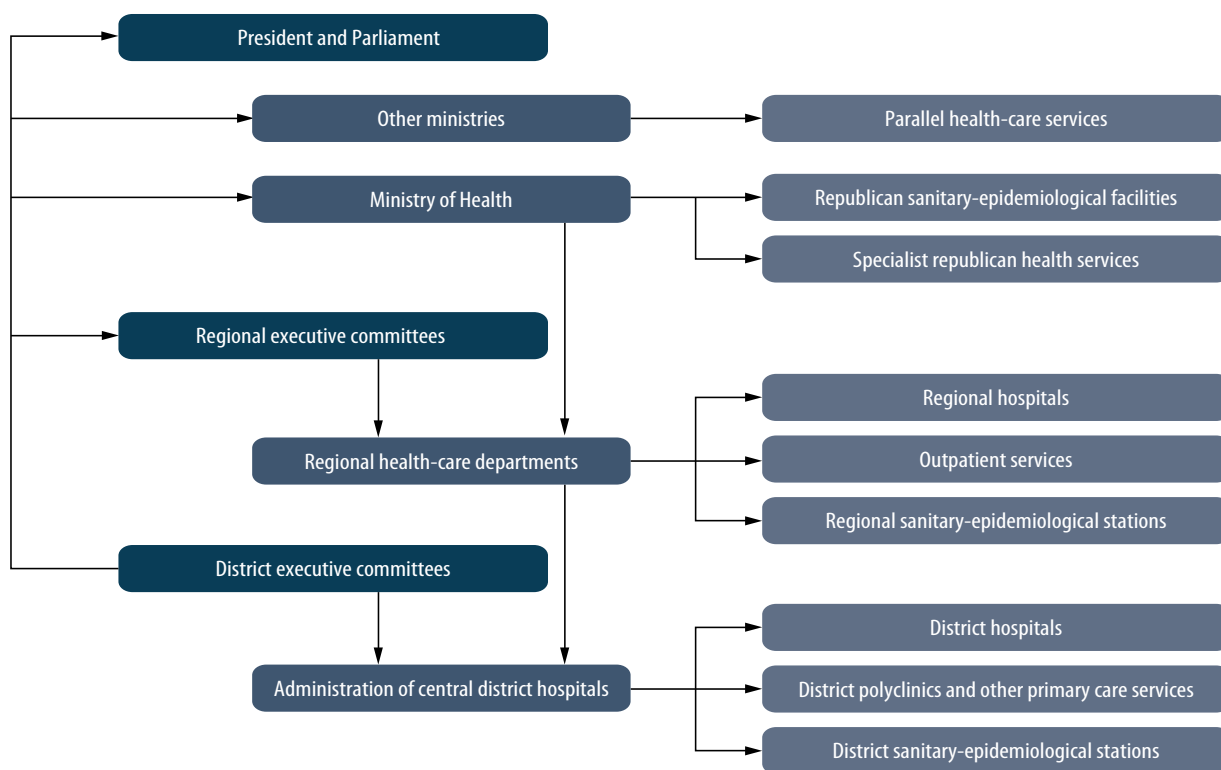
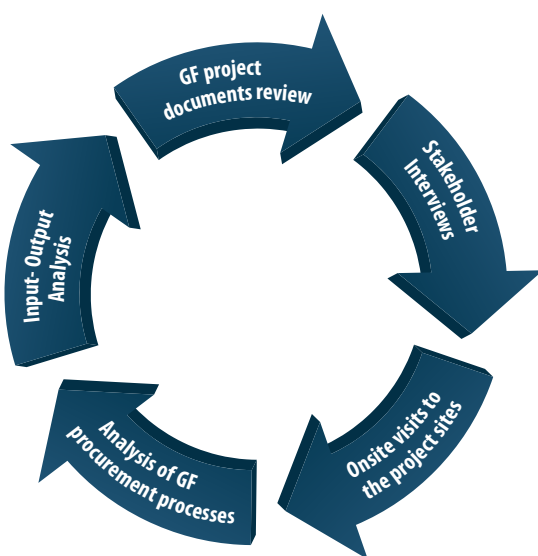


Figure 3: Assessment methodology



During the visit, the consultant worked closely with the UNDP country office in order to receive further information relevant to the project. Several stakeholder interviews were conducted which included the Deputy Minister of Health and specialists of the sanitary services responsible for healthcare waste management, experts from the Ministry of Environment and Ministry of Emergency situations, staff from the Republican Scientific and Practical Centre of Hygiene, staff from different NGOs who act as SR for the programme, the future PR of the programme and staff from different hospitals.

¹² Richardson E, Malakhova I, Novik I, Famenka A. Belarus: health system review. *Health Systems in Transition*, 2013, 15(5):1–118.

3.3 Provided and reviewed project documents

The following documents were reviewed as part of the assessment:

- A. Downloads from the GF webpage
 - a. HIV/AIDS: Grant Performance Report, Programme Grant Agreement for Single Stream of Funding Period 1, Implementation Letter 1
 - b. TB: Grant Performance Report, Programme Grant Agreement for Single Stream of Funding Period 1 & Period 2 , Implementation Letter 1,2 and 3
- B. Project documents provided by the UNDP PIU
 - a. Ensure Universal Access of the Key Affected Populations in Belarus to HIV Prevention, Treatment and Care (BLR-H-UNDP)
 - ▶ annex – programme grant agreements
 - ▶ procurement and supply management plan
 - ▶ performance framework: Indicators, targets and periods covered
 - ▶ detailed budget
 - b. TB: “Introducing the Stop TB Strategy in Belarus with a particular focus on taking measures to combat multidrug resistant tuberculosis (MDR-TB)” – BLR-S10-G04-T (Expanding the access to quality diagnosis and treatment of drug-resistant tuberculosis)
 - ▶ procurement and supply management plan
 - ▶ detailed budget and procurement plan as annex to the PSM (year 4 and year 5)

4 Legal Framework

4.1 International conventions

The assessment of relevant international conventions for healthcare waste management showed that

Belarus has so far signed all major Conventions and the Montreal Protocol, with the exemption of the Rotterdam Convention:

Table 2: Status of ratification of international Conventions

| Name of Convention | Status of ratification | Year |
|--|---|------------------------------|
| Basel Convention: Technical guidelines on environmentally sound management of biomedical and healthcare waste (UNEP 2003) | Accession http://www.basel.int/Countries/StatusofRatifications/PartiesSignatories/tabid/1290/Default.aspx | 10/12/1999 |
| Rotterdam Convention on the prior informed consent procedure for certain hazardous chemicals and pesticides in international trade | - http://www.pic.int/Countries/Statusofratifications/tabid/1072/language/en-US/Default.aspx | - |
| Vienna Convention for the protection of the ozone layer and its Montreal Protocol on substances that deplete the ozone layer | Acceptance http://ozone.unep.org/new_site/en/treaty_ratification_status.php?treaty_id=&country_id=169&srchcrit=1&input=Display | 20/06/1986 and 31/10/1988 |
| Stockholm Convention on persistent organic pollutants (POPS) | Accession http://chm.pops.int/Countries/StatusofRatifications/tabid/252/Default.aspx | 03/02/2004 |
| European Agreement concerning the international carriage of dangerous goods by road (ADR) (UNECE) | Accession http://www.unece.org/trans/danger/publi/adr/legalinst_53_tdg_adr.html | 05/04/1993 |
| Minamata Convention on mercury (UNEP 2013) | Signatory http://www.mercuryconvention.org/Countries/tabid/3428/Default.aspx | 23/09/2014 |

4.2 National legal healthcare waste framework

In Belarus, a legal framework for waste management as well as healthcare waste management exists but is partly outdated and need to be revised. Key documents include:

For healthcare waste management:

- *SanPiN 2.1.7.14-20-2005 “Rules of medical wastes management” approved by Resolution of the Chief State Sanitary Doctor of the Republic of Belarus of 20 October 2005 No. 147.*

The document defines the requirements to generation, collection, recording, packaging, labelling, storage, transport, and disposal of all kinds of medical wastes as well as other wastes generating in the organizations excluding radio-active and mercury containing wastes.

- ▶ *Regulations on the procedure for destruction of drugs, medical devices and medical equipment* , approved by the Council of Ministers on August 29, 2002 N 1178
- ▶ *Guidelines on the rules and methods of disposal of medicines, medical devices and medical equipment approved by Resolution of the MoH of 22 November 2002, No. 81.*

These documents cover the wastes generated as a result of disposal of medicines, medical devices and medical equipment.

For general waste management:

- ▶ *Law of the Republic of Belarus of 20 July 2007 No. 271-3 “On waste management”*
The waste law is base for all regulations and guidelines related to waste management. The law stipulates the general requirements to waste management generating both at juridical persons and population.
- ▶ *Resolution of the MoNREP “On approval of classifier of wastes generated in the Republic of Belarus” of 8 November, 2007 No. 85.*
The resolution establishes classification of wastes generated in the Republic of Belarus including some healthcare waste streams.
- ▶ *Resolution of the National Statistical Committee of the Republic of Belarus “On approval of the form of state statistical reporting for wastes (MoNREP) “Report on production wastes management and instructions for filling in” of 19 September 2013, No. 208.*
Incorporated and unincorporated businesses have to provide reports to the specially authorized body if they manage healthcare waste (except a separate category of entities exempt from reporting).
- ▶ *Decree of the President of the Republic of Belarus of 1 September 2010 No. 450 “On licensing of some kinds of activities”.*
It stipulates that the activity on waste disposal and use of wastes of toxicity classes 1-3 has to be undertaken in accordance with the license issued by MoNREP. Some of the healthcare waste as e.g. mercury containing wastes pertains to the wastes of Toxicity class 1. Thus, disposal or use of some healthcare waste streams has to be undertaken in accordance with the license of the MoNREP.

- ▶ *Resolution of the Council of Ministers of the Republic of Belarus of 23 October 2009 No. 1391 “On Approval of the list of hazardous wastes, the contracts on transfer of which for the definite period (apart from transportation contract) as well as on alienation of such wastes to the other juridical or physical person including individual entrepreneur managing the wastes have to be registered”.*

The resolution refers to some waste streams relevant for the healthcare sector. Contracts on the alienation of some of the hazardous healthcare waste streams or transfer for storage have to be obligatory registered in the territorial bodies of the MoNREP. The procedure of registration of such contracts is defined by the Statute on the procedure of registration of the contracts on transfer of hazardous wastes for an indefinite period (except transportation contracts), as well on alienation of hazardous wastes to the other juridical or physical person, including individual entrepreneur managing the wastes, approved by Resolution of the Council of Ministers of the Republic of Belarus of January 17, 2008 No. 61.

- ▶ *Resolution of the MoNREP “On approval of the form of accompanying certificate of the transport of production wastes and guidelines on the procedure of its issuance” of 9 December 2008 No. 112.*
The Resolution establishes the form and the procedure of filling in the accompanying certificate of the production wastes transport.

Another relevant law is the law of the Republic of Belarus “No. 161-3 on pharmaceuticals” from July 20, 2006 (the “National Medicines Law”) as it describes the procedures for the management of unwanted or unusable pharmaceuticals.

5 Assessment of the Healthcare Waste Situation

5.1 Input-output analysis – HIV/AIDS grant

The overall goal of the HIV/AIDS grant is to prevent the spread of HIV, especially among key populations at higher risk of HIV infection (PWID, MSM, FSWs and prisoners) and to ensure adequate treatment, care and support to PLHIV. Of the four objectives of the on-going GF grant, the following two objectives are of special relevance for healthcare waste management:

- ▶ Assisting the main vulnerable groups (PWID, MSM, FSW, prisoners, women and youth) to change to less risky behaviour;
- ▶ Providing uninterrupted access to treatment, care and support to PLHIV through health system strengthening and adherence programmes for HIV patients;

The other two objectives are less relevant in regard to applied healthcare waste management and generated waste will mainly include office waste including WEEE.

The MoH of the Republic of Belarus is the National Implementing Agency, SRs include The National Centre for Hygiene, Epidemiology and Public Health, narcological dispensaries of the Republic of Belarus, NGO “Positive Movement” (including its regional, city and district branches), NGO “Belarusian Association of UNESCO Clubs”, NGO “Vstrecha”, NGO “Alternativa”, Belarusian Red Cross Society, and the interdenominational mission “Christian Social Service”.

Relevant healthcare waste streams can be expected in the process of the following activities:

- ▶ Sustain and scale-up provision of prevention services to PWID, FSWs, MSM, and prisoners,

including the provision of Voluntary Counselling and Testing (VCT) and distribution of condoms;

- ▶ Sustain and scale-up provision of methadone substitution therapy in methadone points and prevention services in anonymous counselling centers
- ▶ Maintain social support centers for PWID
- ▶ Provide ART and monitoring, including prevention of mother-to-child transmission (PMTCT)
- ▶ Test systems to detect immunological status and viral load

Other planned activities such as the prevention programmes for FSWs and support of the web-site for MSM are mainly capacity strengthening activities. The main input is human power and office materials; therefore the expected waste output will be mainly general office waste which will include WEEE.

5.1.1 Assisting the main vulnerable groups to change to less risky behaviours

In order to reach this objective, the following material *inputs* are needed:

- ▶ Input of prevention services to PWID, FSWs, MSM
 - ▷ condoms for FSW, PWID, inmates, MSM (about 3 million in 2014)
 - ▷ hygiene sets (napkins, lubricants)
 - ▷ syringes and alcohol pads (about 4,3 million in 2014)
 - ▷ methadone and supplies for substitution therapy
- ▶ Input for VCT.
 - ▷ HIV, HBV and HCV rapid tests (about 30 thousand in 2014)
- ▶ Input for the infection prevention
 - ▷ Sanitary-hygienic products according to health requirements; disposal of used syringes, containers and packages for syringes

The expected waste *outputs* from this objective are:

- ▶ General, non-hazardous waste
 - ▷ packing waste (cardboard, foil, etc.)
 - ▷ paper waste
 - ▷ general office waste (unsorted)
 - ▷ used condoms
 - ▷ expired or unusable products, non-hazardous (e.g. syringes, condoms, etc.)
- ▶ Hazardous waste
 - ▷ infectious waste (contaminated swabs, syringes, hygienic articles)
 - ▷ sharps waste (used needles)
 - ▷ minor amounts of pharmaceutical waste (methadone)

5.1.2 Provision of uninterrupted and equal access to treatment, care and support to PLWH through health system strengthening and adherence programmes for HIV patients

In order to reach this objective, the following relevant *inputs* are needed:

- ▶ Input for the provision of ART and monitoring, including PMTCT
 - ▷ pharmaceutical products (see list in the Annex 7.1)
- ▶ Input for the provision of HIV tests
 - ▷ various health products (see list in the Annex 7.1)
 - ▷ diagnostic products (see the list in the Annex 7.1)

The expected waste *outputs* from this objective are:

- ▶ General, non-hazardous waste
 - ▷ packing waste (cardboard, foil, etc.),
 - ▷ paper waste
 - ▷ general office waste (unsorted)
- ▶ Hazardous waste
 - ▷ infectious waste (contaminated swabs, minor)
 - ▷ sharps waste (used lancets, minor)
 - ▷ pharmaceutical waste (expired or unusable medicines and diagnostic kits)

5.2 Input-output analysis – TB grant

The GF supports the fight against TB in Belarus through a SSF grant which is in the second phase. The goal of the grant is to reduce the burden of TB in Belarus by scaling up the MDR-TB response, including expanding access to quality diagnosis, treatment and monitoring of drug-resistant TB. The grant has four main objectives:

- ▶ To provide access to the quality diagnosis of TB
- ▶ To create enabling conditions at the national and local levels for improving the quality of response to MDR-TB
- ▶ To provide access to the treatment of drug resistant forms of TB, including at the facilities of the penal system
- ▶ To conduct empirical research into MDR-TB

The MoH of the Republic of Belarus is the National Implementing Agency, SRs include the anti-tuberculosis institutions of the MoH, penal institutions of the Ministry of Internal Affairs Republic Belarus and the Belarusian Red Cross. Distribution of supply is mainly done by BelPharmatsia and BelMedtekhnik.

Relevant healthcare waste streams can be expected in the process of the following activities:

- ▶ Improving diagnosis of drug-resistant tuberculosis cases through strengthening of the TB laboratory network, and including ensuring routine drug resistance surveillance, support to regional reference laboratories and introduction of rapid diagnostic methods
- ▶ Treatment of drug-resistant tuberculosis cases with patients support, including provision of treatment with second-line TB medicines to patients in both civilian and penitentiary sectors and implementation of comprehensive patient support programme to strengthen treatment adherence

Other planned activities such as the strengthening of national capacities for management of drug-resistant TB or improving TB/HIV collaboration through adoption of new guidelines are mainly capacity strengthening activities. The main input is human power and office materials; therefore the expected waste output will be mainly general office waste.

5.2.1 General activities – management and support

Like for the HIV/AIDS grant, also during the Phase 2 of the TB programme (years 2014 – 2015) a major part of activities is office based. The physical input of the grant includes the set up and operation of different offices, the procurement and usage of office consumables and investment products (computers, furniture) and the procurement or hiring of transportation equipment (cars, etc.).

Output from these general activities will likewise be general, non-hazardous and hazardous office waste like cartridges, WEEE, disposable and reusable packing materials, waste from spillages, and waste from the maintenance of the transportation equipment.

5.2.2 Improving diagnosis of drug-resistant tuberculosis cases

In order to reach this objective, the following relevant material *inputs* are needed:

- ▶ Reagents for diagnostic equipment
- ▶ Infection control equipment
 - ▷ personal protection equipment, respirators, disinfection means

The expected waste *outputs* from this objective are:

- ▶ General, non-hazardous waste
 - ▷ packing waste (cardboard, foil, etc.)
 - ▷ paper waste
 - ▷ general office waste (unsorted)
- ▶ Hazardous waste
 - ▷ highly infectious waste (e.g. laboratory waste)
 - ▷ chemical waste (used reagents, etc.)
 - ▷ infectious waste (e.g. used personal protection equipment)
 - ▷ pharmaceutical waste (expired / unusable anti-TB medicines)

5.2.3 Treatment of drug-resistant tuberculosis cases with patients support

In order to reach this objective, the following relevant *inputs* are needed:

- ▶ Second line anti-TB medicines:
 - ▷ pharmaceuticals (see list in the Annex 7.2)

The expected waste *outputs* from the second objective are:

- ▶ General, non-hazardous waste
 - ▷ packing waste (cardboard, foil, etc.),
 - ▷ paper waste
 - ▷ general office waste (unsorted)
- ▶ Hazardous waste
 - ▷ pharmaceutical waste (expired / unusable anti-TB medicines)

5.3 Generated and expected waste quantities

For both grants (HIV/AIDS and TB) a standardized recording system for the quantities and types of waste generated does not exist.

5.3.1 Estimation of generated waste – HIV/AIDS grant

One objective of the HIV grant is the provision of prevention services which includes the supply of syringes. About 3,620,000 needles and syringes were procure in 2013, 4,316,000 were procured in 2014 and 4,506,000 will be procure in 2015. If this sharps waste would be collected in appropriate safety boxes as recommended by WHO, in 2014 and 2015 about 45,000 safety boxes would have been needed (estimate based on 100 syringes collected per 5 l safety box).

The weight of the 5 l safety box is 0,3 kg. The total weight per 45,000 pieces is estimated to be about 13,5 tons per year. The weight of 2 ml syringes is about 0,65 kg per 100 pieces and about 0,31 kg for 100 pieces of 1 ml syringes¹³. Considering that used syringes will contain some liquids, an average weight of 0,5 kg is assumed per 100 pieces.

Based on the procurement plan, the total amount of sharps waste (needles, syringes, safety boxes) would be about 35 tons in 2014 and 36 tons in 2015. The amount of needles and syringes are annually adapted to the need of the users. In the first 5 months of 2015 about 1,43 million syringes were already provided, the size and quantities of syringes which were distributed are mentioned on table 3:

13 Source: SAAPP (FZC) LLC

Table 3: Size and quantities of distributed syringes – first 5 months 2015

| Size | Quantity | Percentage |
|-------|----------|------------|
| 1 ml | 160,000 | 11.19% |
| 2 ml | 380,000 | 26.57% |
| 5 ml | 480,000 | 33.57% |
| 10 ml | 290,000 | 20.28% |
| 20 ml | 120,000 | 8.39% |

The visited NGOs reported that on average about 70% of used syringes are returned and disposed of. In addition to sharp items, also infectious waste from testing activities is generated.

Table 4: 2014 quantities and projected quantities of HIV and HCV rapid tests

| Type | Quantity 2014 | Quantity 2015 |
|-----------------------|---------------|---------------|
| HIV rapid blood tests | 6,650 | 6,900 |
| HIV rapid oral tests | 3,640 | 3,815 |
| HBV express test | 10,675 | 14,075 |
| HCV express test | 10,675 | 14,075 |
| Total | 31,640 | 38,865 |

Assuming that per rapid blood test about 50 grams of waste are generated, about 0.35 tons of infectious waste will be generated in 2015.

5.3.2 Estimation of generated waste – TB grant

The main sources of waste generated through the TB grant will be from expired or unusable medicines (second line) and from the TB testing of patients. On average, about 2-3% of the procured pharmaceuticals will have to be disposed of due to insufficient quality or due to transport damage.

The second main source of hazardous waste (mainly infectious waste) will originate from the operation of TB laboratories and TB wards. Data about this waste do not exist as these are currently not recorded.

5.4 Current waste management procedures within the HIV/AIDS and TB programme

5.4.1 Waste management procedures for supporting activities

At the PR office, a basic waste management system is installed with the intention to segregate office waste and to recycle different types of non-hazardous waste. For other types of waste, mainly local waste management practices are followed (collection of the waste and disposal on the municipal landfill). Also at the SRs level some basic waste management activities are visible. BelPharmatsia, the main acceptor and distributor for pharmaceuticals, installed a recycling and sorting system for tertiary as well as secondary packing materials (pallets, cardboard, etc.)

5.4.2 Analysis of waste management procedures within the HIV/AIDS grants

Within the HIV/AIDS activities, the SRs are the main generators of hazardous waste. Main types of waste produced are sharps waste (returned syringes) and infectious waste (from HIV testing). To support the SRs in their waste activities, they receive from the PR: gloves, disposable masks, disinfectant (chlorine), bags for waste collection and some containers. Safety boxes or sharps containers for the collection of sharp items are not provided. The cost for the provided support were about 20,000 US\$ per year.

The SRs have introduced internal procedures for the collection of the sharps waste. Used syringes are collected by outreach workers or at the counselling points. Returned syringes are collected in soft bags and plastic bottles. Users are instructed to separate needles and syringes. The collected sharp items are stored at the counselling points in larger barrels, decontaminated with chlorine and from time to time transported to the main SR office. From there, treatment and disposal are organized. In Minsk, the waste is transported to the cremator and burned as the company Ekores, operating the central high temperature incinerator, does not accept the sharps waste for treatment. Costs for treatment at the cremator are 32,380 BYR per kg. Also in Brest, a central facility was identified who accepts treatment against payment. In other cities, the SR depends on good cooperation with the local healthcare facilities and hand



Bags and bottles used for the collection of returned sharp waste, Minsk



the waste over for autoclaving. If this informal agreement does not exist, the waste, after disinfection, is disposed of via the municipal waste stream.

The social workers involved in the waste collection process are not vaccinated against HBV. Strong gloves and special sharps containers to prevent needle stick injuries do not exist. Also special transport containers are not available. The social workers reported needle stick accidents during collection, loading and unloading of the waste and the transport of the waste.

Minor amounts of pharmaceutical waste are produced at distributor level (BelPharmatsia). If pharmaceutical waste is generated, this is stored as interim solution in a separate, lockable store room. After clearance of the administrative procedure, the waste is transported to the high-temperature incinerator of the company Ekores and disposed of. The cost for incineration (30,360 BYR per kg) are reimbursed by the PR, paid from the PSM budget. A separate budget line for pharmaceutical waste does not exist.

5.4.3 Analysis of waste management procedures within the TB grants

For the management of pharmaceutical waste, the procedures are similar as for the HIV/AIDS grant. Expired pharmaceuticals are stored in interim lockable rooms and from time to time destroyed at the central high-temperature incinerator.

The TB laboratories (biosafety level 2) received in the past two autoclaves to decontaminate generated waste. The bio-hazardous waste is collected in heat resistant



Reusable container for transporting of collected sharp waste, Minsk



Interim storage for pharmaceutical waste, BelPharmatsia, Minsk



Autoclaves for waste and reused sharp containers, TB dispensary, Minsk



bags (infectious waste) or in sharps containers (sharps waste) and is treated at 134°C for 30 minutes, following internal standard procedures. The effectiveness of treatment process is monitored by chemical indicators. The laboratory workers reported shortcomings of sharps containers, which result in the reuse of the containers. The procedure to open and empty the one-way containers increases the risk of needle stick accidents.

5.5 Current healthcare waste treatment and disposal practices in Belarus

5.5.1 Main findings

As the legal analysis showed, a framework exists for the management and disposal of healthcare waste. For the healthcare waste generators, the main guideline is the Resolution of the Chief State Sanitary Doctor, N 147 from 2005 on the approval of the sanitary rules and norms 2.1.7.14-20-2005 on medical waste management. These sanitary rules are implemented and followed but considering the drastic changes and innovations in health and environmental systems during the last 10 years, they are considered outdated by national experts and need to be revised. A national development plan for the improvement of the healthcare waste sector does not exist. The use healthcare waste classification system is described in the textbox¹⁴.

14 According to the SanPiN 2.1.7.14-20-2005 "Rules of medical wastes management" approved by Resolution of the Chief State Sanitary Doctor of the Republic of Belarus of 20 October 2005 No. 147

Healthcare waste classification system, Republic Belarus

Group A – Non-hazardous waste (municipal waste)

Subgroups:

- A 1 Secondary material resources (waste for recycling)
- A 2 Organic waste
- A 3 Other non-hazardous waste

Group B – Hazardous waste

Subgroups:

- B 1 Anatomical waste
- B 2 Sharp objects
- B 3 Pharmaceutical preparations which are unusable
- B 4 Waste contaminated with blood or body fluids which are not infectious
- B 5 Infectious waste
- B 6 Cytostatic pharmaceuticals

Group C – Extremely hazardous waste

Mainly highly infectious waste contaminated with pathogens of the risk group 3 and 4.

Group D – Other hazardous waste

This includes all other hazardous waste which does not belong to the group B and C and are mainly different chemicals, mercury containing waste, fixer and developer, oils, paints and others. Following the national hazardous waste categorization system the waste is divided in four risk classes.



Containers, used for the collection of biohazardous waste

During the assessment, different healthcare waste facilities were visited to analyse the current waste practices of the different waste streams. In all healthcare facilities a general management system for healthcare waste was in place, responsible persons were appointed and systems for the segregation, collection, storage, transport and treatment and disposal were in place. Monitoring and inspections system were set up and the facilities are regularly inspected by the responsible authorities. Record keeping of the amounts of generated waste was seldom introduced. If records were taken, it was mainly for collected and decontaminated syringes. Report systems for accidents exist, but it is not regularly used. A vaccination of the healthcare workers against hepatitis B has been introduced. No specific standards for the transport of hazardous waste from the healthcare facilities to the treatment and disposal sites exist and the requirements of the ADR are not followed.

The main findings for the different waste streams are summarized in the following:

Non-hazardous, general waste (Group A)

Non-hazardous waste is separately collected, stored in waste bins and regularly picked up for transport to the next landfill or dumpsite. The recycling of valuable materials, especially plastic, paper and cardboard, glass and metals is encouraged, however recycling rates are considered as low.

Infectious waste including sharps items (biohazardous waste)

Infectious waste is collected in colour coded bags. For sharps waste some safety boxes are available, however in most cases the sharps are collected in

self-made containers or by using empty plastic water bottles. Needles and syringes are separated by hand which is increasing the risk of occupational accidents. After separation, syringes and needles are soaked for 15 minutes in a 0.5% chlorine solution for decontamination. In some hospitals, steam based treatment methods (autoclaves, microwaves) are in place to decontaminate infectious waste; in some other hospitals small scale incinerators are used. Biohazardous waste from microbiological laboratories is autoclaved prior to disposal.

Pathological waste

Pathological waste is separately collected in plastic bags and stored in a freezer until final disposal in a graveyard or in the cremator (if available).

Pharmaceutical waste

Pharmaceutical waste is separately collected if it is generated. Healthcare facilities are under much control to avoid the expiration of pharmaceuticals. In case of expiration, a committee has to be established to discuss the disposal of the pharmaceutical waste in cooperation with the responsible authorities and to recommend the way of treatment and disposal. The pressure not to generate pharmaceutical waste in combination with the high administrative barriers misleads staff to dispose of pharmaceutical waste as non-hazardous waste via the municipal waste disposal system. Currently a high awareness on cytotoxic waste exists and special collection and storage systems are in place for this type of waste.

Chemical waste

While awareness on risks from mercury containing waste exists, nearly all other types of chemical waste are

either disposed of with the municipal solid waste or are disposed of via the sewage system. If hospitals operate analog x-ray machines, the fixing bathes are collected by private companies for the recycling of silver.

Radioactive waste

Radioactive waste is not covered by the sanitary rules for handling medical waste but is covered by a separate regulation. A system for the collection and storage of the waste is in place and responsibilities are clarified.

Figure 3 outlines the general methods of disposal for the different healthcare waste streams in Belarus.

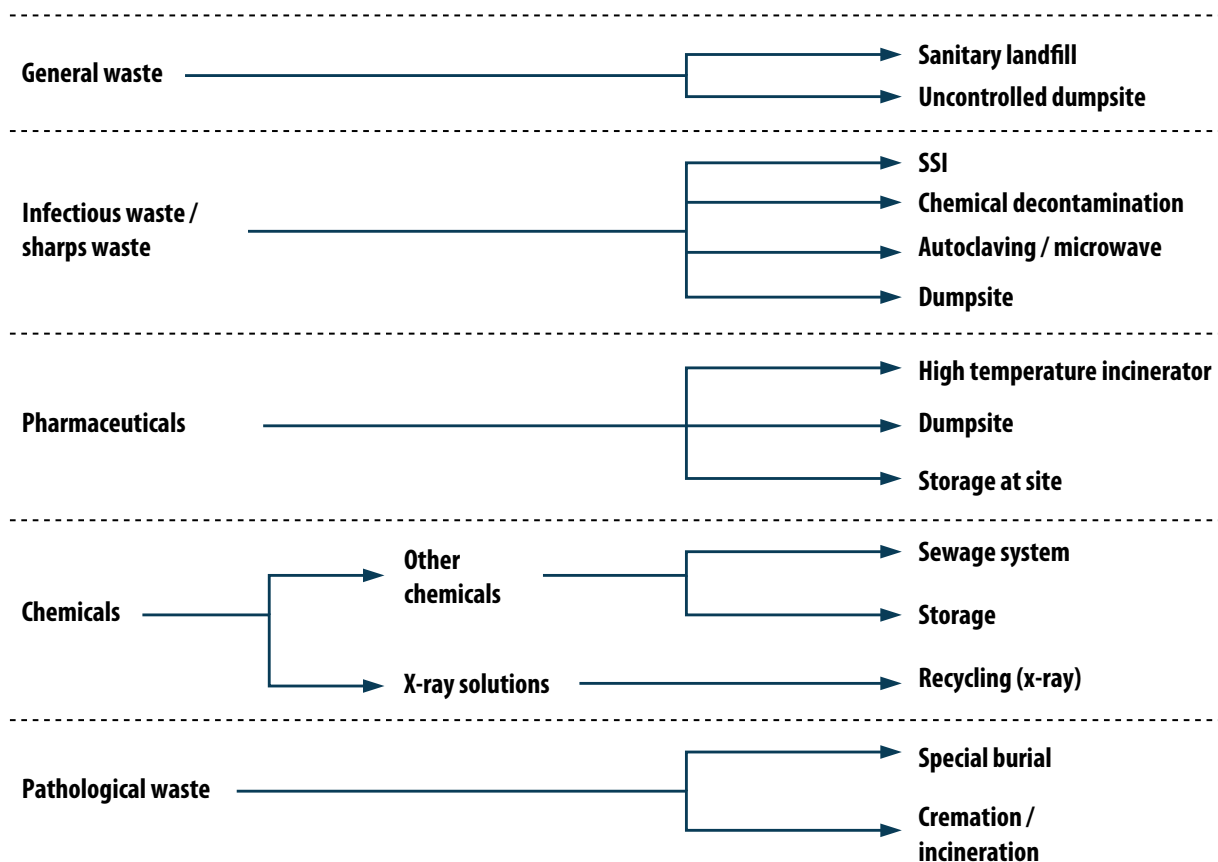
5.5.2 Sample treatment systems for hazardous healthcare waste

According to the MoNREP, in 2013 about 8,500 tons of medical waste (Class B) were generated. By far the majority of this waste is biohazardous waste. For the

treatment, about 90% of all healthcare facilities are using chlorine which leads to an increase of toxicity of the waste which goes to the dumpsites and is increasing the problem of liquid waste disposal. Due to the concern about the disposal of cytotoxic waste, new high temperature incinerators were installed in some hospitals recently and a modern central treatment facility was set up in Minsk (company Ekores). The cost for the treatment and disposal of pharmaceutical waste in the new facility is 30,360¹⁵ BYR per kg and 52,800 BYR per kg for waste contaminated with HIV. The central treatment plant is not accepting sharps waste for treatment and disposal. At the moment the plant is highly underutilized and is working only for 10-20% of the possible capacity. The plant is licensed to treat about 400 tons per year, with a capacity up to 100 kg/h.

¹⁵ 1 EUR = 15,820 BYR Source: InforEuro, 30.06.2015

Figure 3: Current disposal scheme of healthcare waste streams





Central healthcare waste treatment facility in Minsk

Next to the high temperature incinerator, also steam based treatment systems were installed which included a «NEWSTER -10» system (manufactured in San Marino) at the “Centre of Pediatric Oncology and Hematology” with a capacity of 50 kg/h and a microwave system from Russia installed in the Minsk “City Hospital for Infection Diseases”.

5.5.3 Previous and planned improvement programmes

Due to the increased awareness about problems created by improper disposal of healthcare waste, especially cytotoxic waste, a general agreement exists that urgent improvement is required. For Minsk, the recently set up of a high temperature incinerator was planned as solution for animal carcasses, medical waste and other types of pathological material, however due to financial constraints and the existing possibility to

decontaminate waste by low-cost solutions (chlorine decontamination) the facility is rarely used. Belarus became a signatory to the Minamata Convention on Mercury on 23 September 2014 and it is planned to ratify this in the near future. This will require that solutions must be available for the collection of mercury containing medical devices and other items.

To overcome these problems and to reduce the environmental impact from the chlorine disinfection it is planned to apply for funding from the GEF for the project: “*Environmentally sound life-Cycle Management of mercury containing products, mercury containing wastes and healthcare waste*”. This project would have a significant impact on the general healthcare waste situation and could help to solve urgent problems, including the update of the legal framework for healthcare waste management.



On-site microwave waste treatment system, Minsk

6 Findings and Recommendations

6.1 Recommendations, generally applicable to all GF-financed health programmes

a) Provision of HBV vaccination to social workers and outreach staff and access to post exposure prophylaxis

Current situation: HIV social and outreach workers are involved in syringe exchange programmes which include the collection and disposal of used and potentially contaminated sharps waste. Workers reported several accidents with sharp items (needle stick accidents).

Justification/impact: During the collection activities of used syringes and needles, a potential risk of occupational needle stick accidents from the sharps waste exists which might result in the transmission of infections such as HIV, HBV and HCV.

Recommended activities: Introduce accident response standards, introduce a reporting system for accidents and provide free HBV vaccination to persons involved in the collection and disposal of sharp item.

b) Strengthen the disposal systems for waste from IDU

Current situation: The collected sharp waste is handed over for treatment and disposal to healthcare facilities or cremators. A budget line to finance these activities does not exist and treatment costs are covered by the SRs from the general office budget.

Justification/impact: Without dedicated and transparent funding, the correct disposal of collected sharps waste might create problems for the SR. If resources are missing or if safe disposal possibilities are missing, this might result in inadequate, unsafe and environmentally risky disposal of this waste.

Recommended activities: Include a transparent strategy and activities for the waste transport, treatment and disposal with dedicated budget lines.

c) Include sharps containers and safety boxes in the supply plan for syringe exchange actions

Current situation: Sharps waste generated during the usage of drugs is collected by outreach and social workers in bags and used water bottles. The used equipment is not puncture proof and accidents are reported during the transport chain of the waste.

Justification/impact: Accidents acquired during the collection of the potentially infectious sharps waste might result in the transmission of infections such as HIV, HBV, and HCV.

Recommended activities: Assess the type of safe collection equipment needed, provide a sufficient amount of approved sharps containers and safety boxes together with the supply of needles and syringes.

d) Include a budget for the safe disposal of unusable pharmaceuticals

Current situation: On average, about 1-2% of pharmaceuticals will become unusable during project activities due to insufficient quality, transport damages, etc. If the waste is generated at the central warehouse, disposal will be organized and cost reimbursed from the PSM budget. If the waste is generated at the SR level, they will be responsible to organize the disposal.

Justification/impact: Usage of the PSM budget or lack of budgets and disposal options at the SR level results in financial constraints and inappropriate disposal.

Recommended activities: Provide the possibility for PRs and SRs to return unusable pharmaceuticals and include a budget line for the disposal of pharmaceuticals.

e) Review of the system for the selection of syringe sizes for PWID

Current situation: The type and usage of drugs by PWID is often changing. Different practices require different sizes of syringes and needles (from large syringes for “crocodile” to small syringes for synthetic drugs).

Justification/impact: Insufficient flexibility in provision of small or large syringes creates an over- or undersupply which will influence the sharps waste management.

Recommended activities: Review the size of syringes and needles needed every 6 month and adapt the procurement plans to this.

f) Organize a workshop on the management of waste generated during GF grant activities

Current situation: The correct management of waste is often a challenge for the PRs and experience and capacity in advanced waste management is missing. Existing national experience and guideline are often limited to standard healthcare waste practices but does not take into consideration extraordinarily activities such as the collection of used syringes from PWID.

Justification/impact: Unclear and not standardized waste management practices might result in unnecessary high waste management cost, inefficient management systems or inappropriate treatment and disposal.

Recommended activities: Conduct a workshop to disseminate experiences on best practices for waste management and create a platform for experience exchange among PRs.

6.2 Context specific recommendations for the GF programme in Belarus

a) Review of the existing regulations on healthcare waste management

Current situation: The main national regulation on healthcare waste was issued in 2005. Since that time the general waste management and classification system

changed, new international agreements were signed and the health system itself underwent changes.

Justification/impact: The old national regulations are a barrier for the adaptation of the healthcare waste system to the current situation and to the introduction of advanced and integrated healthcare waste solutions.

Recommended activities: Review all national regulations and guidelines for healthcare waste management and develop updates.

b) Review of the existing regulations on pharmaceutical waste management

Current situation: The existing national regulations and guidelines for the disposal of pharmaceutical waste date back to 2002. Changes in the type and kind of used pharmaceuticals, the distribution and the usage are not reflected.

Justification/impact: Ensure the safe and appropriate management and disposal of pharmaceutical clear standards and strategies are required.

Recommended activities: Update all regulations and guidelines relevant to pharmaceutical waste.

c) Support the development of a national healthcare waste management strategy and development plan

Current situation: A national strategy and mid- to long term development plan for healthcare waste to fulfil national and international requirements does not exist, however major investments to improve healthcare waste treatment and disposal are planned.

Justification/impact: As no national development plan exists, investments are uncoordinated or are not executed.

Recommended activities: Support the development of a national healthcare waste management strategy and development plan in a coordinated action involving all concerned ministries under the joint leadership of the MoH and the MoNREP.

d) Strengthening the usage of existing, advanced treatment options

Current situation: In some cities of Belarus, new and advanced treatment systems for different types of healthcare waste were set up. These new treatment plants are currently substantially underutilized and the treatment of certain types of waste such as sharp waste is not included. Some of the advanced treatment systems are only used for the waste from a single waste producer (e.g. hospital) instead of treating waste from several waste generators.

Justification/impact: Belarus is lacking capacity of high quality healthcare waste treatment. To support the phasing out of current, inadequate treatment practices such as the on-site chemical disinfection, the existing high-quality treatment capacities should be fully used.

Recommended activities: Generated healthcare waste should be treated in the new and advanced treatment systems (e.g. treatment of sharps waste from PWID not in the cremator facility but in the new, advanced incineration system). Operators of the treatment systems should open their facilities for more diverse type of waste (e.g. sharps waste) and, in case of on-site treatment, should allow the treatment of waste also from other healthcare facilities. A sufficient budget to cover the cost for treatment will be required.

e) Review and simplify the current standards for sharps waste management

Current situation: The current system for the management of sharps waste includes several steps

and is considered by the users as highly time intensive, inefficient and risky.

Justification/impact: The required working steps are increasing the risk of occupational accidents and create an unnecessary high workload for the healthcare staff.

Recommended activities: Review the current practices, develop a more efficient and less risky practice based on international experiences and practices.

f) Include a sufficient supply of sharps containers for TB activities

Current situation: In the GF grant, only a limited amount of sharps containers for the collection of needles are provided to the TB laboratories. Due to this shortcoming, the one-way sharps containers are used several times.

Justification/impact: The reuse of sharps containers requires their opening and emptying. This will result in higher occupational risks. Infectious waste such as used swabs etc. are either disposed in sharps containers or are disposed with the domestic, non-hazardous waste. This results both in inefficient faster filling of sharps containers and in infection risks during domestic waste collection.

Recommended activities: Increase the supply of sharps containers for TB programmes and include the supply of waste bags for infectious waste and normal waste.

7 Annexes

7.1 Input analysis – HIV

A. Pharmaceuticals:

- ▶ Abacavir (ABC), oral solution, 20 mg/ml
- ▶ Abacavir (ABC), tablets, 300 mg
- ▶ Atazanavir (ATV), tablets, 300 mg
- ▶ Darunavir (DRV), tablets, 300 mg
- ▶ Didonasine (DDI), capsules, 200 mg
- ▶ Didonasine (DDI), oral solution, 2 g (powder)
- ▶ Efavirenz (EFV), tablets, 600 mg
- ▶ Efavirenz + Emtricitabine + Tenofovir (EFV+FTC+TDF), tablets, 600/200/300 mg
- ▶ Lamivudine (3TC), oral solution, 10 mg/ml
- ▶ Lamivudine (3TC), tablets, 150 mg
- ▶ Lamivudine + Zidovudine (3TC + AZT), tablets, 150/300 mg
- ▶ Lopinavir + Ritonnavir (LPV/r), oral solution, 80+20 mg/ml
- ▶ Lopinavir + Ritonnavir (LPV/r), tablets, 200/50 mg
- ▶ Nevirapine (NVP), tablets, 200 mg
- ▶ Nevirapine (NVP), oral suspension, 10 mg/ml
- ▶ Ritonnavir (RTV), capsules, 100 mg
- ▶ Tenofovir (TDF), tablets, 300 mg
- ▶ Tenofovir DF + Emtricitabine (TDF + FTC), tablets, 300/200 mg
- ▶ Zidovudine (AZT), oral solution, 10 mg/ml
- ▶ Zidovudine (AZT), tablets, 300 mg
- ▶ Zidovudine (AZT), infusion, 10 mg/ml
- ▶ Zidovudine + Lamivudine + Abacavir (AZT+3TC+ABC), tablets, 300/150/300 mg
- ▶ Raltegravir (RAL), tabs 400 mg
- ▶ Methadone hydrochlorid internal use, 5mg/ml

B. Health products:

- ▶ Rapid-tests for detection of narcotic substances in urine
- ▶ Batcher-dispenser for methadone
- ▶ Condoms for FSW, PWID, inmates, MSM

- ▶ Septomirin
- ▶ Napkins for intimate hygiene
- ▶ Sachet lubricants for FSW, MSM
- ▶ Tube lubricant for MSM, FSW
- ▶ Disinfectants (tablets, liquids)
- ▶ HIV saliva diagnosis rapid tests
- ▶ HIV whole blood rapid tests
- ▶ Hepatitis B rapid tests
- ▶ Hepatitis C rapid tests
- ▶ Syringes
- ▶ Alcohol pads
- ▶ Vitamin C
- ▶ Vitamins (polyvitamins)
- ▶ CD4-cartridges
- ▶ Resistance test-systems, 48 tests/kit
- ▶ RNA HIV test-systems, 48 tests/kit
- ▶ Milk formula
- ▶ Plastic bags for disposal of used consumables for FSW/PWID
- ▶ Sanitary-hygienic products according to health requirements including disposal of syringes (wall sink, liquid soap, disinfectants and dispensers for disinfectants, disposable towels, emergency kits, gloves, disposable masks, disposable surgical gowns, containers and bags for collecting waste materials including sharps)
- ▶ Medical supplies for palliative care

7.2 Input analysis – TB

A. Pharmaceuticals

For treatment of patients with MDR TB and XDR TB (second-line anti-TB medicines):

- ▶ Amoxicillin + Clavulanic acid (AMOXCLV) , tablets, 875 mg/ 125 mg
- ▶ Capreomycin (CM), powder for injections, 1 gram
- ▶ Cycloserine (CS), capsules, 250 mg

- ▶ Ethionamide (ETO), tablets, 250 mg
- ▶ Levofloxacin (LFX), tablets, 250 mg
- ▶ Pyrazinamide (Z) , tablets, 400 mg
- ▶ Moxifloxacin (MFX) ,tablets, 400 mg
- ▶ Para-aminosalicylate acid (PASER), sachets, 4 grams
- ▶ Linezolid (LZD), tablets, 600 mg

B. Health products

- ▶ Reagents for rapid bacteriological diagnosis of drug-sensitivity of Mycobacteria tuberculosis to the 1st and 2nd line TB medicines with use of BACTEC MGIT technology;
- ▶ Reagents for rapid diagnosis of TB and sensitivity of Mycobacteria tuberculosis to Rifampicine with use of GeneXpert technology;
- ▶ Reagents for rapid diagnosis of and sensitivity of Mycobacteria tuberculosis to 1st and 2nd line TB medicines with use of HAIN technology;
- ▶ Respirators (protection class II);
- ▶ GeneXpert devices for rapid diagnostics of TB and sensitivity of Mycobacteria tuberculosis to Rifampicine;
- ▶ Hygienic and food parcels for patients, who receive MDR-TB treatment.

7.3 Organizations visited

Table 5: Agenda of the mission

| Date | Activity | Place of the meeting |
|-------------------------|---|---|
| Monday June 29 | Meeting in with the specialists of UNDP Healthcare portfolio | UNDP Office |
| | Meeting with GIU | GIU office |
| | Lunch | |
| | Meeting in the City Infections Hospital | Kropotkina 76 |
| | Meeting with the Deputy Minister of Health and the specialists of the sanitary services responsible for HC waste management | Ministry of Health |
| Tuesday June 30 | Meeting with UNDP Environmental portfolio (Green Economy project, HCFC project) | UNDP Office" |
| | Meeting with the Ministry of Environment (Department on Regulation of impact on air and water Resources; Waste Management Department) | Ministry of Environment |
| | Lunch | |
| | Meeting with the national consultant on the Mercury Waste Management, Ms. Marina Belous | |
| | Republican Scientific and Practical Centre of Hygiene | Akademicheskaya, 8 |
| Wednesday July 1 | Visit to Belpharmatsia to discuss waste management of pharmaceuticals | Stebeneva str., 6 |
| | Healthcare waste treatment company, Ekores | Ekores |
| | Visit to NGO "Positive Movement" | PM Office / ul.Matusevicha, 23 |
| | Break | |
| | Visiting anonymous counselling points for PWID | AKP-based NGO „Mothers Against Drugs“ (ul.Ohotskaya, 135/3) |
| | Visiting mobile ACCs for drug users (MACCs) | MAKP №2 ul.Korzhenevskogo 25 (minibus with a sign) |
| Thursday July 2 | Visit to the new (National) Principal recipient of the GF grants, the Republican Scientific and Practical Centre for Medical Technologies, Informatization, Administration and Management of Health | New PR Office, Brovki 7a |
| | Visit to Republican Scientific and Practical Center of Pulmonology and Tuberculosis | Dolginovsky tract, 157 |
| | Lunch | |
| | Closing meeting with specialists of the Centre for Hygiene, Epidemiology and Public Health | National Centre for Hygiene, Epidemiology and Public Health |
| | Meeting with specialists of the Ministry of Emergency situations | Korvata, 78 |



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