



CONTEXT ANALYSIS IN THREE PARTNER CITIES

1. Hazardous waste definition and applied classifications

Definitions and applied classifications are provided in accordance with the Basel Convention on the control of trans boundary movements of hazardous waste.

The subject of this Study is hazardous waste as a subgroup of municipal solid waste which originates from households (HHW) and from small commerce and industries and institutions.

HHW includes the following listed waste streams and types:

- **Household chemicals and similar commercial, industrial and institutional chemicals** (cleaning and personal care products; paints, varnishes, ink and glues; households, parks and garden pesticides; photo-chemicals),
- **Domestic healthcare waste** (unused pharmaceutical products, medicine),
- **Construction and demolition waste from households, small commerce and institutions** (asbestos waste; treated wood; coal tar and tarred products),
- **Automotive maintenance waste** (oil filters and contaminated absorbing materials; automotive products, surface polish, anti-freeze fluids),
- **Waste electrical and electronic equipment,**
- **Batteries and accumulators,**
- **Mercury-containing waste (other than WEEE),**
- **Edible oil and fat,**
- **Packaging.**

2. Overview of EU and national legislation and strategic documents of Armenia, Poland, and Albania

EU legislation

- The Waste Framework Directive (Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives amended by Directive (EU) 2018/851);
- The Waste Shipment Regulation (Regulation (EC) No 1013/2006);
- European Agreement Concerning the International Carriage of Dangerous Goods (ADR);
- The Landfill Directive (Directive 1999/31/EC on the landfill of waste amended by Directive (EU) 2018/850);

- Waste stream specific regulations (packaging and packaging waste, end-of-life vehicles (ELV), waste electrical and electronic equipment, batteries and accumulators and waste batteries and accumulators and concerning waste oils).

National legislation and strategic documents of Armenia, Poland and Albania

- National legislations and self-government legislations of Yerevan, Warsaw and Tirana are presented in detail in the Baseline Study;
- Strategic documents include documents such as National and Regional/Local waste management plans, Waste prevention plans, etc.

Note: Armenia’s legislation does not provide the obligation of drafting of Waste management plans.

3. Institutional set up of entities responsible for HWM in

Institutional set up of entities responsible for HWM on national and local level is presented in detail in the Baseline Study for Yerevan, Warsaw and Tirana separately.

4. Existing waste management systems

Existing waste management systems in Yerevan, Armenia

- Data on waste quantities are unreliable because the amount is calculated based on waste truck volume and daily number of discharges;
- According to estimation of Yerevan Municipality representatives, waste generated by the citizens of the whole City is minimum 400,000 t/y in 2020 and 310,000 t/y in 2018;
- The municipal waste composition was determinate within the project “Waste Quantity and Composition Study (WQCS)” (2020), initiated by the American University of Armenia (AUA) Acopian Center for the Environment in partnership with the Government of Armenia.

| Waste type | Explanations | High-rise residential areas with waste chutes | Villas and low-rise residential area | Commercial areas with high restaurant density |
|-------------------|--|--|---|--|
| Hazardous waste | All hazardous waste (e.g. syringes and other sharp objects, medicine, paints and solvents, oils, pesticides) | 0.39% | 0.31% | 0.48% |
| Mixed WEEE | All electric items, battery or high voltage | 0.30% | 0.13% | 0.01% |

- Waste collection is performed in all 12 urban district by PUC „Waste removal and sanitary cleaning of Yerevan“ and collection rate is 100%.
- Collection of packaging waste was initiated in 2020 in limited number of collection points.
- Currently, there are no Civic Amenity Centers in Yerevan that collect packaging waste, neither household hazardous waste separately.
- In Armenia, there are few companies for hazardous waste treatment, incineration or export.

Existing waste management systems in Warsaw, Poland

- January 2019: New MW segregation system based on 5 containers (metals and plastics, paper, biowaste, glass, mixed waste).
- January 2020: Records of all waste are kept in the Polish national database on products, packaging and waste management - BDO - Access to this system is available to registered entrepreneurs, municipalities and other public authorities.
- April 2021: New rules apply in Warsaw for calculating waste management fees - the rates depend on the amount of water used, replacing the previous lump sum billing method.

Quantity of collected and gathered individual types of MW: 778,165 t (WEEE 2,165 t; Batteries 8 t; Medicine and mercury thermometers 0.072 t), with the amount of waste collected at the CAS's being 7,302 t.

There were no Civic Amenity Sites before 2015, and currently, two CASs are operating which accept segregated municipal waste from households free of charge and the waste collected at CAS facilities is handed over to municipal waste treatment facilities. There are Mobile CAS's – 5 vehicles at 40 designated locations.

Waste not accepted at CAS: unsorted mixed municipal waste, materials containing asbestos, building paper and foamed polystyrene, waste in leaky packaging, damaged to the extent causing leakage of substances contained in the packaging, waste whose quantity, composition and nature indicate that it originates from business activity (to which separate waste management regulations apply).

In 2020, selective collection points were visited by nearly 49 thousand residents, who brought a total of 7,302 t of waste, including 242.7 t of hazardous waste.

Collection points for certain HW types other than CAS's and MCAS's

Expired medicines are collected at 616 pharmacies and mercury thermometers at 170 pharmacies, the collection of WEEE is conducted in every district on Saturdays by a non-profit organization that has an agreement with the City and used batteries are collected in over 650 educational institutions and some offices of the Districts and Offices of Warsaw.

Hazardous waste collected at the two Civic Amenity Sites, Mobile CASs and Pharmacies is directed to waste disposal installations, most often to waste incineration plants. Large-size waste, WEEE is sent to waste treatment plants.

List of companies engaged in treatment and disposal of MSW and HHW is provided in the Baseline Study, with waste codes for each waste type and its amounts.

Existing waste management systems in Tirana, Albania

Precise waste data in Albania presents a major problem, data are based on the number of truckloads that are dumped on the dumpsite or landfill.

Local government units are obliged to complete the reporting format for annual statistics on waste generated within their territory of jurisdiction. Each year, within 31 January, they submit such forms to the relevant Region Council, to the National Environmental Agency (NEA) and to the ministry in charge of infrastructure.

Data available online refers to the whole Albania and the waste amount generated in Tirana from 2017 to 2020 is not available. Total annually generated waste is 1,086,692 tons (2019) in Albania and 492,890 tons (2016) in Tirana. According to waste composition from 2013 to 2019, hazardous waste share is 0.46% while WEEE share is 3.23%.

The city of Tirana is divided into seven cleaning zones, where one public and six private cleaning services operate. Tirana's coverage of waste collection services was 85% in 2016.

Separate collection of waste is rarely done systematically; there are no Civic Amenity Centers that collect packaging waste, neither household hazardous waste separately. All waste collected in Tirana is disposed of at Sharra dumpsite. There are a few companies dealing with hazardous waste treatment, mostly WEEE.

5. Methods and tools applied to inform and involve citizens in hazardous waste management

Yerevan

In Armenia, there is a need for raising the level of awareness on adequate waste management among public, different levels of national government and local self-governments. Projects for raising awareness are usually implemented by NGO's and within the frameworks of community development projects of international organizations, which are carried out very irregularly and are not enough to provide mass awareness. NGO's mainly touch upon issues related to composting and waste separation topics with a specific highlight on the development and implementation of practical models at schools.

Warsaw

The City of Warsaw is currently carrying out educational and information activities on waste hierarchy, proper segregation of municipal waste, and benefits resulting from the choice of selective collection.

Launched in November 2019, the #SegregujNa5 search engine, which includes an ever-expanding database of user-submitted waste types, has been very popular. In 2020, SegregujNa5 search engine was visited by about 3.5 million people. The city posts educational and informational materials in public spaces, print, online, and social media (<https://warszawa19115.pl/-/materialy-do-pobrania>). The city also conducted a campaign called "Ecopoukładani" during which a record-breaking collection of electro-waste was recorded. On 20 June 2020 an educational action called "Ecopoukładani" took place in 6 locations, during which about 17 tons of electro-waste was collected. The inhabitants cast 21,075 votes for the project called "Eco points in the whole city". The project involves the creation of an interactive map that allows you to find places where you can find, including: battery containers, electronic waste collection points, CAS and Mobile CAS etc.

Tirana

None of the methods and tools for informing and involving citizens in hazardous waste management have been established in Tirana, Albania. As a measure within the strategic goal (SG7: Human Resource and Participation) of the National Integrated Waste Management Strategy and Action plan, 2018-2033, it is envisaged that citizens will be engaged and consulted in the drafting of Waste Management Plans.

6. Former, on-going and planned projects and initiatives on HWM

Yerevan

Civic Amenity Centers

City of Yerevan plans to build three Civic Amenity Centers for which detailed design is prepared for all 3 and locations have been selected - small one in Arabkir district (close to the city center), and the two bigger ones in two districts: Avan and Nor Nork. The location selection in the fourth district, Malatia-Sebastia is under discussion. For hazardous waste collection, it is planned to purchase red containers of 1,110 l which can be divided for a collection of different types of WEEE: batteries, lamps, mobile phones, televisions, computers, etc.

New solid waste landfill

The project area of the new solid waste site is located in the southeast of Yerevan, in the district of Erebuni and it is planned to design, construct and operate a new landfill with European standards on an area near the existing landfill with approximately 29 ha square, as well as to isolate the area of existing landfill (landfills) according to the same standards.

Warsaw

New Civic Amenity Sites

Since the launch of the two Civic Amenity Sites, increasing social demand has been observed to create new points in locations convenient for residents. Investment Plan constituting an appendix to the Waste Management Plan for the province Mazowieckie 2024 proves willingness to develop a network of CAS points in the capital city Warsaw, by organizing such points in each district.

Expansion of waste incineration plant in Warsaw

Warsaw will gain the country's largest modern incineration plant, which will also deliver heat and electricity to over 10,000 households, planned for 2023.

Additional containers for small electro-waste

Warsaw intends to supplement the existing municipal waste collection system by setting up containers for small electro-waste (telephones, hair dryers, etc.) in places accessible to residents.

Circular Economy in Poland

The Polish Roadmap "Transformation toward Circular Economy" was adopted by the government in September 2019.

Tirana

Implementation of household waste collection and separation

- It is planned to extend separate dry recyclables and residual waste collection service to the whole of Tirana and provide sites for the collection of bulky waste from households and small businesses.
- The plan is to cover 90% of residential buildings with weekly MSW collection by 2022. This action will also span across the rural areas, where collection and recycling services are not currently provided.

Household waste recycling center (HWRC)

- Following the recommendations of the UK National Assessment of Civic Amenity Sites, at least 4 HWRC's shall operate in the city of Tirana and they should be accessible by the main public transport line, which is in Tirana's case by bus.
- "Integrated waste management strategic policy document and national plan 2020-2035", SG4: implementation measures are planned:
 - M28. Establishing a database on hazardous waste (inventorying the waste inherited from existing industries, by the industry currently generating hazardous waste).
 - M29. Master Plans preparing for specific waste streams, including hazardous waste.
 - M30. Developing of guidelines, protocols and training programmes for hazardous waste management.
 - M31. Hazardous waste generators ensure management of hazardous waste in accordance with legal requirement and published guidelines and separate hazardous waste from non-hazardous waste.

7. Analysis of main critical elements in each Partner City

Main critical elements in Yerevan

MSW collection - There is no installed weighbridge at the existing municipal landfill, neither at the site of the company LGEP responsible for collection of packaging waste, which leads to a lack of data on collected, recycled and disposed of municipal waste. There is no database on MSW collected, recycled, disposed, not in PUC, not in Municipality or the Ministries, not in the existing landfill, neither in Armenian Statistical Office.

MSWM fee - The fee for MSW collection for households is very low, as 200 drams (ADM) per capita per month. The industry, commerce, health institutions, etc. pay the fee for MSW collection established as per m² of their working place.

MSW sorting - Separation of waste at source just started, in very small percentage. Only 5-6% of the population is included in the separation of waste at the source, households. Separation on the sorting line does not exist. The number of collection points, 135, established by LGEP, in March 2021, is very low. There is a significant problem related to the collection of the bulky waste and C&D waste, bio-waste, hazardous household waste, metals, WEEE, batteries and accumulators, etc., because the efficient separate collection is not established yet.

MSW disposal - The existing landfill is in fact dumpsite, which does not have installed weighbridge and geo-composites for protection of groundwater and soil.

MSW management - Based on the provided list of engaged experts, there is a lack of experts for MSW and HW management, separation, legislation, in both Municipal Departments responsible for waste management.

Waste legislation - Based on local legislation, Law on waste 159-N, 2004, there is no obligation for Yerevan City, nor for Republic of Armenia, to draft National, Regional or Municipal Waste management Plans. It is a significant difference comparing to the EU Framework Directive on the waste, 2008/98/EC, in which preparation of the Waste Management Plans on the national or local level, are requested.

Main critical elements in Warsaw

According to the Provincial Waste Management Plan for the Mazowieckie Province for 2016-2021 including the years 2022-2027 the main critical elements concerning hazardous waste management are: high costs of modern and innovative technologies allowing to reduce the number of arising waste, improper handling of hazardous waste in small and medium-sized enterprises, lack of mutual correlation between the existing systems of collecting hazardous waste from sources scattered, no network for collecting hazardous waste from households, unsatisfactory level of education and environmental awareness of the inhabitants of the voivodeship.

In Poland, packaging producers are practically not financially responsible for placing plastics on the market. The environmental fee rates are very low, and the entire cost of dealing with the waste later falls on the municipalities and their inhabitants.

Main critical elements in Tirana

Legislation - Albania has transposed 19 EU directives and regulations which represent the most important part of the EU acquis related to waste. Albania has legal base to establish sustainable waste management system. The implementation and enforcement of these laws is at a very low level, mostly because of the costs of waste management.

Planning on Municipality level - Despite the fact that the Waste strategy and the law stipulates that the local government units are responsible and obliged to prepare the local integrated waste management plans, Tirana Municipality does not have one and currently there is no intention for its preparation.

Lack of data on quantity and waste composition - The existing data on the quantities of waste were not obtained by measuring the waste, considering that there is no weighbridge at the existing landfill, but by estimating based on the volume and number of unloaded batches of trucks. The composition of the waste has also not been determined - it is based on assumptions. The amount and origin of generated hazardous waste is unknown, mostly due to the lack of data on collection, which is partly due to the lack of separate collection of hazardous waste.

Waste collection and sorting - A separate waste collection system has not been established. There is no Civic Amenity Center for the separate collection of hazardous waste in Tirana.

Lack of transparent data on issued hazardous waste permits - There is no publicly available database of companies that possess hazardous waste management permits.

8. Conclusions and recommendations for HWM in Three Partners Cities

Conclusions on waste management in three Partner Cities correspond to the subchapters “Main critical elements”, respectively in Yerevan/Warsaw/Tirana, and the prioritization of actions is made according to several criteria (magnitude of impacts on human health and environment, ease of implementation, cost of implementation, relevant legal obligations). Some of the most important conclusions for Partner Cities are provided below, while the more detailed conclusions and recommendations are presented in the Baseline Study.

Yerevan

The highest priority in improving the waste management system is to amend the national legislation - the most important step is to introduce into the legislation the obligation to develop a national and local waste management plans. It is necessary to harmonize all definitions of waste types with international conventions such as the Basel convention. The harmonization of legislation must be accompanied by continuous training of officials in the field of environmental protection, as well as a possible increase in the number of employees.

Before closing the existing landfill, it is necessary to build a new Nubarashen landfill, which is planned to be designed, constructed and to operate in accordance with the EU standards. Since the landfill is planned to be for non-hazardous waste, its opening and use should be preceded by constructing of CASs, for which locations are already established.

Including HW from small commerce and industries in the future system of HHW collection seems rational to reduce the percentage of HW in mixed municipal waste containers as much as possible; this should be enabled until Armenia establishes adequate legal acts on this matter and separate collection systems.

It is necessary to establish a proper database on waste streams since the amounts of disposed waste will be measured at the entrance to the new landfill site. In addition, although the data are currently based on an estimate of the number and volume of trucks unloaded, it is not possible to obtain local data from official statistics.

Warsaw

Key improvements include improving the infrastructure for household hazardous waste management, primarily through the construction of additional CAS's. Increasing the number of CAS's per number of inhabitants would significantly improve the system of collecting hazardous waste from households. Information and education activities on the functioning of the waste management system, especially those concerning hazardous waste, should also be continued. It is important to highlight the purpose and benefits of proper handling of hazardous waste and continue to inform inhabitants about environmentally and human-safe ways and places to collect this waste.

The Ministry of Environment is currently working on an extended producer responsibility (ROP) system. The new system should encourage producers to design products and packaging in such a way as to prevent the generation of excessive waste and increase their recyclability. One of the key elements of the ROP system is to ensure producers' participation in co-financing of the management of packaging waste that is contained in municipal waste collected from residents.

The websites of the competent authorities in waste sector could provide some key information in at least two languages, Polish and English, for foreigners, tourists, etc.

Tirana

Given that Albania has harmonized its legislation with the EU, and that the implementation of laws is at a low level, it is necessary to start implementing regulations and adopt the necessary plans and strategies (the highest priority is Waste management plan for Tirana), although there are currently no clear plans for their elaboration. Also, targets provided in the legislation have to be updated in accordance with the current EU legislation.

There is currently no clear plan in Tirana to establish a separate collection of HHW, but it is important to establish CASs and/or mobile CASs, as well as continuous education and awareness about waste management and the importance of its separate collection/separation at source precede the construction of the incinerator. After the incinerator for non-hazardous waste is built, or in case of a change of plans for the sanitary landfill, it is necessary to establish a proper database on waste streams since the amounts of incinerated and disposed waste will be measured at the entrance to the site. In addition, although the data are currently based on an estimate of the number and volume of trucks unloaded, it is not possible to obtain data for each municipality / city on the statistical office website (INSTAT). It can be concluded that the data need to be more transparent. The websites of the competent authorities in waste sector need to be updated and contain more information in at least two languages, Albanian and English, for foreigners, tourists.

General recommendations for all three cities are provided in detail in the Baseline Study, and they address: economic incentives, legal enforcement, customized facilities and engaging communication.