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PUBLICATION ON THE RECYCLING EXPERIENCE OF UNGHENI CITY



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1. INTRODUCTION

Waste is an increasingly important issue at global, regional and local level. Solid waste from human activities is usually disposed of and considered useless. As a result of the rapid increase in production and consumption, communities regularly produce more and more solid waste, which leads to an increase in the volume of waste generated from various sources. Solid waste has a high potential to pollute all vital components of the environment both locally and globally. In these conditions, the adequate solid waste management is the central pillar of long-term policies aimed at sustainable development, with priority given to minimizing the amount of waste generated, recycling, reuse and disposal of waste as polluting as possible.

Improper waste management poses considerable risks to public health, as well as additional costs in the short and long term.

Waste management is one of the priority environmental issues in the countries of the Black Sea region, especially in the former Soviet countries, because they are and remain an important source of environmental pollution.

Waste of any kind, resulting from many human activities, is a problem of great relevance in Ungheni City and neighboring localities, both due to increasing quantities and their types (which through degradation and infestation pose a danger to the natural environment and public health), as well as significant amounts of raw materials, reusable materials and energy that can be recovered and introduced into the economic circuit. The urban and industrial development of the localities in the region, as well as the general increase of the living standard of the population entails the production of more and more quantities of waste. Due to the variety of contained organic and inorganic substances, they make the process of aerobic and anaerobic degradation by microorganisms difficult to be managed causing, in case of uncontrolled evacuation and storage, both soil and air and water pollution.

Pollution caused by waste in Ungheni City and neighboring localities affects the quality of all environmental components, including the health of the population. That is why it is necessary to take concrete measures to promote an adequate waste management system, including the promotion of selective waste collection which means separate collection of packaging waste (by types of waste or sorts of materials), household waste or other types of waste.

Through the Brochure "Recycling experience of Ungheni City" we aim to highlight a number of issues related to solid waste management, the current policy of the European Union and the Republic of Moldova in this field, as well as a set of good practices of Ungheni City, which can contribute to increase the recycling rate at regional and local level.

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2. THE EUROPEAN UNION POLICY ON WASTE - A POLICY WITHOUT WASTE

"Waste is too valuable to waste. Recycling and "urban mining" can currently produce 350 kg of gold from a ton of e-waste, making it much more efficient than traditional mining."

Karl Falkenberg, ex- Director General of DG Environment, EC

The European Union's waste management policy is set out in the various Environmental Action Programs, is implemented through the Waste Management Strategy and subsequent legislative measures, through EU Directives, Regulations and Decisions on specific waste management issues.

Turning waste into a resource is part of "closing the loop" in circular economy-based systems. The objectives and targets set in European legislation have been key factors in better waste management; they stimulate innovation in recycling and reuse, limit waste storage, reduce resource losses and create incentives to change behavior.

Circular Economy Action Plan The European Green Deal The new EU circular action plan paves the way for a cleaner and more competitive Europe. The European Commission adopted the new Circular Economy Action Plan (CEAP) in March 2020. The EU's transition to a circular economy will reduce pressure on natural resources and ensure sustainable growth and jobs. It is also a precondition for achieving the EU's 2050 climate neutrality

target and halting biodiversity loss.

The new action plan announces initiatives throughout the product life cycle. It aims at how products are designed, promotes circular economy processes, encourages sustainable consumption, and aims to ensure that waste is prevented and that the resources used are kept in the EU economy for as long as possible.

It introduces legislative and non-legislative measures targeting areas where action at EU level brings real added value.

The measures to be introduced in the new action plan are targeting:

- sustainable products to become as norm in the EU
- empowering consumers and public purchasers

- focus on the sectors that use the most resources and where the potential for circularity is high, such as: electronics and ICT, batteries and vehicles, packaging, plastics, textiles, construction and buildings, food, water and nutrients

- waste reduction
- ensuring circularity for people, regions and cities
- leading global efforts on the circular economy

Transforming waste into resources is the key to the circular economy. According to the European Commission's recent Communication on "The circular economy - a zero waste program for Europe", the landfill of all recyclable waste must be phased out by 2025, and by 2030 Member States should work to eliminate waste disposal virtually, which to use as

resources.

The transition to a circular economy is at the heart of the resource efficiency agenda set by the Europe 2020 Strategy for smart, sustainable and inclusive growth. The main ideas on how to "do more with less" were in the European Union's Environment Action Program. The European Union has made significant progress in transforming waste into resources and promoting sustainable ways of managing waste, such as recycling. However, performance varies considerably between Member States. Six states have already eliminated municipal waste disposal, reducing landfill volume from 90% to less than 5% in the last 20 years, and achieved recycling rates of 85% in certain regions. In other Member States, more than 90% of waste is still stored, being recycled in less than 5%.



3. WASTE HIERARCHY IN THE EUROPEAN UNION

Directive 2008/98/EC of the European Parliament entered into force on 12 December 2010 with a view to transforming EU Member States into "*recycling societies*". The directive focuses on waste as a prime resource that can provide opportunities for sustainable growth in a low-emission economy.

According to Directive 2008/98/EC, prevention is the first priority in waste management and is the action taken before a substance, material or product becomes waste.

The waste hierarchy is based on the order of priorities of the legislative framework and policy on the prevention of waste generation and management, as follows:

- Prevention
- Preparedness for reutilization
- Recycling
- Other recovery operations, for example energy recovery
- Elimination



Waste hierarchy and protection of public health and the environment are obligations and not options. Failure to do so will result in severe fines. Waste managers at the level of producers or waste owners must take concrete steps to respect the waste hierarchy and protect the health of the population and the environment when designing, applying, verifying and analyzing the effectiveness of the waste management system within the community or organizations.

The Waste Framework Directive sets out the basic concepts and definitions related to waste management, including definitions of waste, recycling and recovery.

It provides for waste to be managed:

- without endangering human health and harming the environment
- without risks to water, air, soil, plants or animals
- without causing damage from noise or odors
- without adversely affecting the rural environment or places of special interest

It explains when waste ceases to be waste and becomes a secondary raw material and how to distinguish between waste and by-products. The Directive also introduces the "polluter pays" principle and "extended producer responsibility".

The basis for waste management in the EU is the five-step "waste hierarchy" set out in the Waste Framework Directive. It establishes an order of preference for management and disposal.

In order to meet the objectives of this Directive, EU countries should take the necessary measures to achieve the following objectives:

- by 2020, preparation for reuse and recycling of household waste (such as paper, metal, plastic and glass) will increase to at least 50% by weight.
- by 2020, preparation for reuse, recycling and recovery of other materials, including landfill operations using waste to replace other materials, non-hazardous construction and demolition waste will increase to at least 70% by weight by 2025, preparation for reuse and recycling municipal waste will increase to a minimum of 55%, 60% and 65% by weight by 2025, 2030 and 2035, respectively.

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4. THE REPUBLIC OF MOLDOVA ON THE WAY OF THE EUROPEAN UNION "ZERO WASTE"

"The strategic vision of waste management in the Republic of Moldova consists in the development by 2027 of an integrated waste management system, economically efficient and ensuring the protection of the environment and public health."

The waste management system is currently insufficient and needs a reform to be developed in the Republic

of Moldova. For the successful development of the sector in the region, the experience gained in this field and in other countries should be considered, which can provide informational support for the planning of the waste management process.



Waste management continues to be a priority of the environmental policy in the Republic of Moldova, focusing on EU Directives in the field of waste management, as well as the promotion of the circular economy, turning challenges into possibilities and contributing to more sustainable economic growth.

To ensure the execution of priority actions in the field of environmental protection, provided by the Government Action Program for the implementation of the Government Action Plan, for the development of infrastructure and services necessary to adequately protect the environment at global, national and localw level from the effects associated with waste management generated by citizens, businesses and institutions, as well as to establish the necessary legal and institutional framework to support the gradual alignment of Moldova's waste management practices with those of the European Union, in April 2013, it was approved the Waste Management Strategy in the Republic of Moldova for 2013-2027.

Promoting the regional approach in waste management planning is essential both to attract the necessary investments and to ensure the recovery of the high costs allocated for the implementation of the Waste Management Strategy in the Republic of Moldova for 2013-2027.

The general objectives of the Strategy are as follows:

- development of integrated household waste management systems by harmonizing the legislative, institutional and normative framework with EU standards, based on regional approach and territorial division of the country into 8 waste management regions;
- 2) development of regional solid waste disposal infrastructure and transfer stations, in line with EU Member State practices;
- development of systems for collecting and treating specific waste streams (waste electrical equipment, rubber, batteries, etc.) by promoting / implementing the principle "producer responsibility."

Updating the political and legislative framework in the field of environmental protection, in accordance with the National Action Plan for the implementation of the Association Agreement Moldova - European Union, along with the implementation of technical assistance projects of external donors, including the European Union (EU) are the main reasons of the transformation of municipal solid waste management at national level.

In this regard, the Ministry of Environment aims to update waste management policies to improve environmental conditions and apply the waste hierarchy to all types of waste that are subject to planning.

The hierarchy of the most efficient waste management options is a simplified conceptual framework, which provides:

 "Preventing waste production", is positioned at the top of the hierarchy and consists in slowing down and eventually reversing the growth rate of waste and the hazardous properties of the generated waste;



- "Preparation for reuse" means checking, cleaning, repairing or recovering operations by which products or components of products which have become waste are prepared in such a way that they can be reused without any further processing;
- 3) "Recycling" means any recovery operation by which residual materials are processed into products, materials or substances, whether for original or other purposes. Recycling includes the reprocessing of organic materials, but does not include energy recovery and reprocessing into materials to be used as fuels or for filling operations;
- "Materials recovery" means any recovery operation other than energy recovery and reprocessing into materials to be used as fuels or other means to generate energy. This includes, but is not limited to, preparation for reuse, recycling and filling;
- 5) "Other recovery" means any operation the main result of which is waste which serves a useful purpose by replacing other material which would otherwise have been used for the performance of a particular function or waste which is prepared for that function, in the installation or in other economic sectors;
- 6) "Elimination", means any operation which does not consist in recovery, even where the operation has as a secondary consequence the recovery of substances or energy.

Waste management policy consists of developing the necessary infrastructure and services to adequately protect the global, national and local environment from the effects associated with waste management generated by citizens, businesses and institutions.

According to the Government Decision no. 160/2018 for the approval of the Program for the promotion of the "green" economy in the Republic of Moldova for 2018-2020 and of the Action Plan for its implementation the transition to a circular economy is a priority at the national level. Government Decision no. 592/2019 on the approval of the Greening Program



for small and medium enterprises. In the circular economy, the value of products, materials and resources is kept in the economy for as long as possible, and waste generation is kept to a minimum. The promotion of the "green" economy in the sectors of the national economy was also included as a priority action in the National Development Strategy "Moldova 2030".

In order to modernize the infrastructure in the Waste Management Region, as a first step there was selected as a pilot project in RMD no. 5 (districts: Nisporeni, Ungheni and Calarasi) as part of the macrofinancing to be granted by the European Investment Bank, within the project "Solid waste in the Republic of Moldova", with a first commitment of the tranche of EUR 25 million, under a EUR 100 million Loan Program, intended to finance the development of infrastructure in the Waste Management Regions (regional landfills, sorting stations, composting, transfer stations, etc.) which is the main link of the primary integrated waste management system with subsequent integration and other waste recovery technologies focused on a circular economy.

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Thus, in order to demonstrate the efficiency of an integrated waste management at regional level, based on the waste hierarchy, during 2022 the design and construction of the waste management infrastructure in WMR no. 5 will be initiated , continuing this process in WMR no.1 (districts: Briceni, Ocnita, Edinet, Donduseni) and no.8 (1- Cantemir district, Cahul City, Taraclia district and ATU Gagauzia, Vulcanesti and Ceadir-Lunga) during the period 2022-2025, which will later serve as a model for other WMR.

5. LEGAL FRAME AD INSTITUTIONAL ARRANGEMENTS IN THE REPUBLIC OF MOLDOVA ON WASTE MANAGEMENT

The legislation in the field of waste management includes a series of normative acts, which regulate:

- general provisions on the organization of waste management at national level, including by type;
- provisions specific to the organization of waste management at LPA level, including the delegation of service management.

The basic act in the field of waste management is the Waste Management Strategy in the Republic of Moldova for 2013-2027, adopted by Government Decision no. 248 of April 10, 2013, which identifies the important aspect that contributes to the establishment of an integrated waste management system at regional level - "promoting international cooperation, in order to establish regional waste management associations, defining distinct roles within the institutional system".

The field of waste management is regulated by Law no. 209/2016 on waste. For the implementation of Law no. 209/2016, several normative acts of essential importance were approved:

- The list of waste, approved by GD no. 99/2018, approving a Classifier of waste, including hazardous waste;
- Sanitary regulation on waste management resulting from medical activity, approved by GD no. 696/2018;
- Regulation on waste electrical and electronic equipment, approved by GD no. 212/2018;
- Regulation on packaging and packaging waste, approved by GD no. 561/2020;
- Regulation on the management of batteries and accumulators and waste batteries and accumulators approved by GD no. 586/2020.

Law 209/2006 establishes a series of relevant LPA attributions in the field of waste management (art. 11), such as:

a) the creation of an efficient collection system, of staged insurance of the conditions for separate collection and transportation of waste and the establishment of its operation, in accordance with the provisions of this law and other normative acts;

b) the allocation of land necessary for the separate collection of waste, including the collection of waste products subject to extended producer responsibility regulations, their endowment with containers specific to the types of waste, as well as their functionality;

c) arranging special spaces for the storage of separately collected waste, properly sized, in order to ensure the protection of the environment and the health of the population;

d) storage of municipal waste only in specially arranged places, in accordance with urban planning documentation;

e) evidence of data and information on waste and municipal waste collection from the population, from commercial units and institutions, on a contract basis, reporting annually these data, through municipal waste management operators, Ministry of Agriculture, Regional Development and Environment, in accordance with the methodology of record keeping and information transmission, approved by the Government.

Including the article cited in par. (2) stipulates that the LPA contributes, within the limits of the competences established by this law, to the establishment of an integrated waste management system at regional level and ensures regional cooperation in order to set up regional waste management associations.

6. WASTE: A PROBLEM OR A RESOURCE?

Among the many problems that the planet has, waste is one of the biggest sources of pollution and is a problem with a major impact on the environment. Waste can impact the environment in many ways - from the way the waste is produced to the way it is collected and processed, all these steps have an impact on the environment and quality of life.

In most cases, due to the lack of infrastructure and proper management, landfills, both household and industrial, have a negative impact on the environment. These landfills change the landscape and the quality of the surrounding air, pollute the surface waters and change the fertility and quality of the surrounding soil.

Some ecosystems, such as marine or coastal ecosystems, can be severely affected by improper waste management or disposal. Marine waste is a growing concern, and not just for aesthetic reasons: the fact that animals remain trapped in this waste, as well as their ingestion, pose serious threats to many marine species.

Waste also has an indirect impact on the environment. Anything that is not recycled or recovered from waste represents a loss of raw materials and other production factors used in the chain, respectively in the stages of production, transportation and consumption of the product. Environmental impacts in the life cycle chain are significantly higher than those that occur exclusively in the waste management phase.

Directly or indirectly, waste affects our health and well-being in many ways: methane gas contributes to climate change, air pollutants are released into the atmosphere, drinking water sources are contaminated, crops grow on contaminated land, and fish ingest toxic chemicals, after which they reach our plates.

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Transforming waste into a resource by 2020 has been one of the main objectives of the EU Roadmap to an Energy Efficient Europe. The roadmap also highlighted the need to ensure a high-quality recycling, disposal of landfills, limiting energy recovery from non-recyclable materials and stopping illegal shipments of waste.



In many countries, kitchen and gardening waste makes up the bulk of municipal solid waste. Waste of this type, when collected separately, can be transformed into an energy source or fertilizer.

Anaerobic digestion is a method of waste treatment that involves the passage of biodegradable waste through a process of biological decomposition, similar to that in landfills, but under controlled conditions.

Anaerobic digestion produces biogas and waste materials which in turn can be used as fertilizers, such as compost.

About 10% of all waste generated in Europe is what is called "municipal waste" - waste generated mainly by households and, to a lesser extent, by small businesses and public buildings, such as schools and hospitals. The amount of waste we generate is closely linked to our consumption and production patterns. The very large number of products entering the market is another challenge. Demographic changes, such as the increase in the number of single-person households, also affect the amount of waste we generate (for example, the packaging of products in smaller packages).

Reuse of waste is an important stage in its management. Materials such as glass, aluminum, iron, precious metals from electronics and household devices, etc. can be selected and reused, thus reducing the amount of waste that reaches the environment.



Recycling is the best option after reuse. By recycling, used goods are transformed into new products, which contributes to saving limited resources and protecting natural habitats. Recycling also avoids water and air pollution, generated by mining, stone guarries and forestry to obtain raw materials, and requires less energy to manufacture new products compared to the production of raw materials. This reduces the amount of waste that ends up in landfills or waste incineration plants, which are the main sources of methane emissions, a greenhouse gas with an impact 20 times greater on climate change than carbon dioxide.

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7. STRATEGIC PLANNING AND PROGRAMMING OF WASTE MANAGEMENT IN UNGHENI CITY

Within the project "Strengthening the capacity to implement fiscal reform in the field of environment to achieve national and global environmental priorities", funded by the United Nations Development Program, the Local Environmental Action Plan (LEAP) 2015-2020 was developed - a document of environmental policies of the LPA in Ungheni City, short and medium term program for finding and solving environmental problems at the locality level, based on the principles of sustainable development and in full accordance

with other local and national acts in force. The plan reflects the prior environmental problems of the locality, establishes the objectives and actions for solving the problems. The Local Environmental Action Plan provides an integrated, comprehensive, and quantifiable framework for identifying and solving the city's environmental problems. The implementation of the LEAP was foreseen for the period 2015-2020, after which the Plan is to be revised, based on the monitoring and evaluation report. The successful implementation of LEAP was ensured only by combining the efforts of LPA in Ungheni entire urban community: and the public institutions, economic agents, civil society, etc.



LEAP's vision is based on the reform implemented

in the field of environmental protection, so as to operate an institutional, administrative and environmental management system adjusted to the national and European Union rigors, to ensure environmental sustainability and increase the quality of environmental factors. The aim of LEAP is to guarantee the inhabitants of Ungheni City the right to a sustainable, unpolluted and healthy environment, in harmony with economic, spiritual development and social welfare. The general objective of LEAP is to create an efficient environmental management system, which will contribute to increasing the quality of the environment, in the medium and long term. Waste management and Access to environmental information and ecological education are the priority areas of this plan.

The Waste Management Plan of Ungheni City (2015 - 2020) includes a description of the objectives and targets for waste management in Ungheni City, potential significant effects on the environment, as well as measures to prevent / reduce and offset the adverse effects on the environment.

The Waste Management Plan of Ungheni City aims to achieve the following objectives:

- Developing the municipal / local environmental policy in order to implement an integrated waste management system
- Adaptating and developing of the institutional and organizational framework in order to meet national requirements and compatibility with European structures
- Ensuring human resources in number and professional training

- Creating and using the economic and financial systems and mechanisms for waste management in accordance with the
 - general principles, in particular the "polluter pays" principle
- Promoting an information, awareness and motivation system for all involved parties
- Obtaining complete and accurate data and information that meet reporting requirements at national and European level
- Maximizing waste generation prevention
- Exploitating all technical and economic possibilities regarding the waste recovery
- Improving / developing an integrated waste collection and transportation system
- Promoting waste treatment in order to ensure a rational ecological management
- Reducing the amount of disposed packaging waste
- Reducing the amount of stored biodegradable waste

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- Proper management in compliance with strategic principles and minimizing the impact on the environment and human health
- Separate / selective waste collection
- Reduction, reuse, recycling and recovery of waste components
- Disposal of waste in accordance with the requirements of waste management legislation in order to protect public health and the environment.

7.1. Best practices of recovering the experience on strategic planning and programming of waste management in Ungheni City

A way of recovering the experience obtained by Ungheni City Hall in the process of strategic planning and programming of waste management is to try to extract from this experience the essential aspects that should be considered and the good practices presented below.

1. The strategic environmental documents developed and implemented by Ungheni City Hall contributed to the modernization of a basic service: waste management in the public space.

2. The solutions identified and adopted for the collection and recycling of waste from public spaces and the private sector have improved environmental pollution:

containers purchased for the selective collection of waste (plastic, paper, glass) and placed in the yards of multi-storey apartment blocks in the city's neighborhoods;

selectively collected waste (plastic, PET, paper, cardboard, glass) using special containers, located in the yards of multi-storey apartment blocks and on the main streets of the city;

containers and special vehicles purchased for the WEEE selective collection and transportation, a point arranged for their storage;

• WEEE collected free of charge from citizens' homes or legal entities: transport insured, sorted and stored waste;

strengthened the management capacity of selectively collected waste in the public space;

citizens, public administrations, public and private institutions involved in conducting environmental activities;

recyclable waste recovered (especially paper, cardboard, PETs);

permanent environmental protection actions: information, sensitization and awareness campaigns, recycling campaigns, ecological spring and autumn monthly activities, cleaning up / greening events of public spaces, celebrated national and international environmental days, etc.;

waste recycling promoted by organizing voluntary and proactive environmental actions with citizens of all ages



Containers and trucks purchased for selective waste collection in the public space

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- 3. Citizens are aware of the following:
 - Selective waste collection is a process that allows the recycling of different types of materials: paper-cardboard, glass, PETs, etc. and it is a very advantageous method from an economic point of view.

	By the separate collection of recyclable waste:
\Rightarrow	We reduce the amount of waste that are brought at the landfill
\Rightarrow	We save raw materials, energy, money and time
\Rightarrow	We protect forests and clean air
\Rightarrow	We reduce air and water pollution
\Rightarrow	We gain storage space for the rest of waste

The following steps must be taken to achieve selective collection:

- \Rightarrow placing containers for selective collection in waste storage areas
- \Rightarrow preparing the population for selective collection
- \Rightarrow realizing the complete collection-recycling circuits
- \Rightarrow reusing raw material

The most effective messages and alerts for the public: * For health and a cleaner environment, collect waste separately! *DO NOT dispose of waste of any kind in the public space! *DO NOT dispose of garbage bags near the bins!

Waste recycling limits the waste of resources and ensures a more efficient use of them.

The biggest environmental advantages of recycling are related to the conservation of natural resources, energy and the reduction of pollution in the production process resulting from the use of recycled raw materials instead of pure raw materials. It is easier to recycle:

- Paper (old books, clean newspapers, prints, magazines, cardboard packaging, etc.)
- □ Plastic packaging (PETs, plastic bags).

The collection, processing, transport and execution of new products from recovered materials lead to less air and water pollutants, less solid waste, to the use of smaller quantities of raw materials in the production process.

The following strategies are required in the field of recycling:

- prevention of waste formation
- waste recovery by optimizing the collection and sorting systems
- final disposal of waste that has not been recovered

4. Ungheni City Hall and neighboring localities have expanded their collaboration with AVE UNGHENI - the selective waste collection operator - registering the following results:

Operational capacities have been optimized, collection efficiency increased:	Beautified public spaces, improved quality of life:	Sustainable practices, reduced carbon footprint:
There have been purchased trucks for waste collection and transportation, equipped with special mechanisms for lifting and unloading containers, which serve the city and some neighboring rural localities	Cleanliness and aesthetics of public spaces provided by selective waste collection and disposal of visible garbage	The public space recycling program introduced and developed, with several flows at each collection point
Consumption of waste collection machines, working hours, vehicle wear and fuel consumption has been reduced consecutively	Cleaner and greener public spaces, with less trash in the garbage can	The carbon footprint and CO2 emissions, fuel consumption and air pollution have been reduced
Route productivity and efficiency has increased by optimizing collections and reallocating resources	Greater road safety (reduced truck traffic, noise and congestion)	Less narrow public spaces for a cleaner and more sustainable environment due to selective waste collection

8. WASTE COLLECTION IN UNGHENI CITY - HISTORIC

Until 2008, the individual sector (dwelling houses) was not covered by the sanitation service, the collection and transportation of waste being carried out by each individual household.



Thus, an outdated waste collection system was taken over, featured by:

- \checkmark Obsolete and insufficient containers for waste collection
- ✓ Inadequate hygienic-sanitary condition of the waste disposal gutters at the 9storey blocks of flats
- ✓ Damaged collection points, low storage capacity
- ✓ Manual operations for waste collection, insufficient staff.



Since 2008, the organizational structure of the collection system is changing as follows:



Organizational structure of sanitation services, including waste collection in Ungheni City



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8.1. Technical equipment

The waste collection infrastructure in Ungheni City of LTD "AVE Ungheni" consists mainly of the technical and special equipment of the enterprise and includes containers:



Starting with 2008, the selective waste collection in Ungheni City is performed only by LTD AVE Ungheni. The plastic and the paper are brought at the sorting station of the enterprise from 1 Lacului street, Ungheni City, and then they are sold for recycling. During 2019, 263.13 tons of recyclable waste were sold, of which 27.25 tons of PET, 235.9 tons of cardboard.

The company provides services, for a fee, for the collection of construction waste and provides a container of 7 m3. The construction materials are used for road repairs or stored, and if they are mixed with household waste, they are transported to the landfill in the village of Cetireni.



At the same time, thanks to the implementation of the project "Free Rivers for a clean Black Sea", BSB-457, financed by the Joint Operational Program Black Sea Basin and the project "Selective collection of waste electrical and electronic equipment in Ungheni City", co-financed by Slovak Agency for International Cooperation in Development, since 2016, the company has the opportunity to collect and store electrical and electronic waste (WEEE).

Now, the WEEE collection system is equipped with:

- \checkmark 50 containers for small electrical equipment, with a capacity of 35-55 L
- ✓ 40 cardboard containers for collecting fluorescent tubes and batteries
- ✓ 7 metal containers for storing small electrical equipment at the storage center
- ✓ 1 storage container with a capacity of 32.85 m3
- ✓ 2 batteries storage containers at the storage center
- ✓ 3 metal containers 8 m3
- ✓ 6 plastic containers / box pallets 1200x1000x790mm
- ✓ 3 metal containers / box pallets 1200x1000x650mm
- ✓ 4 metal containers of 4,5 m3
- ✓ 25 small WEEE collection containers of 1,1 m3
- ✓ 1 mini-truck for WEEE collection
- ✓ Truck IVECO ML 170 E22H for WEEE transportation



WEEE collection system

8.2. Waste management in Ungheni City - LTD AVE Ungheni - Present Coverage area with services

The degree of coverage of households in Ungheni district with waste disposal services in urban areas is - 75%, and in rural areas 13%. In most rural localities there is no waste disposal service, 2/3 of the population is not provided with this service.

In Ungheni City (operator LTD "AVE Ungheni"), the way of waste collection in the area of apartment blocks is from fixed points, from where the waste is discharged daily. Waste from individual houses in Ungheni City and rural localities served by the operator is collected according to the predetermined route and only based on the concluded contracts, the frequency being 1-2 times per month.

#	TAU	Population	No. Of	No. Of served	% service
		(2020)	households	households	coverage
1	Ungheni City	34833	14441	9673	67 %
2	Com. Zagarancea (v. Zagarancea, Semeni)	3419	2034	639	31%
3	Com. Petresti	4109	1846	110	6%
4	Com. Valea Mare (v. Valea Mare, Buzduganii de Sus, Buzduganii de Jos, Morenii Vechi)	3041	1650	274	17%
5	Com. Sculeni (v. Sculeni, Gherman, Floreni, Blindesti)	5004	2404	380	16%
6	TOTAL	50406	22375	11076	50%

Degree of service coverage by LTD "AVE Ungheni"

In order to increase the level of coverage with sanitation services, but especially to test the recycling of waste (plastic, cardboard / paper), within the project "Anti-Littering Partnership for Green Rural Areas", BSB-1138, pilot collection points were created in 5 rural localities from Ungheni district: Pirlita, Valea Mare, Manoilesti, Zagarancea, Costuleni.

Thus, citizens apply the selective collection instructions in the scheme below.





9. COOPERATION AND CAPACITY BUILDING FOR AN EFFICIENT WASTE RECYCLING IN UNGHENI CITY

For a better organization of the cooperation of community actors in the field of

waste recycling, Ungheni City Hall attracted a wide circle of partners (29 subjects): local public administrations from 5 rural localities, 1 public institution, 12 schools and 5 preschools, 6 non-governmental organizations and local initiative groups. Thus, the Multilateral Memorandum of Cooperation was signed, creating a general framework for regulating mutual relations between partners, with their involvement and active participation in a series of actions for the implementation of the project BSB-1138 "Anti-Littering Partnership for Green Rural Areas":

- Communication activities (project launch conference)
- Assistance and consultancy activities at the Waste Recycling Consultation and Education Point
- Activities to promote individual / home composting (training and organization of waste composting)

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- Activities of the anti-waste educational program on the 3R principle of waste management (meetings with students in schools, training of target groups: teachers, NGOs, women, media, etc.)
- Cleaning up activities and celebration of International and Local Environmental Days
- Drawing contest under the topic dedicated to environmental protection



9.1. Best practices of recovering the experience on cooperation and capacity building for an efficient recycling in Ungheni City

In order to develop the cooperation and increase the capacities of community actors, a whole set of judiciously correlated activities and actions was implemented in order to improve the environmental and health conditions of the population which involved the development of an adequate community mentality, change of attitude and behavior towards the environment. environment and civic responsibility for transmitting to future generations a clean and healthy environment, respecting the three dimensions of sustainable development - economic, ecological and social.



Trainings on waste management in Ungheni City

The activities conducted on the basis of the Multilateral Memorandum of Cooperation intensified the cooperation between the 6 beneficiary localities and contributed to educating and raising public awareness on the measures that can be taken by each citizen, so as to contribute to stopping pollution and maintaining a clean and hospitable environment.



Cleaning up activities in Ungheni City and beneficiary rural localities

Mayors received assistance and advice at the point of consultation and education on waste recycling provided by experts and consultants. There they were informed about the benefits of separate waste collection, they were provided with informative and instructive materials to increase awareness, mobilization and involvement of citizens in the development of environmental policies, especially those related to waste management.



The elaborated and distributed promotional materials had a positive impact, where the emphasis was on the benefits of separate waste collection for health and the environment.

PRACTICA EUROPEANĂ A COMPOSTĂRII INDIVIDUALE (LA DOMICHIU)	Common borders. Common solutions.
	Control C
Promotional materials	Image: State

The newly created regional sanitation service "Salubritate GRUP" will contribute to the



Germany (GIZ) and the Gap Analysis, prepared by COWI (Denmark) at the request of the European Bank for Reconstruction and Development, to implement with success the Pilot project in the Waste Management Region no. 5, which provides for the creation of an efficient solid waste management system

development of the capacities of the main stakeholders actors. The mission of the new company will be to collect nonhazardous waste, treat and dispose of it, recover the sorted recycled and The creation JSC materials. of "Salubritate Grup" comes as a result of the Feasibility Study, prepared by the Agency for International Cooperation of



at regional level and, respectively, the initiation of the processes of design and construction of the necessary infrastructure.

10. NEEDS AND PERSPECTIVES ON THE DEVELOPMENT OF THE WASTE MANAGEMENT SYSTEM

In order to ensure the needs of waste collection and transportation and their recycling, but also to extend the system to rural localities, the following investments and measures are necessary:

- ✓ Purchasing a special vehicle with a capacity of 18 m3
- ✓ Purchasing of 172 containers of 1.1 m3 for the extension of the sanitation service in the target communities
- ✓ Fitting out 172 platforms for containers in rural areas
- Purchasing 300 containers with a volume of 1.1 m3 and 600 bins with a volume of 120 l to replace the damaged ones (in Ungheni City)
- ✓ Purchasing a shredder for crushing vegetable waste
- ✓ Purchasing a multifunctional bulldozer excavator to be used at the landfill for waste burial and other works
- ✓ Purchasing a bulldozer in value that will be used for compacting waste at landfill
- ✓ Works for fitting out a sorting hall and equipping it with a sorting conveyor belt
- \checkmark Increasing the number of beneficiaries of the service and, respectively, the volume of sales revenue
- ✓ Extending the selective collection in the served localities

- ✓ Organizing and supporting information and awareness campaigns in the field of waste management and environmental protection
- ✓ training sessions on waste management for local authorities
- $\checkmark\,$ public awareness programs in the field of waste management, including the payment of the service
- ✓ informative materials for the correct management of waste: billboards, leaflets, brochures, etc.
- ✓ programs for composting in individual households
- \checkmark competitions and educational actions at the level of schools, supported by the local authority, sanitation operators and non-governmental organizations in the area.

11. Lessons learned

Efficient waste management in Ungheni City is directly conditioned by the education of an eco-responsible behavior from waste generators and the creation of the necessary premises (eg infrastructure, economic incentives, policies and regulations, etc.), which would facilitate the process of selective collection of waste from the source of this waste, directly influencing the decision to hand it over to authorized operators to the detriment of the decision to keep it on a long-term basis or to store it even more in a mixture with other waste.

Based on the above, but also in order to achieve several objectives of the local, national strategies, it is absolutely necessary to start the transition to a circular economy, recognizing from the start the value of the waste we throw in the landfill. Namely through the correct management of this waste by all the actors involved in these processes, we have the solution for a better quality of life, with safe jobs and a clean environment.

Thus, the main lessons learned in the process of implementing selective waste collection in Ungheni are:

- ✓ It is necessary to attract as wide as possible a circle of partners who can support the cooperation process, relevant ministries, district administration, nongovernmental organizations, local initiative groups, etc.;
- $\checkmark~$ Realistic assessment and diagnosis of needs, especially investments;
- Collaboration with civil society in order to increase awareness and sensitization among the population, through various methods, such as national cleaning up days, information campaigns in schools or public exhibitions;
- ✓ Involvemet of all relevant community actors and ensuring a participatory process;
- ✓ Creation and coordination of a group of community actors and a structural approach to the subject can lead to a successful outcome;
- ✓ Best practices and the experience of other cities and states are very useful in developing an own approach to selective waste collection and recycling;
- ✓ Citizens need to become central focal points in the collection process, being informed about the needs and benefits of appropriate selective waste collection and active involvement at all stages of the process.





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COOPERATION

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Joint Operational Programme Black Sea Basin 2014 - 2020

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