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State-of-the-Art Review of Scientific Studies on Plastic Pollution in Albania

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List of Abbreviations

- **AMBU** – Albanian Water Resources Management Agency
- **CSO** – Civil Society Organization
- **EU** – European Union
- **GIZ** – Deutsche Gesellschaft für Internationale Zusammenarbeit (German Development Cooperation)
- **INSTAT** – Albanian Institute of Statistics
- **IUCN** – International Union for Conservation of Nature
- **MoTE** – Ministry of Tourism and Environment
- **MSW** – Municipal Solid Waste
- **NASRI** – National Agency for Scientific Research and Innovation
- **NEA** – National Environment Agency
- **NGO** – Non-Governmental Organization
- **OECD** – Organisation for Economic Co-operation and Development
- **UNEP** – United Nations Environment Programme
- **URI** – Urban Research Institute
- **WMZ** – Waste Management Zone
- **EPR** – Extended Producer Responsibility

1. Executive Summary

This comprehensive state-of-the-art review examines plastic pollution and waste management practices in Albania, with particular attention to the Shkumbin River region. The study reveals both progress and persistent challenges in Albania's efforts to address plastic pollution and implement effective waste management systems.

Current data indicates that Albania's waste management services cover 89.2% of the population (approximately 2.46 million people), leaving roughly 298,273 inhabitants without access to formal waste collection services. Analysis of waste composition shows that plastic constitutes 9.27% of total waste collected (78,253 tons annually). However, the country's recycling rate remains low at 18.81%, while most of the waste (76.49%) is disposed of in landfills or deposit sites, highlighting significant gaps in waste processing infrastructure.

International donor support has played a crucial role in advancing waste management practices in Albania. Key stakeholders including GIZ, Swiss government agencies, and the European Union have implemented various projects focusing on infrastructure development, capacity building, and policy alignment with EU standards. Notable initiatives include the installation of waste catching devices in critical areas and the implementation of integrated waste management systems at the municipal level.

Research conducted along Albania's coastline and rivers has revealed concerning levels of plastic pollution. Studies show that artificial polymer materials constitute between 65-96% of collected litter in monitored areas, with particularly high concentrations near river mouths and popular tourist beaches. The Shkumbin River, despite being identified as a significant contributor to marine pollution, lacks comprehensive monitoring data and targeted intervention programs.

The review identifies critical gaps in research and practice, particularly regarding microplastic pollution monitoring, standardized data collection methods, and policy effectiveness assessment. The absence of a centralized digital reporting system and limited waste processing infrastructure further compounds these challenges. Municipality reporting remains incomplete, with only 39 of 61 municipalities providing regular waste data, hampering comprehensive sector analysis and planning.

Recent policy developments, including the 2024 law on integrated waste management and the establishment of the National Agency for Waste Economy, demonstrate political commitment to addressing these challenges. However, implementation and enforcement of existing regulations remain weak, particularly at the municipal level where resources and technical capacity are limited.

2. Introduction

The Mediterranean region, due to its geographical and environmental characteristics, is considered highly vulnerable to climate change and the Mediterranean Sea is considered one of the most polluted seas in the world. With a concentration of human activity, the region has undergone numerous changes to accommodate a population of around 500 million people, the majority of whom live in urban settlements near the coast. Furthermore, the increasing flow of tourists to the region further contributes to the number of people moving in and out of the area. It is estimated that tourism causes a one-third[1] increase in waste generation during the summer months. This rise in waste volume can strain the capacity of municipalities, particularly coastal ones, to manage waste effectively. It also places additional pressure on coastal businesses that seek to improve the quality of the environment in which they operate.

[1] De Souza Machado et al. "Microplastics as an Emerging Threat to Terrestrial Ecosystems. 2018 (link)

According to the European Environment Agency, marine litter refers to human-made items that end up on coastlines as a result of poor waste management on land. Land-based sources account for 80% of marine litter, with approximately 85% of it being plastic[2]. This litter is not only problematic for marine life but also poses risks to human health, particularly through the consumption of fish and other marine species.

All Mediterranean countries face challenges with marine litter. European countries tend to link marine pollution to products consumed and used by tourists on beaches, while the countries of the Western Balkans and North Africa experience more severe issues, primarily due to poor municipal waste management. In these regions, inadequate waste collection infrastructure allows waste to accumulate on riverbanks, from where it is eventually transported to the sea.

Albania is a country located in the Western Balkans, bordered by the Adriatic Sea to the northwestern part and the Ionian Sea to the southwestern part. It is rich in water resources, with seven major river basins that extend from the north to the south of the country, crossing from east to west, along with a coastline that stretches for 316 km. These geographical features are strengths of the country, providing added value to sectors such as tourism, agriculture, and biodiversity. However, they also present environmental challenges. The use of riverbeds for extracting inert materials, the discharge of untreated industrial wastewater, and the disposal of municipal waste can result in the destruction of river ecosystems and, consequently, the marine ecosystem, as all these water bodies eventually flow into the Adriatic Sea.

Waste management is a strategic sector for the Government of Albania[3], and it plans to address this issue in the coming years. The government aims to transpose relevant EU legislation, invest in waste treatment facilities, and raise awareness about waste prevention, reuse, and recycling practices. While there have been some improvements in legislation and investments in waste management facilities such as landfills and incinerators, waste management sector it remains a challenge.

Despite the problems in waste management, Albania has made some progress in the sector. In 2020, the competent authorities adopted two key policy documents: the **"Integrated Waste Management Strategic Policy Document and National Plan 2020–2035"** [4] (Strategic Policy Document) and the **"National Sectoral Plan for Solid Waste Management"** [5] (Sectoral Plan). These documents set the strategic objectives and targets for waste management and define the main infrastructure needed for integrated waste management.

The Strategic Policy Document has been developed based on the vision or concept of "zero waste," aiming for waste to be collected and treated as primary material. The management is designed to align with the principles and concept of the circular economy system. It prioritizes recovery as the second-to-last option in the waste hierarchy, including the concept of waste-to-energy, which can be achieved through incineration or other technologies.

The Sectoral Plan represents the second-level planning document for the MoTE, which defines the planning framework for national and regional infrastructure investments. This document will serve the competent authorities to identify and define the methodology and technology for future waste treatment investments, including waste composting facilities, recycling, recovery (with or without energy recovery) and final disposal. The Sectoral Plan divides the country in 10 Waste Management Zones (WMZ) which are defined based on the principles of proximity and affordability. WMZ-s cover

[2] https://www.eea.europa.eu/publications/european-marine-litter-assessment/from-source-to-sea-the
[3] As defined by law 55/2015, "On the strategic investments in the Republic of Albania", as amended
[4] Approved with a Decision of Council of Ministers Nr. 418, dated 27.05.2020
[5] Approved by the National Territorial Council with the Decision Nr. 1 dated 13.01.2020

jurisdiction of one or more municipalities that have a typically similar geographic typology and offer an uninterrupted road network communication, facilitating the collection and transport of waste to the pre-treatment, recovery, and final disposal destinations.

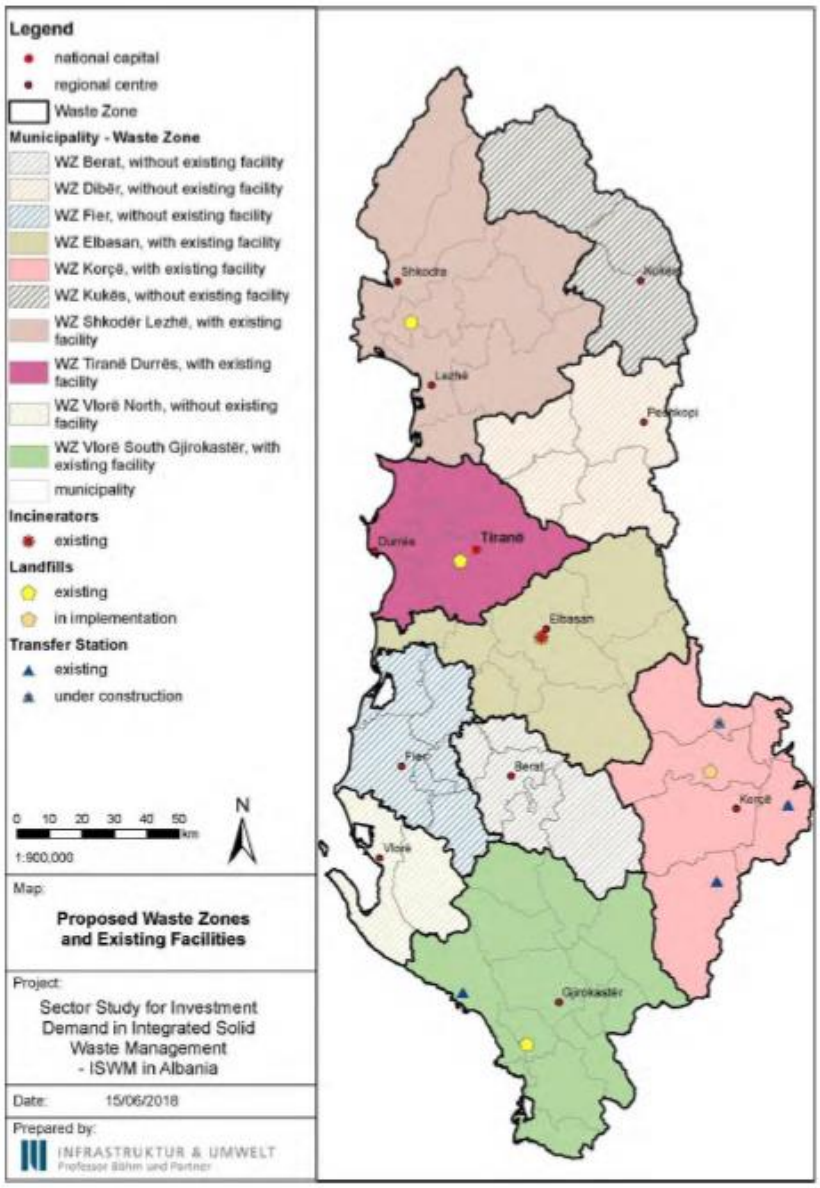
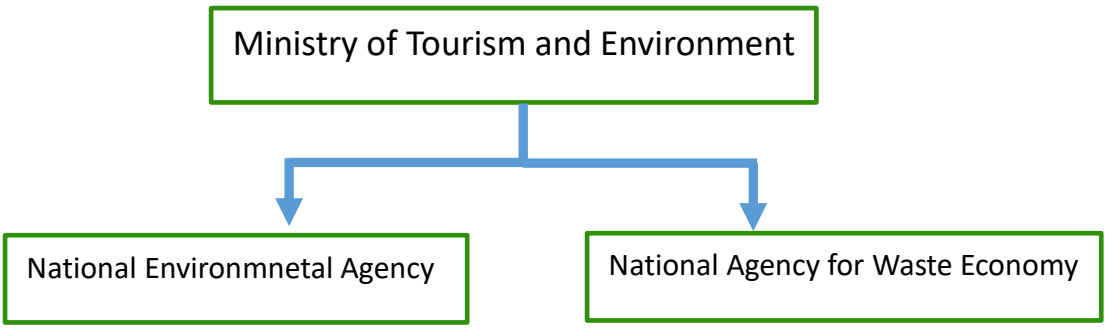


Figure 1: Map of Waste Management Zones in Albania.

While the above documents provide the strategic orientation of the sector and the approaches to be followed, the main legislation in force allows for their applicability across the territory. In this regard, the primary laws in the sector are Law No. 10463 "On Integrated Waste Management" (2011), amended in 2013. This cornerstone legislation is supported by Law No. 32/2013 "On Environmental Impact Assessment" and Law No. 10431 "On Environmental Protection." Additional regulations include specific provisions for waste packaging, waste incineration, and landfill management. In 2024, a new law on integrated waste management was issued by the MoTE for public consultation. This new law introduces, among other provisions, the National Agency for Waste Economy, which will coordinate efforts with state institutions at both central and local levels. Below is a graphic representation of the main institutions in the waste sector in the country.



The MoTE is the institution responsible for waste management, policies, legislation drafting and implementation of the Strategic Policy Document. Along with other subordinate institutions, the Ministry bears full responsibility for establishing and monitoring the implementation of waste management systems at the regional and local level.

Specific responsibilities include:

- Develops policies and general aspects of waste management;
- Drafts and monitors the implementation of the waste management system at regional and local levels; Drafts and monitors the implementation of the National Strategy and Plan as well as Regional Plans; Drafts and develops legislation and other by-laws to ensure the implementation of the National Strategy and Plan;
- Issues permits for entities operating in the field of waste management;
- Organizes and manages the necessary waste data registers;
- Determines and permits the construction of hazardous waste landfills and issues permits to entities transporting, disposing of and treating hazardous waste.for the subjects dealing with hazardous waste transportation, disposal and treatment.

The National Agency for Waste Economy responsibilities include:

- Coordinate work with public administration institutions, at central and local level, international partners, investors and interested parties for the implementation of standards in efficient integrated waste management, territorial planning in waste infrastructure and their implementation;

- Organize the work for environmental education, promotion and promotion of the implementation of the waste hierarchy for the gradual development of collection through source separation and large-scale recycling.

The **National Environment Agency**, which functions based on the DCM no. 568, dated 17 July 2019 “On the creation, organisation and functioning of the National Environment Agency”, exercises its activity across the country and is organised in two levels: a. central level through the general directorate; b. regional level, through four regional environment agencies.

The NEA has these main functions:

- Ensuring environmental performance;
- Environmental research and knowledge;
- Environmental impact assessment;

- Thematic inspection and supervision for meeting legal requirements and environmental conditions.

Given that the national waste management agency was created in 2024, it remains to be seen how it will coordinate its work with the NEA and whether there will be any overlap in competencies.

Municipality's role related to waste management is defined by Law no. 139/2015 "On local self-government". Strengthening the role of municipalities is a vital component, deriving from the harmonization of the Law on Integrated Waste Management with the Law "On local self-government". Municipalities are responsible for drafting local plans for integrated waste management, establishing infrastructure for the collection, transport and treatment of urban waste, and setting tariffs to cover the provision of the service. Municipalities, referring to the legislation in force, must achieve the targets set by the strategy and the law for the reduction, reuse and recycling of urban waste including plastic and other streams of waste.

Despite the existing legislation and the responsibilities assigned to institutions at both national and local levels, the implementation of laws governing service delivery across the territory faces several challenges. According to the Draft National Plan of the Republic of Albania for Energy and Climate, 2021, 15 out of 61 municipalities have an integrated waste management plan in place. Issues include the partial extent of service coverage, insufficient waste collection and disposal, and the limited amount of waste being deposited and treated in landfills. There is also a large number of disposal sites, both authorized and unauthorized that mostly fail to meet sanitary and engineering standards.

Additionally, there is a lack of adequate equipment for waste collection and transport, no significant waste separation at the source, a low recycling rate, and insufficient infrastructure for integrated waste management. The infrastructure for waste treatment in Albania remains underdeveloped. Currently, the country operates only four sanitary landfills: Bushat in the Municipality of Vau i Dejës, Shara in the Municipality of Tirana, Maliq in the Municipality of Maliq, and Bajkaj in the Municipality of Saranda. Additionally, there is one functional incinerator, which processes waste from the Elbasan region.

Another significant challenge in the sector is the lack of a unified system for monitoring and reporting waste data. No centralized platform exists for manufacturers, importers, municipalities, or other waste-generating entities to report data. Furthermore, the monitoring structures in place are inadequate, both in terms of personnel and resources, to effectively oversee all waste-related activities across the country.

Marine litter poses another critical challenge in Albania's waste management sector. This issue has transboundary implications and significantly threatens the biodiversity of the Mediterranean Sea. In Albania, marine litter primarily results from waste accumulation along the banks of rivers and streams near urban areas. This problem has persisted for years, and municipalities have been unable to address it effectively. The lack of comprehensive water basin management plans for most of the country's rivers further exacerbates the issue. The Water Resources Management Agency (WRMA), established by Decision of the Council of Ministers No. 221, dated 26.4.2018, is tasked with managing river basins. To date, AMBU has developed management plans for four river basins: Erzeni, Ishem, Mat, Seman, and Drini-Buna. However, no management plan exists for the Shkumbini River Basin, leaving a significant gap in the sustainable management of this critical resource.

This document seeks to identify projects and scientific research conducted in Albania related to waste management, with a particular emphasis on macro and microplastics at the national level and within areas impacted by the Shkumbini River Basin. The sections that follow detail the methodology used

to identify relevant initiatives, outline implemented projects and research efforts, review key donors supporting waste management in Albania, and provide the author's findings and recommendations. These insights are intended to inform future actions and tackle the pressing challenges in this sector. It is important to acknowledge that the data presented in this document is not exhaustive; other relevant documents may exist but were not identified during this research. Nevertheless, the information compiled here offers a comprehensive overview of the waste management landscape in Albania, particularly concerning macro and microplastics. This serves as a valuable foundation for guiding future strategies and addressing critical issues in this field.

3. Methodology

A thorough desk review and stakeholder consultation were conducted to gather and analyze information related to waste management, with a particular focus on plastic pollution, in Albania. This process aimed to identify key projects and initiatives implemented over the past decade, assess existing policies, and highlight gaps in data and research. The desk review followed a systematic approach to ensure that relevant information from multiple credible sources was collected and analyzed, while stakeholder consultations provided valuable insights and perspectives from key actors involved in the waste management sector, including policymakers, researchers and local authorities

3.1. Desk Review

The primary sources for this desk review included:

1. **Governmental and Institutional Reports:** Official documents and reports from the Ministry of Tourism and Environment, the National Environment Agency (NEA), European Commission, National Institute of Statistics of Albania, INSTAT provided critical insights into the national waste management framework, existing legislation, and policy initiatives. Key legal documents such as Law No. 10463/2011 *on Integrated Waste Management* and *Law No. 139/2015 on Local Self-Government* were reviewed to understand the legislative framework governing waste management at both national and municipal levels. Additionally, the *Environmental Status Report 2023*[6]*,* Albania 2024 Progress Report[7] offered a comprehensive overview of the environmental situation in Albania, addressing issues such as air, water, land pollution, and waste management.

2. **Donor and International Organization Reports:** Albania has received substantial support from international donors such as the EU, SDC, GIZ, KfW and other organizations focused on waste management and environmental sustainability. The desk review included examining reports and project documents from these donors, which detail the objectives, outcomes, and ongoing efforts to improve waste management in Albania. For instance, projects aimed at building local recycling capacity, reducing single-use plastics, and enhancing waste collection systems were explored.

3. **Academic and Research Publications:** Research papers and studies conducted by local and international scholars were reviewed to identify gaps in knowledge regarding plastic pollution and waste management practices in Albania. More specifically the website of Tirana University, National Agency for Scientific Research and Innovation, Google Scholar, ResearchGate were consulted to find relevant publications that will provide valuable insights. These publications provided valuable data on the environmental impacts of plastic waste, as well as the effectiveness of waste management systems, recycling, and public awareness

[6] https://akm.gov.al/ova_doc/raporti-per-gjendjen-e-mjedisit-2023/#pll_switcher
[7] https://neighbourhood-enlargement.ec.europa.eu/document/download/a8eec3f9-b2ec-4cb1-8748-9058854dbc68_en?filename=Albania%20Report%202024.pdf

campaigns. Special attention was given to research related to marine pollution and plastic waste in Albania's rivers and coastal areas.

4. **Civil Society Organization (CSO) Reports and Initiatives:** Numerous CSOs in Albania focus on environmental sustainability, waste management, and raising public awareness on plastic pollution. These organizations play a vital role in advocating for better waste management practices and engaging citizens in recycling efforts. The desk review included an examination of the activities and projects undertaken by CSOs, particularly those focused on source waste separation and reducing plastic consumption. Many of these initiatives also collaborate with local communities to foster behavioral changes around plastic use.

5. **Publicly Available Data:** Data obtained from online sources, including media articles and chronicles, were utilized to supplement and enrich the information gathered.

3.2. Stakeholder Engagement

Stakeholders who have direct interaction with the waste management sector have been identified from a review of the legislation in force which assigns different institutions with specific responsibilities in different steps of waste management as well as from the experience of consultants who have over 20 years of operating in these sectors. The major stakeholder in the waste management sector are listed below.

Stakeholders	Roles and motivation to act
Ministry of Tourism and Environment	This Ministry is responsible for developing policies on and general aspects of waste management. In cooperation with other institutions, the MTE is the institution responsible for waste management, policies, legislation drafting and implementation of the National Strategy and of the Action Plan on Waste management. Along with other subordinate institutions, the Ministry bears full responsibility for establishing and monitoring the implementation of waste management systems at the regional and local level. It is understood that the other specific responsibilities of the respective ministry on environment may also include: ● Drafting and monitoring of the implementation of the Strategic Policy; ● Document and National Plan, as well as of the Regional Plans; ● Drafting and developing of legislation and of other bylaws to ensure implementation of the Strategic Policy Document and of the National Plan with a special focus on the implementation of the waste hierarchy, according to the provisions of waste framework law and the bylaws issued in its implementation; ● Issuing permits for the subjects operating in the waste management field, including the export and cross-boundary load of non-hazardous waste; ● Organisation and management of the relevant data on different waste management related issues, determining and permitting constructions of landfills for hazardous waste and permits for the subjects dealing with hazardous waste transportation, disposal and treatment.
AKEM	The National Agency for Waste Economy responsibilities include: a) Coordinate work with public administration institutions, at central and local level, international partners, investors and interested parties for the implementation of

	standards in efficient integrated waste management, territorial planning in waste infrastructure and their implementation; b) Organize the work for environmental education, promotion and promotion of the implementation of the waste hierarchy for the gradual development of collection through source separation and large-scale recycling.
National Environment Agency (NEA)	The **National Environment Agency**, which functions based on the DCM no. 568, dated 17 July 2019 "On the creation, organisation and functioning of the National Environment Agency", exercises its activity across the country and is organised in two levels: a. Central level through the general directorate; b. Regional level, through four regional environment agencies. The NEA has these main functions: ● Ensuring environmental performance; ● Environmental research and knowledge; ● Environmental impact assessment; Thematic inspection and supervision for meeting legal requirements and environmental conditions.
Municipalities	The municipalities' role related to waste management is defined by Law no. 139/2015 "On local self-government". Strengthening the role of municipalities is a vital component, deriving from the harmonisation of the Law on Integrated Waste Management with the Law "On local self-government". ● Municipalities are responsible for managing municipal waste, which is collected from, or in the name of, municipalities and includes: ● Household waste and similar, including: bulky waste, e.g. old furniture, garden waste, leaves, prunings, street cleaning and public market waste; ● Waste from commercial activities, small businesses, offices and institutions; ● Waste from other municipal services related to parks, other green areas, etc. ● Municipalities are mainly responsible for the operation of the cleaning service, waste collection and transfer to collection sites (transfer stations); ● Municipalities may establish and operate local interest centres for the separate collection of waste, including bulky, recyclable and biodegradable waste; ● Source separation is an LGU (Local Self-Government Unit's) responsibility; ● Recycling systems for packaging and other specific waste should be established by the producers of products and/or the recycling industry under the Extended Producer Responsibility schemes; Law no. 139/2015 "On local self-government" regulates the organisation and functioning of local self-government units and respective bodies in the Republic of Albania, as well as defines their functions, competences, rights and obligations. Particularly, the "collection, transport, disposal and treatment of municipal waste" is set as the municipalities' "own" function. According to this definition, the municipalities have the right and responsibility to: ● Organise the provision of the collection, transport, treatment and disposal services of municipal waste;

	• Build, own and operate treatment centres; • Levy service fees to cover costs of the service provision and collection of revenue; Organise and distribute the waste management service within the municipality and/or cooperate with one or more other municipalities, by using all legal and administrative means.
Citizens	The main role of citizens in the waste management system are: • Reduce the amount of generated waste, • Undertake composting initiatives home (at least in rural areas) and participating in household waste collection, recycling, recovery and disposal systems according to municipal rules and programs; • Provide the service fee in the amount and conditions set forth by the municipalities they belong to. Cooperate with the municipality in common programs for the implementation of the waste hierarchy step.
Recycling companies	The recycling industry is one of the most important players in waste management. Recycling in and of its own is probably the most important and well-known mean of waste reduction, developed through a chain of processes, including source separation, separate collection, selection and processing, leading to the reduction of a considerable mass of waste that is disposed in landfills. Albania has a developed and active recycling industry. The Albanian Recyclers Association (ARA) reports that it has 32 members.
NGOS	NGOs are a very important actor in Albania as they implement projects with a technical and awareness-raising focus in the waste sector, assisting institutions at the central and local level, but also working with citizens and businesses to raise their awareness or implement good practices for waste reduction, reuse and recycling.
Academia	• Conduct scientific research in various fields of national development, including research on the impact of macro and micro plastics on the environment and human health. • Propose the inclusion of new elements in educational curricula. • Undertake awareness campaigns with young people..
International partners and donors like SIDA, SECO, KfW, EU	Support Albanian government through funds in form of grants, loans projects etc.

To engage the above-mentioned stakeholders comprehensively and provide them with an opportunity to exchange ideas, URI organized a national workshop on December 17 to discuss the state-of-the-art findings and present initiatives undertaken by various actors related to monitoring waste on coastal and riverbanks, as well as activities aimed at raising citizen awareness. The workshop brought together representatives from the Ministry of Tourism and Environment (MoTE), the National Environment Agency (NEA), the Faculty of Economics at the University of Tirana, NGOs, and researchers.

During the workshop, ministry representatives highlighted key legal initiatives, including the ongoing review of the Waste Management Law, the drafting of a law on Extended Producer Responsibility (EPR), and measures to reduce single-use plastic bags. The representative elaborated on the EPR law, which places responsibility on businesses for the recovery and reduction of packaging materials. Additionally, projects implemented by GIZ in collaboration with the ministry within the waste management sector were discussed.

NGO representatives emphasized the need for municipalities to take a more proactive role in monitoring the territory to prevent illegal waste disposal. They also stressed the importance of supporting municipalities in building their capacities to draft waste prevention plans and programs at the local level. The discussion underscored the necessity of a unified database to provide real-time information on waste quantities generated and collected by each municipality. Participants called for enhanced coordination between institutions and organizations to consolidate data from various projects into a single, unified database. Furthermore, the importance of increasing collaboration among municipalities to adopt a standardized approach to waste management was highlighted, alongside involving recycling businesses to play a more central role in the national waste management cycle.

In addition to the workshop, the consultant also held individual meetings with several stakeholders who are specifically engaged in the waste sector. In this regard, a meeting was held with representatives of:

GIZ, which is implementing, among others, the project: Circular City Labs, which is a global project that is taking place simultaneously in four different countries: Albania, Georgia, Colombia and South Africa. Its main goal is to reduce greenhouse gas emissions through waste prevention by testing reusable packaging systems in cities and empowering women as entrepreneurs in local circular economies. In the case of Tirana. The project will financially support businesses to implement business models in reusable packaging. After a first evaluation phase where more than 20 businesses applied, 6 of them were selected and will be mentored to further elaborate and then implement their ideas. The GIZ representative also mentioned that there is a great need to work with businesses in the country to increase their knowledge in incorporating circular economy concepts.

The representative of the municipality of Elbasan highlighted that the municipality has several important needs in the waste management sector, especially with a focus on plastics and microplastics. These needs include the implementation of recycling and source separation systems, as there is currently none in place; improving microplastic monitoring in the Shkumbini River by implementing periodic measurements of microplastics and other pollutants in the river; raising awareness among citizens to reduce the use of single-use plastics; developing and implementing programs for waste reduction in rural areas; and performing continuous cleaning activities in the Shkumbini River..

The representative of the Ministry of Tourism and Environment emphasized the need to raise awareness among communities and businesses operating in coastal areas. Additionally, they highlighted the importance of enhancing monitoring efforts to ensure compliance with the Council of Ministers' Decision on reducing the use of single-use plastic bags under 70 microns.

The representative also noted that the drafting and approval of the law on EPR is expected to have a significant positive impact. This law, which primarily targets packaging, will compel businesses to adopt circular economy principles starting from the design phase of materials, ensuring their reuse and recycling, thereby fostering a more sustainable waste

3.3. Gap Analysis

Challenges Encountered:

While the desk review provided valuable insights, several challenges were encountered that highlighted the need for systemic improvements in data management and access:

1. **Fragmented data:** One of the key challenges identified was the fragmented nature of available data. Data on plastic waste generation, recycling rates, and pollution was often scattered across various reports and organizations, making it difficult to obtain a complete and accurate picture. This issue underscores the need for a centralized repository of waste-related data that can be accessed by stakeholders for more effective planning and policymaking.

2. **Limited access to key documents:** Accessing certain key documents, particularly those related to ongoing or completed projects, was challenging. Some of the reports and evaluations from donors and governmental bodies were either not publicly available or were difficult to access digitally. This highlighted a gap in transparency and the need for better dissemination of publicly funded research and project outcomes.

3. **Lack of recent or disaggregated data:** In some instances, available data was outdated or lacked granularity, especially regarding specific types of plastic waste or regional variations. For example, while national-level data on waste generation was available, detailed information on plastic waste specific to certain regions, such as the Shkumbin River region, was scarce. This presents an opportunity to improve data collection practices and invest in more granular, up-to-date data systems.

4. **Lack of recent or disaggregated data:** The data on waste presented in these documents have been sourced from official records and from projects implemented by donors, CSOs, or public university staff in the country. Regarding official data, waste categories are divided and categorized based on assumptions rather than specific measurements across the entire territory. Similarly, data from implemented projects also have limitations, as they focus on specific areas, in addition the monitoring has been conducted at different times, in different periods, and across various locations, preventing the creation of consistent patterns. The issue becomes even more critical when looking for data on specific regions. For example, data on the Shkumbin River are almost non-existent. Most information comes from early television reports or anecdotal references, which highlight the presence of waste but do not provide quantitative measurements.

5. **Inconsistent Reporting on Plastic Waste:** There was a lack of consistent and standardized reporting on plastic waste and its impact across different sectors. While some projects focused on plastic pollution in the marine environment, others addressed plastic waste management more generally. The absence of a unified reporting framework across all sectors (e.g., agriculture, tourism, waste management) made it difficult to track the comprehensive impact of plastic pollution and to measure progress toward national targets for plastic waste reduction.

Opportunities for Improvement:

The challenges identified during the desk review and stakeholder consultations point to several key opportunities for improving plastic waste management in Albania:

1. **Centralized Data Management Systems:** The establishment of centralized databases and monitoring systems for plastic waste management could significantly improve access to reliable and up-to-date information. This would help in tracking plastic waste generation, recycling rates, and the effectiveness of various policies and interventions.

2. **Enhanced Transparency and Access to Reports:** There is a need for greater transparency in the publication and dissemination of reports and evaluations related to plastic waste management projects. Ensuring that stakeholders, including the public, can easily access these documents would help build trust and encourage greater participation in waste management initiatives.
3. **Collaboration for Comprehensive Research:** Improved collaboration between governmental bodies, academic institutions, and civil society organizations is needed to fill existing knowledge gaps, particularly in the areas of microplastics, marine pollution, and the impact of plastic waste on ecosystems and public health.
4. **Standardized Reporting Framework:** Developing a standardized reporting framework for plastic waste across sectors would provide a clearer and more consistent picture of the issue. This would allow for better monitoring of progress, identification of key trends, and more targeted policy interventions.
5. **Frequent monitoring:** Conduct frequent monitoring using the same methodologies with a focus on coastal municipalities and those that have water basins. This standardized data will provide ongoing information on the amount of plastic floating in rivers but will also allow for comparison of quantities from year to year or area to area.

4. Literature Review and Findings

This section presents a state-of-the-art review of research and project activities related to plastic pollution in Albania over the past decade. Academic studies and project reports to build a comprehensive picture.

4.1. Academic Research

The University of Tirana (UT), founded in 1957, stands as the largest public university in Albania. It is a leading institution in scientific research and higher education in the country, offering a diverse range of academic programs through its 6 faculties and 2 institutes. With approximately 779 faculty members and 23,551 students, the University of Tirana is a hub for academic and scientific collaboration, producing valuable research across various disciplines.

Among its faculties, the Faculty of Natural Sciences plays a significant role in conducting research related to environmental sciences, including studies on natural resources, ecosystems, and environmental issues. This faculty is positioned as a key player in addressing environmental challenges, such as pollution and sustainable resource management.

The University of Tirana facilitates scientific research primarily through its academic staff and students, who engage in research projects, publications, and collaborations with local and international institutions. The university regularly publishes calls for research projects, offering opportunities for faculty members and students to apply for funding and participate in diverse academic and scientific initiatives. These calls are typically hosted on the university's official website, where information about potential funding opportunities and ongoing research projects is made publicly available.

However, upon reviewing the university's website and available documentation on current research initiatives, there only one research specifically focused on plastics, microplastics, or waste management. Despite the global and local relevance of these issues, particularly in the context of Albania's environmental challenges, no major projects or scientific papers have been identified on these topics at the university level.

National Agency for Scientific Research and Innovation (NASRI)

The **NASRI** is responsible for evaluating, financing, monitoring, and administering programs and projects in the fields of science, technology, and innovation (STI) in Albania, as well as on the international level. The agency's mission is to foster the development of science and technology in alignment with national priorities, by collaborating with various institutions and sectors.

Among its many responsibilities, AKSHI works closely with ministries and other institutions to implement the **STI strategy**, designing, financing, and overseeing projects that align with the priorities set by the **Council of Ministers**.

As part of its initiatives, AKSHI has financed a project focused on plastics for the period **2021-2023**. The project, titled *"Biodiversity and the Environment: Presence, Identification, and Characterization of Plastics/Microplastics in Lagoon Systems in Albania and Their Potential Effects on the Health of the Living World - A General Approach,"* is led by **Prof. As. Mihallaq Qirjo**.

Below are presented paper and research done by academic, professors and researchers:

Tirana University

Project: The effects of microplastics on water quality in the Erzen River and the Adriatic Sea

(https://unitir.edu.al/efektet-e-mikroplastikave-ne-cilesine-e-ujit-ne-lumin-erzen-dhe-detin-adriatik/; https://unitir.edu.al/projekte-qe-zbatohen-ne-ut/)

Coordinator: Faculty of Natural Sciences

Program: University of Tirana, Research, Excellence, Innovation

Duration: 24 months

Project aim:

The project aims to identify and assess the situation of microplastics in aquatic systems and to provide recommendations on improving this situation in general and near coastal tourist centres that are often located near river deltas or that are directly affected by their discharges.

Paper: Plastic invasion tolling: First evaluation of microplastics in water and two crab species from the nature reserve lagoonary complex of Kune-Vain, Albania.

Authors: Valbona Aliko, Enkeleida Goga Beqiraj, Mihallaq Qirjo , Megi Cani , Ariol Rama , Kristi Bego, Arianit Reka, Caterina Faggio.

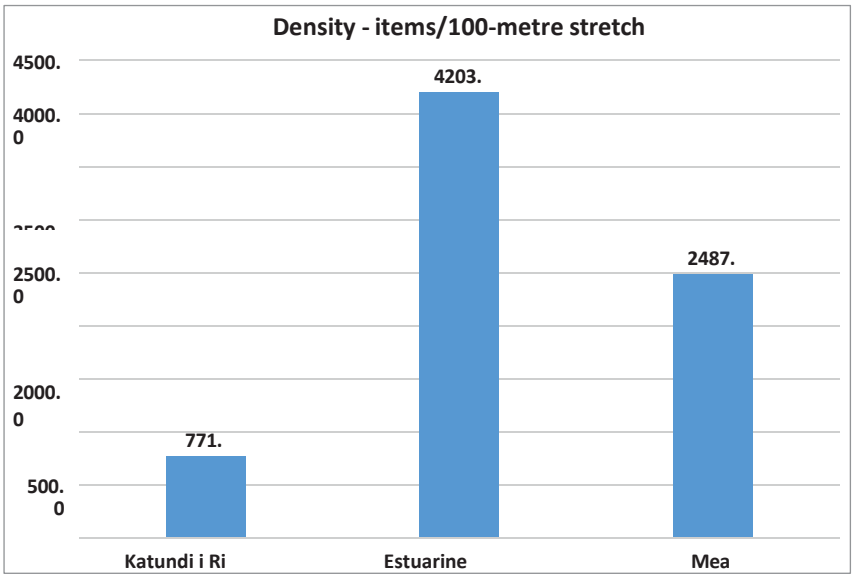
The research aimed at evaluating the microplastic pollution in water, sediment and gastrointestinal tracts of two crab species, C. aestuarii and C. sapidus, common inhabitants of the lagoonary complex of Kune-Vain Nature Reserve, known for their important role in the lagoon ecosystem. In 90 crabs sampled microplastics was found in their gut and in the water sampled. Characterized MPs varied in size from <0.1 mm to 0.1–0.5 mm, showing variable colors of black, blue, and red domination.

Fourier Transform Infrared Spectroscopy (FT-IR) analysis of the chemical composition of microplastics distinguished presence of the high-density polyethylene (HDPE), polypropylene (PP), polyethylene (PE), and low-density polyethylene (LDPE), which showed consistency in water, sediment, and crab samples. In conclusion, high levels of MPs pollution observed in the Kune-Vain complex represent a serious threat to the lagoon ecosystem and to the local inhabitants. Furthermore, studies on MPs' impact on biota and local population health are urgently required.

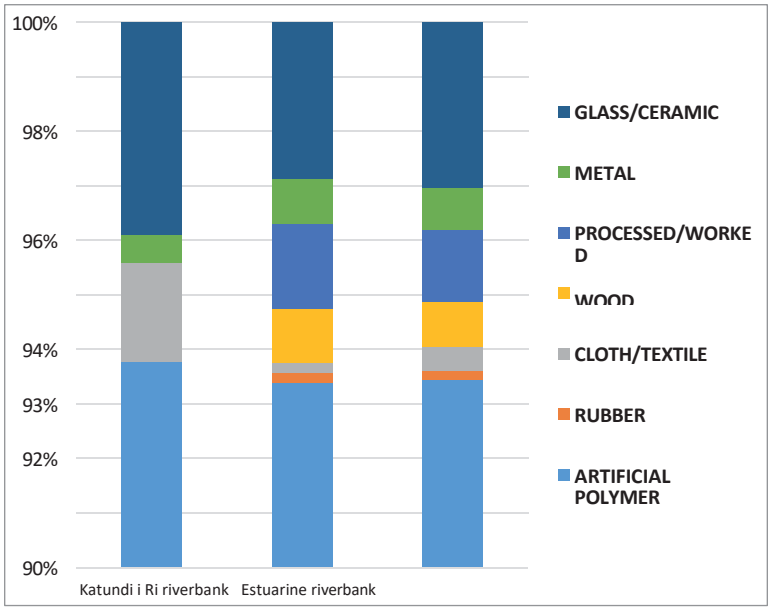
Paper: Assessment of the abundance, composition, and sources of riverine macro litter of the Erzen River (Albania)

Authors: Laura Gjyli, Jerina Kolitari, Fundime Miri, Marcel Georg Liedermann, Brisejda Lala.

The riverine macro litter surveys were executed on riverbanks positioned at Erzen River, at Katundi i Ri village and in the delta (estuarine) of Erzen River that discharges in the Lalzi Bay in Albania. The surveyed sample was 100 meters long and on average 25 meters wide. The mean riverine litter density of the Erzen River was 2487items/100m and 2.423 items/m2. The largest part of riverine litter items at the aggregated level were made of artificial polymer materials (93%), whereas the second most considerable material type of riverine litter items was glass/ceramics. Among 65 litter item categories recorded, polystyrene pieces 2.5cm><50cm, >50cm were the most common noted items with a portion of 43.4%. Foam sponge with 11.3% was in the second place of riverine items, followed by drink bottles _0.5L with 7.7%, drink bottles >0.5L, with 6.4%, and shopping bags, including pieces, with 4.8%. In Erzen River, the top 10 items contributed up to 86.8% of total items with all plastic (artificial polymer materials) material category. At Katundi I Ri, the top 15 items made up of 98.3% of the total riverine items. The largest riverine items were polystyrene pieces 2.5cm><50cm, >50cm with 45.1%, followed by drink bottles >0.5L with 13.9%. At the delta riverbank, the top 15 items made up of 93.1% of the total riverine items. The most abundant items were polystyrene pieces 2.5cm><50cm, >50cm with 43.1%, followed by foam sponge with 12.8%.



Graph 1: Densities of riverine macrolitter items for both the surveyed riverbanks of the Erzen River: Katundi i Ri riverbank, Estuarine riverbank, and the mean of total surveyed riverbank (items per 100 m stretch).



Graph 2: Percentage (%) of total riverine litter items according eight major groups of material types: artificial poly- mer materials

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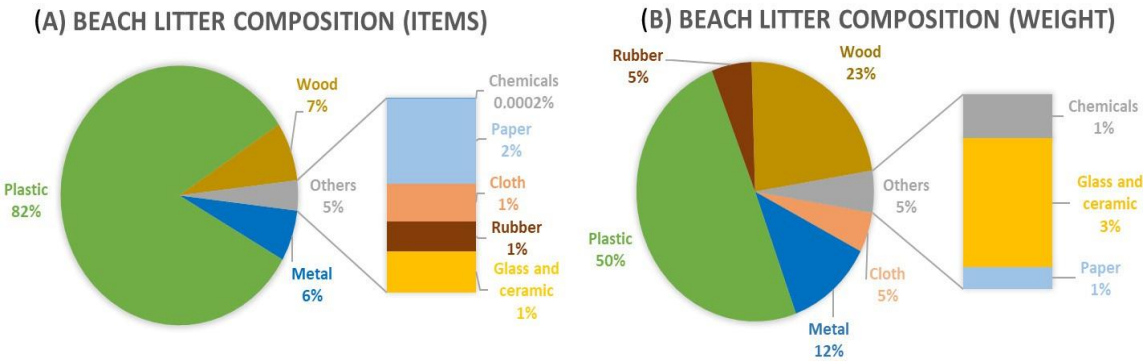
Paper: Distribution and Composition of Beach Litter along the Ionian Coastline of Albania
Authors: Alfredo Fernández-Enríquez, Giorgio Anfuso, Francisco Asensio-Montesinos, Aurora Bakaj, Mariola Ismailaj, Geolind Cobaj.

The monitoring took place in November – December 2022 along the Albanian riviera starting from Vlora to Saranda and 16 beaches were surveyed. The surface area of the monitored beaches was on large beaches with a length of 100 m and a width of 50 m, while for small beaches the entire beach was covered.
In the monitoring sites 82% of the total items collected belong to the plastic material group, which was the most abundant at every sampled beach, with the highest concentration recorded at Old Beach (0.95 items m−2) and the lowest at Borsh North Beach (0.002 items m−2). Five categories formed 72.98% of all plastic items: Tobacco products with filters (cigarette butts with filters), Plastic caps/lids, Plastic drink bottles, Fragments of foamed polystyrene, and non-foamed plastic (both from 2.5 to 50 cm). Other important litter types wereWood (7.3%) and Metal (6.3%).

Name	Linear/Square Meters Sampled	Number/ Weight (kg) of Items	Items m^{1} Items m^{-2}	Weight m^{-1}/ Weight m^{-2} (kg)	CCI value	CCI Label
Old Beach	258/1292	1688/13.2	6.54/1.3	0.051/0.01	26.1	Very dirty
Yacht Hotel	689/3338	335/4.1	0.49/0.1	0.005/0.001	2.0	Very clean
Hotel Rexhina	362/1809	223/5.1	0.62/0.1	0.013/0.003	2.5	Clean
Orikum	445/2227	1202/11.1	2.7/0.5	0.024/0.005	10.8	Dirty
Green Coast	575/2874	318/4.3	0.55/0.1	0.007/0.001	2.2	Clean
Dhermi	399/1994	179/13.6	0.45/0.1	0.034/0.007	1.8	Very clean
Himare	488/2439	392/52.9	0.8/0.2	0.108/0.022	3.2	Clean
Porto	256/1278	409/9.2	1.6/0.3	0.036/0.007	6.4	Moderately

Palermo						clean
Qeparo	385/1926	327/213.0	0.85/0.2	0.553/0.111	3.4	Clean
Borsh North	655/3276	16/0.6	0.02/0.01	0.001/0.0002	0.1	Very clean
Borsh South	321/1604	106/7.1	0.33/0.07	0.022/0.004	1.3	Very clean
Lukove	242/1208	197/50.9	0.81/0.2	0.21/0.042	3.3	Clean
Cave Beach	477/2387	135/1.1	0.28/0.06	0.002/0.0005	1.1	Very clean
Sarande	384/1918	214/0.7	0.58/0.1	0.002/0.0004	2.2	Clean
Mirror Beach	227/1135	366/25.7	1.61/0.3	0.113/0.02	6.5	Moderately clean
King Beach	407/2037	514/3.8	1.13/0.3	0.009/0.003	5.0	Clean

Table 1: Waste found from the monitoring in Albania coastline



Graph 3: Litter composition by item and weight from the monitoring in Albania coastline

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Paper: Microliter: Plastic Pollution in the Mouth of the Ishëm River (Albania), 2023.
Authors: Laura Gjyli, Department of Applied and Natural Sciences, Aleksander Moisiu University of Durres, Durres, Albania; Jerina Kolitari, Laboratory of Fisheries and Aquaculture, Agricultural University of Tirana, Tirana, Albania; Fundime Miri**,** Department of Biology, University of Tirana, Tirana, Albania.

Purpose: Pollution monitoring in the vicinity of the Ishem river in Albania. Focused on the monitoring and cleaning of two beaches, Ishëm Mouth-Likmetaj Beach towards Cape of Rodon Ishëm Mouth-Godulla Beach towards old Ishëm riverbed and Lagoon of Patok.

Findings:

In the two sites monitored the same methodology was used covering a stretch of 100 m long along the riverbanks. Over 96% of the collected items are plastic, where there are found mostly drink bottles < =0.5 l (G7) with 29.4%, drink bottles >0.5l (G8) with 28.2%, cleaner bottles & containers (G9) with 8%, followed by plastic caps/lids drinks (G21), cups and cup lids (G33), polystyrene pieces 2.5 cm > < 50cm, > 50 cm (G82+G83), flip-flops (G102), other cosmetics bottles & containers (G12), shoes/sandals (G71), bottles, including pieces (G200), medical/pharmaceuticals containers/tubes (G100).

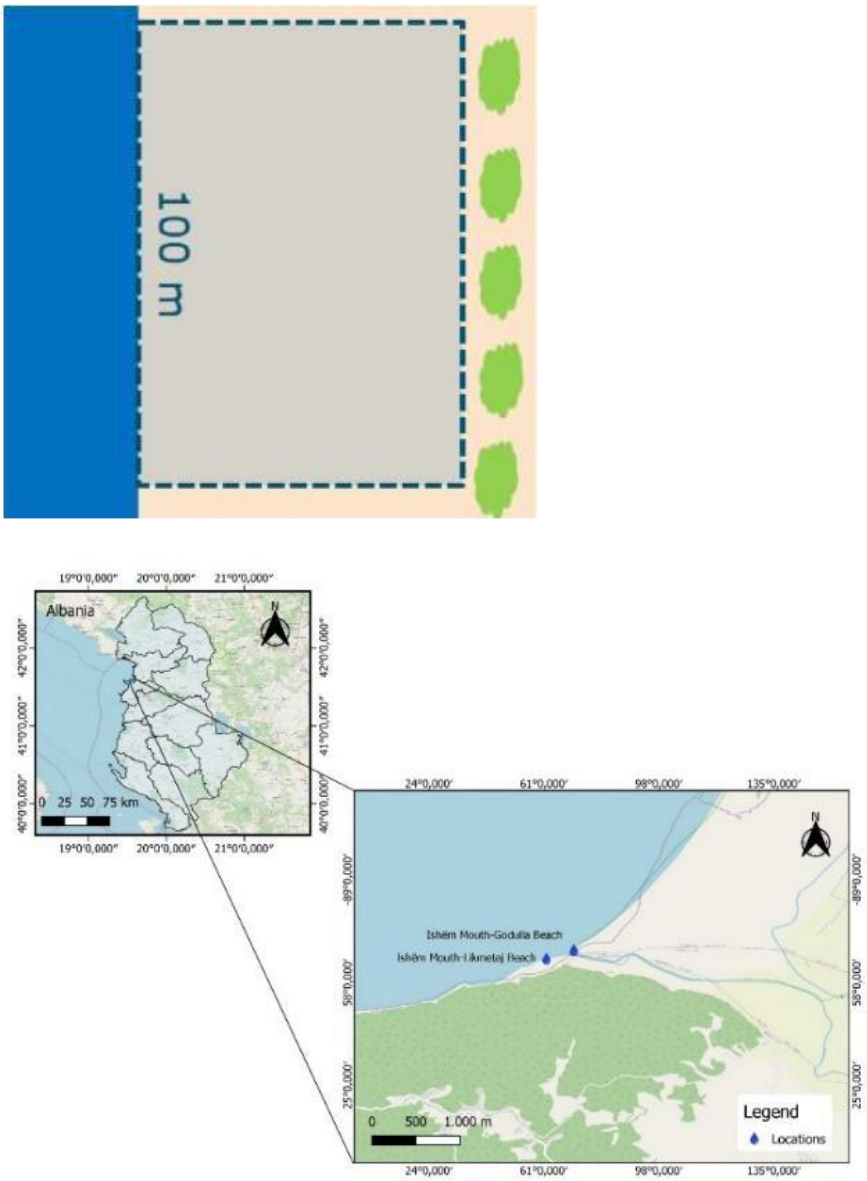


Figure 2: Photo of the perimeter of the typical area that will be monitored and its location on the map.

The mean litter density of the two sites was 9,224 **items/100 m**, respectively a) 4,983 items/100 m and b) 13,464 items/100 m; and 2.18 items/m2, respectively 1.66 items/m2 and 2.69 items/m2.

Paper: Marine litter on the Albanian coastline: Baseline information for improved management
Researchers: Laura Gjyli, Thomais Vlachogianni, Jerina Kolitari, Gagan Matta, Osman Metalla, Silvana Gjyli.
Purpose: Beach monitoring survey for monitoring marine litter pollution in the coastline of Durres municipalities focusing on 5 beaches located in the bay of Durres in the Lalzi bay. The survey took place on April 2018 and aimed at pointing out quantities, composition and source of waste.

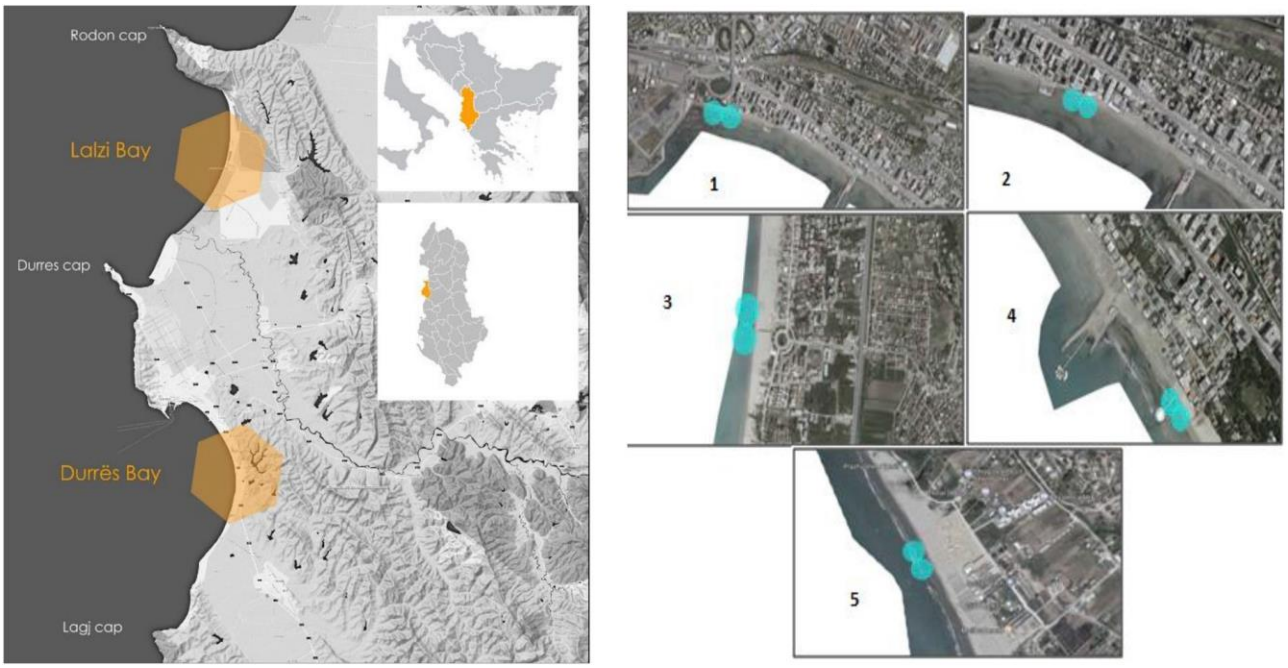
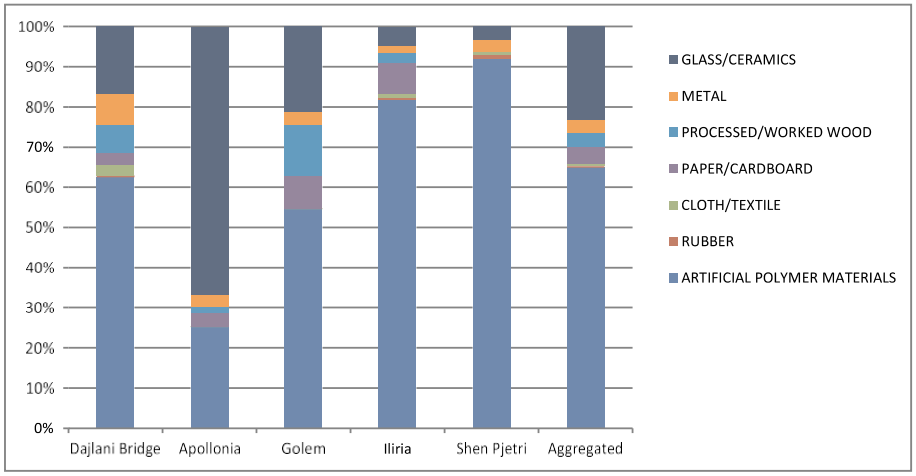


Figure 3: Maps with the surveyed transects on the 5 studied beaches: (1) Dajlani Bridge, (2) Apollonia, (3) Golem, (4) Iliria, (5) Shen Pjetri

Within this study the mean litter density was found to be 333 items/ 100m (range: 99–510 items/100m) and 0.14 items/m2 (0.09–0.21 items/m2) The largest abundance in terms of items per 100m-strectch was observed in Shen Pjetri with 510 items/100m (0.15 items/m2). The second largest abundance was observed in Apollonia with 419 items/100m (0.21 items/m2), followed by Iliria with 347 items/100m (0.14 items/m2) and Golem with 291 items/100m (0.09 items/m2), while the lowest abundance was observed for Dajlani Bridge with 99 items/100m (0.15 items/m2).

Most litter items at aggregated level were made of artificial polymer materials (65% or 3,321 of total items).



Graph 4: Results of the percentage (%) of total litter items per material category type (artificial polymer materials; rubber; cloth/textile; paper/cardboard; processed/ worked wood; metal, glass/ceramics).

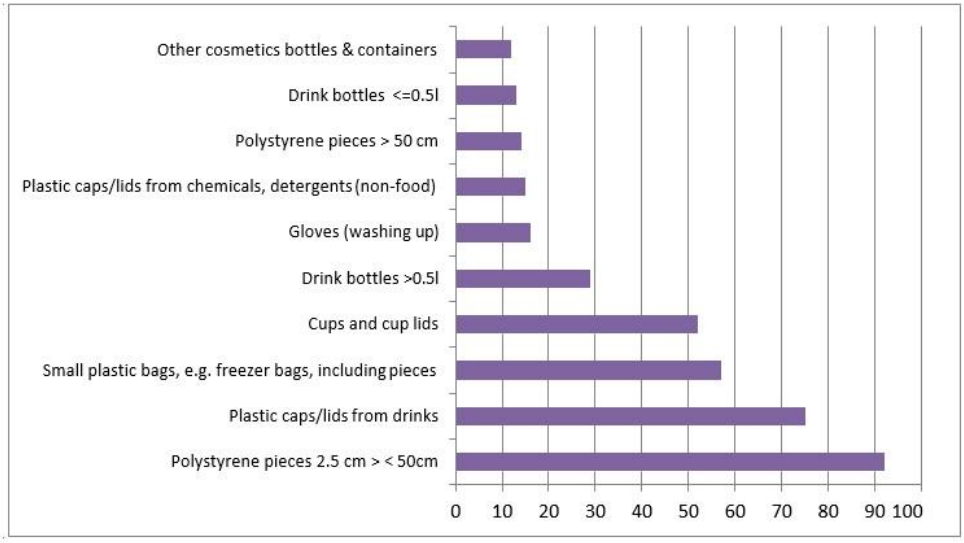
Report: Marine litter in Mediterranean coastal and marine protected areas How bad is it? A snapshot assessment report on the amount, composition and sources of marine litter found on beaches, 2018
Author: *Thomais Vlachogianni (MIO-ECSDE)*

Project*:* ACT4LITTER, Interreg Mediterranean Programme.
Implemented: In Albania, Belgium, Croatia, Cyprus, France, Greece, Italy, Montenegro, Slovenia, Spain and Tunisia.

Project aim: ACT4LITTER aims to **reduce marine litter pollution in the Mediterranean** by fostering a collaborative approach among various stakeholders such as local communities, governments, businesses, and environmental organizations to tackle this growing environmental issue. The project's primary goal is to improve the **management of marine litter** and **promote sustainable practices** to mitigate the harmful impact of litter, particularly plastics, on marine and coastal ecosystems.

Findings:

In Albania the site monitored was in the Marine Protected Area Karaburun-Sazan, Zverneci beach in Vlora municipality. The average number of items per 100m stretch in Zvernec was 444 items and an average number of items per square meter of 0.13 items/m^2, and according to the survey the Zverneci beach was considered a clean beach in report to the other sites monitored. In all the sites monitored the majority of litter items around 82% were made out of artificial polymer materials category of litter dominant on beaches all over the world, the second most recorded items found were glass/ceramics 7% and the third group processed wood 6%.



Graph 5: Top 10 items found in Zvernec (Albania).

Project: Derelict Fishing Gear Management System in the Adriatic Re, DeFishGear

Funded: IPA-Adriatic Cross-border Cooperation Programme

Project duration: 1 November 2013 – 30 September 2016 (35 months)

Implemented by 15 partners, in 8 Mediterranean countries

Implemented in Albania: Agricultural University of Tirana, Laboratory of Fisheries and Aquaculture, Regional Council of Lezha

Report: MARINE LITTER ASSESSMENT IN THE ADRIATIC & IONIAN SEAS 2017

Authors: Thomais Vlachogianni, Aikaterini Anastasopoulou, Tomaso Fortibuoni, Francesca Ronchi c, Christina Zeri

The DeFishGear main lines of action included the following:

- carrying out a comprehensive assessment of the status (amounts, composition, impacts) of marine litter (macro-litter & micro-litter) in the Adriatic and Ionian Seas through harmonized and coordinated monitoring activities;
- development of recommendations and policy options based on sound scientific evidence and knowledge to meet regional and national objectives regarding marine litter (EU Marine Strategy Framework Directive, UNEP/MAP Regional Action Plan on Marine Litter Management in the Mediterranean and Ecosystem Approach, EU Strategy for the Adriatic and Ionian Region, etc.).
- establishment of a Regional Network of Experts on marine litter;
- development of capacities to monitor marine litter in a harmonized way through reinforced exchange of experiences, techniques and know-how;
- setting up schemes to collect and recycle derelict fishing gear; to carry out 'fishing for litter' activities in an environment-friendly way; to implement targeted recovery of ghost nets; to raise awareness of different target groups (fishermen, policy makers, educational community, etc.) on the impacts of marine litter and the types of action they should undertake to effectively address this issue.

Country code	Beach name	Beach type	Average number of items per 100 m stretch	Average number of items per m2 ± S.D.
ALB	Plepa, Durres	Urban	297 ± 275	0.30 ± 0.28
ALB	Shengjin, Lezhe	Semi-urban	156 ± 80	0.16 ± 0.08
ALB	Velipoje	Semi-urbanR	204 ± 64	0.20 ± 0.06

Table 2: Waste found in monitoring sites in the DeFisheGear project

4.2. Projects by International Organizations in Albania

In Albania, a range of international donors have been active in supporting the country's development, including in the environmental sector. These donors, often funded by their home countries, each have distinct agendas and priorities. While not all of them include waste management as a core focus, many of them recognize its importance within broader goals related to public services, environmental protection, and institutional capacity building. As part of their support, various donors have contributed to improving waste management practices in Albania, focusing on capacity building, legislative alignment with European standards, investments in infrastructure, and raising citizen awareness. Although their approaches may vary, these efforts collectively aim to improve waste management systems across the country. Below are some of the key projects implemented by these donors in Albania's waste management sector.

Below a brief explanation of major donors working in Albania that have in their focus waste management and project related to waste management and reducing plastic pollution.

Publication: A Roadmap towards Circular Economy of Albania, 2024.
Implementer: Organization for Economic Co-operation and Development, OECD, with support from the Ministry of Tourism and Environment of Albania.

Purpose: The roadmap offers guidance to the Albanian government in laying a strong policy foundation for a successful circular transition. Informed by a comprehensive diagnostic of Albania's circular economy landscape, the roadmap outlines a set of key policy recommendations and promotes strong alignment across sectors, policy measures, and stakeholders involved in this transformative process.

The analysis identified three key areas where circular economy reforms could yield significant impact for Albania: **1) leveraging economic instruments for sustainable consumption and production; 2) supporting circular business models for small and medium-sized enterprises (SMEs); and 3) addressing the plastics value chain with a specific focus on marine litter**.

Chapter 6: Plastics, with a focus on marine litter.

This chapter points out priority areas that seek to archive a more circular plastic life cycle in Albania with particular focus on marine litter and common application of plastics in packaging construction and single use plastic. The roadmap suggests that Albania due to its involvement in the Western Balkans regional cooperation programs on preventing plastic pollution could develop a national strategy on plastic pollution with a focus on marine litter.

Specific recommendations related to plastic with a focus on marine litter:

Short term: a. Improve waste management in general; b. Improve separate collection of plastic waste and other packaging; c. Raise awareness and educate businesses, public authorities and households on plastic waste prevention.
Medium term: a. Introduce eco-modulated fees for plastic packaging within the EPR scheme for packaging; b. Develop a strategy to curb plastic pollution, including marine plastic litter; c. Use green public procurement to favour reusable and recycled
Plastics.
Long term: a. Support and scale up innovation into more recyclable plastic materials, plastics recycling technologies and processes as well as plastics reuse and reduction; b. Introduce minimum recycled content requirements for specific plastic waste streams; c. Consider taxes on virgin and non-recycled plastics.

GIZ - The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has been working in Albania since 1988. A country office opened in Tirana in 2008.

In Albania, GIZ mainly operates on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ) and the EU. Its work focuses on:

- Economic development, training and employment
- Climate and energy
- Good governance

In the field of climate and energy, GIZ is helping the country to adapt to the effects of climate change. It is promoting climate-friendly urban mobility with the development of public transport systems and creating incentives for footpaths and cycling. GIZ is also advising Albania on diversifying energy generation and harmonizing municipal waste and wastewater management with a circular economy.

Projects

Project: Local reusable packaging systems: Avoiding waste and empowering women - Circular City Labs – Testing reusable packaging systems in cities (https://www.giz.de/en/worldwide/127407.html)

Implementer: GIZ Albania

Implemented in: Albania, Colombia, Georgia, South Africa, 2023 -2025

Objective

Cities are generating more and more waste due to high densities of population, restaurants, businesses and industry. Reusable packaging systems are an important part of the circular economy. They address the root of the problem by ensuring that less packaging is used, and waste is reduced. The new reusable packaging systems in cities reduce waste and greenhouse gases and empower women as environmentally sustainable entrepreneurs.

Approach

The project supports the development of reusable packaging systems in four partner cities through implementation of the following activities.

- **Baseline studies**: A study assesses the local conditions for reusable packaging solutions and opportunities for empowering women as well as cooperation with the private sector and municipalities
- **Test phase**: In each city, the project conducts labs to identify local companies that are interested to integrate reusable packaging into their business models, and supports them
- **Training**: For women working in the private sector and in municipal administration, the project offers training programmes on leadership, the circular economy and reusable packaging systems
- **Communication and dialogue**: The project promotes the dissemination of the concept of reusable packaging systems in international and national contexts and supports dialogue between companies.

Project: Modernized, climate-friendly solid waste and recycling management in Albania
https://www.giz.de/en/worldwide/62845.html
Commissioned by: German Federal Ministry for Economic Cooperation and Development (BMZ)
Country: Albania
Lead executing agency: Ministry of Tourism and Environment
Overall term: 2020 to 2023

Objective

Albania is adopting the principles of the circular economy and introducing integrated waste-management systems thus bringing it closer to implementing EU standards relevant to the environment and climate change

What is the project all about

The project supported the Ministry of Tourism and Environment (MoTE) in implementing the updated National Strategy for Integrated Waste Management. The improved data management system serves the national environmental state report released by MoTE and the National Environmental Agency (NEA) based on verified data on municipal waste and potential to reduce greenhouse gases.

Furthermore, the project assisted NEA to improve licensing of service providers/operators via Information Technology (IT) systems, strengthen inspection and regulation according to agreed performance indicators and standard contracts, as well as sanctionable violations of environmental standards. At the local level, the project collaborated closely with six partner cities (Himara, Peqin, Belsh, Cerrik, Roskovec and Saranda) to introduce climate sensitive waste management practices. The focus was on recovery, increased recycling, waste separation at the source, and the introduction of composting alongside professionalization of municipal services and broad-based sensitization campaign.

The project supported the municipalities in achieving some basic separation at source, wet from dry waste aiming and facilitating composting and recycling of materials, and assisted municipalities to upgrade/rehabilitate six existing waste disposal sites, from open dumpsites to transitional landfills with temporary operation permits.

Project: Modernising municipal services in the Western Balkans, Open Regional Fund for South-East Europe – Modernisation of Municipal Services (https://www.giz.de/en/worldwide/151016.html)

Implemented by: GIZ Albania

Implemented in: Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia and Serbia

Objective

Cities and municipalities in the Western Balkan countries are improving conditions for providing public services and developing the local economies in line with EU requirements.

Approach

The project fosters regional cooperation and knowledge transfer between the public and private sectors and civil society. It also enables local authorities to improve municipal services in accordance with the EU's Green Agenda for the Western Balkans, contributing to the achievement of Agenda 2030 and SDGs. At the same time, the project strengthens the local governments to improve the business climate through establishing the Partnership for a Competitive Region (CORE partnership) and the Business Friendly Certification (BFC) programme.

Project: Integrated Waste Management and Marine Litter Prevention in the Western Balkans
Implemented: GIZ Albania, 01.06.2022 – 31.05.2025
Donor: German Federal Ministry for Economic Cooperation and Development (BMZ)
Countries: Albania, Bosnia and Herzegovina, Kosovo and Montenegro

Project aim:
Project aims to reduce plastic discharge e into the Adriatic Sea by facilitating regional exchange, knowledge sharing and cross-border cooperation in the 4 countries in order to successfully coordinate strategies and reduce marine litter.
One of the components of the project is the Low Plastic Zone initiative in order to encourage and support hotel, restaurant, and café owners to reduce the amount of single-use plastic products handed to customers. Experts engaged by the program meet with the businesses to assess their use of single use plastics, discuss available options to reduce or eliminate the use of these products, and help them implement the most appropriate solutions for their businesses.

Project: EU for Circular Economy and Livable Cities (https://www.giz.de/en/worldwide/139751.html)

Implemented by: GIZ and funded by The European Union (EU) and the German Federal Ministry for Economic Cooperation and Development (BMZ). July 2023 - June 2027

Project objective:

The overall objective of the action is to contribute to improving the protection of the environment and developing circular economy and sustainable green growth in Albania. The Action supports the Government of Albania (GoA) in achieving key objectives in the field of environmental protection and economic green growth, namely, to accelerate the transformation to a circular economy, improving energy efficiency, contribute to job creation and improving citizens' health.

It supports Albania in achieving the transition towards a circular economy and empower Municipalities to build sustainable cities of tomorrow, contributing to improved citizens' health, green job creation, and improved energy efficiency. The project focus is on creating synergies among different stakeholders, leading to more efficient waste management services, with particular attention on data management and key performance indicators, allowing to set clear objectives, track progress, and ensure accountability. This involves capacity development and training of waste management authorities at all levels to effectively manage circular economy initiatives. We provide upstream solutions through prevention and reduction concepts, and downstream solutions like recovery concepts and tracking of material flows.

The project assists in implementing Extended Producer Responsibility schemes for Packaging Waste, WEEE, and batteries and accumulators and introduces economic instruments to support waste reduction and separation.

- Develop an improved and EU-compliant waste management legal framework including training on implementation, enforcement and monitoring;
- Introduce green business models such as Extended Producer Responsibility (EPR) in three waste streams;
- Support circular economy measures in 15 partner municipalities, including waste management services, establishing and improving recycling measures, such as Composting Plants and Material Recovery Facilities.

Swiss government

Switzerland is one of the other donors that is very active in supporting Albanian institutions through the years in the development of a democratic society and a competitive economy with the aim of helping to advance Albania's integration into Europe. Switzerland's support is focused on local governance, economic development and healthcare as well as urban infrastructure and energy.

Below a list of projects with a focus on waste management financed through Swiss Agency for Development and Cooperation, SDC.

Project: Integrated Solid Waste Management Programme (Phase 2) (https://www.eda.admin.ch/deza/en/home/laender/albanien.html/content/dezaprojects/SECO/en/2017/UR00648/phase2)

Implemented by: SECO, State Secretariat for Economic Affairs, Economic Cooperation and Development and KfW

Project timeframe: 01.12.2021 - 31.12.2026

The joint Integrated Solid Waste Management Programme (ISWMP), phase II, of SECO and KfW will consolidate previous investments of SECO and develop further sustainable and climate-friendly solid waste management services in Albania. It will be the biggest waste programme in the country, covering at least half the territory.

Objective:

The overall goal of the Programme is to provide better, more reliable, affordable and climate-friendly waste management services based on EU regulations and standards for the inhabitants of the participating municipalities. The ambition is to align Albanian municipal solid waste management with the EU environmental and climate change acquis. The investments in infrastructure and in the strengthening of technical, financial and institutional capacities at the municipal, regional and national levels will improve the health of the population and the environment as well as make the targeted regions more attractive for economic activities, thus providing for a superior quality of life in 8 out of 10 waste zones in Albania.

Project: Solid Waste Management in Berat (Phase 1)
(https://www.eda.admin.ch/deza/en/home/laender/albanien.html/content/dezaprojects/SECO/en/2017/UR00648/phase1.html?oldPagePath=)

Implemented by: SECO is supporting the Region of Berat in Albania including its municipalities Berat, Kuçovë, Poliçan, Skrapar and Ura Vajgurore

Project timeframe: 01.01.2017 - 31.12.2022

The support encompasses capacity development, technical assistance and Short Term SWM Measures in improving quality, reliability and sustainability of its solid waste management (SWM) services.

The SWM Project contributed to improve quality, reliability and sustainability of SWM services in the Berat region (Berat, Kuçovë, Poliçan, Skrapar and Ura Vajgurore) and reduce negative environmental impact of generated waste. It stimulated the awareness of political decision makers, civil servants and the public on SWM issues and support the enforcement of the respective regulations.

Project: Bashki të Forta (BtF) - Strong Municipalities

(https://www.eda.admin.ch/deza/en/home/countries/albania.html/content/dezaprojects/SDC/en/2017/7F09494/phase2?oldPagePath=/content/deza/en/home/laender/albanien.html)

Donor: Swiss Agency for Development and Cooperation and Cooperation Office of the Embassy of Sweden

Project timeframe: 01.08.2022 - 30.09.2026

Project aim

The project aims at strengthening capacities of all 61 Albanian municipalities (executive and councils) to assume their functions. Citizens will benefit from improved services based on standards and reliable

data. A national performance-based system of grants will contribute to improve municipal governance and will incentivize municipalities to perform better.

Objective

Citizens in Albania benefit from improved governance and services at the municipal level, according to agreed minimum and affordable standards for a sustainable country system.

- Outcome 1: Municipal administrations fulfil their functions based on improved data in line with EU standards;
- Outcome 2: Municipal administrations improve service delivery (waste management and preschool) towards affordable standards;
- Outcome 3: Municipal councils oversee adequately the performance of municipal administration and engage in evidenced based decision-making;
- Outcome 4: A new municipal performance management system and a performance-based grant (PBG) mechanism is in place.

Project: Bashki të Forta/Strong Municipalities

(https://www.eda.admin.ch/deza/en/home/countries/albania.html/content/dezaprojects/SDC/en/2017/7F09494/phase1.html?oldPagePath=/content/deza/en/home/laender/albanien.html)

Donor: Swiss Agency for Development and Cooperation

Project timeframe: 01.06.2017 - 31.12.2023

Objective:

Municipal administrations in all 61 municipalities in Albania will be supported to effectively manage service delivery based on the citizens' needs. Municipal councils will be enabled to better represent citizens' interests and ensure that public resources are well managed. Setting up a reliable and up-to-date local statistical system will allow an informed decision making. Through these improvements, citizens will benefit from better services such as waste and pre-school education and will actively be involved in local issues.

People in Albania benefit from citizen-oriented municipalities and an improved service delivery for waste and pre-school education at municipality level.

Expected results:

O1) Key statistical data and indicators are available for municipalities and regions; Elements for a harmonized register-based system of population/ household and building/dwelling statistics are in place; The organizational structure and the tools of INSTAT support effectively the nationwide statistical system;

O2) Waste management is improved in a sustainable way according to a new national standard; A model of pre-school education management at municipal level is defined; Municipalities are trained to monitor their own performance.

O3) Councillors are able to fulfil their mandate; Council secretariats are strengthened and support a better functioning of councils; Effective communication channels are established between councillors and citizens.

Delegation of European Union in Albania

The European Union is one of the largest and most influential donors in Albania, providing significant financial support to the Albanian Government across a variety of sectors. The EU's assistance is instrumental in strengthening administrative capacities, helping to align national legislation with European Union standards, and investing in critical infrastructure. Key areas of focus for the EU include health, education, culture, and environmental management, with waste and wastewater management being vital components of its support. Through various projects, the EU works to improve Albania's environmental infrastructure, enhance waste management practices, and build the necessary institutional frameworks for sustainable development in the country.

Project: EU Circular Economy-Regional Waste Management Program

(https://www.eeas.europa.eu/delegations/albania/albania-eu-and-afd-launch-waste-management-programme-kuk%C3%ABs-region_en) (https://mia.gov.al/en/the-eu-circular-economy-and-waste-management-project-starts-in-gjirokastra/)

Financed by: The European Union

Implemented by: French Development Agency in partnership with the Ministry of Tourism and Environment

Implemented in: Gjirokastra/South Vlora region/qark and Kukes qark (waste management zones)

The programme will support Albania in enhancing recycling; establishing EU-compliant landfills and waste facilities; and reducing environmental impacts of solid waste in 12 municipalities within these regions. This initiative will contribute to improving living conditions in the affected areas and support Albania's alignment with EU standards for its EU membership journey

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Project: Assistance for Integrated Solid Waste Management System for two Selected Municipalities of Albania

Donor: Delegation of the European Union to Albania

Implementer: Eptisa, URI as local partner

Project objective:

The objective of the project was to build capacity in modern solid waste management (SWM) and to raise public awareness on the importance of proper waste management for the preservation of the environment, public health and, finally, for an increased living standard of the population of Albania.

To support the Government of Albania in the effort towards the sustainable development of the country by supporting the institutions to develop, implement, and enforce environmental and climate change legislation in line with EU standards.

Main activities

- Mapping of the present situation, based on the existing needs and infrastructure for two Waste Management Zones

- Development of an Integrated Solid Waste Management Plan for the Two Waste Management Zones
- Capacity building for stakeholders and activities for starting the implementation of IWMS and public awareness, and technical support to the national coordination structures.

4.3. Publications at EU/Mediterranean level

Publication: Mediterranean Quality Status Report, 2017
Implementer: UN Environmental Program, Mediterranean Action Plan Barcelona Convention.

Purpose: To assess the environmental condition of the Mediterranean Sea and its coastal areas. The primary purpose of the report was to provide a comprehensive, scientific evaluation of the health of the Mediterranean marine and coastal environment.

Key activities:

- **Assessing the State of the Environment**: highlighting key environmental challenges such as pollution, habitat degradation, biodiversity loss, and climate change impacts;
- Providing a Baseline for Action;
- **Monitoring Progress**: mainly focus on the one set from the Barcelona Convention and its Protocols;
- Promoting Regional Cooperation.

Results:

Assessing the impact of marine litter on beaches in the Mediterranean is challenging due to the limited spatial availability of data, which is primarily concentrated on northern shores. Additionally, the lack of comparability between datasets, resulting from differing methodologies, further complicates the analysis. Available data identify the main types of beach marine litter as plastics, glass, paper, metal, polystyrene, cloth, rubber, fishing-related items, munitions, wood, smoking-related waste, sanitary waste, and unidentified debris. The most common items found in the Mediterranean Sea include: cigarette butts, plastic beverage bottles, food wrappers, plastic bottle caps, straws/stirrers, other plastic bags, glass beverage bottles, plastic grocery bags, metal bottle caps, and plastic lids.

COUNTRY	Cigarette butts	Plastic beverage bottles	Food wrappers	Plastic bottle caps	Straws, stirrers	Other plastic bags	Glass beverage bottles	Plastic grocery bags	Metal bottle caps	Plastic lids
Albania	535	39	55	26	35	27	5	25	8	1

Table 3: Top ten items by country (International Coastal Clean-up, ICC 2016) expressed as number of items/100m of beach.

Publication: Marine Litter Assessment in the Mediterranean, 2015
Implementer: This publication was prepared by the UNEP/MAP MED POL Programme

Donor: EcAp-MED [8]project co-funded by the EU and the Mediterranean Trust Fund of the UNEP/MAP Barcelona Convention.

Purpose: Assessing the marine pollution in the Mediterranean Sea focus manly in litter, which threatens marine ecosystems, wildlife, and human health.

Key findings:

- **Marine litter** is a growing problem that affects the Mediterranean habitat due to its high population density, significant coastal tourism, and maritime traffic;
- **Land-based sources** are the largest contributors to marine litter, particularly from urban areas, tourism, agriculture, and industry. Items like plastics (e.g., bottles, bags, packaging), textiles, and metals are commonly found;
- **Composition of Marine Litter**: The majority of marine litter in the Mediterranean is composed of **plastics**. These include packaging materials, bottles, bags, and microplastics (small plastic particles); Other types of litter found in the sea include metals, glass, rubber, textiles, and wood.
- For the southern Adriatic Sea, it should be noticed that about one-third of the total mean annual river discharge into the whole Mediterranean basin flows into this basin, particularly from the Po River in the northern basin and the **Albanian rivers**.

4.4. NGO Initiatives

Over the past decade, national and regional NGOs in Albania have played a pivotal role in addressing plastic pollution and promoting sustainable waste management practices. These organizations have actively engaged in awareness-raising campaigns targeting communities, schools, and local businesses to emphasize the importance of reducing, reusing, and recycling waste.

NGOs have also collaborated with international donors and local authorities to implement projects aimed at improving waste collection and recycling systems, particularly in urban and coastal areas. Notable initiatives include cleanup campaigns on riverbanks and beaches, the promotion of alternatives to single-use plastics, and capacity-building workshops for municipal staff and local stakeholders.

Their work has been instrumental in fostering public participation and advocacy for stronger environmental policies, thus contributing significantly to the ongoing efforts to mitigate plastic pollution in Albania.

Project: Enhancement of Biodiversity in the Drin River Basin Through Integrated Watershed Management, BIODRINI

Implemented: Urban Research Institute, Kukës Regional Council, Municipality of Rahovec, Association for Environmental Protection and Clean-up of Kosova (PAMKOS), 07/03/2022 - 17/02/2023.

Donor: European Commission, Cross-Border Programme Albania-Kosovo IPA II.

Project aim: The project aimed to contribute to the protection of the environment and the enhancement of biodiversity along the Drini River Basin. It focused on measures to improve environmental resources and biodiversity in the area, strengthened the capacities of local authorities

[8] Implementation of the Ecosystem Approach in the Mediterranean by the Contracting Parties in the context of the Barcelona Convention for the Protection of the Marine Environment and the Coastal region of the Mediterranean and its Protocols

and stakeholders in the two countries, and implemented awareness-raising activities to encourage behavioural change for the protection and conservation of the ecosystem across the cross-border region.

Key Activities and Results

One of the main activities was the installation of litter traps along the streams of the Drini River, with two traps placed in each country. Over six months, approximately 20 tons of waste were collected by these traps, waste that would otherwise have ended up in the Drini River and eventually the Adriatic Sea.
The waste collected consisted of various materials, including wood, rubber, and plastic, which are commonly found pollutants in the area. These efforts represent a tangible step toward reducing pollution in the Drini River Basin and protecting the wider ecosystem.

Figure 4: Photo from the positioning of litter traps in water streams in Drini River

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Project: The Waste Flow Diagram (WFD) for Marine Litter Monitoring.

Implemented: Urban Research Institute

Donor: GIZ Albania through the Integrated Municipal Solid Waste (MSW) and Marine Litter Prevention programme.

Implemented in: Municipality of Kruja

Project aim: The project evaluated the service of waste management delivery in the Kruja municipality in order to point quantities and typologies of waste and main challenges that the municipal officials face when delivering the service. One of the tools used in the project was the application waste flow diagram which is a visual representation of how waste materials are handled and processed from their generation to their final disposal or recycling. It typically shows the stages through which waste passes, including collection, transportation, sorting, treatment, recycling, and disposal. Waste flow diagrams are crucial for understanding the lifecycle of waste and ensuring efficient and sustainable waste management practices.

Figure 5: Photo from the state of service provision in the municipality of Krujë

From the analyses of the service of waste management in Kruja municipality and the data collected in the field results that out of the total amount of waste generated in the municipality 2,367 tons are plastic out of 29% of the plastic generated is leaked in the environment.

MSW	Total ton/year								
	MSW Generated	Plastic Generated	Plastic collected	Total Plastic uncollected	Plastic to land	Plastic to water	Plastic burnt	Plastic to drains	% plastic leakage to total generated
Krujë	18,205	2,367	1,857	510	305	315	42	37	29%

Table 4: Quantities of plastic leaked due to lack of service vs total plastic generated and collected, Krujë 2022

The above data on the amount of waste generated and collected in the municipality were used to fid up the waste flow diagram illustrated below.

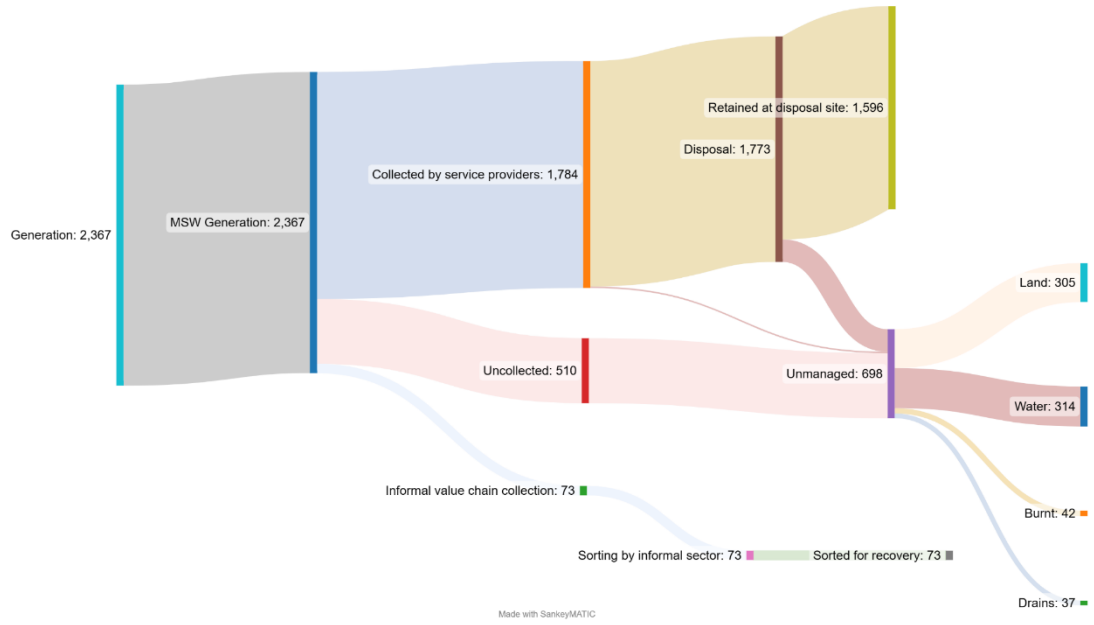

Figure 6: WFD Sankey diagram for plastic in Kruja municipality

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Project: Marine Litter Management, Adopt a Beach

Implemented: Urban Research Institute (URI), May 2018 – June 2019

Donor: United Nations Environment Programme (UNEP), part of the Cooperation Agreement between UNEP/MAP 2016-2021 and the Italian Ministry of Environment, Land and Sea

Implemented in: Cape of Rodon – next to the Ishmi River, municipality of Durres and Delta of Buna River, close to Velipoja Beach, municipality of Shkodra

Project aim:

The project aimed to implement a series of activities to monitor the amount of marine litter on two major beaches in the country, located near river deltas. The objective was to understand how poor waste management on land contributes to the accumulation of urban waste on beaches and in the sea. Another key component of the project was raising awareness among communities and municipal experts about the impact of marine litter on the ecosystems of rivers and seas where this waste is deposited.

Key Activities and Results

One of the primary activities was monitoring two beaches:

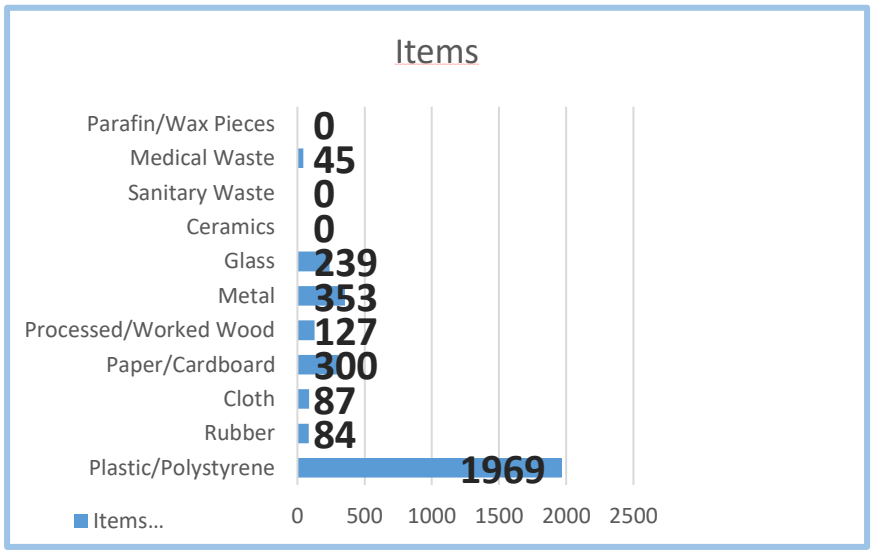
- **Cape of Rodon**, near the Ishëm River.

– **Delta of the Buna River**, close to Velipoja Beach.

In total, **four cleanup actions** were conducted at each of the targeted areas. For the monitoring activities, **MEDPOL Beach Marine Litter Templates** were used to standardize data collection and analysis.

Results at Cape of Rodon:

- **Total items collected**: 3,204
- **Total weight**: Approximately 349 kg
- **Most common material**: Plastic, accounting for 1,969 items (38% of the total collected).

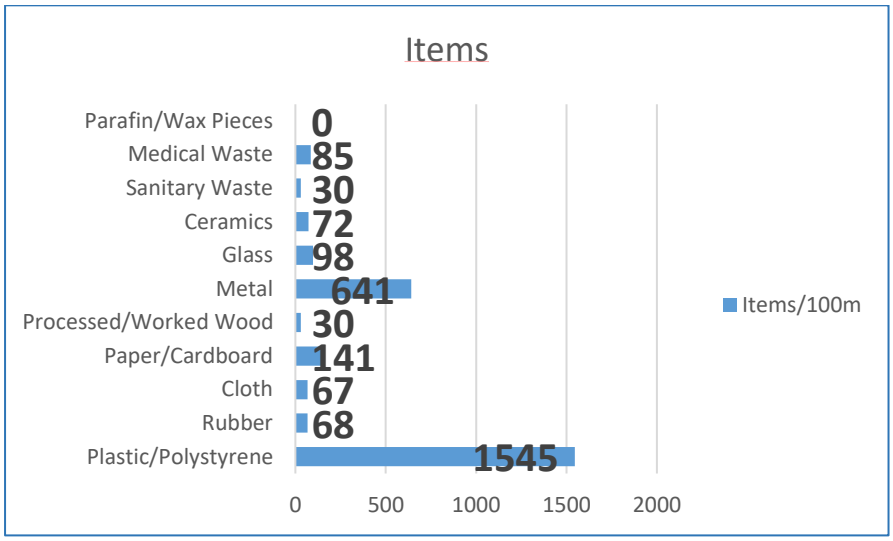


Graph 6: Number of items recorded in Cape of Rodon

Figure 7: Number of items recorded in Cape of Rodon

Results at Delta of the Buna River:

- **Total items collected**: 2,777
- **Total weight**: Approximately 272 kg
- **Most common material**: Plastic, accounting for 1,545 items (54% of the total collected).



Graph 7: Number of items recorded in Delta of Buna River

Figure 8: Phots from the cleaning activities in Delta of Buna River

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Project: Erzeni Calling

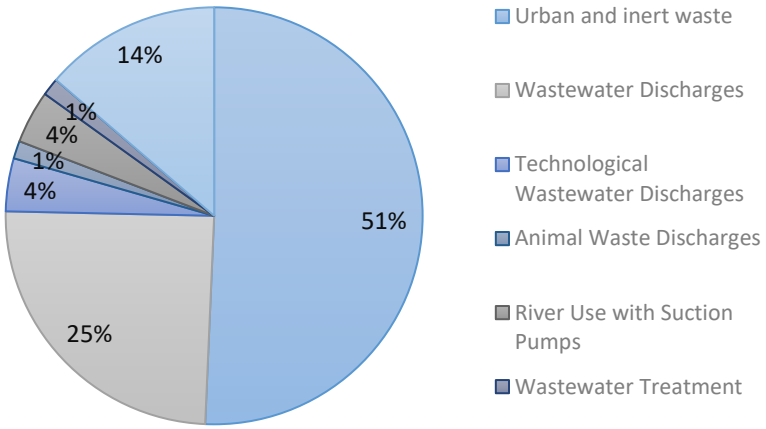
Implemented: North Green Association, 2022- 2023

Donor: GreenAL project.

Project aim:

Monitoring the flow of the Erzen River to highlight issues related to its pollution as well as to raise awareness for the protection of water resources and the impact that pollution has on aquatic ecosystems.

The Erzen River has a flow of about 760 km and along its bed 108 points have been identified which are sources of pollution.



Graph 8: Typology of waste pollution hotspots monitored in Erzeni Calling project

Figure 9: Photo from one waste dumpsite along Erzeni River

Project: REMEDIES – Co-creating strong uptake of REMEDIES for the future of our oceans through deploying plastic litter valorization and prevention pathways

Donor: EU Grant through HORIZON Europe

Implemented: 15.12.2022 to 15.12.2026

Implemented: 23 organisations form 12 countries.

Implemented in Albania: Environmental & Territorial Management Institute.

Project Objectives:

REMEDIES is aiming to create a trend of plastic prevention by exploiting traditional and modern channels. With the help of citizen's science REMEDIES will support the co-creation of participatory processes in order to achieve a more plastic-conscious society.

Under this project in Albania the Hamallaj beach, Durres municipality was selected to perform the monitoring survey. Under the project 4 monitoring activities will take place per year and currently was implemented the first monitoring activity in March 2024.

Under the first monitoring activity 51 kg waste collected or a total of 975 items per 100m out of which 28 kg were categorized as plastic waste while 23 kg were categorized as non-plastic waste

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4.5. Shkumbini River

The Shkumbin River: Importance and Challenges

The Shkumbin River, one of Albania's seven major water basins, is a vital natural resource flowing through the central region of the country. Originating from the Valamara Mountains in eastern Albania, it spans a length of 181 km before emptying into the Adriatic Sea. The river traverses several municipalities, including Librazhd, Elbasan, Peqin, and Rrogozhina, and flows through predominantly agricultural administrative units that heavily rely on its waters for irrigation and other agricultural activities.

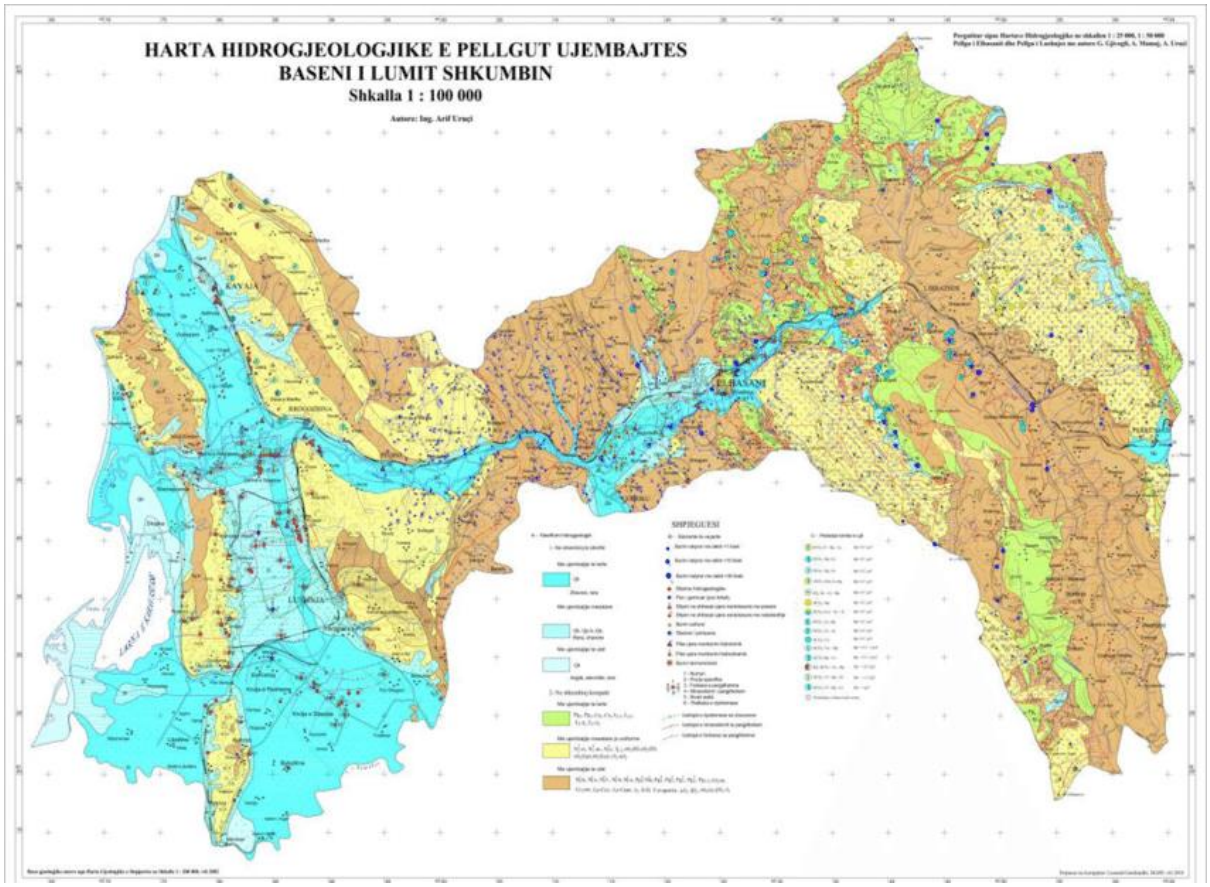

Figure 10: Hydrological map of the watershed, Shkumbin River basin

Despite its socio-economic significance, the Shkumbin River faces severe environmental challenges. One major issue is the discharge of untreated wastewater from businesses and residents along its banks. Additionally, the widespread use of pesticides in agriculture contributes to water pollution, negatively affecting the river's biodiversity.

Another persistent problem is the accumulation of urban and inert waste along the riverbanks or in its tributaries. This issue, prevalent for years, continues despite awareness campaigns by local governments to address community behavior.

The **State of the Environment Report 2023** classifies the waters of the Shkumbin Basin as Class III – Moderate Condition, based on monitored physical and chemical parameters. Monitoring efforts

include four stations within the basin, but there remains a lack of specific data on plastic waste pollution and its impact on river or marine ecosystems.

Furthermore, during research for this report, no evidence of targeted projects or initiatives addressing the reduction of plastic waste in the Shkumbin River was found. Specific data on the quantity and type of waste deposited in this water basin remains unavailable, highlighting a significant gap in waste management and environmental protection efforts for this critical river system.

Although specific data on the quantity of waste deposited in the Shkumbin River is lacking, numerous environmental experts and television news outlets have highlighted the pressing issue of pollution in this vital water basin. A recurring concern is the improper disposal of hospital waste along its banks, exacerbating the pollution problem. The presence of hazardous waste, including medical ones, raises serious alarm as the river's waters are extensively used for irrigation. This could have far-reaching implications for public health by potentially contaminating the food chain. Such issues underline the urgency of addressing waste management in the Shkumbin River basin to mitigate environmental and human health risks.

In the annex of this document, links to television news reports have been provided. These reports vividly illustrate the extent of pollution in the Shkumbin River, serving as a testament to the growing public concern and the need for immediate remedial actions.

Actions taken from MoTE

To take preventive measures against waste flowing into the Adriatic Sea, the Ministry of Tourism and Environment implemented a project in 2017. This project involved the installation of a waste catching device (a nest) to intercept waste before it reaches the sea. The project was financed by the Ministry of Tourism and Environment and proposed by the Municipality of Rrogozhina, where the Shkumbini River is located.

Figure 11: Photo from a nest installed for the prevention of marine litter in Shkumbini River

Figure 12: Photo from the machinery installed for the collection of waste in Shkumbini River

To improve the situation regarding waste management and reduce plastic pollution, the issues presented above also offer opportunities that need to be explored by institutions at both central and local levels. The following actions should be undertaken:

- Reintroduce and scale up the waste-catching nets installed in the Shkumbini River in 2017.
- Enforce mechanisms to ensure compliance with waste management regulations.
- Implement regular monitoring activities to identify the quantities and types of waste deposited in the Shkumbini River.
- Use technology, such as drone monitoring, to map pollution hotspots.
- Enhance public awareness campaigns focused on the importance of waste reduction, segregation, and recycling.
- Partner with schools and local organizations to instill environmentally responsible behaviors.
- Increase collaboration with CSOs and universities to implement projects aimed at mitigating plastic pollution and conducting clean-up activities.
- Work with businesses to introduce and promote reuse and recycling activities.
- Introduce incentives or disincentives to reduce the use of single-use plastics.
- Establish small-scale recycling units along the river basin to manage waste properly and create economic opportunities.

5. Data Analysis

In Albania, there is a **significant data gap** regarding the amount of waste generated, collected, and treated. This lack of comprehensive data can be attributed to multiple factors, most notably the **informality** within the waste management sector and the **limited capacity** of municipalities to provide comprehensive waste management services across the entire territory. Many municipalities face challenges in both delivering adequate services and effectively monitoring illegal waste dumping in public spaces, such as riverbanks, roadsides, and other environmental areas.

Another major contributing factor to this data gap is the **absence of a centralized digital reporting and processing system**, which hinders the systematic collection, tracking, and management of waste data. Additionally, the **insufficient infrastructure**, such as the lack of facilities for weighing and categorizing waste, exacerbates the issue. The **waste management hierarchy**, which is essential for effective waste sorting, recycling, and processing, is not uniformly applied throughout the country. Not all regions are equipped with the necessary facilities to process waste, further limiting the availability and accuracy of waste-related data. These challenges have been consistently highlighted by **civil society organizations** and are also reflected in the **European Commission's progress reports on Albania**.

The National Environment Agency (NEA), a subordinate body of the Ministry of Tourism and Environment (MoTE), plays a central role in monitoring the state of the environment in Albania. It publishes the annual State of the Environment Report, which includes a comprehensive overview of the country's waste management situation. The 2023 report highlights several critical issues, particularly the **lack of consistent data reporting by municipalities**. According to the NEA, out of the 61 municipalities in Albania, only 39 have provided waste data, significantly hindering the ability to conduct a thorough analysis of the waste management sector. This reporting gap not only makes it difficult to assess the total volume of waste generated in the country but also limits insights into the **composition and typology** of waste.

In addition to the NEA, the Institute of Statistics (INSTAT) is the primary official source of data for various sectors, including agriculture, fisheries, foreign trade, population, energy, and the environment, encompassing waste management. INSTAT periodically publishes official statistics, which are made available to both public and private institutions for ongoing use. These data are critical for the analysis and planning of waste management policies and actions.

Given that INSTAT's data is more consolidated and broken down into several specific categories, it has been used as a primary reference for this study. The relevant data is presented below for further analysis.

According to INSTAT, in 2023, approximately **844,157 tons** of urban waste were managed for a population of around **2,463,512** people, which represents about **89.2%** of the total population of **2,761,785**.

Year	Tons	Total managed
		Kg/Inhabitant /Y
2021	875.105	311
2022	820.322	295
*2023	**844.157**	**342**[9]

Source: INSTAT

*Table 5: Total waste managed per inhabitant in Albania 2021-2023**

**Data on managed waste per kg/inhabitant will be completed once annual population estimates for the following years are published, based on the results of the 2023 Census.*

Regarding the composition of the collected waste, it is mainly organic waste with 57.81% of the total, followed by plastic with 9.27%, paper/cardboard with 9% and glass with 5%. More information is illustrated in the table below.

[9] Calculation made by the author

Year	Organic	Wood	Paper/Card	Glass	Plastic	Textiles	Metal	Non-hospital hazardous waste	Electric	Inert	Hospital waste	other
2021	58,57	3,67	8,49	4,62	8,74	4,03	2,16	0,21	0,44	6,33	0,14	2,61
2022	58,11	3,56	8,95	4,94	9,15	4,52	2,21	0,42	0,30	5,93	0,08	1,83
2023	57,81	3,56	9,00	5,01	9,27	4,48	2,28	0,46	0,31	5,91	0,06	1,85
In absolute values 2023 in tons	488,007	30,052	75,974	43,052	**78,253**	37,818	19,247	3,883	2,617	49,890	506	15,617

Source: INSTAT

Table 6: Categories of urban waste managed in Albania 2021-2023 in %

As for the treatment of collected waste, most of it is treated through disposal in landfills and waste fields and only an amount of 158,783 or about 18.81% of the waste is recycled. Data on waste treatment are presented in the table below.

Table 7: Urban waste treatment 2021-2023

	Burning for energy		Burning for elimination		Recycling		Deposited in landfills		Disposal outside the landfill	
Year										
	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
2021	17.189	1,96	311	0,04	164.444	18,79	691.352	79,00	1.811	0,21
2022	35.996	4,39	379	0,05	154.934	18,89	628.239	76,58	775	0,09
2023	38.414	4,55	270	0,03	158.783	18,81	**645.654**	**76,49**	1.036	0,12

Source: INSTAT

Table 8: Urban waste treatment in Albania 2021-2023

Referring to the INSTAT data presented above, with a service coverage of approximately 89% of the population, it is evident that 11% of the population or 298,273 inhabitants are not served by the waste management service. This accounts for approximately 102,200 tons of waste annually that are potentially deposited into the environment or watercourses. Despite overall progress in this sector, marked by the drafting of strategic documents and updates to legislation, challenges remain in their implementation.

As previously mentioned, the waste sector in Albania is characterized by a significant lack of data on the quantities of waste generated and subsequently treated. This data gap makes it challenging to determine accurate figures on how much waste is ultimately deposited in the environment or waterways. However, in an effort to provide some reference data, the following estimates have been made. It is important to note that these figures should be taken with caution, as they are based on assumptions made by the author due to the absence of comprehensive data.

To visualize the flow of waste and better understand the approximate quantities involved, a Sankey diagram is used. Sankey diagrams are flow diagrams that visually represent the movement of resources, energy, materials, or costs between different stages of a system or process. In this context, the Sankey diagram illustrates the flow of plastic waste generated within the country, giving the reader an approximate overview of the quantities of plastic that are generated, collected, treated, and/or improperly disposed of in the environment.

While this diagram provides an approximate depiction of plastic waste flows, it is essential to recognize the limitations of the data presented, given the data gaps and assumptions made during the

estimation process. Nevertheless, the Sankey diagram serves as a useful tool to visualize the distribution and management of plastic waste within the existing framework of Albania's waste management system.

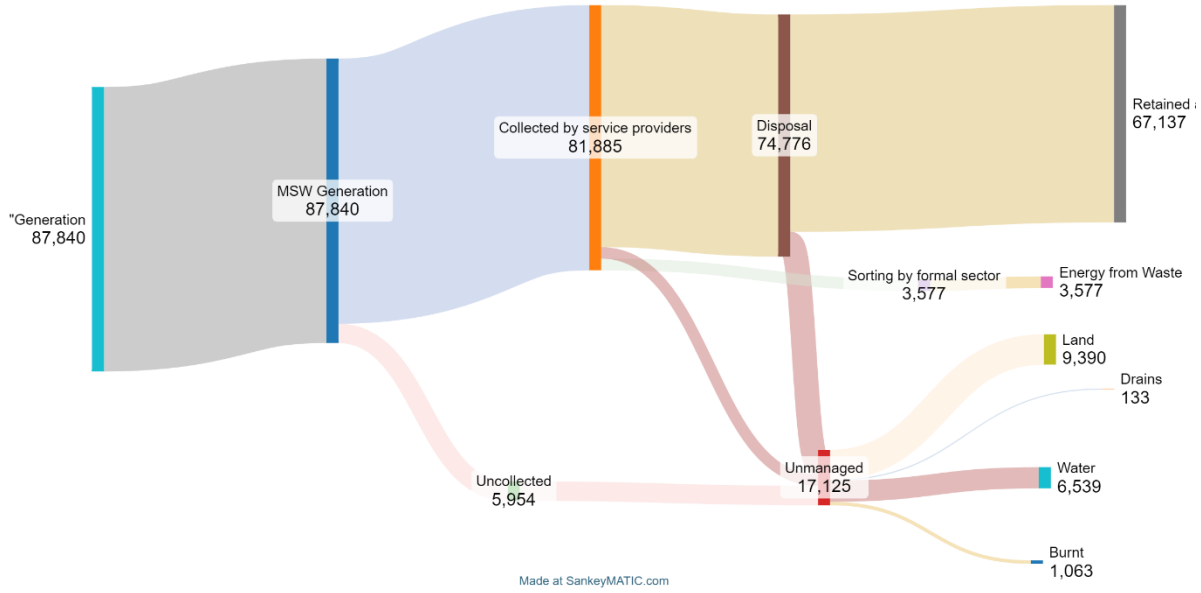

Figure 13: Sneaky diagram for plastic waste generated in Albania for 2023

From the studies presented above on monitoring conducted on coastal beaches and riverbanks in Albania, data has been extracted regarding the quantity of waste found per square meter and the main types of materials identified in these areas. This data is summarized in the table below, which highlights that the majority of waste consists of plastic items. This predominance of plastic waste is attributed to its floating nature, allowing it to travel long distances from its point of disposal to the shores of the Adriatic Sea.

Location	Items per m2	Typology of items
Erzeni riverbanks	2.4	93% artificial polymer
Old Beach	1.3	82% Plastic,
Yacht Hotel	0.1	82% Plastic
Hotel Rexhina	0.1	82% Plastic,
Orikum	0.5	82% Plastic,
Green Coast	0.1	82% Plastic,
Dhermi	0.1	82% Plastic,
Himare	0.2	82% Plastic,
Porto Palermo	0.3	82% Plastic,
Qeparo	0.2	82% Plastic,
Borsh North	0.01	82% Plastic,
Borsh South	0.07	82% Plastic,
Lukove	0.2	82% Plastic,
Cave Beach	0.06	82% Plastic,

Sarande	0.1	82% Plastic,
Mirror Beach	0.3	82% Plastic,
King Beach	0.3	82% Plastic,
Likmetaj Beach	1.66	96% Plastic
Godulla beach	2.69	96% Plastic
Shen pjetri	0.15	91% Artificial polymer
Apollonia	0.21	25% Artificial polymer
Iliria	0.14	81% Artificial polymer
Golem	0.09	53% Artificial polymer
Dajlani	0.15	62% Artificial polymer
Zverneci beach	0.13	82% artificial polymer
Cape of rodon	0.8	38% plastic
Buna delta	0.6	54% plastic
Plepa, Durres	0.3	N/A
Shengjin, Lezhe	0.16	N/A
Velipoje	0.2	N/A

Table 9: Summary of waste collected in the monitored beaches through the years in Albania

6. Identification of Research Gaps

The issue of plastic pollution in Albania is of growing concern, since the consumption is increasing due also to the tourist activities and there are some actions that should be taken in order to tackle this problematic with a specific focus on plastic. The following sections identify critical research gaps that need to be addressed to improve the country's response to plastic waste and pollution.

Policy Effectiveness and Governance

Albania has several policies in place regarding waste management and plastic reduction, but their effectiveness remains unclear. The implementation of national waste management strategies and EU-aligned environmental policies faces challenges, particularly due to the informality of the waste sector and weak enforcement of existing regulations.

Circular Economy and Waste Management Infrastructure

A circular economy approach, focused on reducing waste, reusing materials, and recycling is not yet fully implemented in Albania. Research into the feasibility and economic viability of such an approach, particularly in the context of plastic waste, is limited and fragmented which does not allow for a sectorial approach. The infrastructure for waste sorting, recycling, and plastic processing is underdeveloped, which hinders effective plastic waste management.

Data Gaps on Waste Generation and Composition

A fundamental challenge in addressing plastic pollution in Albania is the lack of comprehensive data on waste generation, disposal, and treatment. Accurate data on the types and quantities of plastic waste generated is essential for effective policy formulation and intervention strategies. The absence of digital tracking systems, standardized data collection, and waste categorization infrastructure means that existing data is fragmented, often based on assumptions or incomplete reports from municipalities, business and other relevant stakeholders that deal with waste of any kind.

Public Awareness and Behavior Change

There is a noticeable gap in understanding the public's awareness of the plastic pollution issue and the effectiveness of existing waste management education programs. Public engagement is crucial in reducing plastic waste, particularly in terms of encouraging waste separation at source, reducing the use of single-use plastics, and promoting recycling.

Plastic Waste in the Environment and Waterways

The extent of plastic waste deposited in the environment, particularly in Albania's waterways such as rivers and lakes, remains poorly understood. Limited studies have focused on the pathways of plastic waste from its generation to its ultimate environmental impact. The Shkumbin River and other major waterways are known to suffer from illegal waste dumping, but there is a lack of comprehensive studies on the types, quantities, and impact of plastic in these ecosystems.

Microplastics and Their Ecological Impact

While the global issue of microplastics has been widely studied, there is a research gap in understanding their presence, distribution, and ecological effects in Albania. Microplastics can enter the environment through various pathways, including the breakdown of larger plastic waste, wastewater effluents, and atmospheric deposition. However, studies on microplastic concentrations in the Albanian environment, particularly in waterways, soil, marine ecosystems and food value chain, are scarce.

Impact of Plastic Pollution on Public Health

The health impact of plastic pollution, particularly microplastics, is an emerging area of concern globally. However, studies specific to the health implications for the Albanian population, particularly those living near polluted waterways or involved in waste management, are lacking.

7. Recommendations

To address the growing issue of plastic pollution in Albania, it is essential to prioritize research, implement effective policies, and enhance the capacity of key institutions. Below are actionable recommendations that target both research and policy areas to mitigate the impact of plastic pollution and improve waste management systems.

Research Priorities in Albania

1. Evaluation of the effectiveness of the waste management policies since is an evolving sector which face challenges in implementation. Research needs to assess the effectiveness of the current regulations such as the ban on single use plastics and the capacities of the central and local institutions to enforce them. The research should focus on evaluating the barriers to compliance such as the lack of infrastructure, public awareness, lack of monitoring capacities and financial constraints. Studies shul also assess the role of extended producer responsibility schemes in improving waste management.
2. Conduct detailed studies on plastic pollution hotspots in certain regions of Albania, such as the Shkumbin River, coastal areas, and informal landfills, are known to be hotspots for plastic waste. Detailed studies in these areas should be prioritized to better understand the scale of plastic pollution and its impact on local ecosystems. Research should focus on mapping pollution levels, identifying sources, tracking the movement of plastic waste, and examining the consequences for biodiversity, water quality, and public health. Additionally, long-term monitoring programs should be developed to assess how plastic pollution levels evolve over time and the effectiveness of mitigation measures.
3. Microplastics are a significant and emerging environmental concern that has yet to be studied comprehensively in Albania. It is critical to establish standardized methodologies for sampling,

analysing, and measuring microplastics in water, soil, and air. This would ensure consistency in data collection across the country, facilitating comparison and monitoring of trends over time. Research should also focus on **techniques for detecting microplastics** in different environments, particularly in areas where plastic pollution is most prevalent, such as rivers and coastal regions.

4. Plastic pollution is not only an environmental issue but also a socioeconomic one. Research should explore how plastic pollution affects local economies, especially sectors like tourism, agriculture, and fisheries. This research could focus on the costs associated with plastic waste management, loss of biodiversity, and the negative impact on public health. Understanding the economic consequences of plastic pollution will provide a stronger case for policy interventions and investment in waste management infrastructure.
5. There is a need for more research into the health impacts of plastic pollution, particularly related to microplastics. Studies should investigate how plastics enter the food chain, potentially affecting public health through water, food, and air. Furthermore, understanding the impact of plastic pollution on biodiversity, particularly in freshwater ecosystems and marine environments is crucial. Research on how plastic waste affects local species, especially aquatic life, will be vital for shaping mitigation strategies.

Policy recommendations

1. Albania should adopt a **comprehensive national strategy** for reducing plastic waste that includes concrete goals and actions at the national and local levels. The strategy should focus on reducing the production and consumption of **single-use plastics**, promoting the adoption of **alternatives to plastic packaging**, and encouraging **circular economy** models. Key actions should include:

    - Introducing **financial incentives** for businesses that reduce plastic use or invest in recyclable materials.
    - Expanding and enforcing **plastic waste collection systems** in urban and rural areas.
    - Supporting **local recycling initiatives** and increasing the infrastructure for waste sorting and processing.

2. The enforcement of waste management regulations in Albania remains a challenge, particularly concerning illegal waste dumping. It is important to strengthen the capacity of the National Environment Agency (NEA), National Agency for Waste Economy and municipalities to monitor and enforce waste management laws. This includes increasing penalties for illegal waste dumping, improving waste tracking systems, and ensuring that businesses and households comply with waste sorting and recycling requirements. Municipalities should also be given better tools and resources for monitoring illegal dumping sites and taking corrective action.
3. One of the key barriers to addressing plastic pollution in Albania is the lack of consistent and reliable data. To tackle this, a National Plastic Pollution Database should be established to consolidate data from various sources, including municipalities, waste management companies, environmental NGOs, and academic institutions. This database would track the volume, type, and disposal method of plastic waste generated across the country. Additionally, the database should standardize data-sharing protocols to ensure that relevant institutions and stakeholders have access to up-to-date and accurate information. This would enable better-informed decision-making, policy development, and more effective waste management strategies.
4. Albania should encourage and support innovation in waste management technologies that can help reduce the environmental impact of plastic waste. This includes exploring solutions for plastic waste recycling, upcycling, and the development of biodegradable materials.

Research and innovation hubs should be created to foster collaboration between universities, startups, NGOs, and private companies to design and implement innovative solutions for plastic waste management. Financial incentives, such as grants or tax credits, can be provided to businesses and researchers developing new technologies.

5. Expanding **Extended Producer Responsibility (EPR)** programs in Albania is essential for creating a more sustainable waste management system. Under EPR, producers are held responsible for the entire lifecycle of their products, including the waste they generate. Albania should introduce or strengthen EPR schemes for plastic producers, requiring them to take responsibility for the collection, recycling, and safe disposal of plastic packaging. This would incentivize companies to reduce plastic packaging, design for recyclability, and invest in waste management infrastructure.
6. Public awareness is a key driver in changing behavior and promoting sustainable waste management practices. A nationwide campaign should be launched to educate the public about the impact of plastic pollution and the importance of reducing plastic consumption, recycling, and proper disposal. Schools should incorporate environmental education into their curricula, focusing on waste management and plastic reduction. Collaboration with civil society organizations and local communities can help enhance the effectiveness of these campaigns, ensuring they reach a wide audience.
7. Albania should collaborate more closely with regional and EU initiatives on plastic waste management and circular economy practices. As part of its European integration process, Albania can align its policies with EU directives, such as the EU Plastic Strategy and Circular Economy Action Plan, to reduce plastic waste. Regional collaboration with neighboring countries on plastic pollution monitoring, sharing best practices, and developing joint projects could also strengthen Albania's efforts.

8. Conclusions

Albania stands at a critical juncture in addressing plastic pollution, with the findings of this review revealing both significant challenges and urgent opportunities for intervention. The research has exposed a complex landscape where progress in policy development often contrasts sharply with implementation realities on the ground.

The analysis reveals that while Albania has made strides in developing its waste management framework, including the adoption of key policy documents and the establishment of the National Agency for Waste Economy, fundamental challenges persist. Current data indicates that approximately 78,253 tons of plastic are collected annually, with only 18.81% being recycled. More concerningly, about 11% of the population remains without access to waste management services, resulting in an estimated 102,200 tons of waste potentially entering the environment each year.

Field studies along Albania's coastline and rivers have revealed alarming levels of plastic pollution, with artificial polymer materials constituting between 65-96% of collected litter in monitored areas. The variability in these numbers across different locations underscores the complex nature of the problem and the need for targeted interventions. Particularly concerning is the situation of major rivers like Shkumbin, which serve as significant conduits for plastic waste entering the Adriatic Sea.

The Shkumbin River emerges as a critical area requiring immediate attention. Despite its importance as a major water basin and its impact on both agricultural activities and marine ecosystems, it lacks comprehensive monitoring data and targeted intervention programs. The presence of hazardous waste, including medical waste, along its banks poses severe risks to public health and ecosystem integrity. This situation is exacerbated by the absence of a river basin management plan and insufficient waste management infrastructure in municipalities along its course.

The situation of the Shkumbin River deserves particular attention as a priority area for intervention. Its strategic location and the severity of its pollution make it an ideal candidate for a pilot program that could demonstrate effective approaches to river basin management and plastic pollution prevention. Success in managing plastic pollution in the Shkumbin River basin could provide valuable lessons and methodologies applicable to other river systems in Albania.

The findings of this review underscore that tackling plastic pollution in Albania requires a coordinated, multi-stakeholder approach combining policy reform, infrastructure development, capacity building, and public engagement. The urgency of the situation, particularly evident in cases like the Shkumbin River, calls for immediate action while also working toward long-term, sustainable solutions. The success of these efforts will depend not only on governmental action but also on the active participation of civil society, academic institutions, and international partners in implementing and monitoring pollution reduction initiatives.

Annex 1

TV chronicles regarding pollution in Shkumbini river.

https://euronews.al/ndotja-ne-lumin-shkumbin-stina-e-pranveres-sjell-mbetje-urbane-nga-reshjet-e-shiut/

https://www.facebook.com/NismaMbroLuminShkumbinLibrazhd/videos/lumi-shkumbin-%C3%ABsht%C3%AB-nj%C3%AB-lum%C3%AB-i-s%C3%ABmur%C3%AB-nga-ndotja-t%C3%AB-cilin-duhet-ta-shp%C3%ABtojme-nga/729861821571252/

https://abcnews.al/shkumbini-lumi-i-mbeturinave-plehrat-dhe-ujerat-e-zeza-po-shkaterrojne-gjithcka/

https://www.balkanweb.com/ndotet-lumi-shkumbin-grykederdhja-shnderrohet-ne-destinacion-mbetjesh/#gsc.tab=0

https://www.oranews.tv/hedhja-e-mbeturinave-rrit-nivelin-e-ndotjes-ne-lumin-shkumbin

https://portalb.mk/lumi-shkumbin-tmerresisht-i-ndotur-inspektorati-nuk-ka-shqiptuar-asnje-gjobe-thote-se-fotografon-ndotesit-foto/

https://www.facebook.com/NismaMbroLuminShkumbinLibrazhd/videos/lumi-shkumbin-%C3%ABsht%C3%AB-nj%C3%AB-lum%C3%AB-i-s%C3%ABmur%C3%AB-nga-ndotja-t%C3%AB-cilin-duhet-ta-shp%C3%ABtojme-nga/729861821571252/