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# PLASTIC POLLUTION IN THE VJOSA RIVER BASIN


INSIGHTS FROM MARINE LITTER  
MONITORING AND POLICY  
RECOMMENDATIONS

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## Abbreviations

AKEM - National Waste Economy Agency

AMORE-AL - Assessment of Pollutant Emissions to support River Basin Management in Albania

DCM - Decision of the Council of Ministers

DRS - Deposit Return System

EC - European Community

EPR - Extended Producer Responsibility

EU - European Union

HORECA - Hotels, Restaurants and Cafes/Catering sector

INSTAT - Institute of Statistics

NEA - National Environment Agency

NIWMS - Integrated Waste Management Strategic Policy Document and National Plan

OECD - Organisation for Economic Co-operation and Development

UNECE - United Nations Economic Commission for Europe

# 1. Introduction

## 1.1 Purpose of the Policy Paper

This policy paper aims to identify practical policy actions to reduce plastic waste release into the Vjosa River and adjacent coastal areas. It translates marine litter monitoring data collected under the RiverClean project into policy-relevant recommendations for national institutions, municipalities and local stakeholders.

The paper focuses on reducing the most prevalent categories of plastic litter identified in monitoring campaigns and improving the effectiveness of existing waste management policies and instruments in Albania. By linking observed litter patterns to policy implementation gaps, the analysis provides evidence-based recommendations to strengthen plastic waste prevention, collection and recycling systems within the Vjosa River Basin.

As a national baseline, 2023 INSTAT data<sup>1</sup> show that 9.27% of municipal waste generated in Albania was plastic. Of the total municipal waste managed, 76.49% was landfilled, 18.81% was recycled and 4.5% was used for energy recovery.<sup>2</sup> In addition, part of the population still remained outside regular waste collection services, increasing the risk that waste is dumped or leaked into the environment and water bodies.

## 1.2 Vjosa River Basin and marine litter

The Vjosa River Basin covers a large part of southern Albania and includes numerous municipalities whose waste management systems directly influence the amount of plastic waste reaching the river and eventually the Adriatic Sea.

The basin encompasses the municipalities of Vlora, Fier, Selenica, Mallakastër, Memaliaj, Këlcyrë, Tepelenë, Përmet, Gjirokastër, Kolonjë, Dropull, Libohovë, Himarë, Finiq, Konispol, Sarandë and Delvinë.

The Vjosa Basin hosts an estimated population of approximately 200,000 inhabitants<sup>3</sup>, mainly concentrated in towns such as Fier, Gjirokastër, Përmet, Tepelenë and Selenicë, with numerous smaller settlements distributed along the river valley and its tributaries.

At the same time, the coastal municipalities located at the lower part of the basin experience strong seasonal tourism pressure. For example, Vlorë County alone hosts about 146,000 residents<sup>4</sup>, but the population increases significantly during the summer tourism season due to domestic and international visitors attracted to the Albanian Riviera and Ionian coast. Plastic pollution in the basin is therefore influenced by both permanent population pressures and seasonal tourism-related waste generation, particularly in coastal municipalities where visitor numbers increase during peak summer months.

<sup>1</sup><https://www.instat.gov.al/media/13979/urban-solid-waste-2023.pdf>

<sup>2</sup>[https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/03/a-roadmap-towards-circular-economy-of-albania\\_0fd9c3a4/8c970fdc-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/03/a-roadmap-towards-circular-economy-of-albania_0fd9c3a4/8c970fdc-en.pdf)

<sup>3</sup><https://www.instat.gov.al/sq/temat/treguesit-demografike-dhe-sociale/popullsia/#tab1>

<sup>4</sup><https://www.instat.gov.al/sq/temat/treguesit-demografike-dhe-sociale/popullsia/#tab2>

Table 1 below shows the water quality status of Albania's river basins during 2018–2024. The data are drawn from the National Environmental Agency's report on the state of the environment in Albania, 2024. Among the pressures affecting water quality, plastic pollution is an important contributing factor, as it degrades aquatic ecosystems and negatively influences the overall environmental condition of surface waters.

Table 1 - Water quality for Basins during 2018 - 2024 (NEA report on the state of the environment in Albania, 2024)

Year	Drin Buna River Basin	Ishëm Erzen River Basin	Shkumbin River Basin	Seman River Basin	Vjosa River Basin	Mat River Basin
2018	Class III	Class V	Class IV	Class V	Class II	Class III
2019	Class IV	Class V	Class III	Class V	Class III	Class II
2020	Class IV	Class V	Class III	Class V	Class II	Class III
2021	Class IV	Class V	Class II	Class V	Class II	Class III
2022	Class III	Class V	Class III	Class V	Class II	Class II
2023	Class IV	Class V	Class III	Class IV	Class II	Class II
2024	Class III	Class V	Class II	Class IV	Class II	Class II

Water quality classes indicate the overall environmental condition of river waters, with Class II reflecting good quality, Class III moderate quality, Class IV poor quality and Class V very poor quality, meaning that higher class numbers correspond to worse water quality and greater pollution pressure.

Waste management practices implemented within these municipalities therefore play a critical role in determining the volume of plastic waste that may enter the river system and be transported toward coastal areas.

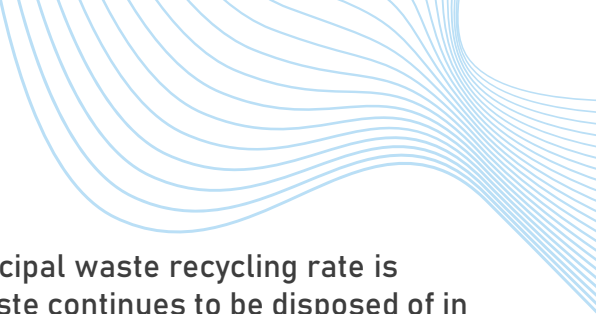
The Report on the State of the Environment provides information on river water quality, but it does not yet include a dedicated assessment of riverine and coastal litter accumulation. As a result, evidence on the quantity and composition of plastic waste that reaches rivers and adjacent coastal areas remains limited.

At national level, approximately 870,883.59 tons of waste were managed in Albania in 2024,<sup>5</sup> compared with 820,322 tons in 2023.<sup>6</sup>

Waste collection services have expanded significantly in recent years, yet challenges remain. According to national statistics, waste management services cover most urban areas, but coverage remains uneven between urban and rural municipalities, increasing the risk that unmanaged waste enters rivers and drainage systems.

<sup>5</sup><https://www.instat.gov.al/en/themes/environment-and-energy/environment/publication/2025/urban-solid-waste-2024>

<sup>6</sup><https://www.instat.gov.al/en/themes/environment-and-energy/environment/publication/2024/urban-solid-waste-2023>



Recycling performance also remains limited. Albania's municipal waste recycling rate is estimated at around 18–19%,<sup>7</sup> meaning that the majority of waste continues to be disposed of in landfill sites rather than recovered as recyclable material.

Municipal waste management remains a challenge in Albania. Separation at source and the related infrastructure are still very limited despite the legal obligation. In 2023, more than 70% of municipal waste in Albania was disposed of in landfill, compared with around 23% in the European Union, which illustrates the continuing dependence on disposal rather than recovery.<sup>8</sup> A few pilot projects are nevertheless underway to introduce separate collection in some Albanian cities, particularly for paper and cardboard, aluminium, plastics and bio-waste.

Plastic materials represent a significant component of the municipal waste stream, particularly packaging waste associated with food products, beverages and consumer goods. Insufficient waste separation, limited recycling infrastructure and illegal dumping practices increase the likelihood that plastic waste escapes into the environment and eventually enters river systems.

Plastic pollution in the Vjosa River Basin is therefore primarily generated by three main sources:

- **everyday consumer waste**, including food packaging, beverage containers and plastic carrier bags;
- **tourism and recreational activities** in coastal areas, which often involve disposable packaging and single-use plastic products;
- **inadequate waste collection and disposal practices** in inland municipalities.

Once released into the environment, lightweight plastic materials can be transported through rivers, surface runoff and wind. Rivers such as the Vjosa act as important pathways for land-based waste, carrying plastic debris from inland settlements to the coast where it accumulates in depositional zones.

Coastal sites such as Delisuf and Pashaliman beaches represent important accumulation areas for plastic debris transported through the Vjosa River system. Monitoring data from these sites therefore provide valuable evidence for understanding pollution sources and evaluating the effectiveness of waste management policies within the basin.

### 1.3 Data sources and monitoring approach

The policy analysis is based primarily on marine litter monitoring campaigns conducted by the RiverClean project staff at Delisuf and Pashaliman beaches in 2025. The monitoring followed standardized beach litter survey methodologies and recorded the abundance and composition of litter items across defined shoreline sections.

The monitoring results indicate that single-use plastic consumer products and packaging materials dominate the recorded litter composition across both monitoring sites. The most frequently observed categories include:

<sup>7</sup> <https://www.eea.europa.eu/en/europe-environment-2025/countries/albania/waste-generation>

<sup>8</sup> [https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/03/a-roadmap-towards-circular-economy-of-albania\\_0fd9c3a4/8c970fdc-en.pdf](https://www.oecd.org/content/dam/oecd/en/publications/reports/2024/03/a-roadmap-towards-circular-economy-of-albania_0fd9c3a4/8c970fdc-en.pdf)

- **Delisuf Beach:** Monitoring results show that single-use plastic consumer products and packaging materials dominate the recorded litter composition. The main categories were fragments of non-foamed plastic (26.67%), plastic caps and lids (16.58%), plastic shopping /carrier/grocery bags (15.32%), plastic crisps packets and sweets wrappers (10.81%), and plastic drink bottles <0.5 L (9.37%).
- **Pashaliman Beach:** Single-use plastic items also dominated the litter composition, with the highest proportions recorded for plastic shopping/carrier/grocery bags (26.26%), plastic crisps packets and sweets wrappers (21.49%), plastic drink bottles <0.5 L (11.14%), fragments of foamed polystyrene (10.08%) and tobacco products with filters/cigarette butts (8.75%).

The repeated presence of these categories across monitoring campaigns indicates continuous inputs of plastic waste into the coastal environment. These findings provide a critical evidence base for identifying priority waste streams and assessing the effectiveness of existing waste management policies in the Vjosa River Basin.

## 2. Key marine litter findings in the Vjosa River Basin

### 2.1 Monitoring sites and campaigns

Marine litter monitoring was conducted by the RiverClean project staff at two coastal sites within the Vjosa River Basin:

- Delisuf Beach
- Pashaliman Beach

Each monitoring campaign recorded the number and type of litter items found along a 100-meter shoreline segment. The results reveal consistent patterns in litter composition across both locations.

#### 2.1.1 Delisuf beach (Vjosa Basin)

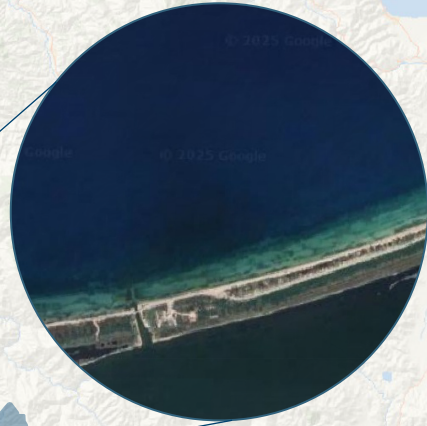
Two monitoring activities were conducted at Delisuf Beach in 2025, on 4 July and 6 December. The results confirm that this 100-meter stretch functions as an accumulation zone influenced both by local recreational activity and by riverine inputs from the Vjosa Basin, while also showing that single-use plastics strongly dominate the collected items.


- **Plastic shopping/carrier bags** (single use plastics) were the most frequently recorded item across both monitoring periods, reaching a total of 99 items (47 in July and 52 in December). This category alone represents the most persistent and visible form of pollution, reflecting everyday consumption patterns and poor waste management practices.

Monitoring locations  
in Vjosa basin

Delisuf  
Vjosa basin

Pashaliman  
Vjosa basin



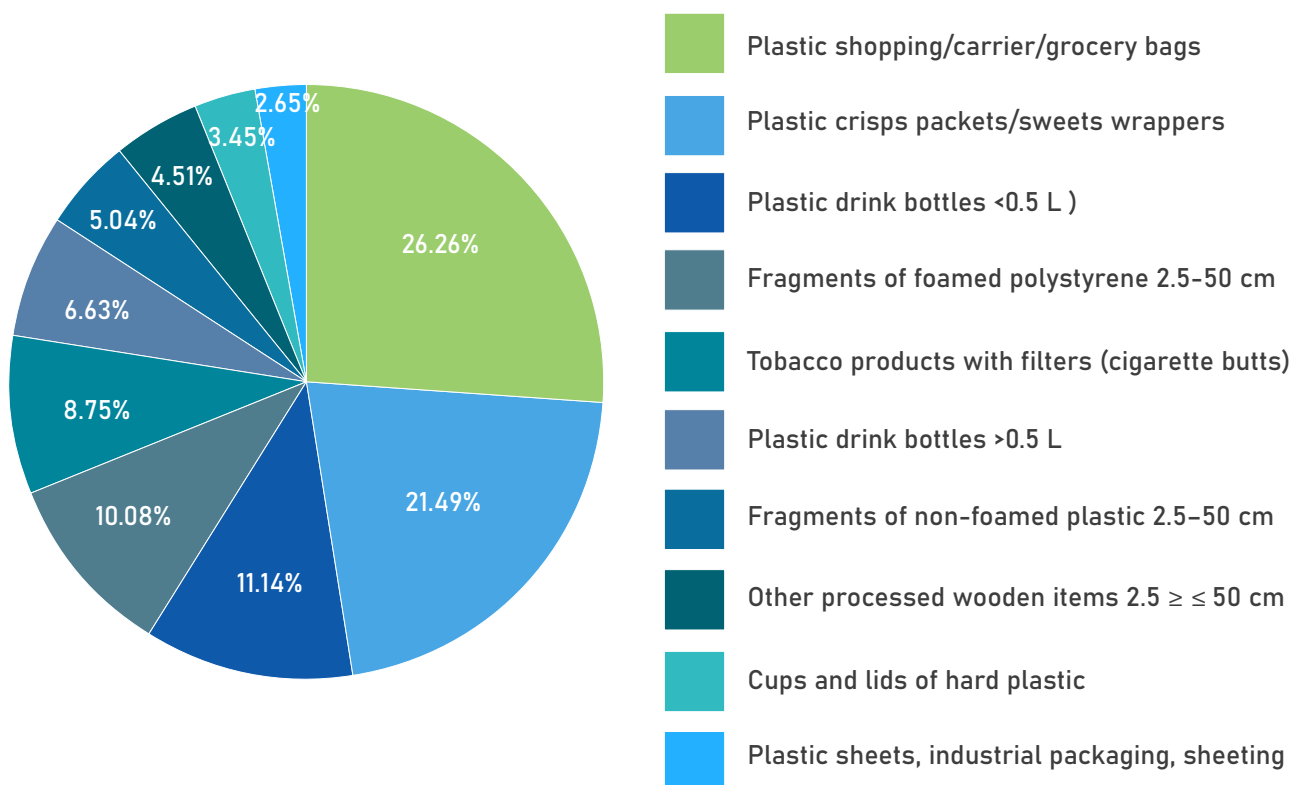
- 
- **Plastic food packaging**, including crisps packets and sweets wrappers, was the second most abundant category, with 81 items in total. The increase observed in December suggests ongoing accumulation over time and possible transport from upstream settlements.
  - **Beverage-related litter** also formed a significant share of the total. Plastic drink bottles smaller than 0.5 L were 42 in number across the two monitoring activities, showing a marked rise in December, while larger bottles (>0.5 L) accounted for 25 items.
  - Associated items such as **plastic caps/lids and cups** made of hard plastic were also present, confirming the dominance of single-use consumer waste at the site.
  - **Polystyrene fragments** represented another important component of the collected material. Medium-sized foamed polystyrene fragments (2.5–50 cm) totaled 38 items, while larger fragments (>50 cm) were recorded only during the December monitoring. Their presence indicates the fragmentation of packaging materials and insulation products, which are easily transported by water and wind and tend to accumulate along the shoreline.
  - **Tobacco-related litter** was particularly notable in the July survey, with 33 cigarette butts recorded. This category did not appear among the most collected items in December, suggesting that it is primarily linked to direct human presence and seasonal beach use rather than river transport.
  - **Fragments of non-foamed plastic** were also consistently observed, totaling 19 items across both dates. These likely originate from the breakdown of larger plastic objects over time, indicating ongoing degradation processes and the potential formation of microplastics in the coastal environment. Plastic sheets were found in the area on both dates, highlighting the agricultural aspect of the area.

The comparison between the two monitoring periods indicates an increase in the quantity of several key litter categories in December, particularly plastic bags, food packaging and small beverage bottles. **This pattern suggests continuous inflow and accumulation, likely influenced by seasonal hydrological conditions.** During November–December 2025, Albania experienced widespread flooding, which likely contributed to increased surface runoff and river discharge, carrying additional waste from inland areas of the Vjosa Basin toward the coast and enhancing the accumulation of litter along this stretch of shoreline.

Table 2. Summary of the monitoring data in Delisuf beach (data collection from monitoring activities by ETMI)

Litter item category	04/07/2025	06/12/2025	Total (both dates)
Plastic shopping/carrier/grocery bags	47	52	99
Plastic crisps packets/sweets wrappers	32	49	81
Plastic drink bottles <0.5 L	8	34	42
Fragments of foamed polystyrene 2.5–50 cm	11	27	38
Tobacco products with filters (cigarette butts)	33	-	33
Plastic drink bottles >0.5 L	8	17	25
Fragments of non-foamed plastic 2.5–50 cm	10	9	19
Other processed wooden items 2.5 ≥ ≤ 50 cm	5	12	17
Cups and lids of hard plastic	7	6	13
Plastic sheets, industrial packaging, sheeting	5	5	10

Figure 1. Monitoring results in Delisuf beach (data collection from monitoring activities by ETMI)



## 2.1.2 Pashaliman beach (Vjosa Basin)

Two monitoring campaigns conducted at Pashaliman Beach on 26th of June and on 21st of November, revealed a clear dominance of plastic-related litter, with fragmentation processes playing a major role in the composition of marine debris.

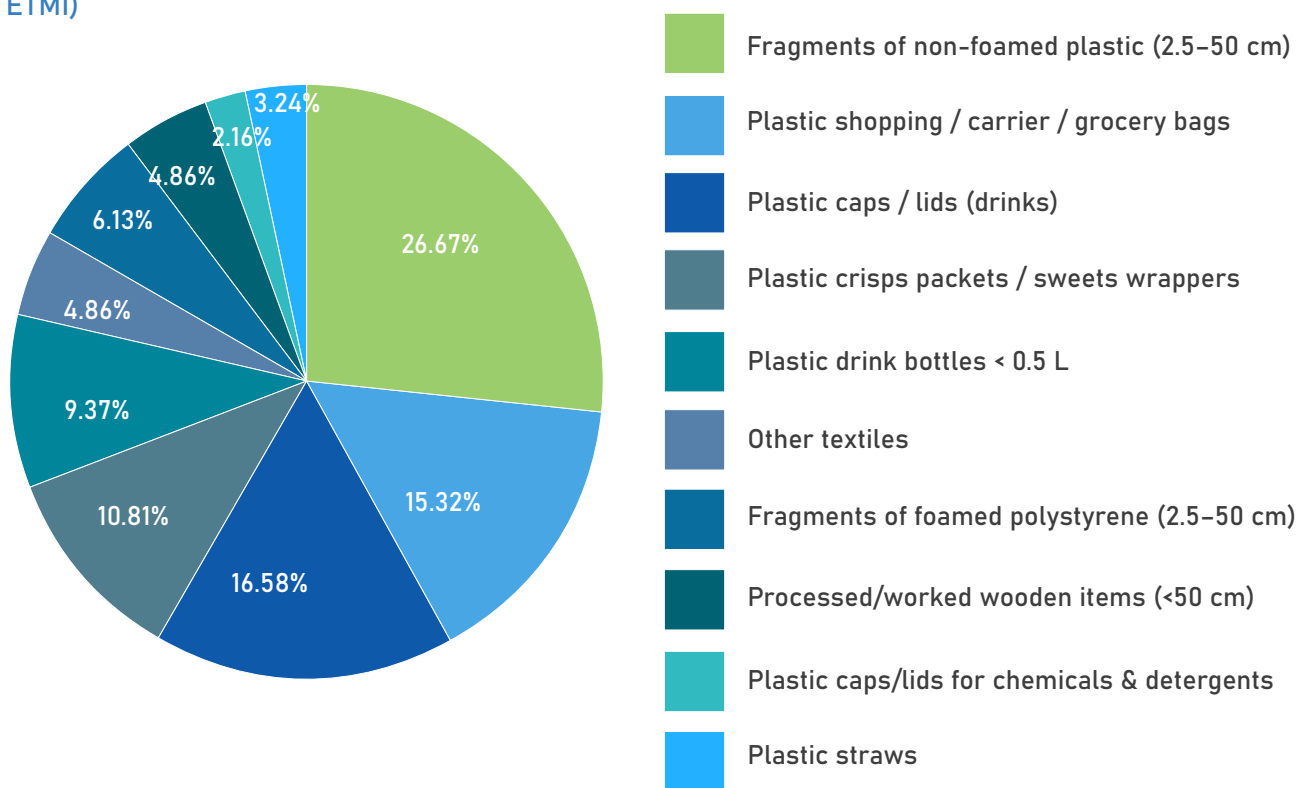
- Across both monitoring dates, **fragments of non-foamed plastic (2.5–50 cm)** were the most frequently recorded category, reaching a total of 148 items. This high number indicates the progressive breakdown of larger plastic objects already present in the coastal environment, likely influenced by wave action, sunlight exposure, and mechanical abrasion.
- **Beverage-related litter** also represented a significant share of collected items. Plastic caps and lids from drinks accounted for 92 items, while plastic drink bottles smaller than 0.5 L reached 52 items in total. The consistent presence of these items across both monitoring periods suggests ongoing inputs linked to recreational activities and improper waste disposal practices.
- **Single-use plastics** were another prominent component of the litter composition. Plastic shopping and carrier bags totaled 85 items, while plastic crisps and sweets wrappers reached 60 items, reflecting everyday consumption patterns and land based sources of pollution transported to the coastline.
- Additional categories included fragments of **foamed polystyrene (34 items)**, textiles (27 items) and processed wooden items smaller than 50 cm (27 items), indicating mixed sources of debris, including packaging materials, fishing-related activities and coastal usage.
- Smaller quantities of **plastic caps and lids associated with chemical or detergent containers (12 items)** and plastic straws (18 items) were also recorded.

The results highlight that litter accumulation at Pashaliman Beach is primarily driven by single-use plastics and secondary plastic fragmentation, confirming the influence of both local coastal activities and marine transport processes within the Vjosa Basin system.

Table 3. Summary of the monitoring data in Pashaliman beach (data collection from monitoring activities by ETMI for BeMed Project)<sup>9</sup>

Litter item category	26/06/2025	21/11/2025	Total (both dates)
Fragments of non-foamed plastic (2.5–50 cm)	91	57	148
Plastic shopping / carrier / grocery bags	76	9	85
Plastic caps / lids (drinks)	61	31	92
Plastic crisps packets / sweets wrappers	54	6	60
Plastic drink bottles < 0.5 L	33	19	52
Other textiles	21	6	27
Fragments of foamed polystyrene (2.5–50 cm)	20	14	34
Processed/worked wooden items (<50 cm)	18	9	27
Plastic caps/lids for chemicals & detergents	12	-	12
Plastic straws	12	6	18

Figure 2. Monitoring results in Pashaliman beach (data collection from monitoring activities by ETMI)



<sup>9</sup> <https://www.beyondplasticmed.org/en/projects/assemble-allies-mobilize/marine-litter-prevention-in-sazani-and-kune-vain-islands/>

## 2.2 Dominant litter categories

Across monitoring campaigns, plastic materials represent the overwhelming majority of collected items. The most frequently recorded categories include:

- **Plastic carrier bags**  
Plastic shopping and carrier bags were among the most frequently recorded items, with nearly one hundred items observed during two monitoring periods at Delisuf Beach alone. These items represent a highly visible form of pollution linked to everyday consumption and inadequate waste disposal practices.
- **Food packaging**  
Plastic packaging associated with snacks and confectionery products, such as crisps packets and sweets wrappers, constitutes another major category of litter. The presence of these items indicates widespread single-use plastic consumption and improper disposal.
- **Beverage containers**  
Plastic drink bottles and associated items such as caps and lids were consistently found across monitoring sites. These items are typically linked to on-the-go consumption and tourism-related activities.
- **Plastic fragments and polystyrene**  
Fragments of foamed polystyrene and non-foamed plastic materials were also commonly observed. These fragments result from the breakdown of larger plastic objects over time and represent an important source of secondary pollution, including the potential generation of microplastics.

Overall, the monitoring results demonstrate that the majority of marine litter in the Vjosa Basin originates from **single-use plastic consumer products and packaging waste**.

## 2.3 Sources of plastic pollution

The composition of litter recorded during monitoring campaigns indicates three main sources of plastic pollution in the Vjosa River Basin: river-borne waste transport from inland settlements, tourism and recreational activities in coastal areas, and structural gaps in waste management systems. These sources are consistent with international studies showing that a large share of marine litter originates from land-based activities, including urban waste, tourism activities and waste transported through rivers.

### 2.3.1 River-borne waste transport

Within the Vjosa River Basin, settlements located along tributaries and drainage systems contribute to this process when waste management services are incomplete or when informal dumping occurs near waterways. Once plastics enter the river system, lightweight items such as plastic bags, packaging and bottles can travel long distances before accumulating in coastal depositional zones such as Delisuf and Pashaliman beaches.

### 2.3.2 Tourism and coastal recreation

Tourism and recreational activities represent another significant source of plastic pollution along the coastline of the Vjosa Basin. Beach visitors and tourism-related businesses generate waste associated with short-term consumption, particularly food packaging, beverage containers and disposable plastic products.

These waste streams are commonly associated with single-use plastics such as plastic bottles, cups, food wrappers and cigarette filters, which are frequently identified in beach litter monitoring surveys. Coastal areas experiencing seasonal tourism growth often face temporary increases in waste generation that exceed the capacity of local waste collection systems.

If waste collection infrastructure and public awareness measures are insufficient, disposable plastics may be left on beaches or surrounding areas and subsequently transported into the marine environment through wind and wave action.

### 2.3.3 Waste management gaps

Structural weaknesses in waste management systems also contribute to plastic leakage into the environment. Although Albania has expanded municipal waste collection services in recent years, some gaps remain, particularly in rural or peripheral settlements. National reporting for 2024<sup>10</sup> indicates that waste management services have expanded, but a share of waste still remains outside fully reliable collection systems, which increases the likelihood that waste enters the environment.

At the same time, recycling rates remain relatively low. Albania's municipal waste recycling rate has been estimated at around 18–19%<sup>11</sup> in recent years, indicating that most waste is still disposed of through landfilling rather than being recovered as recyclable materials.

These structural limitations increase the likelihood that plastic waste, particularly packaging materials such as plastic bags, beverage bottles and food wrappers, escapes into the environment. Illegal dumping, inadequate waste sorting, and limited recycling infrastructure can all contribute to the accumulation of plastic debris in rivers, drainage channels and coastal areas.

Together, these factors create a pathway through which everyday consumer plastics generated within the Vjosa Basin are transported from inland settlements to the river system and eventually to the Adriatic Sea.

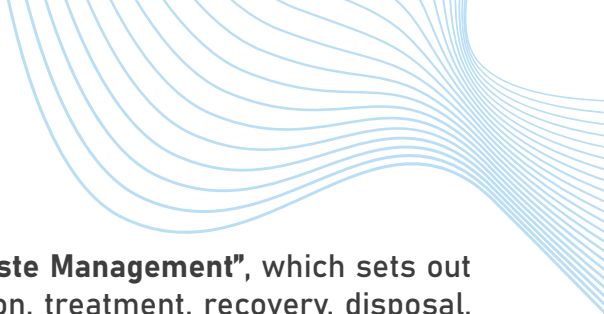
## 3. Waste management policy framework in Albania and relevance for the Vjosa River Basin

### 3.1 National legal framework for waste management

Albania has strengthened its legal framework for waste management as part of its alignment with the EU acquis and its transition towards a more circular and resource efficient economy.

<sup>10</sup><https://www.instat.gov.al/en/themes/environment-and-energy/environment/publication/2025/urban-solid-waste-2024/>

<sup>11</sup>[https://akm.gov.al/ova\\_doc/raporti-per-gjendjen-e-mjedisit-2024/](https://akm.gov.al/ova_doc/raporti-per-gjendjen-e-mjedisit-2024/)



**The main legal basis is Law No. 57/2025 “On Integrated Waste Management”,** which sets out the core principles for waste prevention, separate collection, treatment, recovery, disposal, planning, monitoring and control. The law is intended to align the national framework with the EU Waste Framework Directive 2008/98/EC and is based on the waste hierarchy, which prioritises prevention, reuse and recycling over recovery and landfill disposal.

A key recent addition is Law No. 74/2025, dated 4 December 2025, “On the Extended Responsibilities of Producers of Products that Generate Waste”, which establishes the legal basis for Extended Producer Responsibility (EPR) in Albania. The law introduces producer responsibility for the post-consumer phase of relevant waste streams and is intended to support collection, take-back, treatment, reporting and financing arrangements for products that become waste, including packaging. In policy terms, this is a significant step because it shifts part of the financial and organisational burden of waste management from municipalities to producers and importers.


The framework is also supported by the National Programme for Waste Prevention, which was also opened for public consultation and reinforces the emphasis on reducing waste generation at source while highlighting priority waste streams such as plastics and packaging. The programme is particularly relevant because it outlines measures that can support implementation at both national and local level, including actions to promote reuse, repair, sustainable consumption and broader waste prevention practices.

This framework is complemented by a number of secondary acts that regulate specific aspects of implementation.

- DCM No. 232, dated 26.04.2018, which amended Council of Ministers Decision No. 177, dated 06.03.2012, “On packaging and their waste”, strengthened the regulatory basis for packaging waste management.
- Decision No. 319, dated 31.05.2018, “On the adoption of measures for the costs of integrated waste management”, established measures relating to the financing and cost coverage of integrated waste management services.
- In addition, DCM No. 687, dated 29.07.2015, “On the approval of the rules for the maintenance, updating and publication of statistics on waste”, provides the framework for waste data collection, updating and publication, thereby supporting monitoring, reporting and evidence-based policy implementation.

### 3.2 Strategic policy framework

In 2020, Albania adopted two major strategic documents to guide its integrated waste management efforts. These include the “Integrated Waste Management Strategic Policy Document and National Plan (NIWMS)” for the period 2020-2035, and the “National Sectoral Plan for Waste Management (Masterplan)”. These documents outline the country's long-term vision and specific actions to enhance waste management infrastructure and practices, ensuring alignment with EU policies and promoting sustainable waste management solutions.



The strategy was approved by DCM no. 418/2020 and implementation began in 2021. It provides the long-term direction for improving waste collection, treatment, recovery and prevention and serves as the main planning instrument for sector reform.

The strategy sets national targets for:

- expanding municipal waste collection coverage;
- increasing recycling and material recovery rates;
- reducing dependence on landfill disposal;
- strengthening institutional capacity and coordination in the waste management sector.

The NIWMS and Masterplan have envisioned the division of the entire territory of Albania into 10 waste management zones, which are the base units for integrated waste management planning. These zones serve as the fundamental units for integrated waste management planning, facilitating more efficient and localized management of waste across the country.

Referring to the Masterplan, Vjosa River Basin is included into the Vloa North and Vloa South – Gjirokastër Waste Zones.


The implementation of the NIWMS and the Masterplan requires the drafting of Plans for each Waste Zone defined in the country, including their treatment and destination of waste in accordance with EU Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives. This directive establishes a framework for sustainable waste management, ensuring that Albania's waste management practices align with EU standards, focusing on the reduction, recycling and safe disposal of waste.

Albania has also incorporated circular economy objectives into its waste policy framework. The OECD Circular Economy Roadmap for Albania identifies plastics, marine litter, municipal waste, economic instruments and inter-institutional coordination as priority areas for reform. The roadmap also notes that Albania amended its waste framework in 2022 to ban certain categories of plastic bags, but that alignment with the EU rules on single-use plastics remains partial and requires further approximation.

### 3.3 Institutional responsibilities for waste management

Waste management in Albania involves a multi-level governance structure that includes both national and local institutions.

- At the central level, the **Ministry of Environment** is responsible for developing national policies and legislation related to waste management and environmental protection. The Ministry also coordinates the implementation of environmental strategies and ensures alignment with European Union standards.

- 
- The National Agency of Waste Economy (AKEM) plays an important coordinating and monitoring role in integrated waste management. Established in 2024, the agency works in cooperation with local governments to support planning, data management, implementation of the waste hierarchy and overall system improvement across the country.
  - The National Environment Agency (NEA) is responsible for collecting environmental data, managing environmental information systems and supporting environmental monitoring and reporting processes.
  - At the local level, municipalities are the key actors responsible for implementing waste management policies. Their responsibilities include organizing municipal waste collection services, developing municipal waste management plans, managing local waste infrastructure and ensuring compliance with environmental regulations.

### 3.4 Key implementation gaps in the Vjosa River Basin

In the Vjosa River Basin, the main challenge is not the absence of policy instruments, but the limited capacity to apply them effectively across a geographically dispersed basin that combines inland settlements with a seasonally pressured coastal zone. Monitoring evidence from Delisuf and Pashaliman shows that plastic waste continues to reach the marine environment, particularly in the form of plastic bags, beverage containers, food packaging and fragmented plastics. This indicates continued leakage from land-based sources and insufficient control of the main pathways through which waste reaches the coast.

- **Waste collection services remain uneven across the basin**, particularly in rural, peripheral and smaller coastal settlements. In areas where collection is irregular or infrastructure is limited, waste is more likely to be discarded in unmanaged locations, including riverbanks, open land and drainage channels. In the Vjosa context, this increases the risk that waste is mobilised by rainfall, runoff and river flow and carried downstream towards coastal areas.
- The basin (as well as the majority of the country) continues to face weak performance in **separate collection and recycling**. Plastic packaging and other recyclable materials are still largely managed within mixed waste streams, limiting recovery and increasing the likelihood that lightweight items escape into the environment. This is particularly relevant in a basin where waste can move over long distances through tributaries and river corridors before reaching the coast.
- Measures aimed at reducing plastic packaging leakage remain only partially effective in practice. Although Albania has adopted restrictions on plastic carrier bags and introduced the legal basis for Extended Producer Responsibility (EPR), these mechanisms have not yet resulted in sufficient capture of the types of items most commonly found during monitoring. In the Vjosa Basin, this is particularly relevant for plastic bags, bottles and food-related packaging. In addition, the EPR framework will require near-term implementation steps before it becomes fully operational, so the next one to two years are critical.

- A further implementation challenge is linked to **seasonal tourism and recreational activity in the coastal part of the basin**. During peak summer periods, beaches and nearby coastal areas experience a temporary increase in the consumption of disposable products. Where public bins, collection services and awareness measures are not adapted to this seasonal pressure, litter is more likely to remain in the coastal environment and enter the sea directly.

The Vjosa River Basin requires a stronger implementation focus on reliable waste collection in dispersed settlements, improved recovery of recyclable packaging, better control of plastic bag and packaging waste, and seasonal waste management measures in coastal tourism areas. These actions are essential to reduce the flow of plastic waste from inland and coastal sources to the marine environment.

## 4. Policy recommendations

The monitoring results from coastal sites in the Vjosa River Basin show that marine litter is primarily composed of single-use plastic consumer products and packaging waste. These materials are associated with everyday consumption patterns, tourism-related activities and waste entering the environment from inland settlements.

Albania already has a legal and strategic framework for waste management, including Law No. 57/2025 “On Integrated Waste Management,” restrictions on plastic carrier bags and the introduction of Law No. 74/2025 “On the Extended Responsibilities of Producers of Products that Generate Waste” for packaging waste. However, monitoring evidence from the Vjosa River Basin suggests that implementation of these measures remains uneven, particularly at the municipal level.

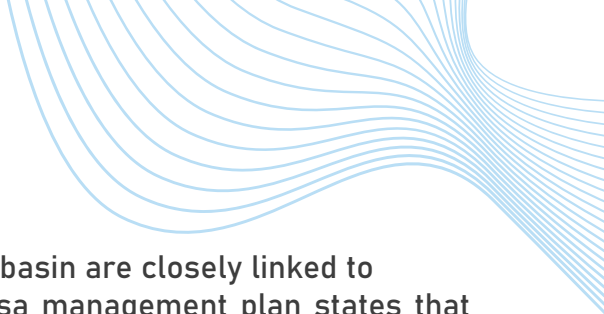
The current situation in the Vjosa River Basin is characterised by a combination of ecological value and growing environmental pressure linked to dispersed settlements, untreated wastewater, weak waste-management services, agriculture, tourism and extractive activities. The Vjosa is a transboundary river basin of approximately 6,800 km<sup>2</sup>, of which about 4,540 km<sup>2</sup> lie in Albania, and the river extends across 13 municipalities. According to the Vjosa Wild River National Park Management Plan,<sup>12</sup> the basin area in Albania includes more than 130,000 inhabitants, with an average population density of only 41 inhabitants/km<sup>2</sup>, and more than 80% of the population living in rural areas. The same plan notes that 23% of the basin area is agricultural land, while tourism has expanded rapidly in recent years, especially in areas such as Përmet and along the lower valley. At prefecture level, the 2023 Census shows that Fier<sup>13</sup> accounts for about 10.0% of Albania’s population, Vlorë for about 6%<sup>14</sup> and Gjirokastër for about 3%<sup>15</sup>, indicating that the Vjosa basin is influenced less by a single dense metropolitan corridor than by a broad mix of small towns, villages and seasonal economic activity across several regions.

<sup>12</sup><https://akzm.gov.al/wp-content/uploads/2020/07/Chapter-A.-Management-Plan.pdf>

<sup>13</sup><https://www.instat.gov.al/media/14305/cens-2023-fieri.pdf>

<sup>14</sup><https://www.instat.gov.al/media/14325/cens-2023-vlora.pdf>

<sup>15</sup><https://www.instat.gov.al/media/14306/cens-2023-gjirokastra.pdf>



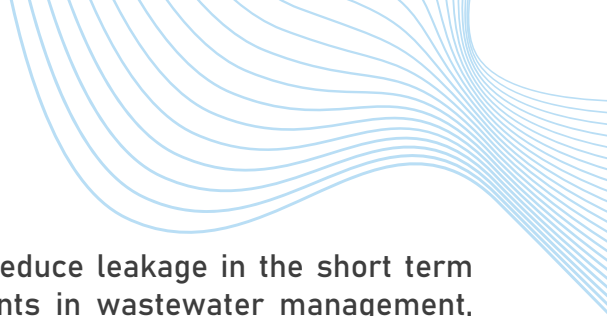
At the same time, the main environmental pressures in the basin are closely linked to infrastructure and pollution-management deficits. The Vjosa management plan states that unfiltered wastewater from villages, settlements and individual buildings is discharged into the river, and that industrial sites and fish farms also contribute wastewater and other pollutant loads. The plan therefore identifies the need to develop a sewage and urban wastewater treatment programme, reduce industrial pollution, relocate solid-waste landfills away from the river, and develop solutions for waste disposal in villages. It also highlights broader pressure categories including fertilizers, wastewater, industrial pollution, waste management along the river, and extractive uses. In parallel, UNECE reporting on Albania indicates that wastewater infrastructure remains insufficient at national level, with only 10 operational wastewater treatment plants and 114 more planned by 2050,<sup>16</sup> underlining the wider structural deficit in wastewater services that also affects river-basin management. In this context, plastic-waste leakage in the Vjosa basin should be understood as part of a broader cumulative pressure pattern in which rural service gaps, unmanaged waste, untreated wastewater, seasonal tourism and river transport pathways together increase the risk that waste moves from inland settlements to the river corridor and onward to the coast.

Tourism adds a further seasonal pressure dimension to the Vjosa River Basin, particularly in river-corridor destinations such as Përmet, Tepelenë and Gjirokastër, where visitor numbers and outdoor recreation intensify during the warmer months. The Vjosa Wild River National Park Tourism Master Plan notes that the combined destinations of Përmet, Gjirokastra and Tepelena received roughly 200,000 visitors annually in 2022,<sup>17</sup> with visitor growth remaining at around 15% since 2015. The same plan also states that about 20% of Albania's accommodation establishments are located in the wider area stretching from Fier to Gjirokastër, that the tourism season has expanded from April to October, especially in the upper Vjosa, and that the valley receives around 5,000 adventure tourists each year, mainly for activities such as rafting, camping and hiking. At national level, INSTAT reports that in 2024 Vlorë accounted for 12.3% of trips within Albania, making it one of the country's most frequented destinations, while holiday and leisure trips represented 54.1% of domestic travel. Taken together, these trends suggest that tourism is becoming an increasingly important pressure factor in the Vjosa basin: without adequate waste collection, recycling infrastructure, visitor management and awareness measures, the seasonal concentration of visitors can increase the use of disposable packaging and beverage containers and raise the risk of litter leakage into riverine and coastal environments.

The policy recommendations below respond directly to this pressure profile in the Vjosa River Basin and also aim to address the key implementation gaps identified in Section 3. The priority measures are based on three main considerations: the dominant litter categories identified through monitoring, the main leakage pathways from inland settlements to the river and coast, and the feasibility of action within the current legal and institutional framework.

<sup>16</sup> [https://unece.org/sites/default/files/2025-10/Albania\\_summary\\_report\\_6th\\_cycle\\_7Apr25\\_ENG.pdf](https://unece.org/sites/default/files/2025-10/Albania_summary_report_6th_cycle_7Apr25_ENG.pdf)

<sup>17</sup> <https://akzm.gov.al/wp-content/uploads/2020/07/Chapter-A.-Management-Plan.pdf>



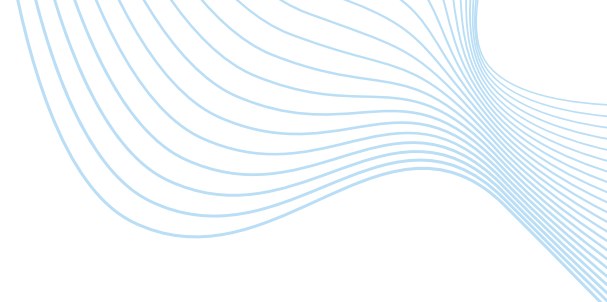
Priority should therefore be given to measures that can reduce leakage in the short term while also supporting longer-term structural improvements in wastewater management, packaging recovery, recycling systems and local environmental governance. The proposed measures involve coordinated action by national authorities, municipalities, the private sector and civil society organizations.

#### 4.1 Priority actions for reducing plastic pollution in the Vjosa River Basin

Priority measure	Main litter category addressed	Responsible stakeholders	Detailed implementation measures	Expected impact
Strengthen enforcement of plastic bag restrictions	Plastic carrier bags	Ministry of Environment; Regional Environmental Agency of Fier, Vlorë and Gjirokastër; Market Surveillance Inspectorate; municipal authorities	<ol style="list-style-type: none"> <li>1. Increase routine and unannounced inspections of retailers, wholesalers and local markets to verify compliance with plastic bag restrictions.</li> <li>2. Strengthen controls on imports, production and distribution of banned or non-compliant plastic bags.</li> <li>3. Apply penalties for violations and ensure consistent follow-up by inspectorates.</li> <li>4. Support businesses in shifting to reusable bags, paper bags or other compliant alternatives.</li> <li>5. Conduct public awareness campaigns to reduce consumer demand for single-use plastic bags.</li> </ol>	Reduced circulation and consumption of plastic carrier bags, leading to lower leakage into rivers, drainage channels and coastal areas.
Introduce a Deposit Return System (DRS) for beverage containers	Plastic drink bottles and caps	Ministry of Environment; National Agency of Waste Economy; beverage producers; importers; retailers; recycling operators	<ol style="list-style-type: none"> <li>1. Establish a national legal framework defining deposit values, collection obligations and producer responsibilities.</li> <li>2. Set up a nationwide network of return points, including supermarkets, kiosks and public collection machines.</li> <li>3. Require producers and retailers to participate in take-back and reporting systems.</li> <li>4. Ensure that returned bottles and caps are transported to licensed sorting and recycling facilities.</li> <li>5. Run public information campaigns explaining how the deposit system works and encouraging participation.</li> </ol>	Significant reduction of beverage bottle and cap litter, increased collection rates and improved recycling performance.

Priority measure	Main litter category addressed	Responsible stakeholders	Detailed implementation measures	Expected impact
Improve recycling and waste separation systems	Plastic packaging and containers	Municipalities; recycling companies; national waste authorities	<ol style="list-style-type: none"> <li>1. Introduce separate collection systems for recyclables, including plastics, paper, glass and metals.</li> <li>2. Place clearly labeled bins in urban areas, schools, public buildings, beaches, tourist hotspots.</li> <li>3. Upgrade sorting, baling and recycling facilities to handle greater volumes of collected material.</li> <li>4. Support partnerships between municipalities and private recyclers to improve material recovery.</li> <li>5. Strengthen data collection and reporting on recycling rates, collection performance and material flows.</li> <li>6. Train local authorities and service providers on source separation and recycling management.</li> </ol>	Higher recycling rates, less contamination of recyclable waste streams and reduced plastic leakage into terrestrial and aquatic environments.
Reduce plastic consumption in tourism areas	Food packaging, beverage containers and disposable plastics	Municipalities; tourism businesses (HoReCa); Ministry of Environment; civil society organizations	<ol style="list-style-type: none"> <li>1. Promote low-plastic tourism standards for hotels, restaurants, bars and beach operators.</li> <li>2. Encourage replacement of single-use cups, cutlery, straws, bottles and takeaway packaging with reusable or sustainable alternatives.</li> <li>3. Install sufficient waste bins and recycling bins in beaches, campsites, parks and recreational areas.</li> <li>4. Require tourism operators to maintain clean surroundings and manage customer waste responsibly.</li> <li>5. Launch seasonal awareness campaigns for visitors and businesses on litter prevention.</li> <li>6. Link local tourism branding to environmentally responsible practices.</li> </ol>	Reduced generation of disposable plastic waste in high-pressure tourism areas and lower litter accumulation on beaches and coastal sites.

Priority measure	Main litter category addressed	Responsible stakeholders	Detailed implementation measures	Expected impact
Implement Extended Producer Responsibility (EPR) for packaging	Food packaging, bottles and plastic packaging	Ministry of Environment; National Agency of Waste Economy; packaging producers; importers; producer responsibility organizations	<ol style="list-style-type: none"> <li>1. Develop and adopt EPR regulations covering plastic packaging placed on the market.</li> <li>2. Require producers and importers to finance collection, sorting and recycling of packaging waste.</li> <li>3. Establish producer responsibility organizations to manage compliance collectively.</li> <li>4. Set measurable recovery and recycling targets for packaging materials.</li> <li>5. Use producer fees to fund municipal collection systems, sorting infrastructure and awareness activities.</li> <li>6. Introduce reporting and auditing obligations to track packaging flows and compliance.</li> </ol>	Improved recovery of packaging waste, better financing for waste management systems and reduced packaging leakage to the environment.
Expand municipal waste collection coverage	Mixed plastic waste and packaging	Municipal governments in the Vjosa Basin; waste service operators; National Agency of Waste Economy	<ol style="list-style-type: none"> <li>1. Extend regular waste collection services to rural villages, remote settlements and informal tourism areas currently outside reliable service coverage.</li> <li>2. Increase the number of waste containers, collection points and transfer stations in underserved areas.</li> <li>3. Improve the frequency and reliability of collection, especially during peak tourism periods.</li> <li>4. Identify, clean up and prevent the re-establishment of illegal dumping sites near rivers, roads and beaches.</li> <li>5. Allocate municipal and national funding to improve service contracts, equipment and vehicle fleets.</li> </ol>	Lower volumes of unmanaged waste and reduced risk of litter entering rivers, floodplains and the coastal zone.



Priority measure	Main litter category addressed	Responsible stakeholders	Detailed implementation measures	Expected impact
Expand monitoring and citizen engagement	All litter categories	Civil society organizations; National Environment Agency; municipalities; universities	<ol style="list-style-type: none"><li>1. Expand citizen science and community-based litter monitoring along rivers, beaches and urban hotspots.</li><li>2. Standardize monitoring methods so that local results can feed into national databases and reporting systems.</li><li>3. Engage schools, universities, volunteer groups in regular clean up and monitoring campaigns.</li><li>4. Provide training on litter identification, data recording and reporting protocols.</li><li>5. Use monitoring data to identify priority hotspots and evaluate the effectiveness of policy measures.</li><li>6. Strengthen communication campaigns to build long-term public awareness and behavior change.</li></ol>	Better environmental data, improved identification of litter sources and hotspots, and stronger public participation in prevention and monitoring efforts.

## 4.2 Implementation priorities

**In the short term**, the most effective actions are likely to be those that directly reduce waste leakage from rural and inland settlements to river channels and from coastal tourism areas to the sea. These include expanding waste collection coverage in underserved settlements, improving the management of dumping hotspots near waterways, strengthening enforcement of plastic bag restrictions and improving waste infrastructure in coastal areas during the tourism season.

**In the short to medium term**, structural measures are needed to address the packaging waste streams most frequently identified through monitoring. In particular, the effective implementation of EPR for packaging and the introduction of a deposit return system for beverage containers should begin within the next year so that high-volume items such as plastic bottles, caps and other single-use packaging are captured before they enter the environment.

Reducing plastic leakage in the Vjosa River Basin will depend less on the adoption of additional legislation than on improving the practical implementation of existing instruments. The central policy objective should therefore be to translate the current legal and strategic framework into measurable reductions in plastic waste leakage from inland and coastal areas to the marine environment.

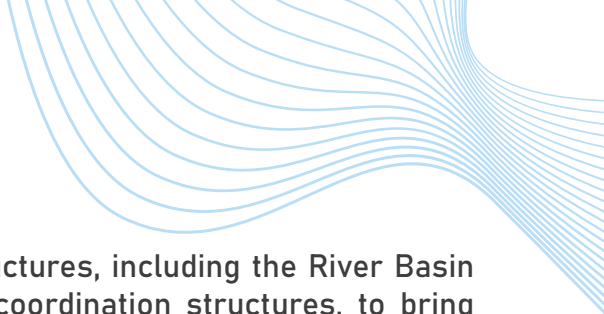
## 4.3 Stakeholder engagement mechanisms

Identified stakeholders for the implementation of the policy recommendations in the Vjosa River Basin:

- **Ministry of Environment** – responsible for national policy direction, development of the legal and strategic framework, inter-institutional coordination and oversight of implementation related to waste management, plastic pollution and environmental protection.
- **National Agency of Waste Economy (AKEM)** – responsible for coordination, monitoring and support for the implementation of integrated waste management policies, including packaging recovery, municipal waste systems and broader waste sector improvements.
- **National Environment Agency (NEA)** – responsible for environmental monitoring, data collection, reporting and support to evidence-based implementation, including the integration of monitoring results into national environmental information systems.
- **Regional Environmental Agency of Fier, Vlorë and Gjirokastër** – responsible for regional coordination, inspections, environmental oversight and support to implementation across the basin municipalities falling within these prefectures.
- **Market Surveillance Inspectorate** – responsible for inspections and control of compliance with restrictions on plastic bags and other regulated plastic products placed on the market.

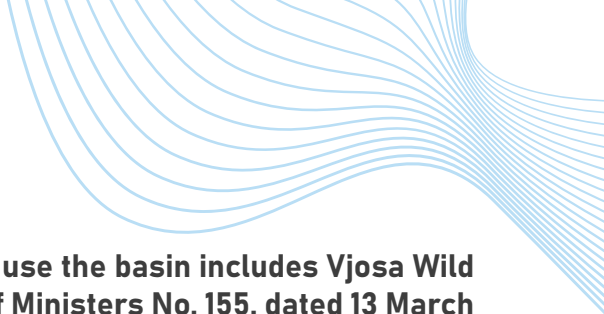
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- **Municipalities in the Vjosa River Basin** – responsible for municipal waste collection services, local waste planning, waste infrastructure, public awareness, local enforcement and implementation of prevention measures in inland settlements, towns and coastal areas.
  - **Waste service operators** – responsible for collection, transport and operational delivery of waste services, especially in areas where gaps in service coverage increase the risk of leakage into rivers and coastal areas.
  - **Waste operators, recycling operators and recycling companies** – responsible for sorting, recycling, material recovery and support to improved separate collection and recycling performance.
  - **Packaging producers, importers and producer responsibility organisations** – responsible for the implementation of Extended Producer Responsibility (EPR), financing collection and treatment systems, and supporting the recovery of packaging waste placed on the market.
  - **Beverage producers, importers and retailers** – key stakeholders for the introduction and operation of a Deposit Return System (DRS), including take-back arrangements, return points and recovery of beverage containers and caps.
  - **Tourism businesses (HoReCa), including hotels, restaurants, bars and beach operators** – responsible for reducing single-use plastic consumption, improving on-site waste management and supporting litter prevention in tourism and recreational areas.
  - **Civil society organisations** – important for awareness raising, citizen engagement, clean-up actions, community monitoring and support to public accountability in implementation.
  - **Universities and research institutions** – important for technical support, litter monitoring, data analysis, assessment of pollution pathways and support to evidence-based policy implementation.
  - **Citizens, volunteer groups and local communities** – essential stakeholders for source separation, responsible disposal practices, participation in citizen science, and local support for prevention and monitoring efforts.

Effective implementation of the proposed measures will require structured cooperation between public institutions, municipalities, private sector actors, civil society and local communities. In the Vjosa River Basin, stakeholder engagement is particularly important because plastic leakage occurs across a geographically dispersed area, from inland settlements and tributaries to coastal and tourism zones.

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- Use and strengthen the existing basin coordination structures, including the River Basin Council and the Vjosa National Park information and coordination structures, to bring together municipalities and local authorities within the Vjosa Basin, together with the ministry responsible for environment, AKEM, the NEA, water authorities and relevant coastal institutions. This coordination should support joint planning, exchange of information, identification of leakage hotspots and alignment of priority actions from inland river corridors to coastal areas.
  - **Private sector**, particularly producers, importers, retailers, beverage companies, tourism businesses and waste operators need to be a major focus of the engagement, since they use single-use plastics on a daily basis. Their input is essential for the implementation of EPR, packaging recovery measures, depositreturn systems and the reduction of single-use plastics in tourism and commercial activities. Regular consultation with these actors can also help identify operational barriers and strengthen compliance.
  - **Civil society organisations, universities and community groups** should be involved in monitoring, awareness raising and local prevention measures. Citizen science initiatives, beach clean-up campaigns, school-based activities and community reporting of dumping hotspots can improve data availability while strengthening local ownership of anti-litter efforts.
  - Another mechanism should specifically **target coastal tourism stakeholders**, including beach operators, hotels, restaurants and local tourism associations. Seasonal cooperation arrangements can help ensure the provision of waste bins, separate collection infrastructure, awareness materials and litter prevention measures during peak visitor periods.
  - Finally, stakeholder engagement should be supported through regular **information-sharing and reporting mechanisms**, including public dissemination of monitoring results, municipal progress updates and periodic multi-stakeholder review meetings. This would improve transparency, strengthen accountability and support the adjustment of policy measures based on implementation experience.

## 5. Conclusions

Marine litter monitoring in the Vjosa River Basin shows that coastal pollution is largely driven by single-use plastic products and packaging waste, especially plastic bags, beverage containers, food packaging and plastic fragments. The repeated presence of these items at coastal monitoring sites indicates continued inputs from both inland sources transported through the river system and coastal activities linked to tourism and recreation.



**This issue is particularly important in the Vjosa context because the basin includes Vjosa Wild River National Park, established by Decision of the Council of Ministers No. 155, dated 13 March 2023, which declared the natural ecosystem of the Vjosa River a National Park, Category II.** The park is managed to protect biodiversity, ecological processes and the river's free-flowing character, which means that plastic pollution should be addressed not only as a waste management concern, but also as a direct pressure on a nationally significant protected area.

The analysis presented in this policy paper shows that Albania has already established an important legal and strategic framework for waste management and plastic pollution prevention. However, the continued presence of litter in the coastal environment points to persistent implementation gaps, including uneven waste collection coverage, weak separate collection and recycling performance, incomplete packaging recovery mechanisms, and insufficient control of litter-prone plastic items.

In the Vjosa River Basin, these challenges are shaped by the combination of dispersed settlements, river transport pathways, protected area status and seasonal tourism pressure. Tourism is particularly relevant during the summer season, when visitor flows in Albania increase sharply. Official statistics show 2,624,207 entries into Albania in July 2024 and 2,167,665 foreign arrivals in July 2024,<sup>18</sup> illustrating the intensity of seasonal pressure affecting coastal and protected landscapes.

**For this reason, the Vjosa River Basin should be managed through an integrated approach that combines waste prevention, effective municipal waste services, packaging recovery systems, enforcement of existing rules, and sustainable tourism management.** Priority should be given to improving waste collection in underserved settlements, strengthening separate collection and recycling, operationalising EPR for packaging, advancing a deposit return system for beverage containers, and reinforcing waste prevention measures in tourism areas and along river corridors.

The main policy task is not to create additional legislation, but to ensure that the existing framework produces measurable implementation results consistent with the conservation objectives of Vjosa Wild River National Park. Stronger cooperation between national institutions, municipalities, protected area authorities, the private sector and civil society will be essential to reduce plastic leakage and safeguard the ecological integrity of the river and its coastal and marine environment.

<sup>18</sup><https://www.instat.gov.al/media/13792/movement-of-citizens-july-2024.pdf>