Case study

Krujë, Albania
Europe

Krujë
Albania

Population
83,602

Size of the city
339.00 km2
0.00 km2 water mass

Settlement type
Urban

Year of Survey
2023

Total MSW Generation
247.80 kg/cap/year

MSW Collected
76%

Plastic Waste Generation
21.6 kg/cap/year

Plastic to water systems
2.5 kg/cap/year

Borders map courtesy of geoBoundaries

Context and description

Krujë is a historic city located in central-western Albania, spanning an area of 339 km² and comprises 6 administrative units, including two towns and fifty villages. The city's terrain is diverse, with plains, hills, and mountainous regions, with the highest elevation being the peak of the Skënderbej range.

Krujë experiences a Mediterranean climate, with mild, rainy winters and hot, dry summers which is influenced by its proximity to the Adriatic Sea and surrounding mountain ranges. The average annual precipitation is around 1100 to 1300 mm, with the wettest months occurring from October to December.

The population of Krujë municipality is approximately 83,602. The city's economy has contributions from agriculture, processing industries, and businesses. Agricultural lands occupy about 40% of the municipality, although actual production is below its potential. Key economic activities include quarrying, cement, wood, marble processing, and some declining traditional food processing industries.

Krujë generates approximately 18,205 tonnes of municipal solid waste (MSW) annually, equating to a waste generation rate of 0.7 kg/capita/day. Waste collection services cover 76% of the municipality, primarily in urban areas, while rural regions like Cudhi remain underserved, affecting around 4% of the population. The waste collection and transportation services are managed through contracts with private companies in some administrative units, while others rely on municipal staff.

Context and description continued

In the central areas of Krujë and Fushë-Krujë, private companies are responsible for waste collection and street cleaning, while in other areas like Thumanë, Nikël, and Bubq, municipal workers handle these tasks. Currently, the rural area of Cudhi is not covered by any formal waste collection services, which impacts about 4% of the population. Waste is collected using 1.1 m³ metal containers placed at designated public points.

In Krujë, the recycling and recovery system is still in the early stages of development. Currently, there is no source separation, which means recyclable materials and biodegradable waste are not segregated from the general waste stream. Despite the absence of a formal recycling facility, informal recycling is conducted by the Roma community and small private collectors, who gather materials like cans, plastic, paper, cardboard, and iron, diverting approximately 73 tonnes of recyclable materials from landfills annually.

The primary landfill, Krujë, is located approximately 8 km from the centre of Krujë and recently underwent rehabilitation. However, the landfill still faces some operational challenges. Informal dumping of waste remains a critical issue, with approximately 24% of the total waste generated not being properly managed and ending up in informal disposal sites.

The Waste Flow Diagram (WFD) assisted in improving the solid waste management (SWM) situation in Krujë by mapping waste flows and plastic pollution, identifying leakage points, and quantifying the amount of plastic waste impacting the environment. It enabled the development of specific recommendations to enhance waste collection in underserved rural areas, improve recycling and waste separation processes, and minimise plastic leakage into water systems, the importance of addressing informal dumping and enhancing formal waste management practices to reduce environmental impacts.

The project in Krujë, Albania forms part of the wider Integrated MSW and Marine Litter Prevention in the Western Balkans II project, implemented by GIZ.

Survey implementation arrangement

City	Krujë
Financed by	
Implemented by	GIZ

Overview data

Population	83,602
Waste generation rate, including commercial and institutional waste	0.70 kg/capita/day
Total MSW generation	59 tonnes/day
Collection rate	76 %
MSW sent to disposal	75 %
MSW sorted for recovery	1 %
MSW managed in controlled facilities	76 %
Plastic waste generation	1,807 tonnes/year
Unmanaged plastic	31 % of the entire plastic waste generation

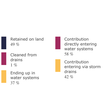
MSW composition at point of generation

WFD results

Plastic waste generation: 1,807 t/y

Fate of unmanaged plastic waste

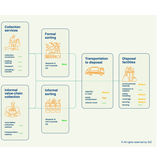
Plastic to water systems



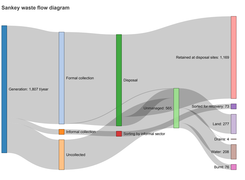
Plastic waste to the environment	565 tonnes/year	31 % of the plastic waste generated
Plastic to water systems	208 tonnes/year	305 trucks
Plastic to water systems per person	2.5 kg/person/year	83 PET bottles per person

Contribution to unmanaged plastic by SWM stage

Plastic leakage potential levels per leakage influencers



Sankey waste flow diagram



Aims

- Improve the coverage and efficiency of waste collection, particularly in underserved rural areas.
- Implement a more consistent waste collection schedule to address the seasonal increase in waste generation during the peak tourist season.
- Develop and promote systems for the segregation and recycling of significant waste streams, including plastics and organic materials.
- Establish infrastructure for composting biodegradable waste and facilities for the incineration of non-recyclable waste to generate energy.
- Increase public awareness and engagement through educational programs aimed at promoting sustainable waste management behaviours.
- Develop a comprehensive Local Waste Management Plan tailored to the needs of Krujë.
- Improve data collection and monitoring systems to enhance the accuracy and reliability of waste management statistics.

Lessons learned & challenges

- Ensuring that recovery and disposal sites are controlled facilities can significantly reduce plastic leakages. This includes setting up physical boundaries, establishing leachate management systems, and ensuring daily waste coverage and compaction at the Krujë landfill.
- Address discrepancies in MSW generation, collection, and disposal data by harmonising data from various sources such as landfill administration, public utility companies, and municipal records. Improved data collection and evaluation processes are crucial for accurately tracking unmanaged and plastic waste.
- Eliminate illegal dumpsites that contribute to plastic waste washing into water systems. Better planning, enforcement of regulations, and financial support are needed to improve waste management services and reduce plastic pollution.
- Increase municipal investment in waste management equipment and technology. Introduce financial mechanisms to improve fee collection and expand source separation programs, including home composting and the separate collection of plastics, paper, and metals.