

BEMED+ PROJECT

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**Full analyses on Plastic leakage hotspots and potential
intervention for plastic pollution reduction in the
Shkumbini River, Albania**



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List of abbreviations

AU – Administrative Units
CSO – Civil Society Organizations
GIS – Geographical Information System
EU – European Union

Summary

The study aims to identify the plastic leakage hotspots along the entire Shkumbini river basin. The main method used for the report was data collection through interviews with municipality staff, data analyzing based on GIS tool and spatial planning to explore the plastic leakage hotspots. The study explored the four main municipalities located in the upstream part of the river (Prrenjas and Skumbini), midstream (Elbasan) and downstream (Peqin dhe Rrogozhina).

Based on the data found, the main plastic leakage hotspots are found in the upstream part of the river, where the main factors resulted to be the unavailability infrastructure for waste collection, cleaning and recycling. There is no presence of any recycling company who can collect the plastic waste and avoid plastic leakage in the river. Moreover, the topography and land use in the upstream part of the river, contributes in the higher concentration of plastic waste in the river system. In the midstream part (Elbasan municipality) the waste collection remains relatively good but still the separation of plastic waste remains still low and the collaboration between the municipality and the recycling sector remains low. The similar patterns are present in the Municipality of Peqin, where the main issues addressed from the report are related to low waste coverage system, segregation of plastic waste is not occurring and the level of citizen engagement in reducing the waste through good behavior remains still a challenge.

The study proposes a number of interventions and instruments that can reduce the plastic leakage into the river. The main interventions are related with the increase of waste coverage mainly in the rural parts of the city and to those close to the river system and increase the recycling rate for the plastic waste.

1. Introduction

The previous part of this study was related to the diagnosis phase which aimed to identify the amount and the distribution of the plastic waste along the river. During the diagnosis phase, was identified that the top priority plastic in the basin was plastic bags, plastic bottles and packaging (food related stuff). In regards to the type of the polymer, the most present was HDPE, PET and LDPE. Furthermore, the outcome of the diagnosis phase enabled the development of the second phase of the work which is related with the plastic leakage hotspots. The plastic leakage hotspots refer to the source-pathway and impact of the plastic leakage in the river network. The main scope of the study is to identify the main plastic leakage hotspots along the Shkumbini river. The study aims as well to explore the relationship between observed plastic load during the diagnosis phase and mismanaged plastic waste collected from the interviews and observations. The study took into consideration three main sectors as: Hospitality (HO-RE-CA), Waste Management and Sports. In order to make the full analyses, the team conducted in-depth review of similar case studies in EU and developing countries. The authors decided to follow a mix methodological approach considering the quantity data (obtained during diagnosis phase) and qualitative data (semi-structure interviews). As an initial insight during the diagnosis phase, was revealed that the main contributor of the plastic leakage in the river network is related to poor waste management.

The study has more exploring purpose than analyzing the performance of the waste management of each municipality. The method consisted on a number of indicators which are related to the waste management hotspots by analyzing every part of the scheme (collection, segregation, recycling, behavior of the citizens). Initially, the author after carefully developed the matrix based on the indicators collected information from every municipality along the basin (Prrenjas, Librazhd, Elbasan and Peqin). The results of the obtained data, revealed that the plastic leakage hotspots have more negative contribution in the upstream part of the river (Librazhd and Prrenjas). The high amount of plastic found on the upstream part is influenced as well by the topography of the terrain (slopes) which easily creates waste accumulation debris. Almost to every municipality, the waste management remains one of the top priority hotspots that contributes the most in the plastic leakage. In particular this is related to not available containers to collect the plastic waste separately, the frequency of waste collection (mainly in the rural parts) remains low which contributes negatively in the waste accumulation, very few (Ebasan) recycling company and less commitment from the citizens to avoid waste flying into the river. The accumulated waste, are moved forward from the wind as the main pathway contributor in the plastic leakage.

This assignment proposes several intervention measures and instruments that can be used from the municipalities or international organizations to finance a certain number of actions. The eco-design of the products is a key priority and potential interventions by informing the businesses to start thinking to replace the high contained plastic packaging material with less plastic and more recyclable. The government shall put in place and make operational the EPR (extended producer responsibility scheme) and informing businesses on this process.

The waste prevention is the first key component as well to reduce the plastic leakage in the river system. The government (local and central) shall work in establishing floating booms to collect the waste into the river system and preventing it to move downstream. Moreover, the municipalities shall put a lot of efforts in providing clean and potable water for the citizens so there is no need to buy plastic bottles which is the main source of pollution. Additionally, the closer collaboration of the municipalities with the recycling companies shall be in place as the only option to collect the plastic in the good value and be recycled at the end of its value.

2. Methodology

As it is explained above the main scope of this report is to evaluate the main factors that produce the plastic leakage to the river. The project team has based its work on the methodology referred to National Guidance for Plastic Pollution Hotspotting and Shaping Action. [1] As initial step, the team has conducted several meetings with a number of stakeholders from each municipality along the river basin. The information collected from each municipality (Prrenjas, Librazhd, Elbasan, Peqin, Rogozhina) was referred to a list of indicators related mostly to waste management hotspots. As part of the assignment, the team during the interviews collected information about the sport activities and the businesses along the basin. Initially the team conducted the macroplastic survey along the riverbeds by estimating the total amount of plastic. The survey took place from January to April and was focused on the riverbanks and observations mainly. The plastic leakage hotspots maps are produced as a result of i) Baseline data (number of plastics) along the riverbeds and ii) other variables as population density, business density, waste management hotspots. The main focus of the work was based on the list of indicators in relation to waste management hotspots. The following tables are already explaining the static indicators considered key factor for contributing (positively or negatively) in the plastic leakage hotspots. The outcomes of the data collected defined which indicator have positive or negative contribution in the plastic leakage in the river basin.

Table 1 Waste Management Hotspot Indicators

Indicators		Negative Contribution	Average Contribution	Positive Contribution
Waste Segregation	Waste Segregation	1	2	3
	Segregation of recyclable plastic			
	Role of informal sector			
	Public infrastructure availability			
Waste Collection	Formal collection of municipal waste			
	Value of recycled material			
	Availability of waste Segregation bins			
	Waste collection Service			
	The quality of plastic waste collected			
Waste Related Behavior	Frequency of Collection			
	Availability of waste collection containers			
	The level of citizen awareness			
	Frequency of fly-flipping			
Waste Management Infrastructure	Frequency of waste burning			
	Recycling company capacity			
Post Leakage Management	Frequency of city cleaning and sweeping			
	Frequency of city cleaning and sweeping			
	Presence of Illegal dumpsite			
	Clean-up activities			

However, the quantity was uncountable because the input parameters were normalized with a standard range from “1” to “2” and “3”. Areas were classified as either “1” for negative contribution in the waste

management system, with “1” for medium contribution and with “3” positive contributions. Since they are many data, the consultant analyzed the data by applying the Fuzzy overlay analyses. The Fuzzy Overlay [2] method allows the analysis of plastic leakage hotspot belonging to multiple sets in a multicriteria overlay analysis.

3. Plastic leakage density

The first activity in the assignment was the development of the baseline data (plastic leakage density) along the river basin. **“Plastic leakage density”** refers to an estimated quantity of plastic leakage in an area. Moreover, the quantity of the plastic leakage density was estimated through quantification of plastic items along the riverbeds in Shkumbini river. In total was collected information from 18 locations (Prrenjas, Librazhd, Elbasan, Peqin and Rrogozhina). The following photos (with dark color, more contribution, less dark – less contribution).

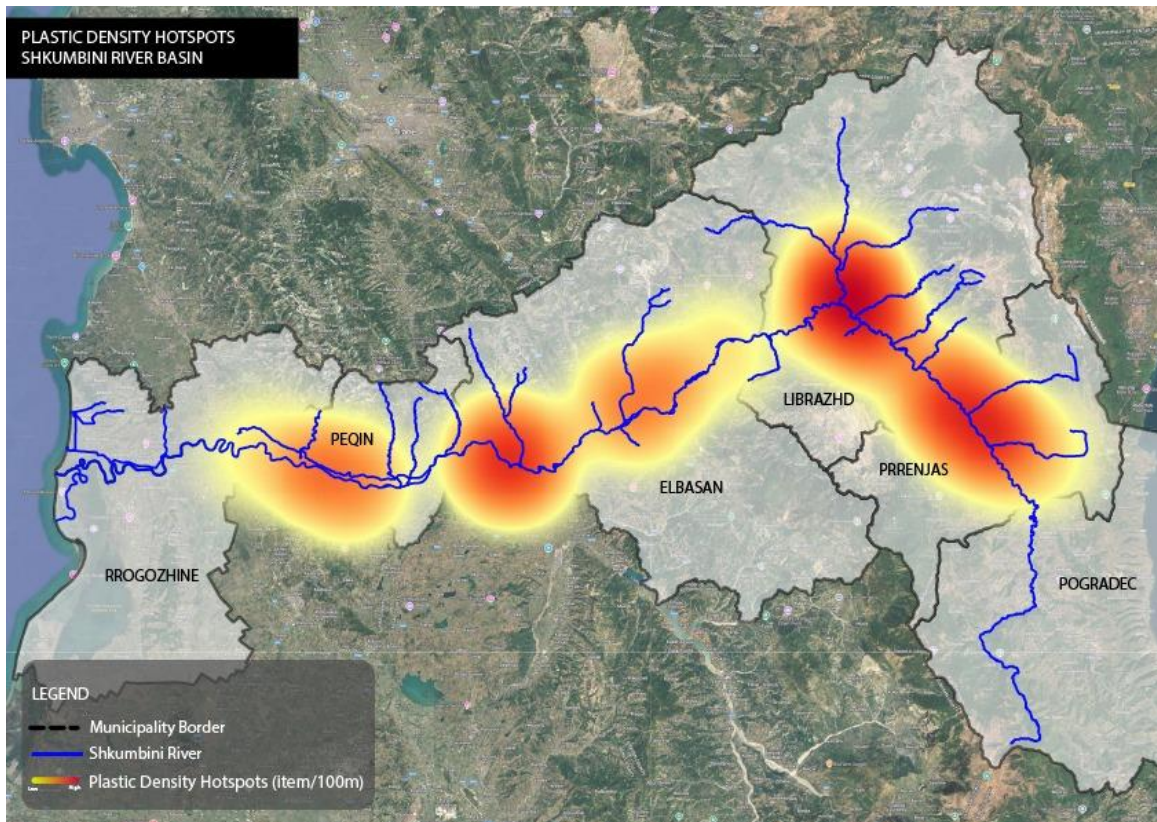


Figure 1 Plastic Leakage (density) Hotspot

As it is shown from the map, the highest plastic leakage contribution is along Prrenjas and Librazhd Municipality (upstream), Elbasan Municipality (rural part) considered as midstream and Peqin municipality (rural and urban) considered as downstream. Additional information about the quantity and the type of the plastic are already described in the previous chapters. The information described here is to shed light on the main plastic leakage hotspots area. Based on the information collected, will be the assessment to evaluate the reasons behind that contribute (positive, negative) on the current situation.

3.1. Leakage pathways accumulation

Determination of the plastic leakage hotspots and pathways is essential for plastic pollution mitigation. Finding ways to stem land-sourced plastic waste leakage requires understanding its sources. Spatial analysis conducted in a geographic information system (GIS) environment investigation uncovered insights into the distribution of plastic leakage along the Shkumbini River. The main purpose is to define the “leakage pathway accumulation” that introduce plastic leakage inputs to waterways, such as a river, tributary, and canals. Based on the data collected on the ground and the GIS analyses are already identified the main leakage pathways that contribute the most to the rivers. The main pathway contributions come from tributaries, waterways that pass by the rural areas in each of the municipalities. Usually, the river streams pass by the rural areas which does not have proper waste management system and the local citizens most of the cases throw out the waste into the river. Additionally, from the local observation it results the retention time of the waste into the river systems (river banks) is high. The plastic waste is washed from the river banks once there are high precipitation and water flow. Moreover, the lack of proper waste management in some certain areas allows waste to fly and be accumulated in the close proximity to the river system.

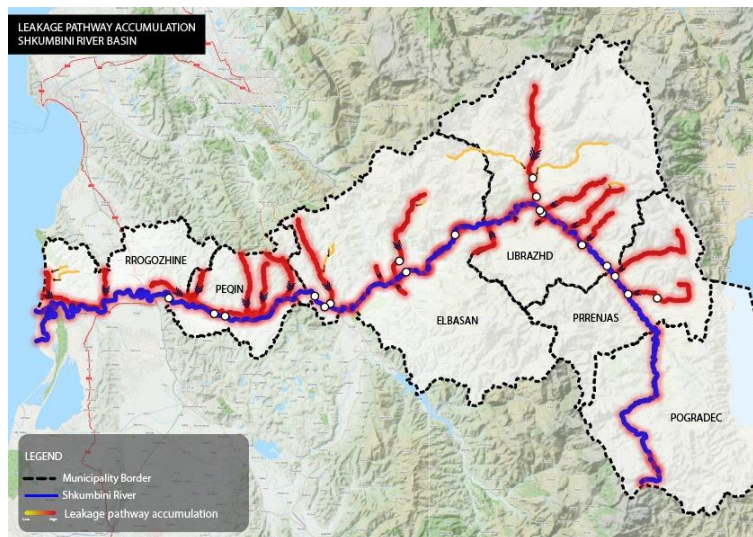


Figure 2 Leage Pathway Accumulation

4. Sectorial and Spatial analyses of plastic leakage

4.2. Source of the leakage

One of the objectives of the assignment is to evaluate the main sources of plastic leakage. The source of pollution is closely linked with the type of plastic waste found on the riverbanks [3]. This method is based on the assumption that certain ML items are typically or widely used by particular commercial or public sectors or are released into the environment via well-defined pathways.

4.2.1. Hospitality

The hospitality sector is related to the presence of HO-RE-CA sector found along the river basin. Based on the data found is hard to attribute a type of plastic items to the hospitality but referring the local observations and expert judgment, the most common type of waste that attributes to the hospitality are

related to plastic crisps packets/sweets wrappers, plastic bottles. There are a high number of businesses across the river that are relaxing place for tourist to stay longer and have drinks.

4.2.2. Sports

Referring local interviews, the sport activity mainly rafting is not very present in the Shkumbin river. Apart from that, there might be very small amount of plastic waste created from rafting as plastic bottles, food related packaging. Additionally, there are few evidences that attribute this type of plastic waste to the sports activity. Some of the businesses might discharge the waste-water in the river but there was not any evidence for any type of waste (wet-wipes) or any other type of waste.

4.2.3. Waste Management

The waste management is one of the most present hotspots that influence the plastic leakage in the river system. In Table nr 2, are already shown a certain number of plastic items that are attributed to public sector and are directly related to waste management. The most common type of waste are plastic bags which are widely used from the general public, plastic bottles as well are used from the citizens and are created as a result of poor waste management. During the diagnosis phase, were found as well footwear made of plastic, which are considered as an attribute from waste management source as well.

Table 2 Source of plastic leakage

Sector	Plastic item	Type of plastic	Means of release	Pathway
Hospitality	plastic crisps packets/sweets wrappers	Other items where polymer type identification is not needed	Improper waste management	Waste containers/wind
Hospitality	Plastic bags	Food relate stuff	Improper waste management	Waste containers/wind
Hospitality	Plastic bottles	Artificial polymer materials - bottles	Improper waste management	Waste containers/wind
Waste Management	Plastic bags	Artificial polymer materials - bottles	Improper waste management	Waste containers/wind
Waste Management	Plastic bottles	Artificial polymer materials - bottles	Improper waste management	Waste containers/wind
Waste Management	footwear made of plastic - not flip flops	Other items	Low awareness	Local citizens
Sports	Plastic bottles	Artificial polymer materials - bottles (of any type)	Improper waste management	Sports/tourist

5. Waste Management Hotspots

5.1. Municipality of Prrenjas

The municipality of Prrenjas belongs to Elbasan region and is composed of 4 administrative units Rajce, Prrenjas, Qukes and Stravaj. There are in total 25 villages and 1 city (Prrenjas City). The municipality is located in the south part of Librazhd municipality. The villages colored with black are those who are much closer to the main river body and its stream. The main villages who have a direct impact on the Shkumbini river are Prrenjas fshat, Rrashtan, Rrajce, Urak, Kotodesh, Pishkas, Gurre and Prrenjas city. As it is shown in the map, the most contributing areas are those who are in the proximity with the river.

According to the Waste Management plan for Municipality of Prrenjas, the waste management service is fully covered in the "Prrenjas " AU and is partly provided in the two other administrative units, corresponding to "Rrajce" and "Qukes". The street cleaning and sweeping as well is provided partly to Rrajce and Qukes. [4]

Table 3: Administrative units: Prrenjas Municipality

Administrative unit	The city and the villages
Prrenjas	Prrenjas fshat, Rrashtan (villages), Prrenjas qytet
Rrajce	Rrajcë, Skenderbe, Sutaj, Bardhaj, Urajc, Kotodesh, Katjel
Qukës	Pishkash, Qukes Shkumbin, Qukës Skenderbej, Skroske, Menik, Gurre, Berzeshte, Fanje, Karkavec, Dritaj, Pishkash Veri, Prrenjas city (city).
Stravaj	Stravaj, Stranik, Farret, Shqiponje, Sopot

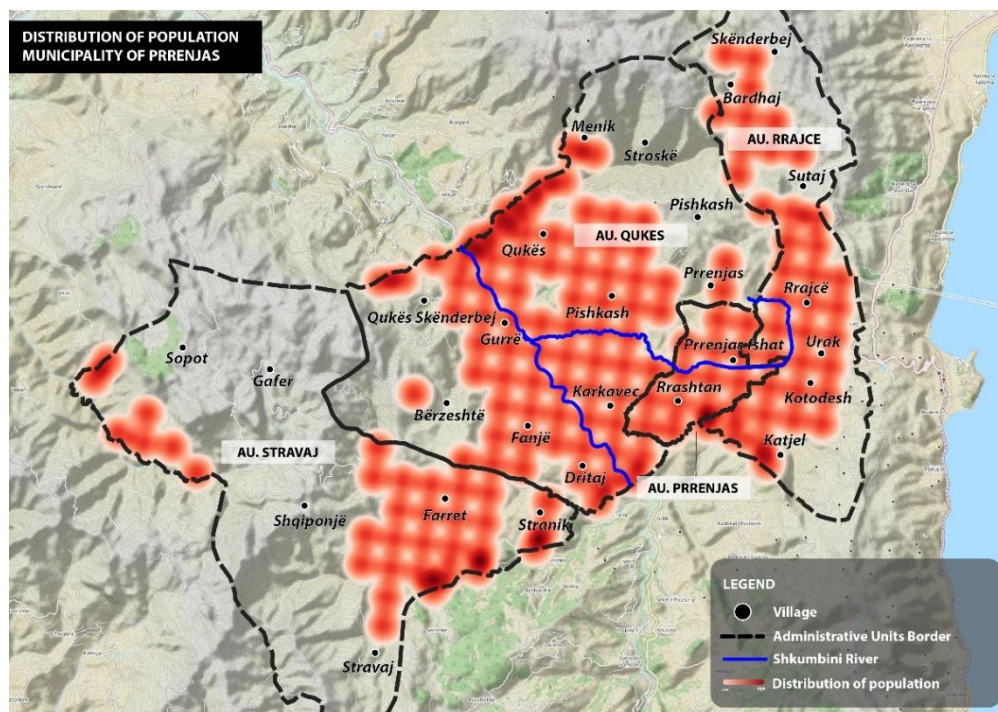
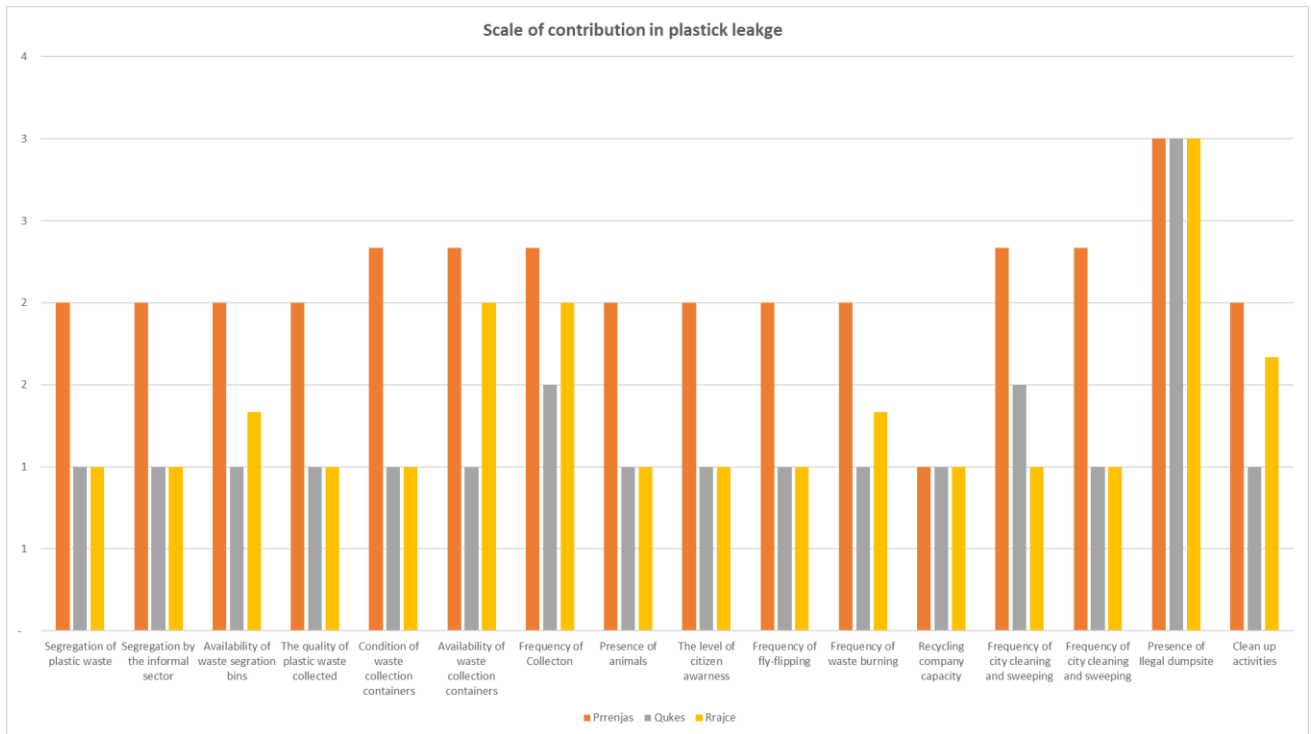


Figure 3 Location of the main administrative units (Municipality of Prrenjas)



Graph 1 Waste Management Hotspots – Municipality of Pprenjas

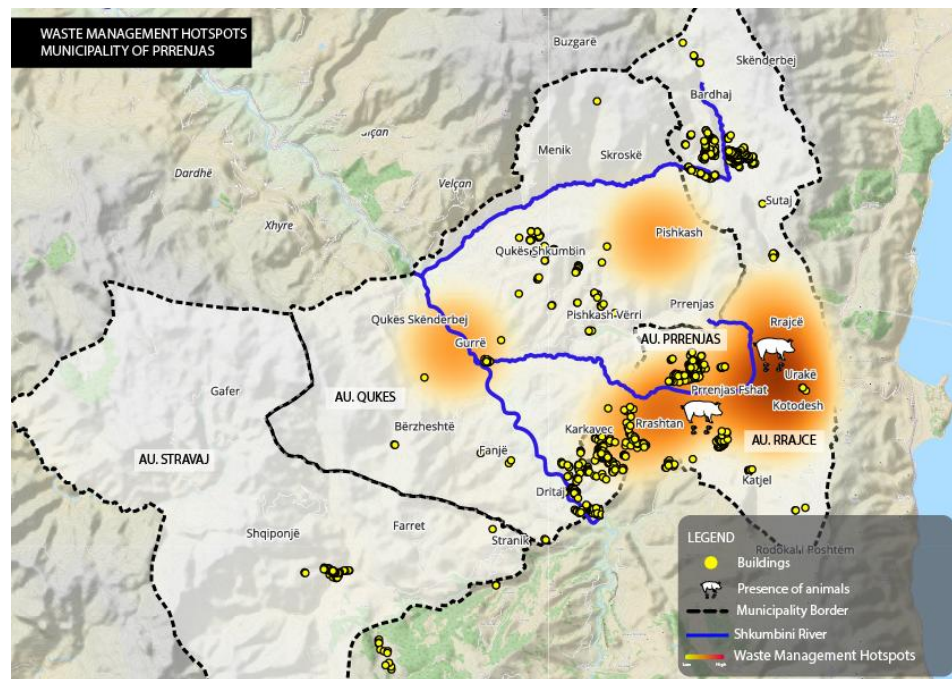


Figure 4 Spatial Analyses for plastic leakage source hotspots

The outcome of the data analyses, resulted in the identification of the main plastic leakage sources and hotspots in the municipality of Pprenjas. In the Graph nr.1 are already shown the results of the assessment. It shows that administrative units of Rrajc and Qukes have the most negative contribution in the plastic

leakage. The most negative contributions are related to: Low waste segregation in source from the citizens, there is no presence of informal sector (Roma community) who can have a role in waste segregation, there are low number of containers for waste collection (Qukes) and in two other administrative units the number is average (Rrajc and Pprenjas AU). Moreover, the waste collection coverage is low to Rrajce and Qukes AU comparing to Pprenjas AU. Furthermore, the condition of the waste containers is relatively low in Qukes and Rrajc AU (negative contribution) and average quality to Pprenjas (positive contribution). The frequency of fly-flipping plays a negative contribution (Qukes and Rrajce AU) and this is due to low citizen awareness and commitment to waste reduction. Overall, the Rrajc and Qukes AU are considered a plastic leakage hotspots (dark side in the map) which has the highest negative contribution in the plastic leakage. Additionally, the sector which contributes the most is the public/households, followed by businesses along the Shkumbini River. This occurs due to the lack of proper waste management infrastructure.

5.2. Municipality of Librazhd

Municipality of Librazhd is located in the Elbasan region and has a total area of 1,404.87 km². The municipality is composed of 6 administrative units corresponding to Qender, Hotolisht, Polis, Orenje, Lunik and Stebleve. The municipality is confined with Municipality of Elbasan in the north and in the south with municipality of Pprenjas. In the following graphs are shown the location of the main administrative units (Fig 5). In Fig 5, it is clearly shown clearly the population distribution of different administrative units. It results that the highest density of population belongs to those areas close to the river.

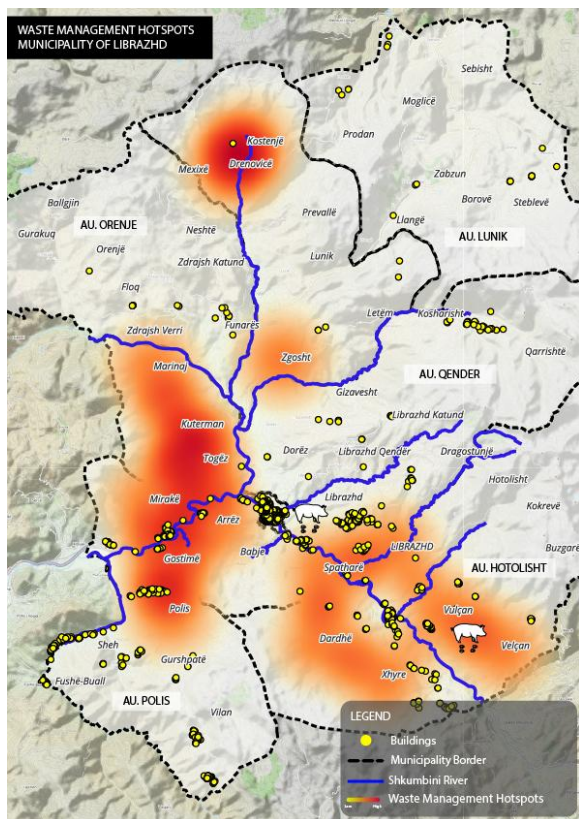


Figure 5 Waste Management Hotspot

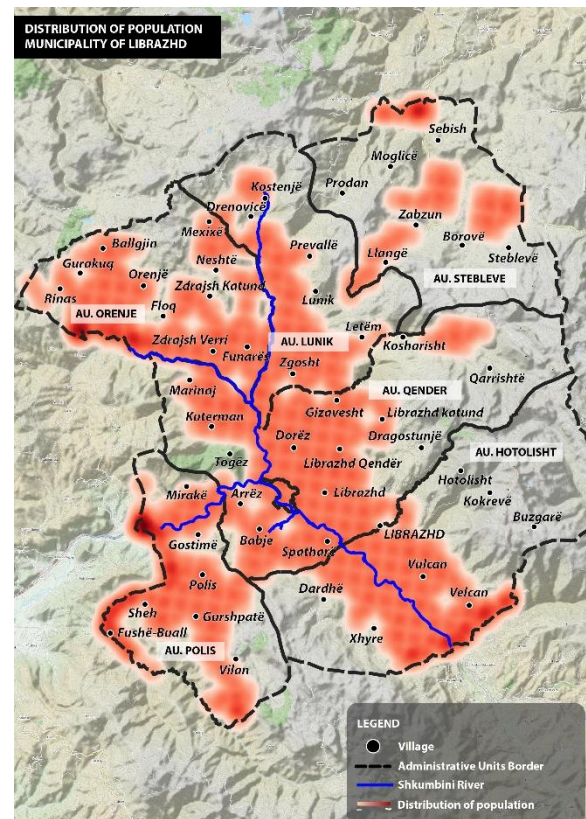
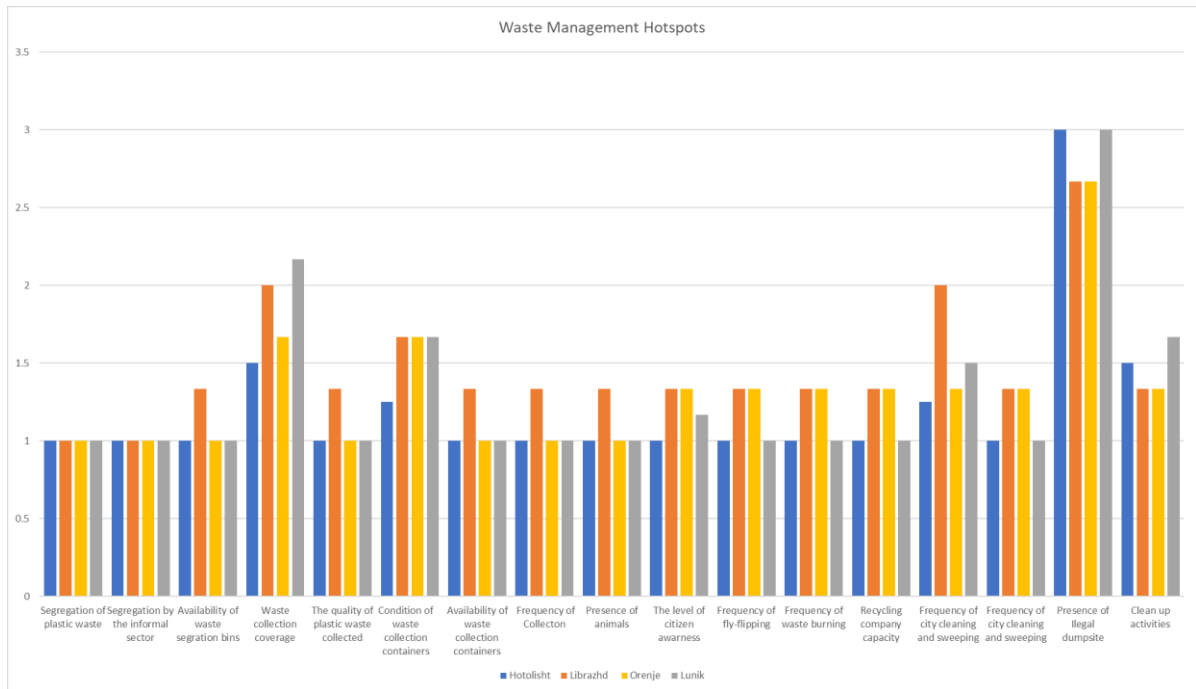


Figure 6 Location of the main administrative units (Municipality of Librazhd)



Graph 2 Waste Management Hotspots – Municipality of Librazhd

The segregation of plastic waste is not happening to none of the administrative units or villages. Only Librazhd AU has partly available waste containers comparing with other AU which lacks the proper infrastructure to collect the waste. Moreover, there is no presence of the informal sector (Roma community) who can collect the waste properly and at least make the separation of the plastic. The waste coverage is not the same at the whole territory. Only in the Librazhd city, belonging to Librazhd AU the waste coverage is 100 % whereas in Hotolisht AU is partly covered (65%-Xhyre and Dardhe village), whereas the two other villages Velcan and Vulcan are not covered with waste management service. Furthermore, in Librazhd AU, there are two village (Spathare, Arez) close to the river which does not have waste coverage system. This contributes directly to the high amount of plastic leakage in the river body. Moreover, in the Lunik AU, there are two villages which are not provided with waste collection service. Referring the information collected from the municipality staff, the quality of the plastic waste collected is very low which makes the plastic useless for recycling.

Furthermore, the frequency of collection in Hotolisht AU, Orenje AU and Lunik AU is low. The frequency of waste collection is happening more often only in Librazhd AU. Moreover, another component which negatively contribute in the plastic leakage is the quality of the waste containers. In addition, from the information collected, there are no presence of recycling companies in the area which can further strengthen the collaboration with the municipality and collect the plastic waste. Moreover, the level of citizen awareness remains very low and still there are people who throw out the waste into the river. From the data collected and on-site observation, there are presence of animals in some part of the villages, areas along the river basin. The presence of the businesses along the river (mainly bars and restaurants) creates as well a pressure on the river system. Nevertheless, this is due to waste management hotspots already addressed in the paragraphs above. The businesses, still use plastic-based materials (bottles, packaging, plastic bags) in their service, and this plays a significant role as well on the amount of plastic and hotspots on the riverbeds.

5.3. Municipality of Elbasan

Municipality of Elbasan is located in the midstream part of the Shkumbini river. The total area of the municipality is 872 km² and has a total population of 141,021 inhabitants (census 2021). In total area 13 administrative units but only 7 (seven) AU are located across the river. The 7 (seven) AU across the river are Elbasan, Shushice, Labinot Mal, Labinot Fushe, Bradashesh and Paper.

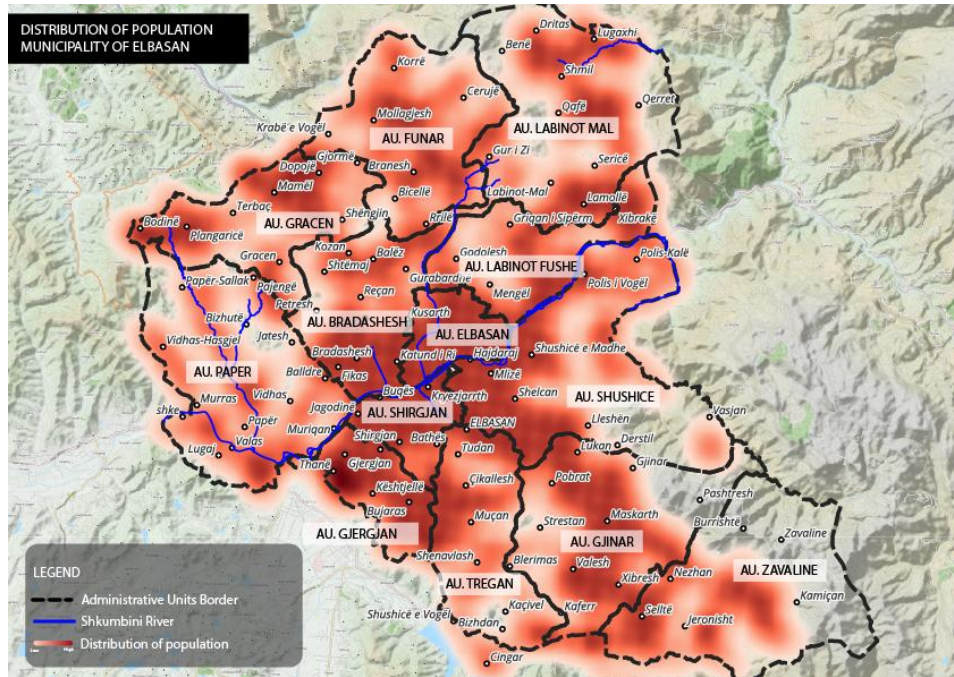


Figure 7 The Elbasan Municipality Map with population density

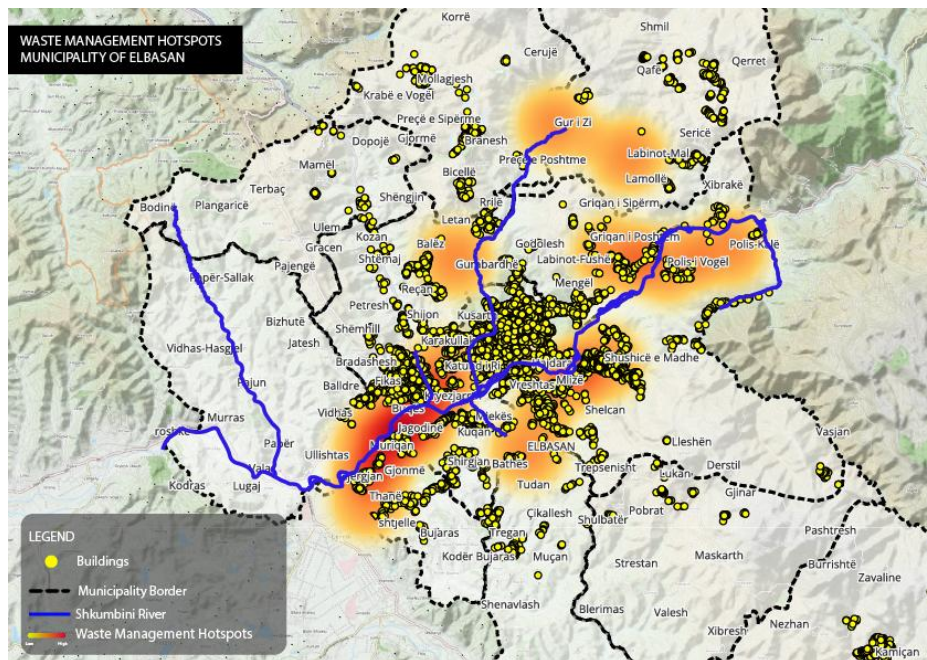
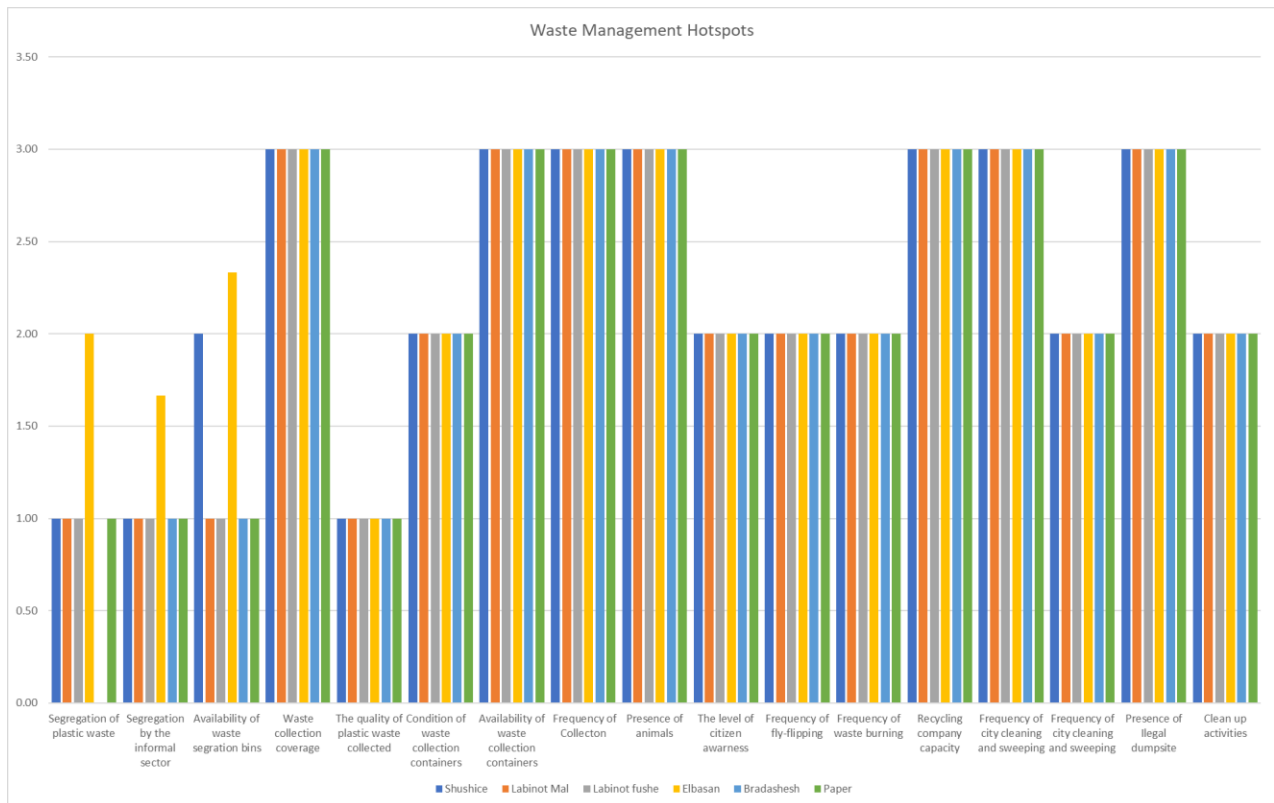


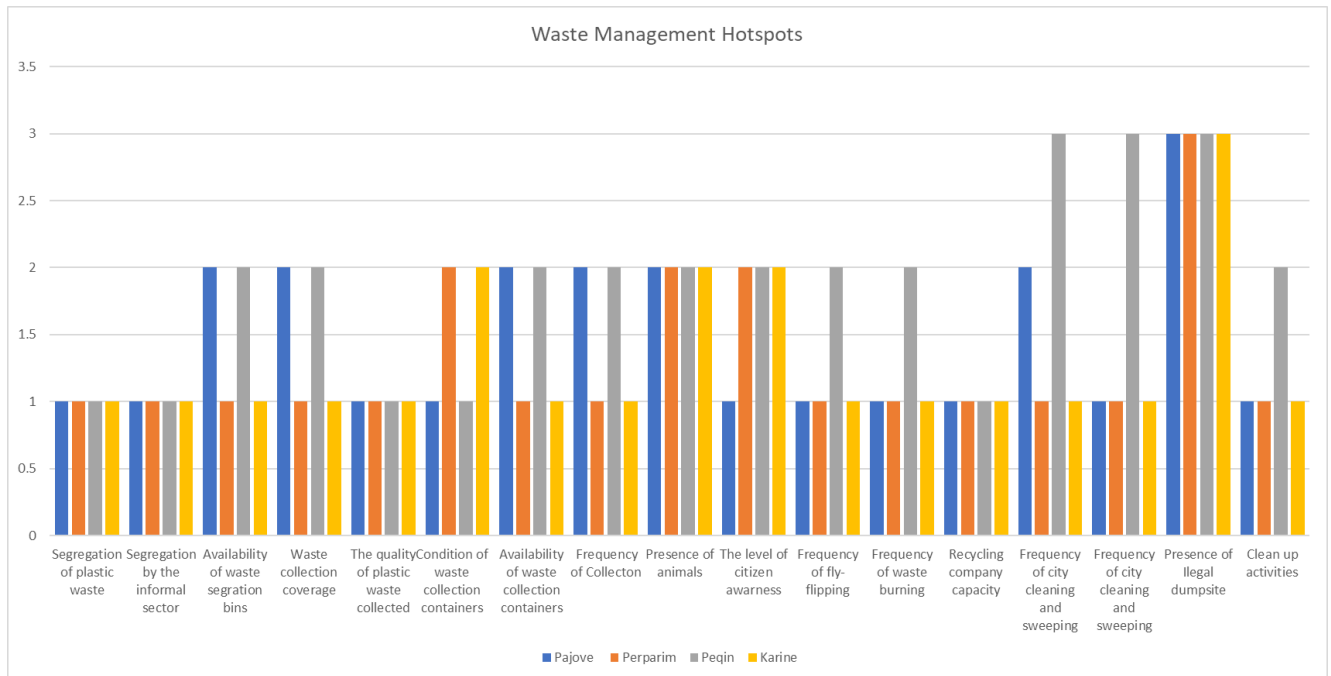
Figure 8 The Waste Management Hotspots



Graph 3 Waste Management Hotspots – Municipality of Elbasan

In Fig 7, is shown the map of the municipality of Elbasan. From the map we understand that the most concentration of population is located in Labinot Fushe AU, Elbasan AU, Bradashesh AU and Shirgjan AU. Apart from that, these AU are located in the proximity to the river and have direct communication with it. In Fig 8, is presented the waste management hotspot map, presenting the spatial manifestation of waste management performance along each AU. As we can see from the map and the graph 3, the level of waste segregation is low to every AU. Apart from Elbasan AU, there is no presence of informal sector who can facilitate the segregation process. The waste management coverage is provided already to every AU and only few villages does not have coverage. The condition of the waste collection containers is almost good. Moreover, the municipality has good distribution of waste collection containers throughout the territory.

The quality of plastic waste collected is partly low and it is difficult to be recycled. There are some recycling companies in the municipality who are active in collection of recycling materials but mainly from the businesses. There are few clean-up initiatives in municipality usually realized from the municipality staff, schools and students. The businesses located in the proximity with the river still use plastic-based materials in their services (plastic bottles, single use plastic). Furthermore, by comparing the amount of plastic during the diagnostic phase and the waste management hotspots, it results that the outskirts part of the city (Bradashesh AU, Shirgjan AU) has the highest concentration of the plastic. This is due to insufficient waste management coverage (villages mainly) and most common citizens throw out the waste into the river. Moreover, from the information collected during the baseline study and comparing with the information collected, it results that there are few cleanup activities from the local community.



Graph 5 Waste Management Hotspots - Municipality of Peqin

According to the graph, in every AU there are not plastic waste segregation conducted from the municipality. There is no presence of informal sector (Roma Community) in the whole territory, which results in less waste recycling. Moreover, the waste coverage is already partly provided in Peqin AU and less delivered to other AU. Moreover, from the local observations and discussions, the quality of the plastic waste is low which makes the material less recyclable. According to the interviews and observations, the number of containers along the municipality is not enough and does not cover the full needs of the populations with the services. The business sector is as well affected from the absence of containers and available infrastructure in every corner of the municipality and in particular close to the river.

The Perparim AU and Karine AU are the most exposed areas to waste management hotspots. This is due to lack of frequency waste collection to every village and to the businesses. Moreover, the level of citizens awareness is almost low, as a consequence people throw waste into the river. This is already observed from the on-site data monitoring. Furthermore, it is noticed that in the area are not present recycling companies who can actively cooperate with the municipality or businesses and collect the plastic waste. In addition, the most negative contribution comes from the villages in the nearby with the river, as Karine (Karine AU), Perparim, Caushaj, Lolaj (Perparim AU), Paulesh, Bishqem Fushe (AU Pajove), Bardhas, Rrumbullake (AU Gjocaj). These areas represent sensitive plastic leakage hotspots and have directly contributed to the river. In the municipality, there are very few clean-up events from the municipality or other local organizations who can be engaged in regular clean-up events.

The hydrology of the river plays a significant role in the amount of plastic in the riverbanks of the river. Parts of the plastic waste found in the close environment is transported as well from the upstream parts of the river but the lack of clean-up events creates the accumulation of the waste. The described information above is connected as well with the amount of plastic waste found during the baseline study which shows significant amount of plastic waste in these areas.

6. Summary of the hotspots (actional hotspots)

In the following table are summarized the main actionable hotspots analyzed on the report. The actionable hotspots represent the key elements that negatively contribute to plastic leakage on the river.

Actionable hotspots	
Source (production/trade)	
1.	The material exported to the municipalities has high quality of the plastic and is less recyclable.
2.	There is no presence of alternative plastic (replacing SUPs) among the HO-RE-CA businesses along the river-basin.
3.	The size of the plastic bags found is thick and is not aligned with national standards on waste management.
Collection (pre-post leakage)	
1.	HDPE, PET and LDPE are the most used polymers in each of the municipalities along the river basin.
2.	LDPE is the top priority polymer type produced in the river basin with the highest concentration in the upstream part of the river (Prrenjas and Librazhd), followed by PET and HDPE.
3.	The highest concentration of polymers is found in the rural parts of the Elbasan city comparing with the urban. The same patterns are similar to other municipalities.
4.	Three top priority plastic items found along the river basin are plastic bags, plastic bottles, packaging.
5.	The waste management infrastructure (waste collection, available infrastructure/containers, low frequency) remains considerable low in certain administrative units in Librazhd, Prrenjas and Peqin municipality. <ul style="list-style-type: none"> - To Prrenjas municipality (negative contribution): Rrajce AU and Qukes AU. - To Librazhd municipality (negative contribution): Hotolisht AU, Orenje AU and Lunk AU. - To Elbasan municipality (negative contribution): Bradashesh AU and Shirgjan. - To Peqin municipality: (negative contribution): Perparim AU, Peqin AU and Karine AU.
6.	The top hotspots which contribute to plastic leakage is mismanagement of waste.
7.	The retention time of the plastic within the river system mainly in the upstream part of the river. This is due to the presence of dams (hydropower plants) - Lingajca Stream (Prrenjas) mainly in the upstream part of the river accumulates high amount of plastic.
8.	There is no plastic waste segregation to every municipality along the river basin.
9.	The fly-flipping practices still remain an issue where citizens throw the waste bags in the rivers.
10.	The presence of informal sector (Roma Community) in the waste separation is not present. It is partly present in some parts of Municipality of Elbasan.
Post-Collection (recycling)	
1.	There is no recycling of the plastics to none of the municipalities along the river-basin.
2.	There are few clean-up initiatives from the citizens/municipalities/CSOs along the river basin.

7. Prioritizations of intervention and instruments

7.1. Interventions and instruments

In the following table are already proposed a number of potential interventions, which can address the plastic leakage hotspots. The proposed interventions are categorized into three main components:

i) Production and design phase, ii) Collection of the plastic waste, iii) post-leakage management.

Table 4 List of interventions and instruments

Components	Interventions	Instruments
Eco-Design	<ul style="list-style-type: none"> - The government shall ban the usage of toys with high plastic content and hazard chemicals. - Inform businesses who are actively involved in packaging production materials. 	<ul style="list-style-type: none"> - Reinforcement of law implementation through setting higher prices in the custom for such based materials. - Boost innovation in product design for packaging in particular. - Implement Extended Producer Responsibility (EPR) to make the producers responsible for the production.
PREVENT	<ul style="list-style-type: none"> - The government shall ban the usage of plastic bags which are more than the standard. - Use floating booms or nets to collect the plastic before it moves downstream. 	<ul style="list-style-type: none"> - The government shall propose to establish a Green Fund mechanism for the country. The budget shall be used to finance pilot projects on waste prevention, infrastructure development, etc.
REDUCE	<ul style="list-style-type: none"> - Organize open sessions with young generation along the river basin to reduce the amount of plastic in the river body. 	<ul style="list-style-type: none"> - Raise awareness of the local communities to reduce the plastic waste and avoid flying-littering in the river.
COLLECT	<ul style="list-style-type: none"> - Maximize waste collection in every AU identified as a hotspot from the study. - Establish a door-to-door waste collection systems for houses in the rural areas which are in close distance to the river basin. - Increase the segregation rate of recyclable materials in urban areas. Higher consideration shall be made to areas close to the river network. 	<ul style="list-style-type: none"> - Improve the implementation of waste management plan through increasing investments in containers, human resources. - Initiate a campaign for behavior change of local communities to collaborate with the municipality on the waste collection.

RECYCLE	<ul style="list-style-type: none"> - Increase the waste recycling rate through establishment of recycling Hubs/circular economy hubs in the proximity location with the river basin. - Strengthen the cooperation with any recycling company in the region and work together to establish the recycling program. 	<ul style="list-style-type: none"> - Subsidy young people who can establish start-up companies about collection of plastic in the proximity to the river basin to collect and recycle plastic waste. - Providing incentives to the HO-RE-CA businesses for reducing the usage of plastic in the packaging. - The government shall provide incentives for recycling companies and give them flexibility in terms of taxation.
POST-LEAKAGE	<ul style="list-style-type: none"> - Organize clean-up activities with the municipalities and students in every identified hotspot. - Engage local organizations in citizens science approach by having regular monitorings. 	<ul style="list-style-type: none"> - The CSOs, municipalities and businesses finance campaigns led from students, schools on clean-up initiatives.

8. References

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[3] J. R. C. (JRC), "Identifying Sources of Marine Litter," 2016.

[4] T. e. Shehi, "Local Waste Management Plan for Municipality of Prrenjas," 2023-2029.