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**The Impact of Plastic Pollution on
Recreational River Use and Sustainable
Tourism
Case Study - Shkumbin River**

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ABSTRACT

In recent years, tourism has emerged as one of the key sectors for the Albanian economy, contributing approximately 22% to Albania's GDP in 2024. Nature-based and adventure activities, in particular, are attracting a growing number of domestic and international visitors. Within this context, the Shkumbin River represents a significant site for rafting and other recreational activities in Albania; however, its potential is compromised by unmanaged plastic pollution. Flowing through five municipalities and encompassing both urban and rural communities, the river faces persistent challenges related to inadequate waste management and uncontrolled solid waste disposal. The accumulation of plastic debris along its 181-kilometre course not only degrades the natural environment but also raises ongoing safety concerns for recreational users.

This study focuses specifically on tourists who have experienced rafting on the Shkumbin River, examining how plastic pollution affects their perceptions of river quality, overall satisfaction, and their willingness to pay (WTP) for a cleaner river environment. A structured survey is conducted to collect data on tourists' direct observations, satisfaction levels, and WTP for measures aimed at improving water quality.

The results aim to provide evidence-based insights for local stakeholders about how environmental quality influences tourism demand and tourists' readiness to contribute financially to river conservation. The findings provide preliminary estimates of the potential economic value of small-scale clean-up actions, using the WTP data as input.

By addressing this under-researched topic for the first time in the context of the Shkumbin River, the study seeks to fill an important knowledge gap and to encourage actions that help maintain the river's value as a sustainable destination for adventure tourism, and similar studies for other rivers in Albania, as well as future research for this sport in Shkumbin river.

Keywords: sustainable tourism, plastic pollution, rafting, willingness to pay

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LIST OF ABBREVIATIONS

ANOVA – Analysis of Variance

BeMed+ – Beyond Plastic Mediterranean

CVM – Contingent Valuation Method

ETMI – Environmental and Territorial Management Institute

GDP – Gross Domestic Product

INCA – Institute for Nature Conservation in Albania

IUCN – International Union for Conservation of Nature

NGO – Non-Governmental Organization

OLS – Ordinary Least Squares

WTP – Willingness to Pay

WTTC – World Travel & Tourism Council

INTRODUCTION

Plastic pollution has emerged as one of the most pressing environmental threats of the 21st century, posing significant risks to global ecosystems, aquatic biodiversity, and human well-being (Jambeck et al., 2015; United Nations Environment Programme [UNEP], 2021). Annual estimates indicate that between 4.8 and 12.7 million tonnes of plastic waste enter the oceans worldwide, largely transported via riverine systems, with a small number of major rivers—primarily in Asia and Africa—accounting for the majority of this influx (Lebreton et al., 2017). The Mediterranean Sea, characterized by its semi-enclosed geography and limited water circulation, accumulates substantial amounts of plastic debris from both terrestrial and riverine sources, leading to persistent environmental challenges (UNEP, 2021).

In Albania, insufficient waste management infrastructure, particularly in rural and peri-urban areas, coupled with industrial and municipal discharges, has resulted in significant riverine contamination (Bino & Çado, 2020; Regional Environmental Center [REC] Albania, 2022). Major rivers such as the Shkumbin, Ishëm, Lanë, and Semani are affected by significant levels of plastic litter and untreated effluents, which undermine water quality, ecosystem health, and biodiversity (Osmani et al., 2024; UNEP, 2021). The Shkumbin River, extending 181 kilometers from the Valamara Mountains to the Adriatic Sea, also carries major socio-economic importance, serving agriculture, cultural heritage, and tourism (Bani et al., 2020). Recent assessments have documented the persistence of illegal dumping hotspots along Albanian rivers, including the Shkumbin, reflecting governance and enforcement challenges (UNEP, 2021).

Additionally, large-scale infrastructure projects, including highway constructions, have physically altered river courses, degrading habitats and diminishing biodiversity (Institute for Nature Conservation Albania [INCA-AL], 2024).

Tourism activities, particularly river rafting, have grown in the Shkumbin basin, contributing to local economies and increasing public engagement with environmental issues. However, visible plastic pollution negatively influences tourist satisfaction, affecting their intentions to revisit or recommend the destination, and thus posing a risk to the sustainable development of this sector (Williams et al., 2021). Understanding these socio-environmental dynamics requires integrating

environmental and economic analyses to quantify the value of non-market ecosystem services provided by the river.

Environmental economics provides methodologies, such as the Contingent Valuation Method (CVM), to assess individuals' Willingness to Pay (WTP) for environmental improvements (Carson, 2012). Meta-analyses suggest that individuals are willing to pay approximately USD 0.71 per person annually for a 1% reduction in beach litter, although regional variations exist (Mutuku et al., 2022). Complementary European studies further indicate broad public support for marine plastic mitigation initiatives and reveal substantial variability in WTP (Brouwer et al., 2017).

This study applies the CVM framework to evaluate how plastic pollution impacts tourists' experiences and their WTP for river cleanup measures along the Shkumbin River. Structured surveys conducted during the 2025 rafting season measure behavioral intentions—including likelihood to return and recommend the destination—and quantify the monetary value tourists place on improved environmental conditions. This research aims to generate actionable evidence to guide environmental policy, strengthen governance mechanisms, and support sustainable tourism strategies in Albania.

Research questions guiding this study include:

How does plastic pollution in the Shkumbin River affect tourists' satisfaction, behavioral intentions, and perceptions of river-based recreation?

What is tourists' Willingness to Pay for interventions aimed at reducing plastic pollution and improving riverine environmental quality?

How can CVM-based WTP data inform policy recommendations for sustainable tourism and river management in Albania?

1. LITERATURE REVIEW

1.1 Plastic Pollution and Its Broad Environmental and Economic Impacts

Plastic pollution has emerged as one of the foremost environmental challenges of the 21st century. The exponential growth in global plastic production and consumption, coupled with insufficient waste management infrastructure, has resulted in the widespread accumulation of mismanaged plastic debris across terrestrial, freshwater, and marine ecosystems (United Nations Environment Programme [UNEP], 2021). Each year, millions of tons of plastic waste enter natural environments, posing severe threats to biodiversity, ecosystem functionality, and human well-being. Although originally valued for its low cost, durability, and versatility, plastic has now become a key indicator of unsustainable development practices (Worm et al., 2017).

The ecological consequences of plastic pollution are multifaceted. Macroplastics, including packaging materials, bags, and bottles, can physically alter landscapes, entangle wildlife, disrupt aquatic habitats, and diminish the aesthetic and recreational value of natural water bodies (Worm et al., 2017). Over time, these larger plastic items fragment into microplastics, which infiltrate food webs and bioaccumulate in aquatic organisms, ultimately entering the human diet through seafood and drinking water (Smith et al., 2018). While the long-term effects on human health are still under investigation, emerging evidence indicates potential risks, including endocrine disruption, inflammatory responses, and exposure to toxic additives (Belmaker et al., 2024).

From an economic perspective, plastic pollution undermines natural capital, necessitates increased public and private expenditure on clean-up operations, and leads to revenue losses in critical sectors such as tourism, fisheries, and maritime transport (McIlgorm et al., 2011). For river-based tourism in particular, plastic accumulation not only degrades ecosystem services but also diminishes visitor satisfaction and willingness to pay for recreational experiences, highlighting a direct economic linkage between environmental degradation and human livelihoods (Panwanitdumrong & Chen, 2022).

While these initiatives demonstrate growing political commitment, their success depends heavily on robust national and sub-national enforcement mechanisms, adequate infrastructure for waste management, and effective community engagement (Obani et al., 2025).

1.2 Plastic Pollution in Albania and Its Effects on the Shkumbin River

In Albania, persistent deficiencies in waste management infrastructure—particularly in rural and peri-urban areas—combined with industrial and municipal effluents, have severely impacted freshwater systems (Bino & Çado, 2020; Regional Environmental Center [REC] Albania, 2022). Rivers such as the Shkumbin, Ishëm, Lanë, and Semani face substantial burdens from plastic litter and chemical discharges, which degrade water quality, disrupt ecological integrity, and threaten biodiversity (BeMed+, 2023).

The Shkumbin River, extending 181 kilometers from the Valamara Mountains to the Adriatic Sea, plays a crucial role in local agriculture, cultural heritage, and tourism. Geospatial assessments have identified numerous illegal dumping sites along less urbanized sections of the river, indicating persistent gaps in governance and regulatory enforcement (BeMed+, 2023). Moreover, the destruction and prolonged non-functionality of the wastewater treatment facility near the river's estuary exemplify institutional shortcomings in environmental management (Institute for Nature Conservation Albania [INCA-AL], 2024). Rapidly implemented, poorly coordinated infrastructure projects—such as the Elbasan-Qafë Thanë highway—have altered the river's natural course, resulting in habitat fragmentation and reductions in aquatic biodiversity (Institute for Nature Conservation Albania [INCA-AL], 2024).

Tourism, particularly river rafting, has developed significantly within the Shkumbin basin, providing economic benefits and fostering local environmental awareness. However, the pervasive presence of plastic pollution adversely affects visitor satisfaction, reducing the likelihood of repeat visits or recommendations and potentially undermining the sustainable development of the river tourism sector (Williams et al., 2021). These combined environmental and socio-economic pressures

highlight the urgent need for integrated management approaches that address both pollution sources and the sustainable use of river resources.

1.3 Plastic Pollution and Its Effects on Recreational Water Activities

Recreational activities that dependent on water quality—such as rafting, kayaking, and swimming—are particularly vulnerable to plastic pollution. Mismanagement of tourism itself can exacerbate pollution levels, creating a negative feedback loop that harms both environmental integrity and the long-term viability of tourism (Sun & Liu, 2020). Empirical studies consistently demonstrate that visible plastic debris significantly reduces tourists' enjoyment and decreases their intention to return. For instance, Jang et al. (2014) found that even minimal litter on Hawaiian beaches negatively affected tourist satisfaction. Similarly, Williams et al. (2016) reported that plastic pollution in coastal destinations in the UK and France prompted tourists to shorten their visits or cancel planned activities. Comparable patterns have been observed in freshwater settings; Qiang et al. (2019) noted that concerns about water quality and litter led adventure tourists to avoid river destinations such as the Yangtze and Pearl Rivers. These impacts collectively reduce tourism revenues and can damage the regional reputation of affected destinations.

In river-based tourism, such as rafting, a clean and natural environment is a core component of the tourist experience. The presence of visible plastic debris disrupts this expectation, frequently resulting in modified routes, tour cancellations, and increased operational costs for service providers (Jambeck et al., 2015; Ocean Conservancy, 2020). Beyond aesthetic impacts, plastic pollution introduces physical hazards to tourists and guides, including injuries from sharp objects and exposure to contaminated water, further undermining safety and the overall attractiveness of recreational water activities (Ocean Conservancy, 2020).

1.4 Economic Valuation of Plastic Pollution Damages

Economic valuation methodologies, particularly the Contingent Valuation Method (CVM) and Willingness to Pay (WTP) surveys, are crucial tools for quantifying the

non-market values that tourists assign to environmental quality improvements (Carson, 2012). These approaches allow researchers to estimate the monetary value of ecosystem services and recreational experiences that are not directly traded in markets. Empirical evidence suggests that tourists are willing to pay a premium for cleaner recreational environments. For instance, Abate et al. (2020), in their study in Svalbard, Norway, found that tourists were significantly more willing to pay when the contribution was aimed at improving water quality in rivers and coastal areas. This case clearly illustrates the direct relationship between environmental quality and the perceived recreational value of natural sites.

Plastic pollution affects both the demand and supply aspects of tourism. On the demand side, visible litter and water quality degradation reduce tourist satisfaction, deter repeat visits, and lower overall visitation rates, thereby decreasing tourism-generated revenues (Jang et al., 2014; Williams et al., 2016; Qiang et al., 2019). On the supply side, tourism operators frequently incur additional costs for clean-up, environmental management, and safety measures, to maintain their reputation and operational viability (Jambeck et al., 2015; Ocean Conservancy, 2020). Economic valuation studies effectively capture these impacts by quantifying how much tourists are willing to pay for cleaner conditions or how pollution reduces the perceived value of destinations.

In Albania, particularly for river-based tourism such as rafting in the Shkumbin River, there is a notable lack of localized economic data assessing the financial consequences of plastic pollution. This gap limits the capacity of policymakers, local authorities, and tourism stakeholders to prioritize interventions and implement strategies for sustainable development (Bino & Çado, 2020; REC Albania, 2022).

At a global level, research on the economic impacts of plastic pollution in inland water-based tourism remains relatively scarce. While marine and coastal environments have been extensively studied, rivers and adventure tourism sectors are underrepresented in environmental valuation literature (Sun & Liu, 2020; Abate et al., 2020). By generating localized, empirical WTP data for the Shkumbin River, this study addresses both the geographic and sectoral gaps in existing knowledge, providing actionable insights for sustainable tourism planning and environmental management in Albania.

1.5 Policy Strategies for Green Rafting and the Role of Local Authorities

As environmental concerns become increasingly central to sustainable tourism, river-based activities such as rafting are undergoing a shift toward “green rafting.” This concept encompasses practices that minimize ecological footprints through waste reduction, energy efficiency, biodiversity conservation, and community participation (INCA, 2023). Local authorities are critical actors in this transformation, serving simultaneously as regulators, facilitators, and partners in promoting environmentally responsible governance.

International case studies highlight that effective green rafting initiatives often emerge from partnerships between rafting operators, municipalities, and environmental NGOs. For example, the Soča River in Slovenia and the Tara River in Montenegro have benefited from collaborative frameworks that integrate waste management protocols, riverbank restoration, and visitor education campaigns (Schägner et al., 2017). Municipal authorities typically enforce environmental standards, issue permits, maintain infrastructure, and support eco-friendly investments such as refill water stations, waste sorting bins, and interpretive signage. However, fragmented or poorly coordinated efforts frequently undermine these initiatives, underscoring the need for strong institutional frameworks (INCA, 2023).

Environmental education directed at both tourists and residents is also a crucial policy tool. Studies confirm that higher awareness of river ecosystems increases tourists’ willingness to pay for cleaner experiences and encourages greater engagement in conservation practices (Togridou et al., 2006). Municipal campaigns using festivals, community kiosks, and eco-guides help align economic incentives with environmental stewardship, creating mutually beneficial outcomes.

Rafting operators themselves play a frontline role in advancing green rafting. Their adoption of eco-certification schemes, staff training programs, and sustainability-oriented marketing has proven effective in improving both profitability and environmental outcomes. Case studies from Southeast Asia and Latin America illustrate that rafting businesses integrating eco-friendly strategies into their operations often outperform competitors that ignore sustainability considerations (UNEP, 2021). Municipal governments are indispensable in operationalizing these

policies, as shown in Slovenia and Thailand, where close collaboration between local authorities and tour operators has produced measurable environmental and economic gains (Tirasatayapitak et al., 2015).

In the Albanian context, INCA (2023) reports that although plastic legislation exists, its local-level implementation remains weak. This gap highlights the need for targeted investments in infrastructure, stricter enforcement of waste management policies, and stronger community engagement mechanisms. Public-private partnerships (PPPs) can serve as effective instruments to incentivize innovation and bridge institutional weaknesses.

Global examples further reinforce these lessons. For instance, Australia's Boondall Wetlands Reserve demonstrates how modest infrastructure investment combined with strong community participation can sustain recreational use while conserving biodiversity (García-Herrero et al., 2022). Similarly, community-driven initiatives in Italy illustrate that inclusive governance and environmental education programs can yield long-lasting, scalable results. These cases emphasize that Albania could benefit from adapting best practices by embedding environmental sustainability into local governance and tourism development frameworks.

1.6 Identifying Gaps in the Literature and the Need for Localized Research on the Shkumbin River

While international research increasingly highlights the environmental and economic impacts of plastic pollution on water-based tourism, this issue has not been addressed in Albania. For the Shkumbin River in particular, existing studies have dealt mainly with chemical pollution and water quality (Bani et al., 2020; Bekteshi et al., 2023), without considering plastic waste or its consequences for tourism. The majority of studies have concentrated on large marine ecosystems, urban riverfronts, or iconic rivers with established tourism industries, while rural riverine recreational areas continue to be neglected (Beaumont et al., 2019; Jang et al., 2020; Mihai et al., 2022). This skewed focus creates significant blind spots in understanding how plastic pollution affects smaller-scale destinations, where tourism is often more vulnerable to

environmental degradation and where institutional capacities for waste management are weaker. In such contexts, even modest levels of pollution can disproportionately damage the perceived quality of recreational experiences, with direct consequences for tourism demand and local livelihoods (Panwanitdumrong & Chen, 2022).

Longitudinal and comparative studies that evaluate changes in environmental quality and tourism perceptions over time are particularly scarce in Southeastern Europe, including Albania. Most existing analyses are cross-sectional, providing only snapshots of pollution and its impacts, without assessing how interventions or worsening waste flows shape long-term outcomes (Kazeminia et al., 2016; Botero et al., 2017). A persistent lack of sustained monitoring significantly constrains the evaluation of policy measures and clean-up initiatives, as it limits the capacity to generate robust evidence on their outcomes. This, in turn, weakens the empirical foundation required for adaptive management in river-based tourism (Waylen et al., 2019). For rivers such as Shkumbin, where rafting and other recreational activities have potential for growth, the absence of longitudinal data creates uncertainty for investors, policymakers, and local communities who depend on tourism revenues.

1.7 Local Context: The Case of the Shkumbin River

The Shkumbin River is one of the most important natural resources in Albania, stretching over 181 km with a catchment area of approximately 2,444 km². It flows through the central and southeastern parts of the country, traversing the municipalities of Rrogozhinë, Divjakë, Peqin, Elbasan, Prrenjas, Librazhd, and Pogradec. In addition to its ecological role—hosting rich biodiversity and endangered species according to the IUCN Red List—the Shkumbin River also holds significant economic value, serving as a source of water for local populations and for irrigation in the Elbasan plains (IUCN, 2025). However, water quality has been considerably affected by economic activities and the lack of proper waste and wastewater management, particularly in urban centers such as Elbasan and Librazhd (Bekteshi et al., 2023).

The area along the Shkumbin River is characterized by a dispersed population of approximately 257,280 residents, with 148,181 living in rural areas and 109,099 in urban zones. Elbasan Municipality has the highest population with 115,101 inhabitants, followed by Divjakë, Librazhd, Prrenjas, and Peqin. While the municipality of Pogradec lies at the edge of the river basin, its impact on water quality is relatively limited. This demographic and geographic profile underscores the need for sustainable development of environmental infrastructure and more efficient use of natural resources in support of the local economy.

Within this natural and social context, the Elbasan region has shown considerable potential for tourism development. Between October and December 2024, Elbasan welcomed approximately 4,250 visitors in 120 tourist groups. For the year as a whole, the total number of tourists is estimated to have ranged between 15,000 and 18,000. Tourist activities are primarily concentrated around the Historic Center, the Castle, the Basilica, and the Ethnographic Museum, with visits typically lasting 1–3 hours. This pattern confirms that tourist stays in Elbasan are generally short, suggesting the need to develop complementary activities that could extend the duration of visits and enhance the overall economic value generated by tourism.

The tourist profile includes mostly retirees over 60, school groups, and families, arriving from countries such as France, Germany, Kosovo, Bulgaria, Turkey, and the

United Kingdom. Peak visitation occurs in October, November, and the spring season (March–May), while January and February see a significant decline in tourist flows.

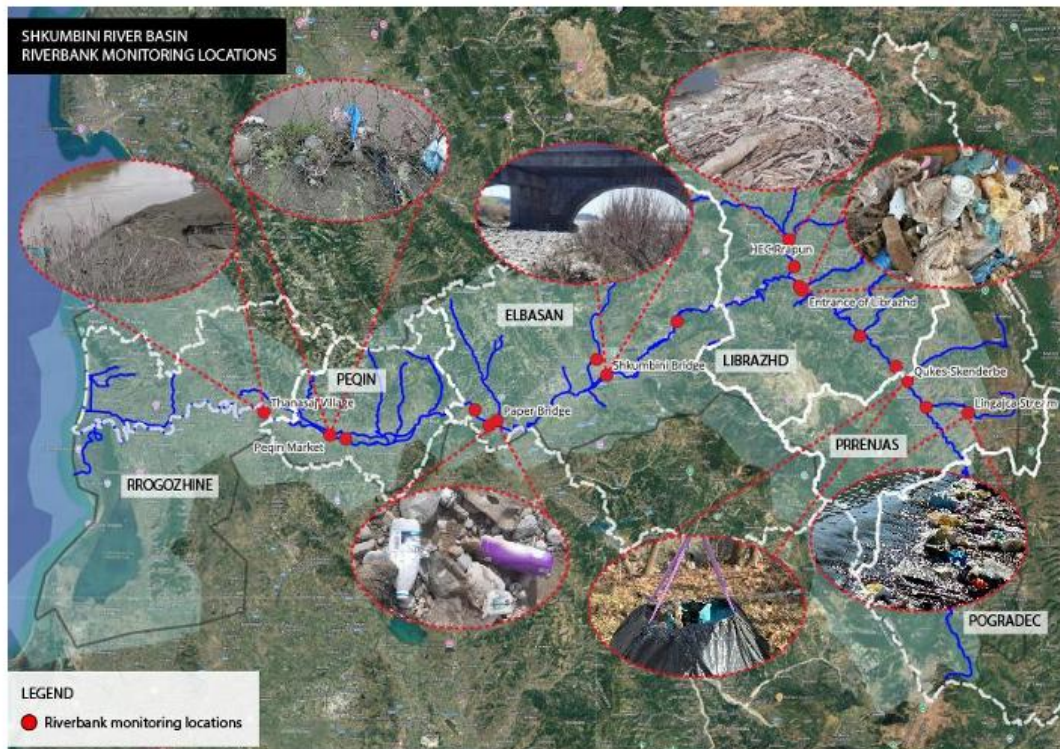
These trends have stimulated efforts to diversify the tourism offer beyond cultural heritage, toward nature-based and adventure tourism. In this context, rafting on the Shkumbin River has begun to emerge as a promising alternative for regional tourism development. In 2025, ten rafting groups were organized, comprising around 210 participants—six domestic and four international groups, primarily from the Netherlands and Austria. This activity was made possible through collaboration between the Elbasan Municipality and the Albanian Sport and Tourism Agency (ASTA), as part of a strategy to promote Elbasan as a destination for natural and sport-based experiences.

The economic value of rafting is reflected in the average price of €20–30 per person, which is roughly the same as the estimated daily expenditure of tourists. The activity also generates social benefits by employing local guides and fostering institutional cooperation.

Nevertheless, plastic pollution and the lack of sustainable waste management pose a direct threat to the continued development of this sector. For this reason, understanding tourists' perceptions of pollution and their willingness to contribute to a cleaner environment—whether through payments or active participation—remains essential for designing data-driven environmental and tourism policies.

The ETMI baseline report (Struga et al., 2025) identified eighteen major plastic pollution hotspots along the Shkumbin River through systematic monitoring across upstream, midstream, and downstream segments. Two of these hotspots were located in the rafting zone near Kamara Bridge in Elbasan, directly overlapping with the area used for tourist activities. The study recorded a total of 1,859 debris items, of which 88% were plastics—mainly single-use packaging, bottles, and food-related waste—resulting in an estimated leakage of around seven tons of plastic per year into the Adriatic Sea.

Figure 1: The riverbank monitoring stations along the Shkumbin River



Source: Copied from ETMI, 2025, p.11

Meanwhile, the Plastic Origins initiative of the Surfrider Foundation (2019)—developed as a citizen-science program for European rivers and supported by the BeMed+ project—has provided a complementary approach through geolocated waste mapping via a mobile application. The tool has also been used in Albania, recording a wide range of waste incidents, from scattered items to bulky refuse and dense accumulations. When combined, the technical evidence produced by ETMI and the citizen-science data collected by Surfrider offer convincing proof that visible plastic pollution occurs precisely along the Shkumbin River rafting routes. Importantly, these findings go beyond documenting the problem: they also provide a valuable reference point for our analysis, allowing us to check how closely tourists’ perceptions and responses in the questionnaires correspond to the actual environmental conditions observed on the Shkumbin River.

2. METHODOLOGY

2.1 Economic Valuation and Policy Analysis Framework

This research employs a quantitative approach, using the Contingent Valuation Method (CVM) to evaluate the economic impact of plastic pollution on rafting and related water-based tourism activities in the Shkumbin River. The methodological framework is grounded in environmental economics and non-market valuation principles, aiming to quantify tourists' willingness to pay (WTP) for improved river quality and environmentally certified tourism services.

In the Albanian context, empirical valuation studies addressing the economic consequences of plastic pollution in freshwater ecosystems are still lacking. This absence limits evidence-based policy responses and sustainable tourism planning. To partially address this gap, the study draws on international case studies from comparable socio-environmental settings (e.g., UNEP, 2018; Abate et al., 2020; Carson, 2012), which demonstrate that plastic pollution can lead to economic losses through reduced tourist arrivals, shorter stays, and reputational damage to ecotourism destinations.

By adapting these frameworks to the local realities of the Shkumbin River, the study seeks to generate context-sensitive economic estimates that can inform future environmental policies and promote the transition toward low-impact, river-based tourism in Albania.

2.2 Contingent Valuation Method (CVM)

The core quantitative tool employed in this study is the Contingent Valuation Method (CVM), a widely recognized survey-based technique used in non-market valuation to estimate individuals' willingness to pay (WTP) for improvements in environmental quality. CVM is particularly suited for valuing recreational and ecological services that lack market prices, such as clean water bodies, scenic landscapes, or biodiversity preservation (Carson, 2012).

In the context of this research, CVM is applied to elicit tourists' WTP for improved cleanliness of the Shkumbin River and the provision of eco-friendly rafting services. The valuation scenario presents respondents with a hypothetical choice between the

current environmental conditions of the river and an improved, pollution-free state. Participants are then asked to indicate the maximum amount they would be willing to pay for this enhanced experience. This approach allows for the estimation of both the recreational value lost due to plastic pollution and the potential demand for sustainable tourism interventions (Abate et al., 2020; Carson, 2012).

The design of the CVM survey instrument follows international best practices, including the NOAA Panel Guidelines (Arrow et al., 1993), and is informed by recent applications of valuation in tourism and water recreation settings. The questionnaire includes a combination of dichotomous choice (yes/no bidding) and open-ended questions, along with modules capturing socio-demographic characteristics, perceptions of pollution, and prior rafting experience.

Previous studies using CVM in freshwater tourism contexts have demonstrated its usefulness in capturing the economic implications of environmental degradation. For example, Abate et al. (2020) found that tourists were willing to pay up to 15% more for recreational services in cleaner riverine environments, underscoring the market potential for sustainable alternatives. Such evidence highlights the relevance of CVM in generating policy-relevant insights for nature-based tourism management in Albania and beyond.

2.3. Target Population and Sampling Strategy

The target population for this study consisted of individuals who engaged in rafting activities on the Shkumbin River during the 2025 tourist season. According to official records from the Directorate General for Economic Development, Culture, and Tourism – Directorate of Tourism and Cultural Heritage Policies, Tourism Promotion Sector, approximately 210 tourists participated in rafting activities during that season.

Given the relatively small population of rafting tourists in the Shkumbin River (estimated at approximately 210 individuals for the season), the sample size calculation followed established methodological guidelines. According to Krejcie and Morgan's (1970) widely cited table, a population of 210 would require a sample of approximately 136 responses at a 95% confidence level and 5% margin of error. However, the specific context of this study—focusing on a newly emerging and niche tourism activity—necessitated a pragmatic approach. Studies have highlighted that in

exploratory research or in cases involving small and hard-to-reach populations, a minimum of 50 responses can still yield valid insights, particularly when the research adopts an econometric valuation method such as the Contingent Valuation Method (CVM) (Boddy, 2016; Israel, 1992).

Consequently, this study used a sample size of 63 respondents. While this is below the ideal threshold for generalization, it remains consistent with methodological recommendations for research involving specialized populations with natural limitations in size (Creswell & Creswell, 2018). The study acknowledges this as a limitation but emphasizes that the depth of information collected, combined with the direct relevance of participants as rafting tourists on the Shkumbin River, ensures that the data are robust for answering the research questions.

2.3.1 Ethical Considerations and Limitations

The research process adhered strictly to ethical standards, with informed consent obtained from all participants and complete anonymization of data. The survey was administered online via Google Forms, ensuring participant privacy by not collecting identifiable information such as names or email addresses

A key limitation of the Contingent Valuation Method (CVM) is the issue of hypothetical bias, which arises because respondents often state preferences in a hypothetical setting that do not fully reflect their actual behavior in real market situations. Specifically, there is a risk that the declared willingness to pay (WTP) for reducing plastic pollution may be overstated, since respondents face no real financial consequences when answering, or understated, if they deliberately minimize their reported costs. This bias threatens the internal validity of the findings by creating a gap between stated and revealed preferences. To mitigate this concern, the questionnaire includes a question on actual travel expenditures (transport, accommodation, and consumption during the rafting trip), which provides a measurable and verifiable benchmark. These self-reported costs are cross-checked against official tourism expenditure data from the Elbasan Municipality, thereby enhancing the plausibility of responses and improving the credibility of WTP estimates (Carson & Groves, 2007).

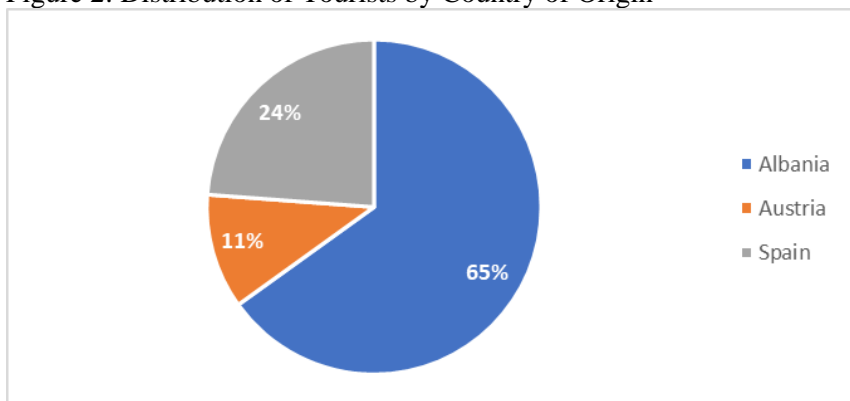
3. EMPIRICAL ANALYSIS

This chapter presents the results of the data analysis collected through the survey on the willingness to pay (WTP) for a cleaner rafting experience on the Shkumbin River.

3.1 Sample Demographics and Characteristics

A total of 63 tourists participated in the survey. The majority were domestic visitors from Albania (65%), while international respondents were from Spain (24%) and Austria (11%).

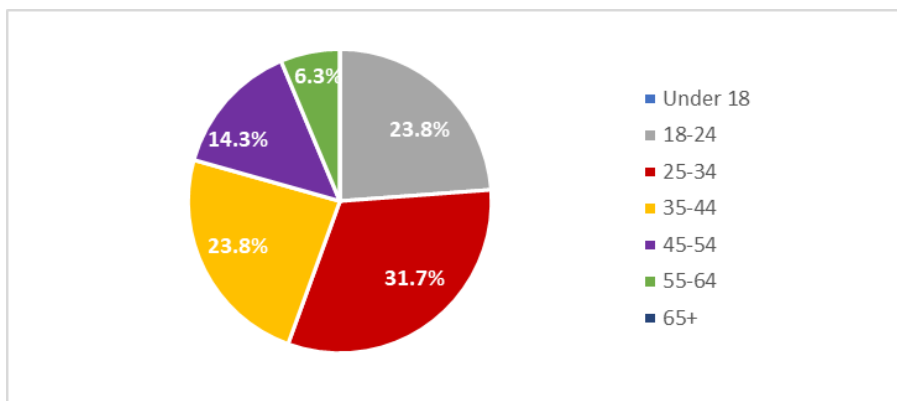
Figure 2: Distribution of Tourists by Country of Origin



Source: Author's elaboration based on primary survey data (2025).

The average age of participants was approximately 35 years, with the distribution by age groups shown in Figure 3. The majority of respondents fell within the 25–34 (31.7%) and 35–44 (23.8%) categories. This finding is consistent with the literature on adventure tourism, which highlights that young and middle-aged adults dominate participation, as such activities require physical energy and motivation for new experiences (Buckley, 2012).

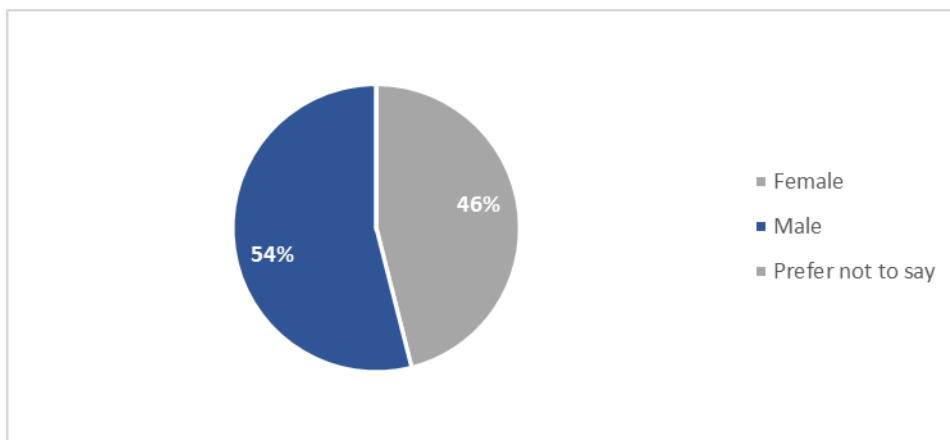
Figure 3. Distribution of Respondents by Age Group.



Source: Author's elaboration based on primary survey data (2025)

In terms of gender composition, the sample shows a nearly balanced distribution, with 54% of respondents being male and 46% female (Figure 4). This finding aligns with recent trends in adventure tourism, where although men have historically constituted the majority of participants, women now represent an increasingly significant segment. Recent studies highlight a steady growth in female participation in adventure activities, reflecting broader social changes and evolving consumer preferences (Bergin & Hibbert, 2011; Pomfret & Bramwell, 2016; Allan, Brand, & Radcliffe, 2019).

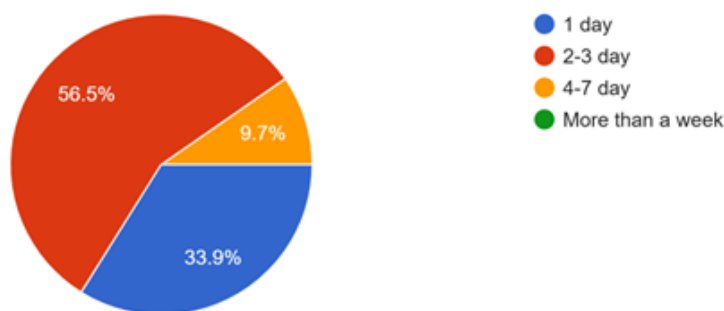
Figure 4. Gender Distribution of Respondents.



Source: Author's elaboration based on primary survey data (2025).

Figure 5 shows that the majority of respondents (56.5%) reported staying in Elbasan for 2–3 days, while 33.9% stayed for only one day, and 9.7% reported a stay of 4–7 days. None of the surveyed participants indicated a stay longer than one week.

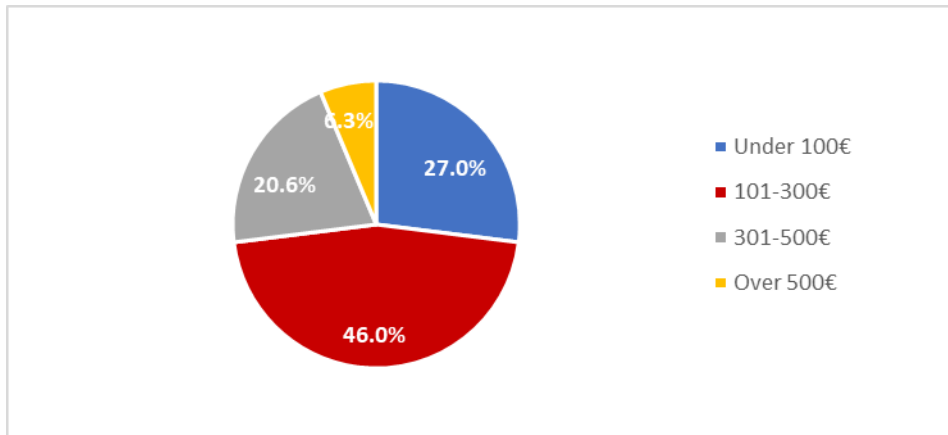
Figure 5. Distribution of Respondents by Length of Stay



Source: Author's elaboration based on primary survey data (2025).

In terms of expenditures (Figure 6), 46% of respondents reported spending between €101–300, 27% spent less than €100, 20.6% spent €301–500, and only a small proportion (around 6%) reported expenditures above €500.

Figure 6. Distribution of Respondents by Reported Expenditures.



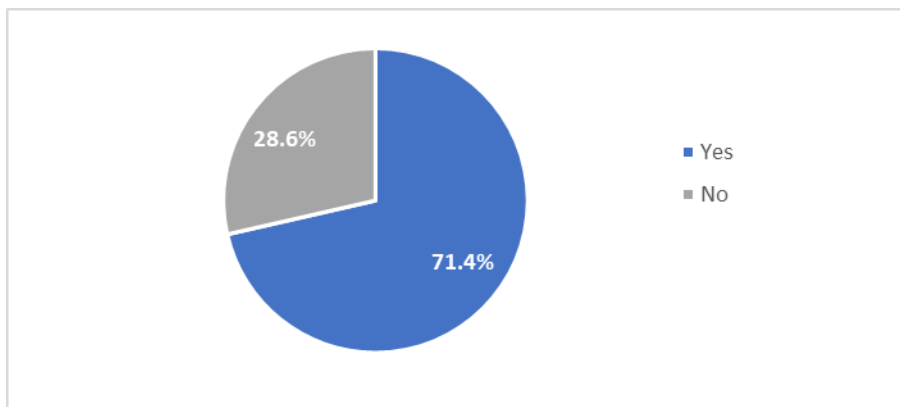
Source: Author's elaboration based on primary survey data (2025).

When these two distributions are compared, a clear relationship emerges. One-day visitors (33.9% of the sample) are largely concentrated in the lowest expenditure category, with 27% of respondents spending under €100. By contrast, those who stayed for 2–3 days (56.5% of the sample) are strongly associated with the €101–300 spending range, reported by 46% of respondents. Visitors who stayed for 4–7 days (9.7%) are more frequently found in the higher expenditure categories (€301–500).

These results confirm that total spending increases with longer stays, primarily due to the addition of accommodation and food-related costs. Figures reported by the The Tourism Department of Elbasan Municipality suggests that the average daily expenditure per visitor is around €30 per person (excluding rafting), which is consistent with the survey findings, as all tourists who spent one day in Elbasan reported total expenditures of less than €100, including rafting activities. Consequently, these findings underline the importance of developing guided tours and complementary activities that encourage tourists to extend their stay, as expenditures increase substantially with each additional night spent in the destination, generating economic benefits for the local community.

The findings show that rafting on the Shkumbin River primarily attracts first-time participants, as 71.4% of respondents (45 respondents) reported that this was their first rafting experience in Albania (Figure 7). Notably, for nearly all of them (44 out of 45), it was also their first rafting experience overall.

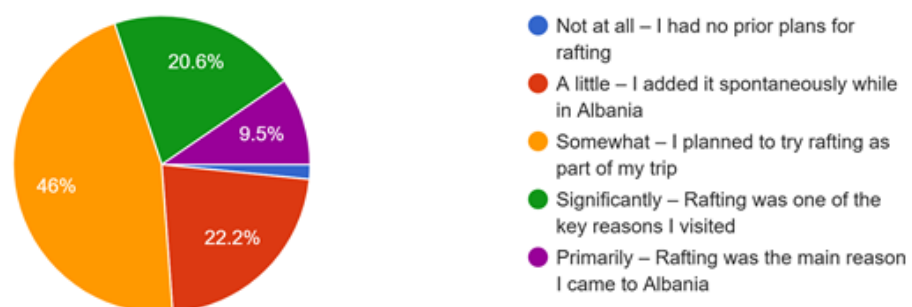
Figure 7. Previous Experience with Rafting in Albania.



Source: Author’s elaboration based on primary survey data (2025).

Moreover, 76.1% indicated that rafting was either a planned activity or one of the main reasons for visiting Elbasan, suggesting that the activity plays an important role in travel decisions. At the same time, 22.2% of respondents reported that they decided to participate only after arriving in the area, showing that rafting on the Shkumbin is perceived as accessible and safe enough to attract even first-time participants.

Figure 8. Extent to Which Rafting Influenced Travel Decisions.



Source: Author’s elaboration based on primary survey data (2025).

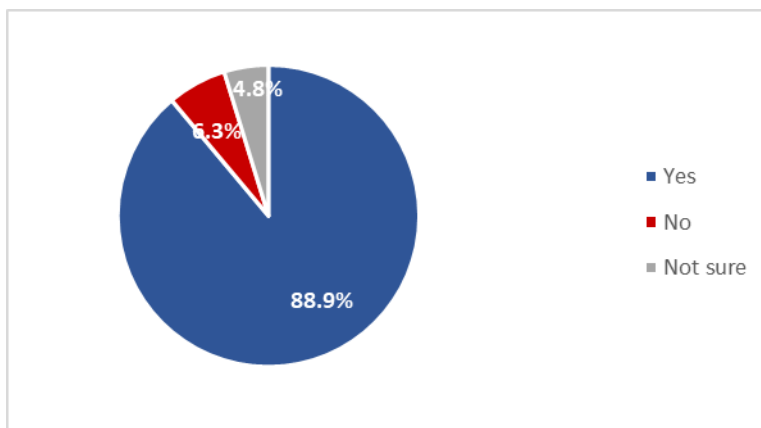
Compared to other rivers in Albania, the Shkumbin offers a somewhat distinct profile. Unlike the Osum River, which is famous for its spectacular canyons and more challenging rafting segments, or the Vjosa River, internationally known as “Europe’s last wild river” and primarily attracting more experienced adventure tourists, the Shkumbin positions itself as a destination particularly suitable for beginners and for

those seeking a form of “soft adventure.” This positioning aligns with international literature on adventure tourism, which emphasizes that novice and “soft adventure” tourists represent the largest segment of the global adventure tourism market (Buckley, 2012; Sung, Morrison, & O’Leary, 2016).

From this perspective, rafting on the Shkumbin should not be viewed solely as a stand-alone sport activity but as a gateway experience to adventure tourism, offering visitors the opportunity to try a new activity in a safe and accessible environment. This reinforces Elbasan’s potential to use rafting as a tool for diversifying its tourism offer and expanding the base of visitors who may return or explore other related activities in the region.

The data show that the vast majority of tourists (88.9%) observed plastic waste along the segment of the Shkumbin River where rafting activities took place (Figure 9).

Figure 9. Observation of Plastic Waste Along the River.

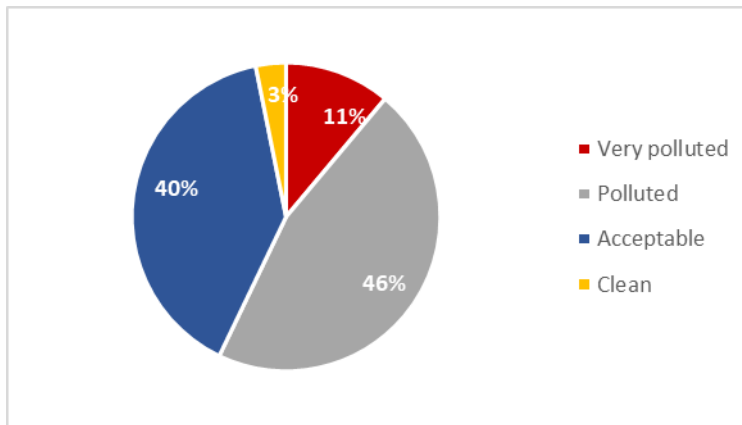


Source: Author’s elaboration based on primary survey data (2025).

This finding indicates that plastic pollution is not an isolated or incidental occurrence but a visible and widespread problem. Similarly, 57% of respondents perceived the river as falling within the categories of “polluted,” or “highly polluted,” while 40% of respondents perceived the river as “acceptable” and only a very small proportion (3%) considered it to be clean (Figure 10). This indicates that tourists encountered not only scattered items of waste but also areas of concentrated accumulation. Such observations are in line with the ETMI (2025) report, which found that 88% of the waste along the Shkumbin is plastic and pointed to the existence of major accumulation hotspots. Consequently, tourists’ perceptions of the river’s pollution

align not only with field observations but also with scientifically documented evidence.

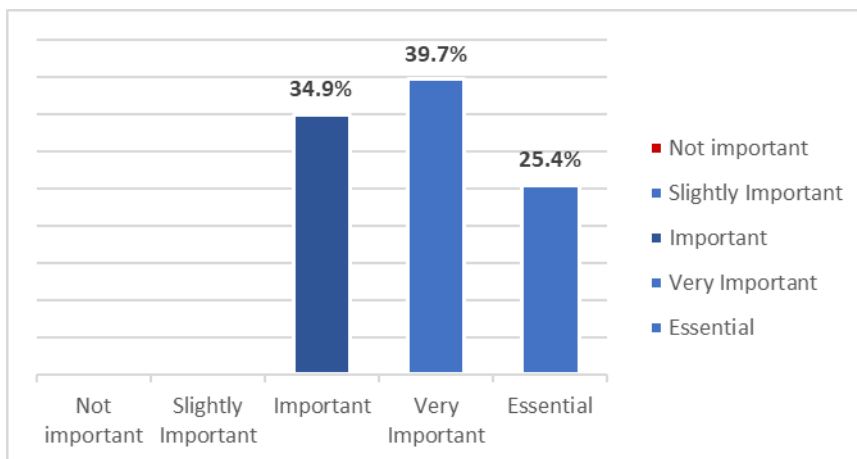
Figure 10. Tourists' Perception of River Cleanliness.



Source: Author's elaboration based on primary survey data (2025).

The results demonstrate that river cleanliness is perceived as a critical factor for the rafting experience. In total, 40% of respondents rated cleanliness as “very important” and 25.4% as “essential,” while the remaining 34.9% still considered it “important.” Not a single respondent evaluated it as “not important.” These figures indicate that environmental quality is not perceived as an optional or secondary attribute but as a prerequisite for enjoying rafting.

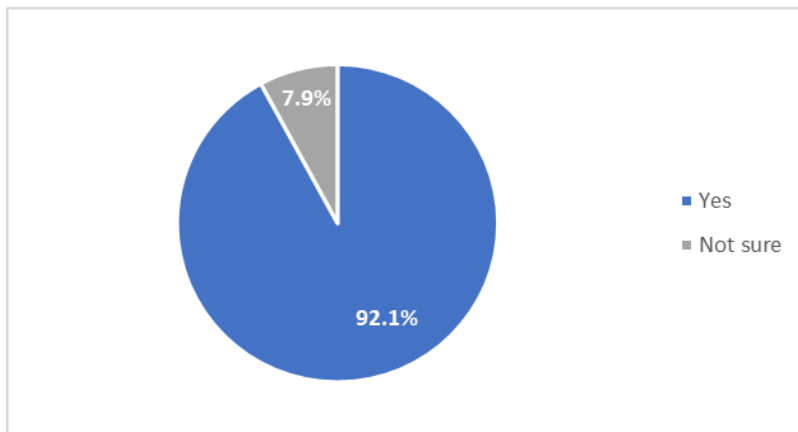
Figure 11. Importance of River Cleanliness for the Rafting Experience.



Source: Author's elaboration based on primary survey data (2025).

When asked whether river cleanliness would influence their decision to return, 92.1% of respondents answered affirmative, while only 7.9% stated it would not. The absence of variation across categories of perceived cleanliness suggests a strong and almost unanimous belief that pollution directly affects future visitation. This highlights that maintaining a clean river is essential for ensuring repeat tourism flows in Elbasan.

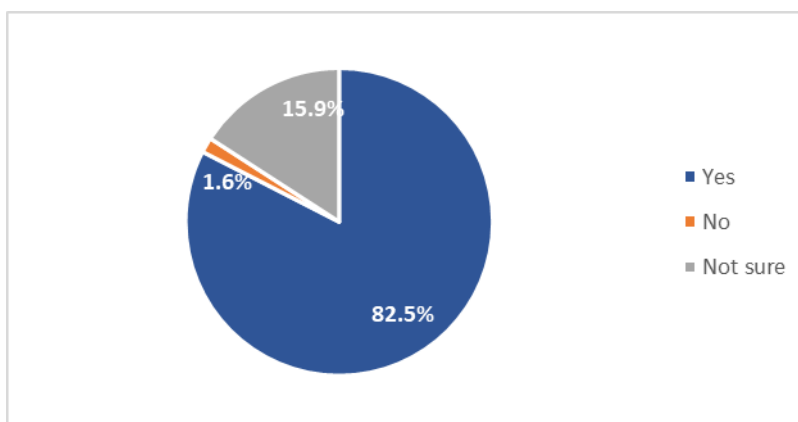
Figure 12. Impact of River Cleanliness on Tourists' Intention to Return



Source: Author's elaboration based on primary survey data (2025).

A similarly strong consensus emerges regarding word-of-mouth promotion. In total, 82.5% of respondents stated that river cleanliness would influence their willingness to recommend rafting to others, whereas only one respondent reported that it would not. These findings underline that environmental quality not only affects personal satisfaction and return intentions but also plays a decisive role in shaping the destination's reputation through visitor recommendations.

Figure 13. Impact of River Cleanliness on Tourists' Willingness to Recommend.



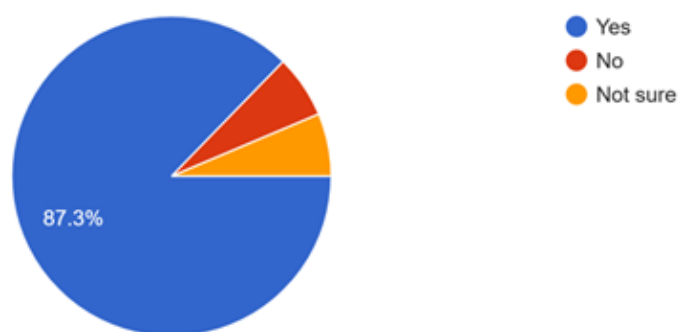
Source: Author's elaboration based on primary survey data (2025).

Taken together, Figures 11, 12, and 13 provide compelling evidence of the central role that environmental quality plays in shaping tourist behavior in Elbasan. River cleanliness is regarded not only as essential for the immediate rafting experience but also as a decisive factor influencing both repeat visitation and word-of-mouth recommendations. The near unanimity of responses — with over 90% linking cleanliness to return decisions and more than 80% to recommendations — indicates that plastic pollution along the Shkumbin River poses a direct threat to the sustainability of rafting tourism. Conversely, ensuring high levels of river cleanliness can generate cumulative benefits, strengthening visitor satisfaction, fostering loyalty, and enhancing the destination’s reputation in the broader adventure tourism market.

3.2 Empirical Analysis of Willingness to Pay (WTP)

The results reveal strong support for initiatives aimed at reducing plastic pollution in the river. Out of 63 respondents, 59 (87.3%) expressed willingness to pay a small eco-contribution, while only a very small minority were opposed or uncertain. This high level of consensus indicates that there is a solid basis for implementing financial mechanisms linked to rafting tourism.

Figure 14. Tourists’ Willingness to Pay an Eco-Contribution for a Cleaner River.

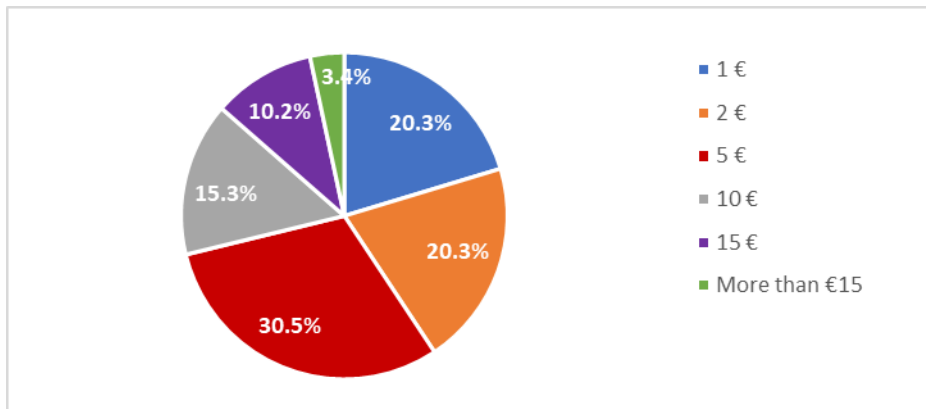


Source: Author’s elaboration based on primary survey data (2025).

Among the 59 respondents willing to contribute, 20.3% selected €2, 30.5% chose €5, and 15.3% opted for €10. Another 20.3% reported €1, while smaller proportions indicated €15 (10.2%) or more than €15 (3.4%). Taken together, the responses show a clear clustering in the €2–10 range, which accounts for two-thirds of all contributions

(66.1%), suggesting that this interval represents the most acceptable contribution level (Figure15).

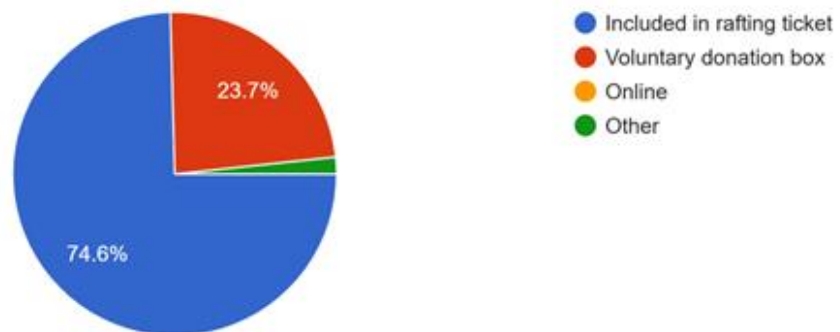
Figure 15. Preferred Contribution Amounts Reported by Respondents.



Source: Author's elaboration based on primary survey data (2025).

Regarding payment methods, 74.6% of tourists preferred to have the contribution included in the rafting ticket price. In comparison, 23.7% favored a voluntary donation box, and just one respondent mentioned another option (Figure 16). This indicates that including the contribution in the ticket price is by far the most widely accepted option.

Figure 16. Preferred Payment Methods for the Eco-Contribution.



Source: Author's elaboration based on primary survey data (2025).

3.2.1 Willingness to Pay: Descriptive and Inferential Analysis

The data analysis in this study was conducted following best practices in the literature on the Contingent Valuation Method (CVM). As suggested by Mitchell and Carson (1989) and Carson and Hanemann (2005), the calculation of the mean willingness to pay (WTP) should include all respondents, including those who expressed zero willingness to pay (WTP = 0). This approach ensures that the results more accurately reflect the overall attitudes of the studied population, avoiding the overestimation of outcomes that would occur if only positive WTP responses were considered. For this reason, means and standard deviations of WTP were calculated for the entire sample, while the median was also reported to capture the heterogeneous distribution of preferences.

Furthermore, good practices regarding the treatment of extreme values (outliers) and sample heterogeneity were taken into account. Instead of automatically excluding such data, transparency was maintained regarding their impact on the final results. Reporting data in terms of the mean, median, and standard deviation provides a more comprehensive understanding of the variation among tourist groups (Field, 2013). This is particularly important for understanding differences between domestic and international tourists, where, as highlighted in the literature, factors such as income levels, perceptions of pollution, and trust in the effectiveness of environmental interventions may differently shape decision-making.

Table 1. Summary statistics for WTP.

Summary Statistics for WTP	Value (€)
Mean	5.49
Median	5.00
Standard Deviation (SD)	5.17
Minimum	0.00
Maximum	20.00

Source: Author's calculations based on primary survey data (2025).

The descriptive statistics show that the mean WTP across the sample is €5.49, while the median is slightly lower at €5.00. This indicates that the distribution of responses is somewhat right-skewed, with a small number of higher values raising the mean above the median. The standard deviation (SD) of €5.17 reflects variability among respondents, suggesting heterogeneous preferences regarding the amount they are willing to contribute. The minimum value is €0, which corresponds to respondents

unwilling to pay, while the maximum reported value is €20, showing that some tourists are prepared to make a higher contribution.

3.2.2 Willingness to Pay (WTP) by Country of Origin

The analysis of willingness to pay (WTP) shows clear and statistically significant differences among tourist groups by country of origin. ANOVA results confirm that WTP varies significantly across groups ($F(2,60) = 10.72, p < 0.001$), a finding also supported by the Kruskal–Wallis test ($\chi^2 = 16.09, p < 0.001$). Post-hoc Tukey tests reveal that international tourists (both Austrian and Spanish tourists) report significantly higher WTP compared to Albanian tourists, while no significant difference was found between the two groups of international tourists (Austrians and Spaniard).

Figure 17. Results of the ANOVA, Tukey HSD, and Kruskal–Wallis tests for differences in WTP by country of origin

```

      Df Sum Sq Mean Sq F value Pr(>F)
Q3_Country  2  437.1   218.54  10.72 0.000104 ***
Residuals  60 1222.7    20.38
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
> TukeyHSD(anova_model)
  Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = Q18_WTP ~ Q3_Country, data = df)

$Q3_Country
      diff      lwr      upr    p adj
Austria-Albania  7.080139  2.643519 11.516760 0.0008753
Spain-Albania    4.499187  1.225561  7.772813 0.0045421
Spain-Austria   -2.580952 -7.546753  2.384849 0.4294100

> kruskal.test(Q18_WTP ~ Q3_Country, data = df)

Kruskal-Wallis rank sum test

data:  Q18_WTP by Q3_Country
Kruskal-Wallis chi-squared = 16.09, df = 2, p-value = 0.0003206

```

Source: Author's analysis of primary survey data (2025).

Descriptively, Austrian tourists exhibit the highest WTP, with a mean of €10.71 and the largest standard deviation, reflecting polarization between those unwilling to contribute and those offering substantial amounts (€10–15). Spanish tourists follow with an average WTP of €8.13, accompanied by a relatively high standard deviation

that points to diverse perceptions and WTP, though with an overall supportive tendency toward contributions for reducing plastic pollution. In contrast, Albanian tourists report the lowest mean WTP (€3.63), with a median of €2, suggesting that most respondents opt for modest contributions. Nevertheless, their standard deviation, comparable to that of Spanish respondents, indicates that some domestic tourists are also willing to contribute higher amounts.

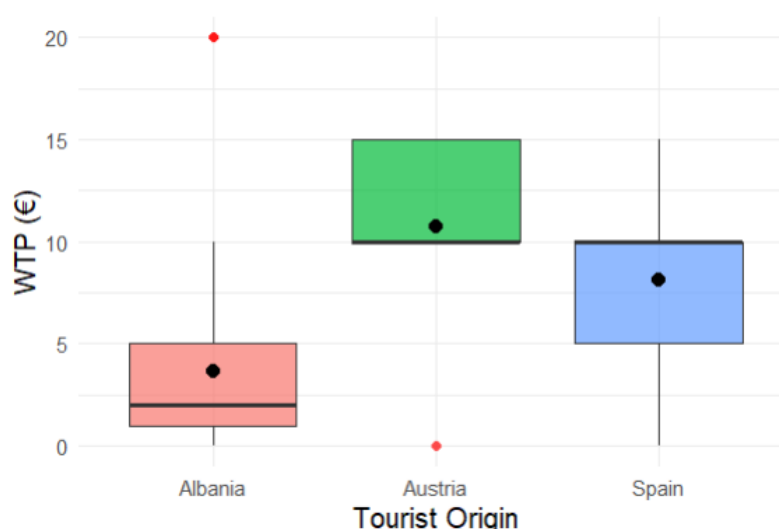
Table 2. WTP by Country of Origin.

Country	Mean (€)	Median (€)	SD (€)	Min (€)	Max (€)	N
Austria	10.71	10	5.35	0	15	7
Spain	8.13	10	4.72	0	15	15
Albania	3.63	2	4.3	0	20	41

Source: Author's calculations based on primary survey data (2025)

These findings align with the literature on the Contingent Valuation Method (CVM), which consistently shows that international tourists—particularly those from high-income countries such as Austria, Germany, or Switzerland—tend to exhibit higher WTP for environmental protection in the destinations they visit. This attitude is linked to greater economic capacity, stronger environmental sensitivity, and the perception of environmental quality as an integral component of the tourism experience (Togridou, Hovardas, & Pantis, 2006). By contrast, local residents often report lower WTP, explained by economic constraints, the perception that environmental management is primarily a state responsibility, and the lack of sustained environmental education (Poe, Giraud, & Loomis, 2005).

Figure 18. WTP by tourist origin.



Source: Author's analysis of primary survey data (2025).

3.2.3 Willingness to Pay (WTP) by Gender

The analysis of willingness to pay (WTP) by gender was carried out using both descriptive statistics (mean, median, and range) and inferential testing through Welch’s t-test. This approach makes it possible to identify not only the central tendencies and variation in responses but also whether any observed differences between male and female participants are statistically significant.

Even though women reported a slightly higher mean contribution (€5.90) compared to men (€5.15), the statistical test confirmed that this difference is not significant ($t = 0.56$, $df = 51.3$, $p = 0.58$).

Figure 19. Results of the Welch Two-Sample t-test for differences in WTP by gender

```
welch Two Sample t-test
data: Q18_WTP by Q2_Gender
t = 0.55721, df = 51.299, p-value = 0.5798
alternative hypothesis: true difference in means between group Female and group Male is not equal to 0
95 percent confidence interval:
-1.950466  3.449452
sample estimates:
mean in group Female    mean in group Male
      5.896552              5.147059
```

Source: Author’s analysis of primary survey data (2025).

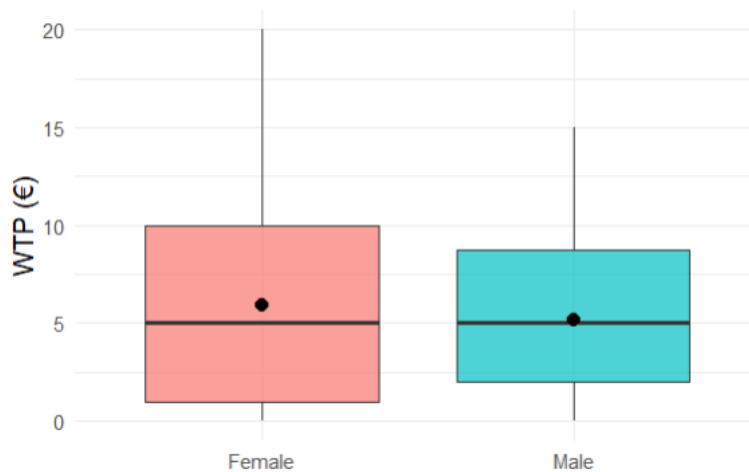
Table 3. WTP by Gender.

Gender	Mean (€)	Median (€)	SD (€)	Min (€)	Max (€)	N
Female	5.90	5	5.95	0	20	29
Male	5.15	5	4.47	0	15	34

Source: Author’s calculations based on primary survey data (2025).

Both genders shared the same median value (€5), and the boxplot visualization (Figure 20) highlighted overlapping interquartile ranges, underscoring the similarity in distribution. While some female respondents indicated a higher maximum willingness to contribute (€20 versus €15 among men), these variations do not translate into a meaningful statistical difference. Overall, the results indicate that willingness to pay is broadly comparable between male and female participants in the rafting context.

Figure 20. WTP by gender.



Source: Author's analysis of primary survey data (2025).

3.3 Econometric Analysis: Linear Regression Model for WTP

The multiple linear regression analysis was conducted to examine the determinants of willingness to pay (WTP), beginning with a comprehensive model including several demographic, experiential, and perceptual variables. After applying stepwise reduction and diagnostic tests, the final model retained two key predictors: the origin of tourists and their perception of river cleanliness. The results indicate that tourist origin exerts a strong and statistically significant effect ($\beta = 7.24$, $p < 0.001$), with foreign tourists reporting on average about €7 higher WTP than local tourists. This finding is consistent with the earlier ANOVA and post-hoc Tukey results, which also demonstrated significant differences between locals and international visitors, and reflects broader socio-economic patterns documented in the literature, whereby higher income levels and stronger environmental attitudes among international tourists are associated with increased WTP (Togridou et al., 2006).

In addition, the perceived cleanliness of the river emerged as a significant predictor ($\beta = -1.19$, $p < 0.05$). Specifically, the more polluted the river is perceived to be, the higher the WTP, supporting the hypothesis that visible pollution acts as a trigger for financial contributions toward environmental improvements. This complements the descriptive findings, where nearly 89% of respondents reported having observed plastic waste along the Shkumbin, and aligns with previous studies highlighting pollution perception as a key driver of WTP in recreational and aquatic ecosystems (Hanemann, 1991; Brouwer et al., 1999).

Figure 21. Results of the linear regression model for factors influencing WTP

```
Call:
lm(formula = Q18_WTP ~ Q3_Country + Q13_CleanlinessRating, data = data_no_outliers)

Residuals:
    Min       1Q   Median       3Q      Max
-5.7049 -1.2654 -0.2654  1.5355  5.4942

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)      5.8626     1.3418   4.369 5.84e-05 ***
Q3_Country       7.2405     0.7703   9.400 7.00e-13 ***
Q13_CleanlinessRating -1.1991     0.5199  -2.306  0.025 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 2.727 on 53 degrees of freedom
Multiple R-squared:  0.6436,    Adjusted R-squared:  0.6302
F-statistic: 47.86 on 2 and 53 DF,  p-value: 1.334e-12
```

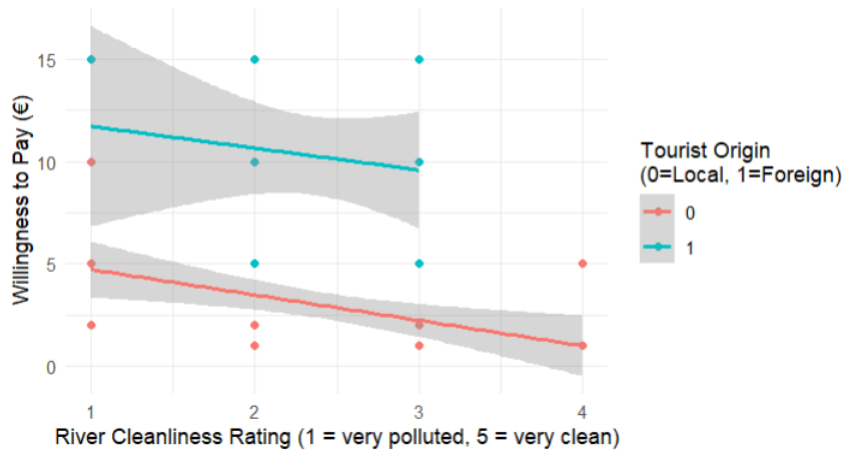
Source: Author's analysis of primary survey data (2025).

$$\text{WTP} = 5.86 + 7.24 * (\text{Country}) - 1.20 * (\text{CleanlinessRating})$$

The explanatory power of the final model is considerable ($R^2 = 0.64$), indicating that these two factors account for nearly two-thirds of the variation in WTP. Diagnostic plots confirm the robustness of the model: residuals are evenly distributed around the fitted values, the Q-Q plot suggests approximate normality, the scale-location plot shows no major heteroskedasticity, and Cook's distance does not indicate influential outliers.

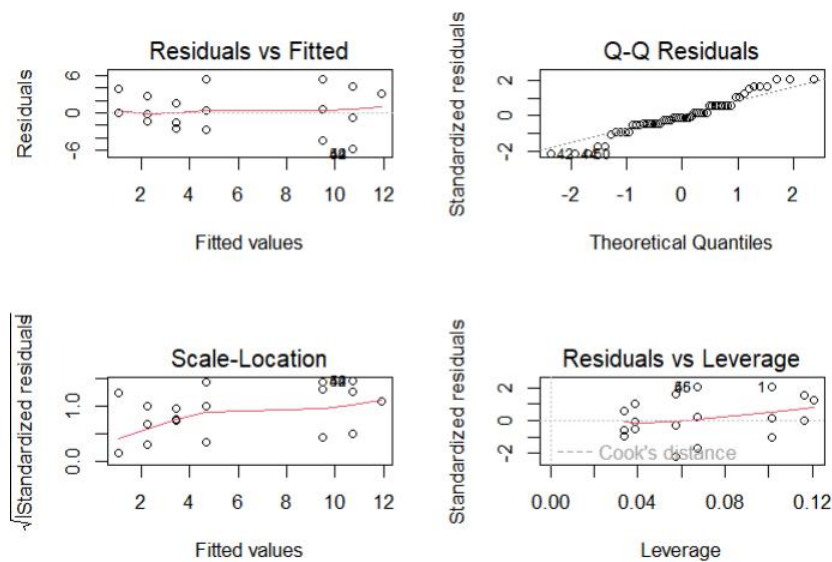
Moreover, the effect plots and regression lines clearly visualize the main findings: foreign tourists consistently exhibit higher WTP than locals, while WTP decreases as river cleanliness is rated higher (i.e., less polluted).

Figure 22. WTP as a function of perceived cleanliness.



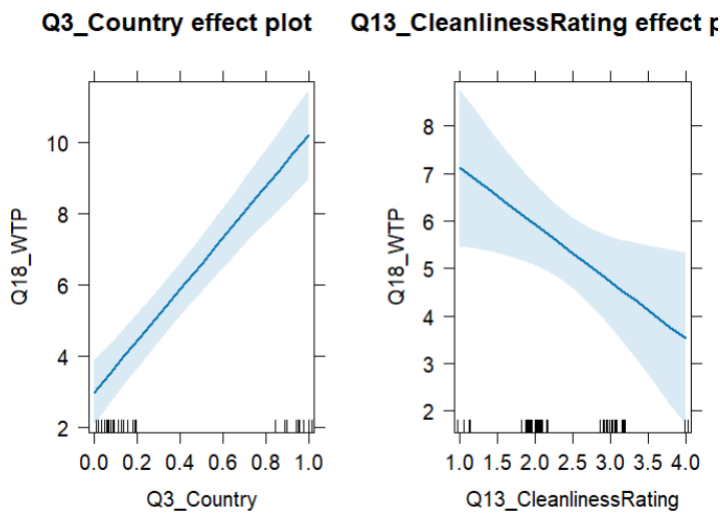
Source: Author's analysis of primary survey data (2025).

Figure 23. Regression diagnostic plots.



Source: Author's analysis of primary survey data (2025).

Figure 24. Effect plots of explanatory variables on WTP



Source: Author's analysis of primary survey data (2025).

Taken together, this regression model integrates and reinforces the insights obtained from the descriptive statistics and group comparisons. It shows that both who the tourists are (origin) and how they perceive environmental quality (cleanliness) are decisive in shaping their willingness to pay. This provides strong policy implications: initiatives aimed at extending the length of stay and engaging international markets, combined with visible and measurable improvements in river cleanliness, could substantially enhance the economic sustainability of rafting tourism in Elbasan.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Main Findings

This study assessed the willingness to pay (WTP) of tourists participating in rafting activities on the Shkumbin River, identifying key determinants and their implications for sustainable tourism development. The demographic analysis showed that participants were on average around 35 years old, with a balanced gender distribution. These findings are consistent with existing literature, which highlights that young and middle-aged adults dominate adventure tourism due to the physical energy and openness to new experiences required by this type of activity (Buckley, 2012). Moreover, female participation has increased significantly in recent years, reflecting broader changes in consumer preferences and roles (Pomfret & Bramwell, 2016).

Regarding the visitor profile, most tourists were domestic, but international visitors also represented an important share of the sample. Their stays typically lasted 1–3 days, with expenditures ranging from €100 to €300, indicating potential for increased spending if the length of stay were extended.

The regression analysis revealed that tourist origin and perceived river cleanliness were the main factors determining WTP. Foreign visitors showed, on average, a willingness to contribute about €7 more than domestic tourists ($p < 0.001$), a finding in line with international evidence showing that visitors from higher-income countries with stronger environmental attitudes report higher WTP (Togridou et al., 2006; Abate et al., 2020). Additionally, the more polluted the river was perceived to be, the higher the reported WTP ($p < 0.05$), supporting the theory that pollution perception acts as a trigger for financial engagement (Hanemann, 1991; Williams et al., 2021).

The final model explained 64% of the variation in WTP ($R^2 = 0.64$), which represents a strong fit for survey data. This indicates that the combination of social factors and environmental perceptions provides powerful explanations for tourists' willingness to contribute financially.

4.2 Practical Recommendations

With an average willingness to pay (WTP) of €5.49 per visitor and 210 rafting participants registered by the end of June 2025, the potential contribution amounts to

around €1,153. Although this amount may seem modest in absolute terms, in the local context it is quite meaningful, as it could be effectively used to support concrete river clean-up campaigns or awareness-raising initiatives on plastic pollution. International experience from NGOs such as Surfrider Foundation Europe and Ocean Conservancy shows that small community actions often require only a few hundred euros to cover logistics and organization. This typically includes costs such as waste bags, gloves, transport for volunteers and collected waste, water and food for participants, as well as other basic support materials. This suggests that the funds collected from rafting tourists would be sufficient to support such interventions. As a result, visitor contributions could serve as a practical and socially accepted mechanism to finance environmental improvements and drive long-term change within the Shkumbin River basin.

From a practical perspective, the findings of this study suggest several important interventions:

- Invest in river cleaning and waste management – Since pollution perception directly affects WTP, improving cleanliness not only enhances environmental quality but also strengthens the economic potential of rafting tourism.
- Extend the length of stay – Each additional day nearly doubles reported expenditures. Developing combined tour packages (e.g., rafting plus cultural, sporting, or nature-based activities) and offering special beginner packages can encourage longer stays.
- Promoting international tourism. Since foreign visitors exhibit higher WTP, marketing strategies should target high-income markets with established traditions in nature-based tourism (e.g., Austria, Spain). Adopting differentiated environmental contribution schemes could also be considered.
- Raise awareness among the local community – The lower WTP of domestic tourists reflects both economic constraints and the perception that environmental management is the sole responsibility of the state. Awareness campaigns and active involvement of the community in

sustainable tourism initiatives can increase their engagement and sense of ownership.

In conclusion, this study demonstrates that river tourism in Albania, particularly rafting in the Shkumbin River, has significant potential to combine economic benefits with environmental protection. Building on tourists' willingness to pay, policymakers and tourism operators can design strategies that ensure sustainable development, while simultaneously increasing revenues, enhancing the quality of the tourist experience, and fostering environmental awareness.

4.3 Future Research and Improvements

This study highlights important determinants of WTP for a cleaner rafting experience, but several improvements are needed. First, a larger and more diverse sample would strengthen the reliability and generalizability of the findings. Second, future research could include additional variables such as income levels, environmental attitudes, and prior rafting experience, as well as test for interaction effects between origin and cleanliness perception. Third, extending the analysis to other rivers in Albania and the Balkans would allow comparative insights and clarify whether these patterns are context-specific or more general.

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APPENDICES

Appendix 1. Survey Questionnaire: "Tourist Survey – Willingness to Pay for a Cleaner River Experience (Shkumbin River)"

1. What is your age group?

- Under 18 25–34 45–54 65+
- 18–24 35–44 55–64

2. What is your gender?

- Male Female Prefer not to say

3. What is your country and city of residence?

Country: _____ City/Town: _____

4. Length of stay in Elbasan (Albania):

- 1 day
- 2–3 days
- 4–7 days
- More than a week

5. Approximate total spending during your stay (including accommodation, food, activities):

- Under €100 €100–300 €301–500 Over €500

6. How many people are in your travel group?

Solo 2–3 4–5 More than 5

7. How did you arrive in Albania?

by plane Bus Car by ferry I live here Other: _____

8. How did you arrive at the rafting site?

Car Bus Bicycle Walk Other: _____

9. To what extent did rafting influence your decision to travel to Albania (Elbasan)?

Not at all – I had no prior plans for rafting

A little – I added it spontaneously while in Albania

Somewhat – I planned to try rafting as part of my trip

Significantly – Rafting was one of the key reasons I visited

Primarily – Rafting was the main reason I came to Albania

10. Is this your first time rafting in Albania?

Yes No

11. How often do you participate in rafting activities (in any river)?

First time

Every year

A couple of times over the last 10 years

12. Did you notice visible plastic waste in Shkumbin River?

Yes No Not sure

13. How would you rate the visual cleanliness of the Shkumbin River during your visit?

Very clean Clean Moderate Polluted Very polluted

14. To what extent is river cleanliness important to your rafting experience?

Not important Slightly important Important

Very important Essential

15. Would the river's cleanliness affect your decision to come back for rafting?

Yes No Not sure

16. Would the river's cleanliness affect your willingness to recommend this activity to others?

Yes No Not sure

Imagine a scenario in which plastic pollution in the river is perceived as significant. In this case, the local municipality and rafting operators would implement targeted measures — such as clean-up initiatives, installation of waste bins, and community education campaigns — for substantially cleaner river.

17. Would you support this initiative with a small eco-contribution ?

Yes No Not sure

18. If yes, how much would you be willing to pay?

€1 €2 €5 €10 €15 More than €15 (specify): _____

19. Preferred method for contributing this amount:

Included in ticket price Voluntary donation box

Online Other: _____

20. What would motivate you to support this program? (Select all that apply)

Cleaner nature/environment Safer experience Social responsibility

Better tourism quality Other: _____

21. If you do not wish to pay, why?

I don't think it will make a difference

I already paid enough

It's the responsibility of government/business

I cannot afford more

Other: _____

22. Would you be willing to contribute time (e.g., join a clean-up event)?

Yes No Maybe

23. What kind of measures do you think could help maintain or improve the river's
environmental quality and the overall rafting experience?

24. Any other comments?
