

UNIVERSITY OF LJUBLJANA  
SCHOOL OF ECONOMICS AND BUSINESS

MASTER'S THESIS

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**ADVANCING SUSTAINABILITY IN MONTENEGRO: CIRCULAR  
ECONOMY AND THE ROLE OF CONSUMERS**

Ljubljana, October, 2024

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## **AUTHORSHIP STATEMENT**

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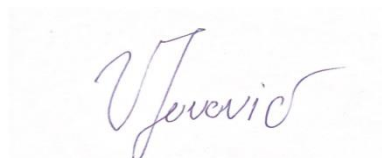
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## LIST OF ABBREVIATIONS

**EBRD**- European Bank For Research and Development

**EU**- European Union

**GAWB**- Green Agenda Western Balkans

**LE** - Linear Economy

**WB**- Western Balkans

**ZT**- Zeleni Talas

# 1 INTRODUCTION

Global challenges such as climate change, resource scarcity and accumulation of waste are just some of the reasons for the growing urgency with which global leaders speak about the need to move towards circular economy. Moreover, the concern over protecting our planet's natural resources has been growing in recent years (Nobre & Tavares, 2021). Therefore, circular economy is a concept that entails two elements: *circular* that emphasizes the technical cycle of materials, and *economic* which offers new perspectives and trends for both society and the economy (Nobre & Tavares, 2021). The transition towards circular economy is hence one of the most important policy issues in the transition to a more sustainable future, and as such is of global significance.

The European Union (EU) has shown great interest in the transition to circular economy, particularly through the strategic agenda of the EU 2019-2024 which includes the objective of creating a Europe that is fair, green, climate-neutral and social (*European Council, Council of European Union*, 2019). A vast number of projects regarding circular economy are funded by the EU with an aim to accelerate the transition to a more sustainable model. Those projects are Horizon Europe, which is the largest research and innovation project in the EU, Regional Policy Support for the circular economy, which aims to promote recycling, resource and energy efficiency, and innovative solutions in product design, etc., The Life Programme, established in 1992, the Single Market Programme and the Global Partnership: Switch regional Programmes (European Circular Economy, 2024). Not only is the EU funding its Member states, but also funds and develops initiatives for candidate member countries including Western Balkan (WB) nation, including Montenegro. The phrase "Western Balkans" refers to the countries situated in the Balkans region that are not members of the European Union. The aforementioned countries include Albania, Bosnia & Herzegovina, Montenegro, North Macedonia, and Serbia (Šogorov-Vučković et al., 2022).

The overarching goal of this thesis is to gain insights into the perceptions of Montenegrin consumers towards circular economy and to provide a general basis for understanding the circular economy transition in Montenegro. It also aims to investigate what are some key barriers as well as problems Montenegro has to work on when circular economy is considered. To sum up, the goals of this research are to:

- lay the groundwork for understanding the existing state of the circular economy in Montenegro,
- assess consumers awareness of the principles of the circular economy and their (potential) contribution toward advancing the circularity agenda,
- provide an analysis of current consumer behavior and practices in relation to the circular economy,
- identify drivers and barriers for the circularity agenda in Montenegro and offer recommendations to policymakers and companies,

Based on everything previously mentioned, the main focus of this thesis is to provide answers to the three research questions:

1. What is the level of awareness of Montenegrin consumers regarding the circular economy agenda?
2. To what extent do current consumers' patterns of actions and behavior in MNE align with the circular economy agenda?
3. What are the major promoters and constraints for the advancement of the circular economy agenda among Montenegrin consumers?

Given that the circular economy and sustainable practices are crucial and pressing concerns in today's world, it is imperative to examine the status of these issues in Montenegro. Furthermore, there has been a lack of comparable studies conducted in Montenegro that specifically focus on consumer perspectives on this subject. Therefore, it was deemed crucial to undertake such research to gather data and draw conclusions regarding the attitudes and views of Montenegrin customers towards the concept of circular economy.

The thesis proceeds as follows. The next chapter introduces the circular economy, defining its fundamentals, main elements, objectives, barriers to transition, and the crucial role of consumers in Montenegro's transition. Then, the thesis analyzes Montenegro's circular economy transition, focusing on laws, regulations, strengths, and obstacles. It explores remedies and showcases effective application of circular economy principles in Montenegro. After discussing the methodology of the original empirical research, the thesis provides an analysis of the survey conducted on Montenegrin consumers' understanding and behavior towards the topic of circular economy, with a focus on identifying areas for improvement, as well as an analysis of insights obtained through interviews with specialists in the field, which are then critically discussed with the aim to identify areas for improvement and provide recommendations for achieving circular economy goals in Montenegro, considering both specialist insights and consumer feedback.

## **2 CIRCULAR ECONOMY AND THE ROLE OF CONSUMERS**

### **2.1 FROM LINEAR TO CIRCULAR ECONOMY**

#### **2.1.1 Linear economy**

The foundation of the linear economy (LE) model is the belief that products can be used only once. Its objectives as well as the relationship between the input and output are economic, and the emphasis of this model is very straightforward: generating revenue (Marino & Pariso, 2016). The LE model suggests that products have a very brief and finite lifespan that ends with the death of the product, or simply put, with the product being disposed of after it has served its first purpose.

Hence, LE is a system in which resources are not utilized to the fullest extent possible. Instead, they are employed to produce goods that are eventually thrown away as waste. Therefore, the phrase “take, make, waste”, depicted in figure 1, is frequently used when talking about linear economy (Ellen Macarthur Foundation, n.d.). This means that a product’s life cycle is a lot shorter than it could be. Thus, the lifespan of a product can be represented as a straight line, with the beginning and the end of the life cycle, respectively. Although many economic theories center around maximizing the use of a product i.e. its utility, linear economy typically makes it impossible to achieve this goal. Nevertheless, discarding a product before it is fully exploited prevents one from using it to its fullest potential. An example would be someone who, after their mobile phone stops working, would simply purchase a new one and throw the old one away. This behavior does not only accumulate waste but also doesn’t utilize already existing resources. Other options include fixing, recycling, or even reselling the mobile phone so that its working parts can be used again. Of course, the example provided is just one of many instances of such behavior. Many other electronic household products such as computers, old chargers, television sets, and other appliances are being stored in households without the intention of using them again. This behavior also applies to food, (milk, juices, vegetables, etc.) that often ends up being thrown away because its expiration date has passed.

*Figure 1: Linear Economy Model*



*Source: Own work.*

However, companies continue to use this product process because it is less expensive due to competition, and there are fewer laws, regulations as well as penalties (Upadhayay & Alqassimi, 2018). Even though the goal of the LE clearly stated, it does not consider the effects of economic activity on the environment. One should also consider other factors such as sunk or „black swan” costs, opportunity costs, etc... LE depends on an enormous amount of inexpensive, readily available resources and energy (Ellen Macarthur Foundation, 2015). The relationship between input and output that does not consider how the material has been used and how it can be reutilized remains the big issue that exists within the LE. (Marino & Pariso, 2016). Obtaining the revenue without using the resources to their fullest extent comes at considerable environmental and economic costs. Although linear thinking has dominated the globe since the Third Industrial Revolution and has contributed to progress and prosperity globally, it is one of the key causes of the sustainability problems the world is currently facing (Jørgensen & Pedersen, 2018). Namely, one of the main causes of this natural exhaustion is the current linear socioeconomic system, known for product disposal at the end of its life (Michelini et al., 2017). Although the linear economy was successful in the past and produced observable results, it came at the expense of future environmental and

economic concerns. That is why it was logical and necessary to create a new paradigm that would function well today without compromising tomorrow.

### 2.1.2 Circular economy

LE is portrayed as the model that is in effect right now, while circular economy is the one to embrace and aspire to (Morseletto, 2023). Even though that is the case, the dominant “take, make, and waste” models, are currently under scrutiny. More sustainable methods of consuming and managing materials are becoming increasingly available and more frequently used regionally as well as globally (Ranta et al., 2018). The issues around the globe rose, regarding how consumers behave, hence there grew the need for a new, updated, better system. This improved system would be more sustainable and could surely provide more opportunities for every party included in the economy.

Over time, circular economy has grown in prominence. Even though circular economy is often discussed, it remains a complex topic. Therefore, it is difficult to provide a singular definition of this term. Instead, there are many definitions of circular economy, however, they all share the same general idea – the idea of a cyclical closed-loop system (Murray et al., 2015). It can be defined as the most current attempt to envision the sustainable blending of environmental well-being with economic activity (Murray et al., 2015). Circular economy, as a paradigm of production and consumption, emphasizes “sharing, renting, reusing, repairing, and recycling” already existing products or materials to extend the product's life cycle (European Parliament, 2015). It can therefore be seen as a strategy for encouraging sustainable and cyclical resource use (Moraga et al., 2019). To sum up, circular economy is understood as an idea or system that strives to maximize a product's added value while minimizing its waste. To extend the product's useful life and decrease waste, the product must continue to be a part of the economy (Neves & Marques, 2022). Thus, the product should be preserved in the system after it reaches the end of its life cycle if it can still be used productively or beneficially (Sariatli, 2017). This implies that humanity should strive to repair and reuse old products while innovating and finding new purposes for old products. Thus, green behavior, known as green consumption refers to a form of environmental behavior (Li, 2020), that is strongly associated with concern for the environment and behavioral intentions (Wu & Chen, 2014). It is important to mention that the primary goal of the circular economy concept is to help both the environment and humanity (Neves & Marques, 2022). Circular economy is a multi-faceted topic, and it is difficult to point out the most important aspect of this concept. We can not solely isolate one primary focus such as the environment, economy, or humanity. Instead, they all come together to improve life quality, advance society, and create, above all, a better world. In summary, the objective is to alter how people and society view resources from simply discarding waste after use to take – make – reuse model, depicted in figure 2 (Goyal et al., 2016).

*Figure 2: Circular economy model*



*Source: Own work.*

### 2.1.3 Linear VS Circular: barriers and issues of transition

In the past, the efficient use of goods was the fundamental focus of economic theory, rather than the equity of their distribution. Two forced changes came along with the increase in awareness of the economic importance of environmental conditions. First, it was acknowledged that new scale criteria need to be added to improve the already existing ones regarding the allocation of resources and the efficiency of their use. Additionally, it was essential to understand that markets are nearly always inadequate when it comes to the distribution of natural resources (Goodland, 1995). What was necessary was a new solution, a new paradigm, by which producers and consumers would stay on track regarding all of the environmental and economic issues the world is currently facing.

The cause of resource scarcity is the limited availability of resources to meet the demands of all individuals, thereby indicating that this condition is expected to persist in the future (Otekenari, 2021). The level of resource scarcity that the world is experiencing today further explains why circular economy promoters seek to introduce new solutions, answers, and models. They additionally strive to influence individuals to behave in a more sustainable way. There are a lot of open questions related to the transition process. Even though the new circular business model is a tool for straightforward waste prevention and reduction, it also serves as a long-term plan for the redesign of industrial systems and the promotion of a regenerative economy. As mentioned above, linear economy is based on the idea that raw materials can only be used once (Marino & Pariso, 2016). Circular economy relies on a completely different set of beliefs and concepts. As a result, circular economy has been the focus of various decision-makers, researchers, and business people worldwide (Geissdoerfer et al., 2017). The switch from the traditional, linear model, to a circular one, has both financial and environmental positive aspects (Lewandowski, 2016). What can be understood from this is that circular economy strives to better the whole system.

The shift towards a circular economy necessitates certain measures and regulations. A common method of managing the transition is to define goals in terms of creating various targets (Morseletto, 2020). Hence it is not uncommon for many parties to get involved in constructing a brand-new system of measures, regulations, goals, initiatives, etc.. While circular economy is gaining more meaning and popularity globally, many cities are implementing new projects, initiatives, or rules to become more circular (Petit-Boix & Leipold, 2018).

Circular economy business models can be divided into two groups: “those that foster reuse and extend service life through repair, remanufacture, upgrades and retrofits; and those that turn old goods into as-new resources by recycling the materials” (Stahel, 2016). This implies that there are so many business opportunities that lie within going circular that can be captured to gain revenue, not only for entrepreneurs but also at a state or government level. For the sustainable development goals to be implemented successfully and to guarantee policy coherence, close coordination of policy efforts and responsibilities between local authorities and various ministers is required. Moreover, diverse social groups must be actively included in the definition and implementation of a national vision and policy targets (Galli et al., 2018). While one of the barriers is surely the creation of regulations, initiatives, laws, and projects, this whole process is time-consuming. Hence, the speed of the shift from linear to circular is one of the major problems, and recognizing the problems and obstacles is crucial for developing new policies (Neves & Marques, 2022). Finally, one of the main issues is finding a solution how to motivate the consumers, to change their behavior as well as their usual consumer patterns to switch from a linear to a circular model. More about consumer behavior as well as their role in circular economy will be discussed in the next chapter.

## **2.2 THE ROLE OF CONSUMERS IN THE TRANSITION TOWARD CIRCULAR ECONOMY**

It is important to emphasize that consumers have a very significant role in the economy. Knowing this, anyone concerned about the economy should approach them with caution. This means that consumers should always be the primary focus of research and investigation of all parties involved. Paragraphs that follow will focus on the role the consumers have in the economy, especially in circular economy, as well as the importance behind it.

### **2.2.1 Role of consumers in the economy**

The roots of the word ‘economy’ can be traced to the Greek word *oikonomia*, which is made up of the words *oikos*, which means “household,” and *nemein*, which means “management and dispensation” (Leshem, 2016). One can observe that at the root of economics lies human behavior, decisions, and relationships. Consequently, business behavior is not separate from consumer behavior in a market economy (Brinkmann, 2004). The reason for this is that the consumers are those who are responsible for whether a specific company will survive in the market or not.

Often, consumers purchase items without fully considering the repercussions. The reason is not solely the lack of information about the product, but also the lack of information regarding possible substitutes (Nelson, 1970). One should never underestimate the power of information and knowledge. Consumers often face difficulty when making decisions due to the overload of information. On the other hand, consumers may also face information asymmetry and have incomplete information. It is important to analyze consumer behavior

to understand how to approach them. Consumer behavior research is hence, based on consumer purchasing behavior, with customers acting as users, payers, and buyers, respectively (Gajjar, 2012). Consumer has numerous roles and sometimes, that roles are played by different individuals.

One of the examples that is often discussed in practice is the market of toys. When a child uses a new toy, the parent often purchases it, not the child; however, the parents do not usually play with the toy. Rather, the toy will only be used by the child, therefore the child chooses the toy, even though the child did not pay for it. In this situation, it's crucial to understand the best way to approach a customer. For example, should the person selling the toy try to appeal to the youngster, who doesn't have money and can't make the purchase decision, or the child's parent, who does have money but doesn't play with the toy? Many factors influence consumer behavior such as culture, motivation, perception, external environment factors, etc. Consumer behavior is very complex and difficult to predict (Gajjar, 2012). The forces that affect consumer behavior can be divided into five specific groups: “internal or psychological factors, social factors, cultural factors, economic factors, and personal factors” (Ramya & Mohamed Ali, 2016). Knowing this brings one to the conclusion that consumer behavior is affected by many processes that happen externally but also internally. Consumers may or may not be conscious of it. The goal is to understand the customer, appeal to him or her, and influence the consumer's final decision in your favor.

#### 2.2.2 Consumer behaviour in circular economy: potential barriers

Consumers and their consumption are a crucial factor for businesses and economies, aiming to implement circular economy business models, (Camacho-Otero et al., 2020). The secret lies in understanding human behavior. Therefore, businesses must understand consumers' willingness to buy green products or try to motivate them to do so. The key question is, how to motivate them to act more environmentally friendly and change their patterns of behavior in a way to always choose more environmentally friendly alternatives? Unfortunately, while the literature typically focuses on the application of circular practices in the organizational and industrial sectors, the distinctive role of consumers in relation to the circular economy is an understudied topic (Szilagyi et al., 2022). Despite the importance of consumers' role in involvement in circular economy, they typically tend to show low levels of interest and participation (Sijtsema et al., 2019). Recent research on the topic of circular economy has revealed that cultural barriers, especially the absence of consumer acceptance, are a major impediment to the spread of circular business models (Camacho-Otero et al., 2018). Human behavior is a crucial component of circularity, which is frequently ignored, so it must be taken into account in all circular design projects (European Union, 2021). The question remains, why aren't consumers interested in this business model? This paper aims to uncover to what extent Montenegrin consumers behave circularly. If this paper is to discover that consumers lack environmentally friendly behavior; I believe that a mitigating circumstance is that the consumer behavior regarding this paradigm is not a problem in only one country but in many of them. The possible solution to this situation lays in understanding what



motivates consumers to change the patterns of their actions and trying to approach them in that way. Also, there is another aspect that should be considered - whether consumers are aware of the possible “green alternatives” or better said, whether they are adequately informed about all the possible roads they could take in their consumer decision journey.

### **3 THE CONTEXT OF MONTENEGRO**

#### **3.1 MONTENEGRO’S CIRCULAR ECONOMY REGULATION, STRATEGIES, AND PROJECTS**

The various projects, laws, and strategies that are being currently implemented or will be implemented in the future, can be used to provide insights into the advancement of circular economy in Montenegro. With that said, the country of Montenegro has decided to make sustainability one of the key principles of its development with the declaration of an Ecological state in 1991. Along with it came constitutional arrangements and the adoption of the National Strategy for Sustainable Development. The government and Ministry of Economic Development and Tourism are aiming to promote Montenegro as an environmentally friendly state, which is just one step towards designing and implementing circular models. With the help of the United Nations Development Programme, the Ministry of Economic Development and Tourism has also started the process of creating the National Strategy of Circular Transition until 2030 with an accompanying Action Plan for the period of 2023-2024 (Ministarstvo ekonomskog razvoja i turizma, 2022). Also, other strategies and policies that are worth mentioning are the Smart Specialization Strategy of Montenegro 2019-2023, the National Waste Management Plan of Montenegro 2015-2020, the Industrial Policy of Montenegro 2019-2023, the Waste Management Strategy of Montenegro until 2030, and the Energy Development Strategy of Montenegro 2014-2030 (Alibegović et al., 2020). These policies have been completed and have been one of the first steps of the Road Map for circular economy. Moreover, the Road Map Toward Circular Economy has been created to be used by the citizens to improve their quality of life as well as motivate business actors to integrate circular economy into their activities (Ministarstvo ekonomskog razvoja i turizma, 2022). Furthermore, the Green Agenda for Western Balkans (GAWB) has been declared along with the GAWB Action Plan with the primary goal of achieving carbon neutrality by 2050 and aligning with the core principles of the European Green Deal. The GAWB Action Plan envisions 7 roadmaps and 58 actions that, among other aspects, also set recommendations on how to move towards circular economy (Council, n.d.).

Also, numerous projects are being held and implemented to introduce circular economy to consumers and educate them more about the footprint they are leaving. That being said, one of the movements, called Zeleni Talas, has successfully organized numerous waste collection programs, resulting in the collection of 250 tons of rubbish. Furthermore, they conducted workshops to educate the public on environmentally friendly practices, successfully reaching over a thousand children and young adults (Zeleni Talas, n.d.). In addition, the company “3D Soba” has been undertaking different environmentally-friendly

initiatives, with their most recent one being the “Eco Board” project. The concept is centered around the recycling of plastic waste, which is transformed into boards, pillars, or similar structures. These structures are then used to make eco-friendly benches, rubbish bins, tables, and other items. Through the process of recycling plastic and transforming it into the specified objects, 3D Room effectively minimizes the utilization of authentic wood. This approach not only helps in the preservation of forests but also facilitates the recycling of plastic waste. Additionally, the resulting products are considerably more long-lasting, require less maintenance, exhibit greater resistance, and are economically advantageous compared to wood products (Eko Daska, 2023).

The primary areas of concentration with the most potential for a circular transition in Montenegro are the tourism sector, forest system, manufacturing sector, food system, and built system (CEhub, n.d.). Thus, the CE Hub can be seen as a network containing the most crucial information regarding the circular economy in Montenegro. This platform serves as a valuable resource for the Montenegrin public to enhance their knowledge on the subject of circular economy in Montenegro.

### **3.2 CIRCULAR ECONOMY IN MONTENEGRO: PRESENT STATE**

According to previous studies, Montenegro is considered to be at an early stage regarding the transition to the circular economy (Alibegović et al., 2020). This implies that this country is at the beginning of the circular economy journey and there certainly is a lot to be recognized, planned, and done. Along with the acknowledgment of The National Strategy for Sustainable Development by 2030 came a primary strategic goal which is better waste management. Therefore, the subject of Montenegrin strategic documents is waste management through separate garbage collection, landfill management, and recycling. Regarding resource efficiency, it is portrayed only through waste to energy and energy efficiency (Alibegović et al., 2020).

The new law on waste management was adopted in 2024. This legislation governs the categorization and classification of waste, the organization and implementation of waste management, and various other significant aspects related to waste management. Waste management is based on the principles of sustainable development and efficient use of resources, precautionary behavior, “Polluter pays” and extended producer responsibility. Extended producer responsibility is based on the notion that every individual or legal entity that is professionally progressing, producing or importing products bears the responsibility of managing waste that is left after the use of those products as well as financial responsibility for those activities. Furthermore, the new law also specifies the State's strategy for waste management. The document itself provides a comprehensive framework that establishes the overarching objectives for waste management in the long run. The management of waste involves implementing an approach of separate collection for paper, metal, plastic, and glass, to achieve a minimum recycling and reusing rate of 50% for all collected waste by 2030 (Redakcija, 2024).

On the other hand, there are a few significant issues that have not yet been fully addressed and need to be taken into consideration in the future such as bioeconomy, blue economy, remanufacturing and refurbishment, reusing and prevention, rethinking and redesigning, and circular value chains and industrial symbiosis. The Road Map Towards Circular Economy in Montenegro presents circular economy initiatives intending to establish a transition to circular economy. These actions include: “sustainable products, ban single-use plastic products on the market, review of the industrial emissions directive, designing sustainable products, empowering consumers and public buyers, legislative and non-legislative measures for the right to repair, circularity in the reduction process, key product value chains, textiles, construction buildings, food, water and nutrients, waste management policy in a circular context” (Alibegović et al., 2020).

Another important study covers the topic of circular economy in Montenegro from the industry point of view. This research examined 14 small to medium-sized companies in Montenegro, as these businesses form the foundation of the Montenegrin economy. The questionnaire that the research is based on consisted of 15 questions designed to assess the industry's level of familiarity with the concept of circular economy. The responses from the participants indicate that 57% of the surveyed organizations possess a certain level of understanding regarding the concept of circular economy, whereas 79% express a desire to incorporate circular economy principles into their day-to-day company operations. Moreover, a significant majority of surveyed organizations, specifically 86%, believe that the adoption of circular economy principles will lead to a paradigm shift in the industry's mindset and necessitate the involvement of specialized professionals (Fernandes & Vukotić, 2022).

The transition to a circular economy requires a continuous process of structural change in the system. Network governance is crucial to a successful transition since it must be just and fair to all the parties that engage in this shift. The funding is another important consideration of fair and just transition. Considering that Montenegro is a small country, it is important to notice that existing numerous financial support tools aim to provide a just transition. Some institutions and organizations offering financial support mechanisms are Elektroprivreda Crne Gore, Investment and Development fund, Eco Fund, EBRD + Montenegrin Commercial Banks, Government of Montenegro and more (Alibegović et al., 2020). This is especially motivating to all of the parties involved to seek financial aid to create a better environment. Also, businesses should take the opportunity of this funding to improve their business while also taking care of the environment.

### **3.3 CHALLENGES AND STRENGTHS OF TRANSITION IN MONTENEGRO**

As it was indicated in earlier paragraphs, the strengths that Montenegro has regarding the transition are greatly influenced by the adoption of the Declaration of Ecological state in 1991 along with the strategies and policies that followed. Knowing that certain guidelines exist, the issue that arises is whether Montenegrin consumers behave by the rules, moreover,

are the rules being followed by all stakeholders, not only consumers. As mentioned previously, the key is to provide a fair transition to all of the parties involved. This indicates that everyone participating in the shift should have a fair opportunity to transition. Therefore, another major step by Montenegro is the Government establishing the Eco Fund in 2018 to provide technical support to numerous “green” projects. By introducing the terms “energy efficiency, smart specialization and sustainable development” Montenegro started understanding waste as a resource but this concept is yet to be enhanced and developed. Unfortunately, the strategies that are being implemented now such as the Waste Management Strategy and Industrial Policy of Montenegro 2019-2030 do not recognize the notion of industrial symbiosis. The National Strategy for Sustainable Development has recognized the improvement of waste management as one of their priority goals (Alibegović et al., 2020).

Environmental protection is currently one of the most essential concerns public policy makers are facing (Mitrović & Pešalj, 2023). One of the challenges that are mentioned in the Roadmap Toward Circular Economy in Montenegro is concerned about the lack of a holistic approach of the government. The Government must take action towards being involved in the transition more. Needless to say, the strategies and policies are at the starting stages. There is a need for the Government to work on utilizing natural resources and involve national as well as local authorities in the decision-making process regarding legislation and policymaking. Considering international authorities, when it comes to Montenegro’s EU candidacy, one of the main steps is being climate neutral by 2050. Montenegro has signed the Sofia Declaration on GAWB and by doing so obliged to work towards the mentioned goal. Because of the wide range of natural resources Montenegro has, this country is aware of the great potential of lowering CO<sub>2</sub> emissions (Alibegović et al., 2020).

Considering the challenges, which Montenegro still has to work on, the concept of circular economy must be well understood by all the parties involved, especially the decision-makers. Therefore, every party involved should strive to better understand the policies that are being implemented. The better the parties understand their role and obligations, the better tomorrow will be regarding circular economy in Montenegro. To sum up, better-informed policymakers, businesses, and consumers lead to better results in the future.

## **4 METHODOLOGY**

### **4.1 RESEARCH DESIGN**

The first step of this research was a detailed review of the literature. Thus, the analysis was conducted with a focus on scholarly and policy articles as well as books that have to do with the circular economy, its drivers, effects, and objectives. This was the basis for a complete assessment of the rules, initiatives, and methods related to circular economy to comprehend the scenario Montenegro is currently facing. By doing so, one may get a clear picture of the circular economy condition both globally and in Montenegro. Establishing this foundation,

based on relevant literature, is the first step in understanding the ideas behind circular economy.

Previously mentioned literature and available, relevant sources assisted the data analysis. It also helped in understanding the theory behind the concepts of circular economy to collect the primary data. Hence, I have conducted an online survey to collect primary data. After that, three interviews took place with the goal of making the connection between theory and practice. The primary data was collected through two research steps: surveys on the sample of 549 respondents and in-depth interviews with three experts from practice.

The survey assessed consumers' awareness of the existing regulations, strategies, and practices on this topic. Conducted online, the survey helped collect primary data on the topic of circular economy in Montenegro. The sampling was random. The survey questions focused on consumers' perceptions, attitudes, and actions in support of the circular economy. The descriptive results of the survey were thoroughly analyzed through each question individually and a few of them additionally have been analyzed with the IBM SPSS 20.0 system. The results are displayed graphically as well in a tabular form. Categorical data was represented with absolute and relative frequencies while numerical data was described with arithmetic mean and standard deviation as a part of descriptive statistics. In addition to quantitative analysis, qualitative analysis was used for the open-ended questions. The results of the statistical analysis gave more insight into the correlation between consumer behavior and their attitudes.

The survey that was intended for experts was done by open-ended semi-structured interviews. The sampling was purposive. The semi-structured interviews are conducted in a conversational manner, with one respondent at a time. It uses a combination of closed- and open-ended questions, sometimes followed by additional questions (Wholey et al., 2010). These interviews provided in-depth information about the roots of the problem and potential solutions to it, from the perspective of knowledgeable individuals in the field. Interviews were based and implemented by following principles of ethical research, i.e. they were conducted upon obtaining informed consent, and interviewees were offered for their identity not to be revealed.

#### 4.1.1 Why this approach

The approach was chosen to tackle this topic most adequately. By reviewing the literature the basis of understanding the situation regarding circular economy in Montenegro is formed. The purpose of this is to introduce the theoretical aspect of the new paradigm seen through the lenses of Montenegro to the readers of this study. Additionally, it opens space for examination into whether the rules are being implemented or not, and if all of the parties involved are acting by the rules.

The reason for choosing to conduct the online survey was to better understand the actual behavior and opinion of Montenegrin consumers in practice regarding the topic of circular

economy. Along with the review of the literature, this aspect provided additional information about the actual behavior and beliefs of consumers.

Finally, the reasoning for interviews with the experts from practice was to discover their points of view. Additionally, to compare the results of the survey with the opinions of experts and draw conclusions based on both opinions of specialists as well as consumers.

## **4.2 PRIMARY DATA COLLECTION**

As previously said, data was collected through an online survey. This survey was intended only for Montenegrin consumers, hence it was mostly distributed to them via social media by sharing the link of the survey with a large number of people. The total number of people to whom the survey was distributed was 1176. Data was collected during the summer of 2023 with a result of 549 fully completed surveys. This indicates that almost half of the respondents that the survey was distributed to did not complete it. Some of the statistics behind it will be discussed in the paragraph below.

Out of 1176 individuals that have entered the online survey, 645 of them started to respond to the survey. The reasons for respondents exiting the survey could be various. For example, some of them were not the targeted audience (since the aim was to collect responses from people who live in Montenegro, and on the first page of the survey the respondents were informed about it). Also, the subject of circular economy might not be familiar or interesting. In the end, 549 respondents completed the whole survey.

The website 1ka.si was used to create the survey and collect the data. This website provides technical information about the survey, such as the estimated duration. According to 1ka.si, medium-long surveys require 5 to 15 minutes to be completed. In this case, the survey was 6 minutes and 1 second long and can therefore be described as medium long.

### **4.2.1 Sample – online survey**

In the paragraphs that follow I will analyze the size of the sample of the online survey along with the structure through demographic characteristics.

#### ***4.2.1.1 Sample size***

The total number of people to whom the survey was distributed was 1176. Out of them, 645 people started the survey. The survey was completed by 549 people. All the respondents are citizens of Montenegro.

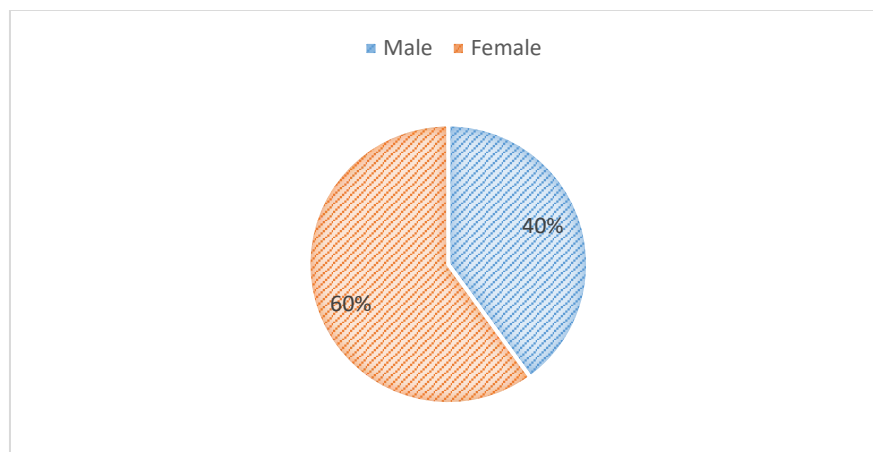
#### ***4.2.1.2 Sample structure - Demographic characteristics***

Questions concerning gender, age, location where the respondents are currently living, and their education helped me come to conclusions about the structure of the sample. This also aided in the investigation of the demographic factors and the way they affect the awareness

and behavior of Montenegrin consumers toward environmental questions. All of the questions in the first part are multiple-choice questions and the responses were mutually exclusive. The only open-ended question referred to the respondents who were living outside of Montenegro. These respondents had the opportunity to fill in the information on their country of residence.

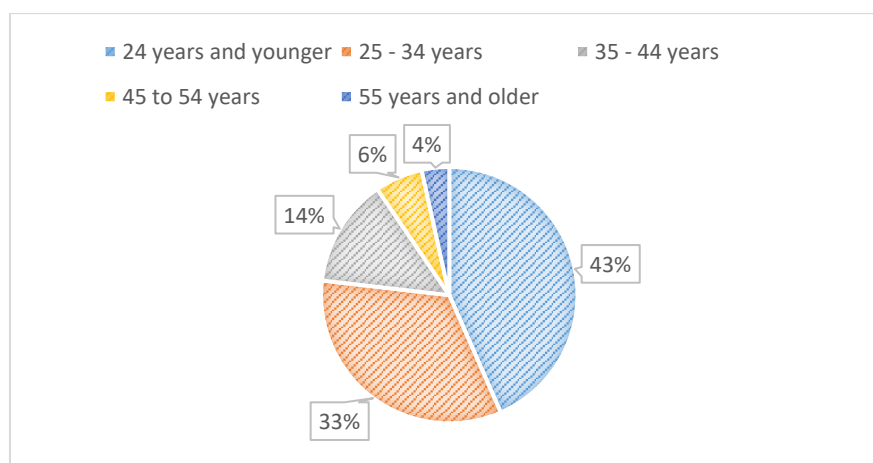
Collected data, depicted in the figure 3, showed that 40% of respondents who completed the survey were men, while 60% were women. During data collecting, I discovered that male respondents tended to quit the survey more frequently than female respondents. This might imply that male respondents are not interested in the topic of circular economy in Montenegro, or at least not as interested to the same degree as the female respondents.

*Figure 3: Survey - Gender*



*Source: Own work.*

*Figure 4: Survey - Age*

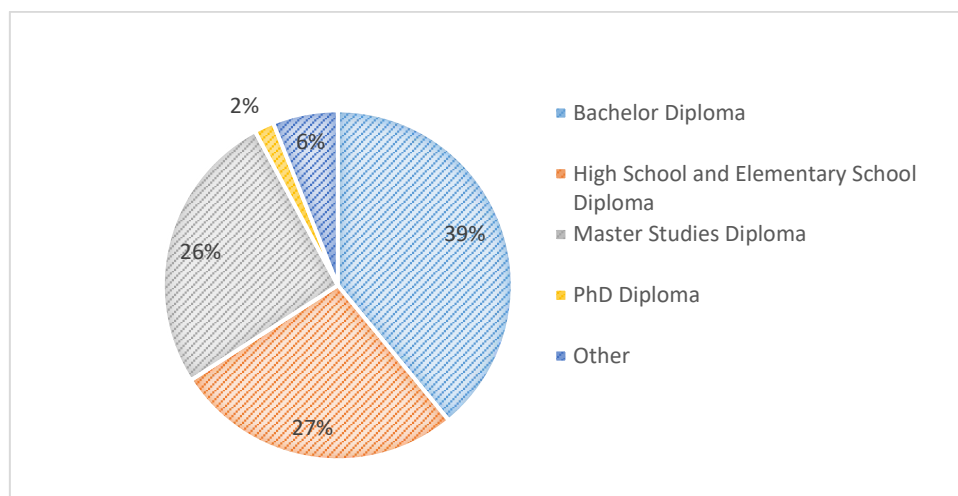


*Source: Own work.*

Figure 4 illustrates the division of age groups. The majority of the respondents were in the age group 24 years and younger, whereas the minority of the respondents were in the age group 55 years and older. This can indicate that young adults are those who tend to show more interest in circular economy. The fact that members of the oldest group do not use the internet as frequently as members of other groups may also be a contributing factor to these findings, making it less possible for them to participate in the survey.

The level of education of the respondents was categorized into groups as depicted in figure 5. The majority of the respondents possess a Bachelor's degree, while the least of the respondents have a PhD diploma.

*Figure 5: Survey - Level of Knowledge*



*Source: Own work.*

Majority of respondents come from the central region of Montenegro. This includes the cities of Podgorica, Nikšić, Danilovgrad, Cetinje, Tuzi, and Zeta. This was expected since this is the most populated region of Montenegro. Out of all respondents, 7% reside in the southern region, and 6% reside in the eastern region of Montenegro. Finally, 3% of respondents live outside of Montenegro and reside in: Austria, Germany, Serbia, Slovenia, Croatia, America, and Poland.

These results were expected since the vast majority of people, who live in the southern or eastern part of Montenegro, tend to move to the central region because of the more opportunities it offers. These opportunities vary from business to education options therefore there are many potential reasons why people tend to move to the central region.

The above mentioned details offer fundamental insights into the sample. The purpose of this is to have a more comprehensive understanding of the demographic characteristics of the respondents who took part in the study. This data may also be utilized to make inferences later in this thesis to determine any correlations between various parameters and responses.



For instance, whether any relationships can be established between the demographics and the answers provided by respondents.

## **5 RESULTS OF THE EMPIRICAL RESEARCH**

The research objective is to gain a deeper understanding of consumers' perceptions of circular economy as well as their behavior. The aim of the research was practical contribution that can accelerate Montenegro's shift towards circular economy. The results provided by the respondents suggest that the change needs to happen in terms of consumers' behavior, which is mostly not green at all. On the other side, the findings have revealed that the public of Montenegro is aware of the global, as well as local problems regarding this subject. The results also indicate that the respondents are highly aware of the importance of several circular economy issues, therefore they are conscious that the change needs to happen.

### **5.1 DATA ANALYSIS**

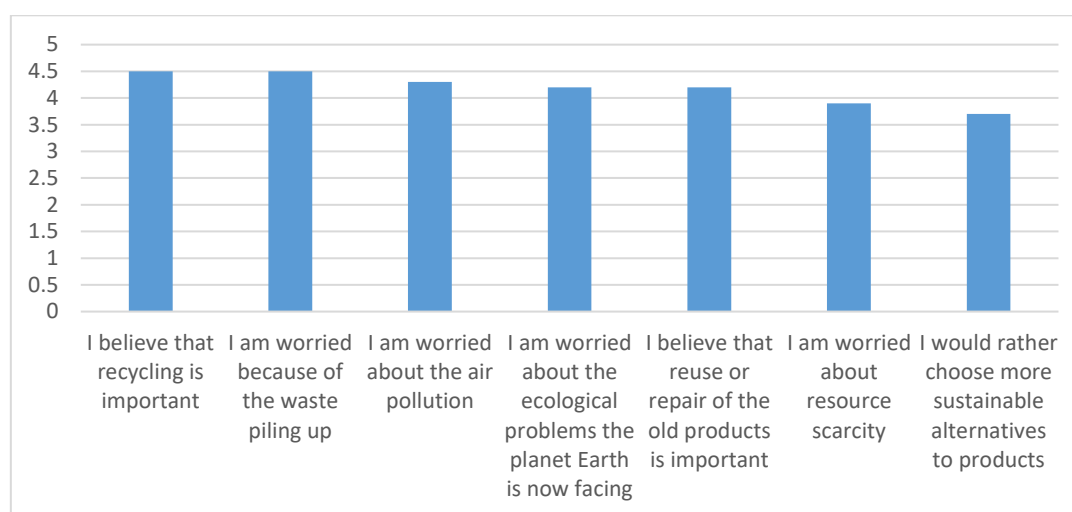
This section of the paper will focus on the data analysis of the answers provided by the survey. The primary focus will be on explaining and analyzing every question individually along with the graphics that will provide visual representation. Additionally, some of the questions will be brought into connection with other relevant questions.

#### **5.1.1 Attitudes of consumers from Montenegro toward circular economy**

The second section of the survey consisted of two questions that had multiple Likert-scale sub-questions. The respondents rated to what extent they agreed or disagreed with specific statements in the first question, and to what extent they showed interest in certain topics in the second question. Some statements were answered using a 5-point scale from "I do not agree at all" to "I completely agree;" for others, the 5-point scale spanned from "I am not interested at all" to "I am very interested." This section of the questionnaire aims to learn more about the respondent's awareness of various environmental challenges. Moreover, it aims to unveil the level of their interest in environmentally friendly behavior. Therefore, this section is critical for determining how informed and concerned people in Montenegro are about environmental issues.

The first question consisted of seven sub-questions and it aimed to determine the degree to which respondents agreed to previously given statements. The statements as well as the respondents' answers are illustrated in figure 6. The respondents agreed the most with the statement regarding the importance of recycling as well as worry about waste piling up. On the contrary, the statement with the lowest level of agreement among the respondents pertains to the issue of resource scarcity and choosing more sustainable alternatives to products

*Figure 6: Level of respondents' agreement with given statements*



*Source: Own work.*

Detailed in table 1 is the statistical analysis of the degree of concern that the respondents have expressed towards several circular economy concepts in relation to the gender of the respondents. The purpose of this inquiry was to investigate how conscious and concerned each gender is about different environmental threats. Moreover, to discover if one of the genders is more prone to show concern about this topic than another one.

Results of the t-test, of independent samples, indicate that there is a statistically significant difference between the two groups of respondents (by gender: male and female) in the aspect of the concern they have towards ecological problems that planet Earth is facing, ( $t(542)=-6.193$ ,  $p<.001$ ). Therefore, it can be concluded that the female respondents tend to show higher levels of concern than the male respondents. When it comes to resource scarcity, the results of the t-test denote that there is a statistically significant difference between the two groups, males and females ( $t(362.01)=-6.347$ ,  $p<.001$ ). Female respondents showed a greater level of concern. Considering the aspect of air pollution, the results of the T-test of the independent samples indicate that there seems to be a significant difference between the two groups of respondents, males and females, ( $t(541)=-5.332$ ,  $p<.001$ ). While female respondents again showed greater levels of concern male respondents still tended to show lesser levels of concern when they were asked about environmental concerns, in this case, air pollution. Results of the T-test of the independent samples, note that there is a statistically significant difference between the two investigated groups, males and females when the situation of accumulation of waste is analyzed ( $t(541)=-3.777$ ,  $p<.001$ ). The results have shown that the female respondents were more concerned about the environmental threats, in this case waste piling up than male respondents. When beliefs about the reuse or repair of old products are analyzed, the results of the T-test of independent samples indicate that there is a statistically significant difference between the two groups of respondents ( $t(541)=-2.278$ ,  $p=.023$ ). In this situation, female respondents expressed a greater level of concern than male

respondents. There were no statistically significant differences between the two groups of respondents in the case of concerns about the importance of recycling as well as buying environmentally friendly alternatives to products.

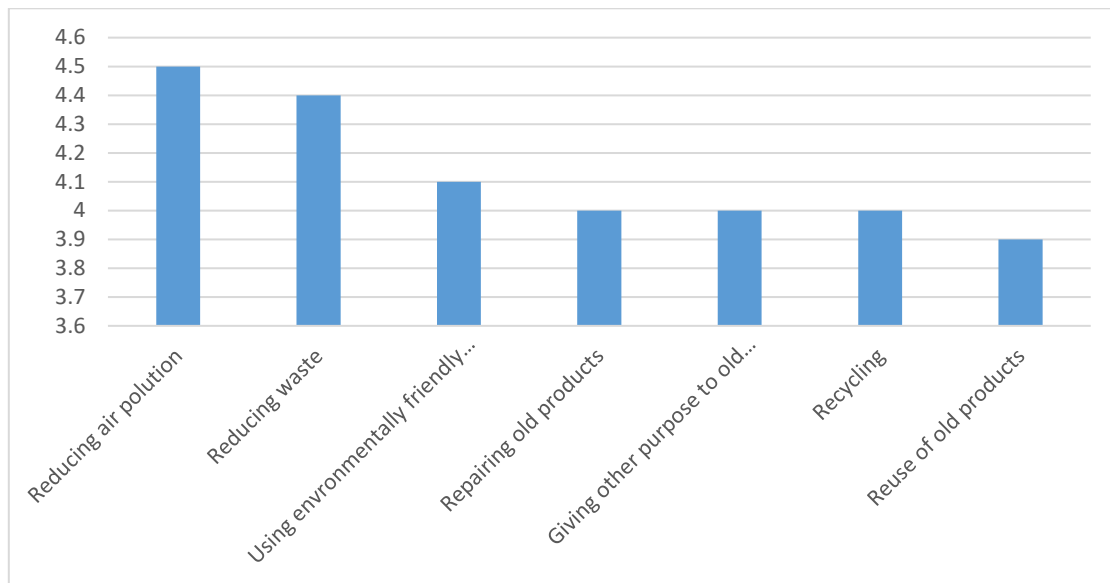
*Table 1: Comparison of two groups of respondents (by gender) regarding the degree of agreement with the stated claims*

Claims	Gender	N	M	SD	t	p
I am worried about the ecological problems the planet Earth is currently facing	male	218	3.92	0.85	-6.193	<.001**
	female	326	4.31	0.63		
I am worried about resource scarcity	male	218	3.58	1.00	-6.347	<.001**
	female	326	4.07	0.71		
I am worried about the air pollution	male	218	4.10	0.83	-5.332	<.001**
	female	326	4.43	0.62		
I am worried about waste piling up	male	218	4.28	0.76	-3.777	<.001**
	female	326	4.50	0.61		
I believe that the recycling is important	male	218	4.41	0.75	-1.849	.065
	female	326	4.53	0.60		
I believe that reuse or repair of old products is important	male	218	4.15	0.88	-2.278	.023*
	female	326	4.30	0.70		
I prefer buying environmentally friendly products	male	218	3.56	0.93	-1.909	.057
	female	326	3.71	0.89		

Notes: N – number of respondents, M – arithmetic mean, SD – standard deviation, t – statistic, p – statistical significance; \*\* significance at the level .01.; \* significance at the level .05.

*Source: Own work.*

*Figure 7: Level of respondents' interest in given concepts*



*Source: Own work.*

In the second question, which also had 7 sub-questions, the respondents were asked to rate their level of interest towards different concepts. The interest was expressed on a scale from 1- “not interested at all” to 5- “completely interested”. The average grade is 3. The concern that held the most interest for the respondents was “reducing air pollution”. Another statement that was most appealing to the respondents was “reducing waste”. Both of these two concepts confirm the means of respondents previously shown and their concerns regarding waste as well as air pollution. The lowest grade the respondents gave while rating their level of interest towards different concepts and the concept was “reuse of old products”. Figure 7 represents the change in the level of interest of respondents towards different concepts.

Depicted in table 2 is the comparison between the two groups of respondents (men and women) concerning the interest they have in different circular economy concepts. Results of the T-test of independent samples indicate that there seems to be a statistically significant difference between the two groups of respondents in terms of levels of interest towards recycling  $t(543)=0.895$ ,  $p<.001$ ). Men showed a higher level of interest in this concept with a mean.

No statistically significant differences were found between the two groups of respondents in terms of interest towards all of the other mentioned concepts above ( $p>.05$ ). The concept that was the most interesting to male respondents was reduction of the air pollution. While females showed slightly less interest in the same topic. The concept that was least interesting to male respondents was product repurposing whereas for female respondents that concept is the reuse of old products.

Table 2: Male VS Female, interest level towards circular economy concepts

Concepts	Gender	N	M	SD	t	p
Recycling	male	103	4.26	0.54	0.89	<.001**
	female	442	3.95	0.77	5	
Reuse of old products	male	103	4.02	0.73	1.82	.070
	female	442	3.87	0.82	0	
Giving other purpose to products	male	103	4.00	0.79	-	.896
	female	442	4.01	0.80	0.13	
Repair of old products	male	103	4.11	0.74	1.03	.303
	female	442	4.01	0.84	1	
Using ecologically friendly alternative	male	103	4.18	0.75	1.26	.207
	female	442	4.08	0.78	3	
Waste reduction	male	103	4.49	0.56	0.65	.514
	female	442	4.44	0.65	2	
Reduction of air pollution	male	103	4.55	0.61	0.90	.368
	female	442	4.49	0.63	1	

Notes: N – number of respondents, M – arithmetic mean, SD – standard deviation, t – statistic, p – statistical significance; \*\* significance at the level .01.; \* significance at the level .05.

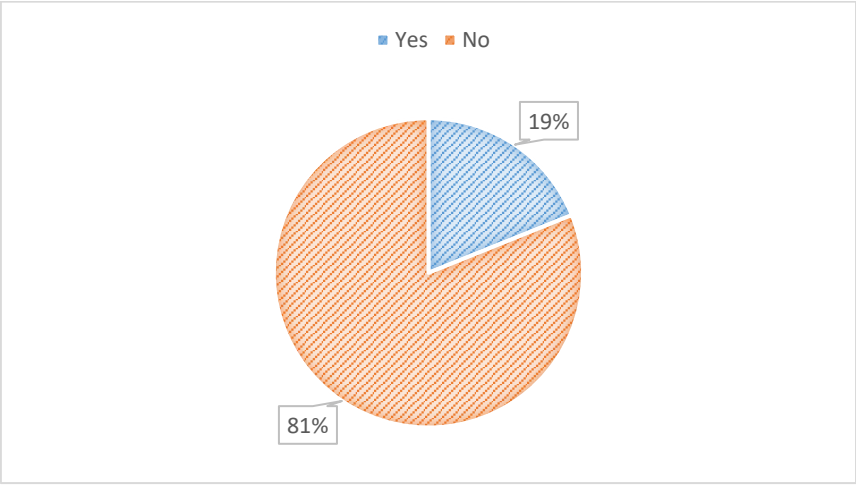
Source: Own work.

### 5.1.2 Behaviour of Montenegrin consumers regarding circular economy

The third section of the survey focuses on the respondents' actual behavior considering the circular economy. This section is made out of seven questions that all of the respondents had to answer and three conditional ones that aim to unveil more information from the targeted population. The questions in this part were primarily multiple-choice questions but there were also questions where respondents were asked to assess how much specific incentives would drive them to act more green. This section had a goal to help better understand actual

consumer behavior in terms of activities they were doing. Another goal was to discover what might encourage people to be more environmentally aware.

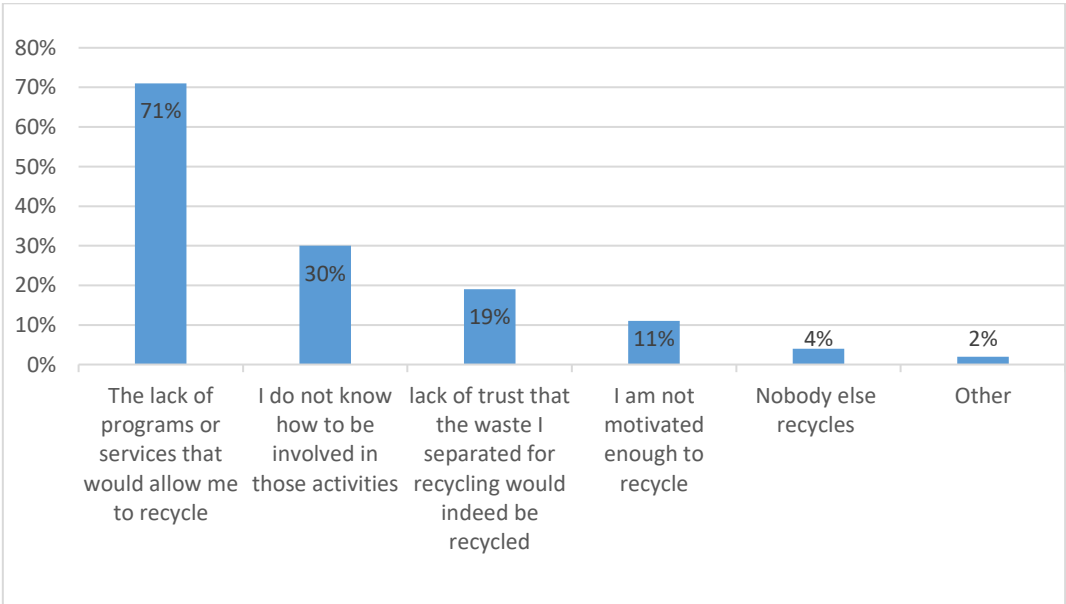
Figure 8: Recycling waste in Montenegro



Source: Own work.

The opening question of the third section, depicted in figure 8, was related to recycling. The majority of respondents stated that they do not recycle their waste, more precisely, 81% of respondents.

Figure 9: Reasons for not recycling



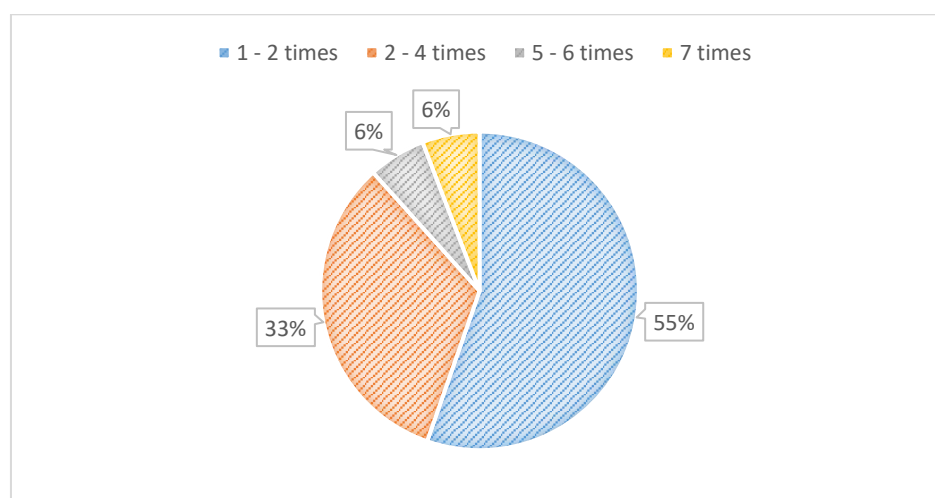
Source: Own work.

The conditional question posed to the respondents who don't recycle was the reason behind it. This was a multiple-choice question, and respondents could select multiple answers at the

same time. The results are depicted in the figure number 9. The majority of respondents attribute their failure to recycle to the absence of programs or services that facilitate recycling. Additionally, almost a third of the respondents indicated a lack of knowledge regarding how to participate in such activities. Some of the respondents provided their answers whilst selecting the option “other”. Those were: “I recycle from time to time”, “I do not want to recycle”, “Recycling of individual waste is perhaps the smallest link in the chain of pollution, plus there is a very small amount of waste that can actually be recycled”, “Whenever I am able to separate waste I do so, but I would like to be more informed”, “I recycled but I gave up since I do not have resources to collect waste since I live in the apartment,..., but I would like to continue with recycling”, “There is no possibility to do so in my home town”.

The conditional question, for those respondents who do recycle (19% of all respondents) was: “Supposing that you throw your garbage away one time per day, how often per week do you recycle?”. Most of the respondents, 55% of them, said that they engage in recycling once to twice; whereas only 6% of respondents claimed to recycle 7 times per week. The percentage of respondents that recycle 5-6 times a week is 6%, while 33% of respondents stated that they recycle 2-4 times. The results of the survey are depicted in the figure number 10.

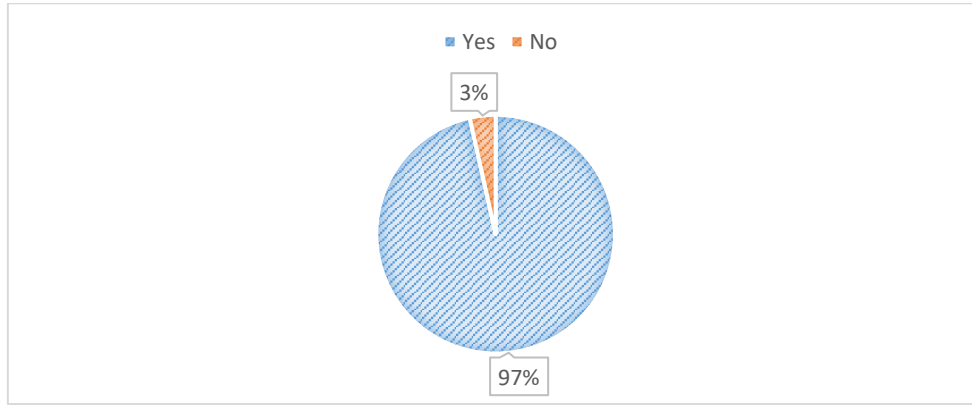
*Figure 10: Frequency of recycling*



*Source: Own work.*

The next question in this section, which targeted all of the respondents was “If recycling was more available to you would you recycle more often?”. Out of all surveyed respondents, 97% of them expressed their willingness to recycle more frequently if it were more accessible; whereas just 3% of the respondents indicated they would not. The results of this question are depicted in figure number 11.

Figure 11: Respondents' willingness to recycle if more was available to them



Source: Own work.

In the paragraphs that follow I will present correlations or connections of recycling with demographics.

Table 3:  $\chi^2$  test connection between gender and recycling

Gender	N	Recycling		$\chi^2$	P
		Yes	No		
Male	217	44	173	0.357	.550
Female	325	58	267		
Total	542	102	440		

Note: N – number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance at the level .01.; \* significance at the level .05.

Source: Own work.

The  $\chi^2$  independence test, depicted in table 3, was applied to determine the correlation between the gender of the subject and the recycling  $\chi^2 (1, N=542) = 0.357, p = .550$ . It was found that there was no statistically significant correlation between the gender of respondents and their tendency to recycle waste.

The association between the age groups of respondents and whether they recycle can be seen in table 4. This was done to understand which age groups were more likely to recycle. It is assumed that older respondents were less likely to recycle. Concerning age and the respondents' habits in terms of recycling, it was noticed that in most age categories the largest number of the respondents do not have the habit of recycling waste (81.1%). On the other



hand, the percentage of respondents who said that they recycled waste was a little less than 19%.

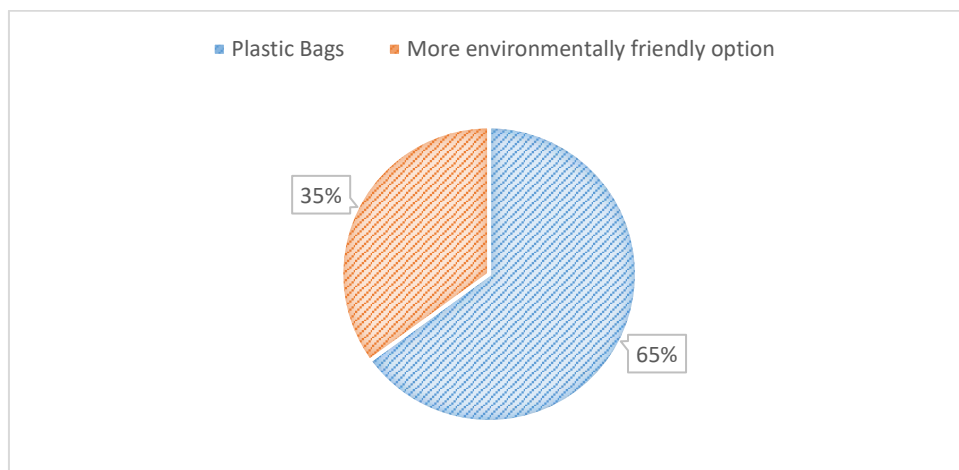
*Table 4: Crosstabulation of age and recycling*

	yes	No	Total
17 years and less	0 (0%)	2 (100%)	2 (100%)
from 18 to 24 years	45 (19.3%)	188 (80.7%)	233 (100%)
from 25 to 34 years	38 (20.9%)	144 (79.1%)	182 (100%)
from 35 to 44 years	11 (14.7%)	64 (85.3%)	75 (100%)
from 45 to 54 years	7 (21.2%)	26 (78.8%)	33 (100%)
from 55 to 64 years	2 (11.1%)	16 (88.9%)	18 (100%)
over 65 years	0 (0%)	1 (100%)	1 (100%)
Total	103 (18.9%)	441 (81.1%)	544 (100%)

*Source: Own work.*

Depicted in figure 12 are the results to the next question: “When I go to the store, I mostly use..”. The percentage of respondents that answered plastic bags was 65% while 35% of respondents selected more sustainable and environmentally friendly alternatives.

*Figure 12: Type of bags consumers use while shopping*



*Source: Own work.*

*Table 5:  $\chi^2$  test of correlation between genders and their habit of using plastic or environmentally friendlier alternatives*

Gender	N	Use in shopping		$\chi^2$	p
		Plastic bags	Environmentally friendly alternatives		
Male	218	157	61	6.383	.008
Female	325	197	128		
Total	543	354	189		

Nate: N – number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance at the level .01.; \* significance at the level .05.

*Source: Own work.*

Table 5 represents the connection between the gender of respondents and their behavior in practice, in this case, the choice they make while shopping. More precisely, this refers to whether they use plastic bags or more environmentally friendly alternatives. The  $\chi^2$  independence test was applied to determine the correlation between the gender of the respondents and what kind of bags (plastic bags or environmentally friendly alternatives) they use at the grocery store or shopping in general ( $\chi^2 (1, N = 543) = 6,383, p = .008$ ).

It was found that there is a statistically significant correlation between the gender of the respondents and the kind of bags they choose to use while shopping. Relatively observed, in comparison to female respondents, male ones observed a statistically significant lower frequency of using more environmentally friendly and sustainable alternative versions of the mentioned product.

Since there is statistical significance when it comes to gender and the kind of bags the respondents use while shopping another kind of analysis of this question was conducted. Hence, table 6 and the paragraph below showcase the connection between the age of respondents and the kind of bags they tend to use while shopping.

By comparing the age groups of the respondents with habits they had regarding the kind of bags they tended to use while shopping, it is noticeable that in most of the age groups, around two-thirds of respondents have the habit of using plastic bags rather than environmentally friendly ones. The age group that had the greatest percentage of answer “plastic bags” is the age group from 18 to 24 years which may imply that they are the least conscious of the environmental impact of this kind of behavior in practice. However, the group that had the

highest percentage of people using environmentally friendly alternatives is the group from 45 to 54 years old, making them, in this case, the most environmentally conscious.

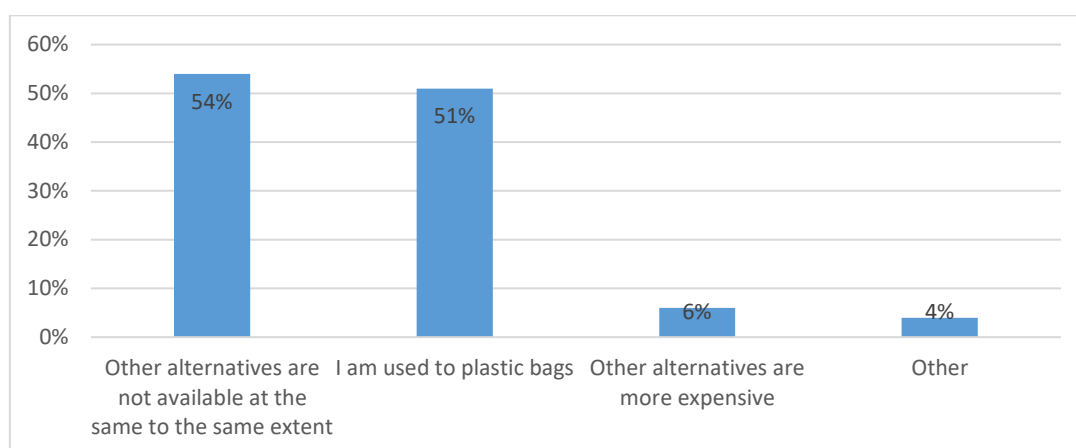
*Table 6: Crosstabulation of age and what kind of bags respondents use when shopping*

	Plastic Bags	Environmentally friendly alternatives	Total
17 years and less	1 (50%)	1 (50%)	2 (100%)
from 18 to 24 years	166 (71.2%)	67 (28.8%)	233 (100%)
from 25 to 34 years	111 (60.7%)	72 (39.3%)	182 (100%)
from 35 to 44 years	45 (60%)	30 (40%)	75 (100%)
from 45 to 54 years	19 (57.6%)	14 (42.4%)	33 (100%)
from 55 to 64 years	12 (66.7%)	6 (33.3%)	18 (100%)
over 65 years	0 (0%)	1 (100%)	1 (100%)
Total	354 (65%)	191 (35%)	544 (100%)

*Source: Own work.*

The following question targeted respondents who use plastic bags and the question reads “Why do you mostly use plastic bags”. This question had the possibility for the respondents to choose multiple answers that were given and additionally, to provide their reason for doing so. The results are depicted in figure 13. The prevailing option among respondents is that the rationale lies in the limited availability of alternatives. Furthermore, a significant proportion of the participants also indicated their familiarity with the plastic bags. However, the least respondents believe the cost to be the reason for their behavior. Respondents also offered their own responses, which included statements such as: “it is a free choice and not my obligation to do anything else”; “because I can use only plastic bags”; “plastic bags are practical because they can be repurposed as garbage bags or for something else”; “they are practical”; “in the stores, the cashiers are selling them with every purchase”, “I forget to bring a more sustainable bag with me”; “I do my shopping spontaneously, therefore, I forget to bring a more sustainable option with myself”; “because I do not have to bring a more sustainable bag with myself”; “because it is almost impossible to explain to the cashiers that I do not need a plastic bag for the products that I bought at the store”; “plastic bags are sold at the store”; “the lack of social responsibility of the retail chains”; “I use them as garbage bags afterwards”.

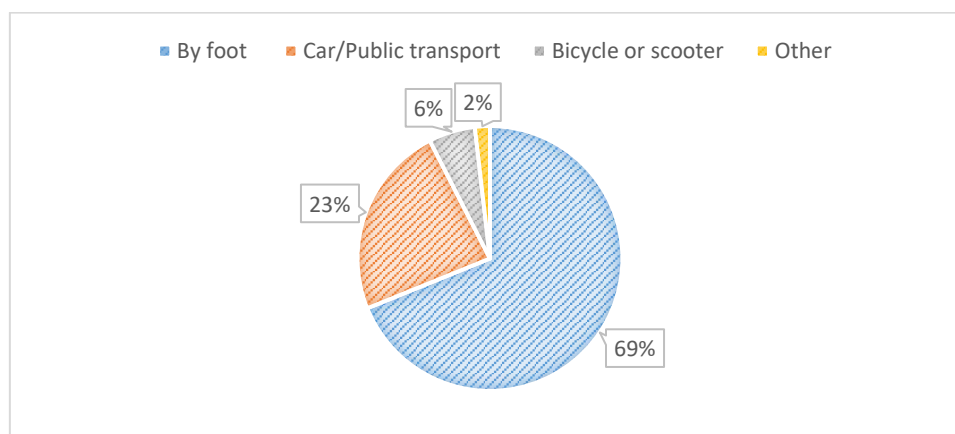
*Figure 13: Reason to why consumers mostly use plastic bags*



*Source: Own work.*

The question that followed was concerned with the means of transport respondents take when they have to get to a certain location that is one kilometer away, the results are depicted in figure 14. The majority of respondents said that they would go on foot – 68% of them. The option of bicycle or scooter was chosen by 6%, while car or public transport was chosen by 24% of respondents. Moreover, 2% of people chose the “other option”. Those answers varied from “It depends on the weather”, “It depends on my mood”; “It depends on whether I am late” or “By a motorbike”.

*Figure 14: Means of transport*

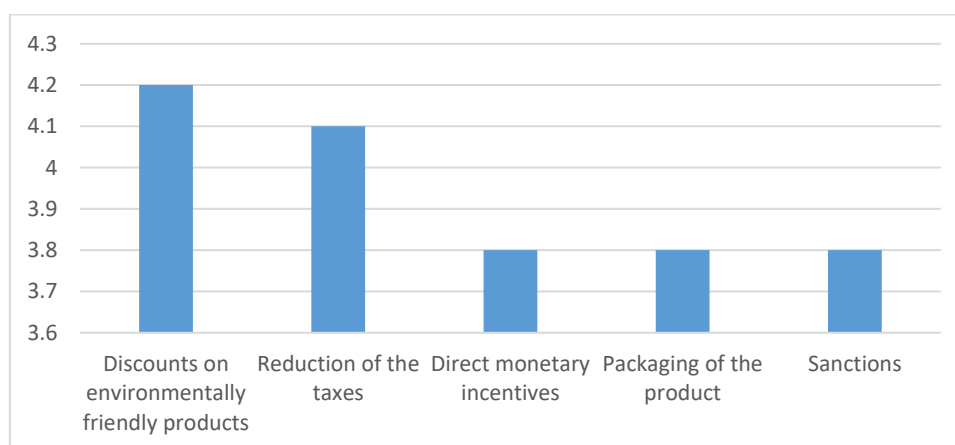


*Source: Own work.*

The next question, depicted in figure 15, had 5 sub-questions and it aimed to investigate to what extent certain pillars motivate consumers to behave more environmentally friendly. The question was “To what extent would the following pillars motivate you to behave more environmentally aware”. The respondents rated the level of their motivation towards certain pillars on a scale from 1 – “It would not motivate me at all” to 5 – “It would completely motivate me”. The pillar that motivated Montenegrin consumers the most was discounts on

products that are more environmentally friendly. The next pillar that greatly motivates the respondents is the reduction of taxes (for example: there would be a tax reduction for every transaction in which the environmentally friendly alternative product is bought). Answers that follow: “Direct monetary incentives”; “Packaging of the products with an emphatic inscription that they are more environmentally friendly”; “Sanctions” (for example: if you do not recycle you must pay a certain fine) share the same grade point average of 3.8.

*Figure 15: To what extent do certain pillars motivate consumers to behave more environmentally aware*



*Source: Own work.*

Results of the T-test of independent samples, depicted in table 7, indicate that there is a statistically significant difference between the two investigated groups, men and women when the aspect of discounts on products that are more environmentally friendly comes into perspective. Thus, female respondents are more likely to be motivated by this incentive, than male respondents. A statistical analysis of sanctions was also conducted. Therefore, the T-test results of independent samples note that the statistically significant difference between the genders exists when this is questioned. It can be concluded that females are more likely to be affected by sanctions than male respondents. The impact of the packaging of products with an enhanced description of its sustainability, compared to both genders that were surveyed, was statistically analyzed. The results provide information that there is a statistically significant difference between the two groups of subjects. In this case, female respondents indicated that they are more prone to be affected by the packaging of the products.

No statistically significant differences between the subjects that were surveyed were discovered while investigating direct monetary incentives and reduction of taxes. On the other side, the incentive that motivated male respondents the most was a reduction in taxes. Female respondents were most motivated by discounts on products that are more environmentally friendly. Female respondents were least motivated by the packaging and sanctions, while men were least motivated by sanctions.

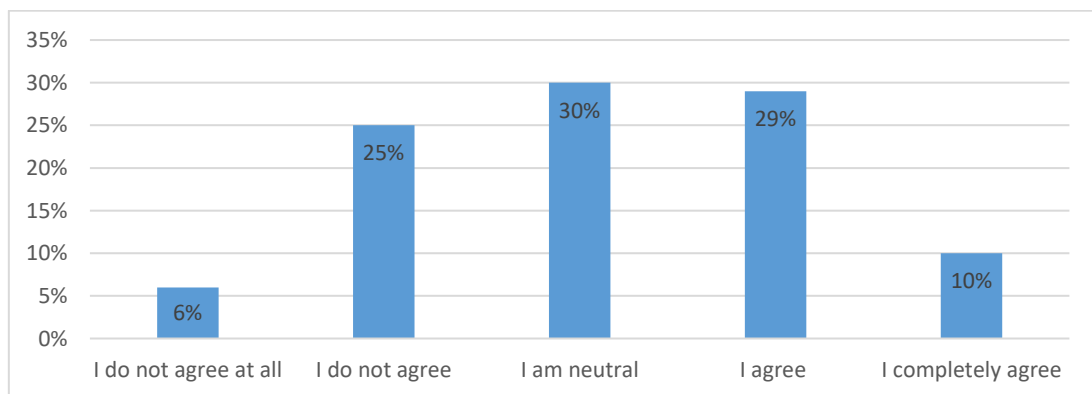
Table 7: Comparison of gender and environmental incentives

Incentives	Gender	N	M	SD	t	p
Direct money incentives (for example: a certain monetary sum is received for every recycled plastic bottle)	male	217	3.75	1.07	-	.052
	female	325	3.92	0.88	1.950	
Reduction in taxes (for example: a VAT reduction for the purchase of a sustainable or environmentally friendly product).	male	217	4.09	0.84	-	.406
	female	325	4.15	0.71	0.832	
Discounts on products that are more environmentally friendly	male	217	4.06	0.86	-	.001*
	female	325	4.28	0.71	3.323	*
Sanctions (example: if you do not recycle you would need to pay certain punishment).	male	217	3.56	1.25	-	.001*
	female	325	3.91	1.04	3.369	*
Packaging of the products with an emphatic inscription that they are more environmentally friendly.	male	217	3.60	1.00	-	<.001
	female	325	3.91	0.85	3.736	**

Note: N – number of respondents, M – arithmetic mean, SD – standard deviation, t – statistic, p – statistical significance; \*\* significance level .01.; \* significance level .05.

Source: Own work.

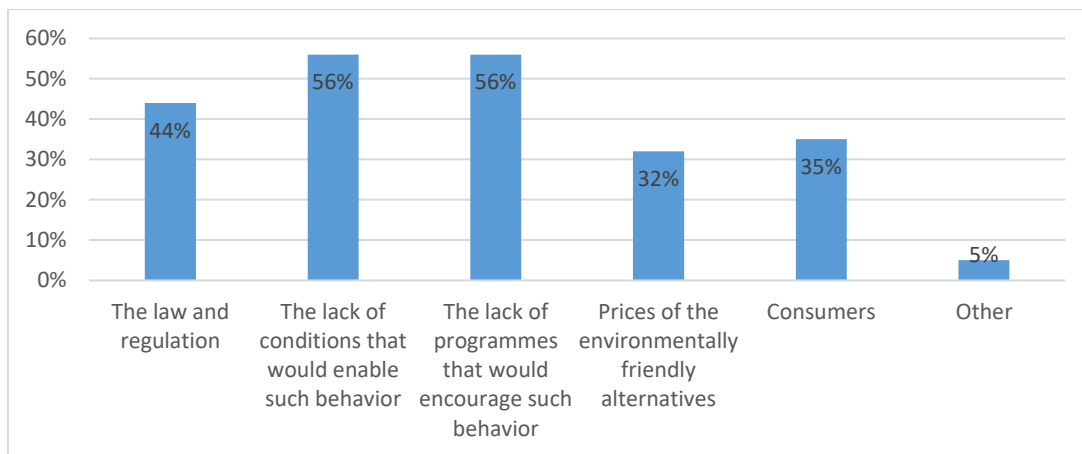
Figure 16: Do consumers need pillars to behave differently



Source: Own work.

The respondents were asked to rate the level of how much they agreed with the statement „I do not need pillars to behave differently”. The given answers were as follows: I do not agree at all, I do not agree, I am neutral, I agree and I completely agree. The answers provided by the respondents are depicted in figure 16. The results indicate that most of the respondents are neutral to this statement.

*Figure 17: Obstacles to adopting more sustainable and environmentally friendly behavior*



*Source: Own work.*

The question that followed aimed to uncover what Montenegrin consumers believe to be the greatest obstacles to adopting more sustainable and environmentally friendly behavior. The respondents were given 6 options, which are depicted in the figure 17, and had the possibility of choosing multiple answers. The answer chosen by most respondents was “The lack of conditions that would enable such behavior” and “The lack of programs that would encourage such behavior”. The percentage of people who chose law and regulation was 44%, while 35% of the respondents chose option consumers. The prices of the environmentally friendly alternatives option were chosen by 32% of the respondents and option other by 5%. The respondents gave various answers that were similar to each other and were: “The consumers' awareness”, “consumers not being educated enough about the importance of recycling”, “the lack of culture”, and “consumers not being aware of the situation that by polluting they influence themselves not only the environment”.

Table 8 depicts  $\chi^2$  test of the correlation between recycling waste and barriers to adopting a more sustainable and environmentally friendly behavior. The  $\chi^2$  independence test was used to determine the correlation between recycling and the barriers respondents believe or not are the obstacles to adopting more sustainable and environmentally friendly behavior, in this case, law and regulation. No statistically significant correlation was found.

Table 8:  $\chi^2$  test of correlation between recycling and barriers of law and regulation

Recycling	N	Law and Regulation		$\chi^2$	p
		No	Yes		
yes	102	66	36	3.287	.070
no	439	238	201		
Total	541	304	237		

Note: N - number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance level .01.; \* significance level .05.

Source: Own work.

Depicted in table 9 are comparisons of beliefs respondents have towards the given barrier to more sustainable behavior, in this case, the lack of conditions that would enable such behavior, and their actual behavior, in this case, whether they are recycling or not.

Table 9:  $\chi^2$  test of correlation between recycling and the lack of conditions that would enable such behavior

Recycling	N	The lack of conditions that would enable such behavior		$\chi^2$	p
		No	Yes		
yes	102	40	62	0.784	.376
no	439	196	243		
Total	541	236	305		

Note: N – number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance level .01.; \* significance level .05.

Source: Own work.

The  $\chi^2$  independence test was conducted to better understand the correlation between recycling and barriers to adopting more sustainable and environmentally friendly behavior, in this case, the lack of conditions that would enable such behavior. A statistically significant correlation does not exist between recycling and the belief that a lack of conditions that would enable such behavior is a barrier to adopting more green behavior.



Depicted in Table 10 is the  $\chi^2$  correlation test between recycling and barriers that would enable the adoption of more green behavior, in this example the lack of programs that would encourage such behavior.

The  $\chi^2$  independence test has been used to unveil the correlation between whether the respondents were recycling and the barriers to adopting more green and sustainable behavior, in this case, the lack of programmes that would enable more sustainable behavior. It has been confirmed that there is no statistically significant correlation between the recycling of respondents and their belief that there is a lack of programs that would enable more sustainable behavior.

*Table 10:  $\chi^2$  test of correlation between recycling waste and lack of programs that would encourage such behavior*

Recycling	N	The lack of programs that would enable such behavior		$\chi^2$	p
		No	Yes		
yes	102	52	50	2.280	.131
No	439	185	254		
Total	541	237	304		

Note: N – number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance level .01.; \* significance level .05.

*Source: Own work.*

Depicted in Table 11 is the  $\chi^2$  of correlation between recycling waste and barriers to adopting more sustainable end environmentally friendly behavior, in this case, the consumers.

The  $\chi^2$  independence test was conducted to determine whether there is a correlation between the recycling of the respondents and their belief that the consumers are the barrier to adopting more green and environmentally friendly behavior. It has been confirmed that there is a statistically significant correlation between recycling and the belief that consumers are the barrier to adopting more environmentally friendly and sustainable behavior are the consumers. When compared to consumers who do not recycle, those respondents who do recycle, ones that are more environmentally aware and are behaving so, believe that the consumers are the barrier to sustainable behavior.

*Table 11:  $\chi^2$  test of correlation between recycling waste and barriers to adopting more green behavior, consumers.*

Recycling	N	Consumers		$\chi^2$	p
		no	yes		
yes	102	53	49	9.081	.003
no	439	300	139		
Total	541	353	188		

Note: N – number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance level .01.; \* significance level .05.

*Source: Own work.*

Depicted in table 12 is a correlation test between recycling waste and barriers to more environmentally friendly behavior, in this case, the prices of more environmentally friendly products.

*Table 12:  $\chi^2$  test of correlation between recycling and the barrier of prices of the environmentally friendly*

Recycling	N	Prices of environmentally friendly alternatives		$\chi^2$	p
		yes	no		
yes	102	53	49	14.390	<.001
no	439	316	123		
Total	541	369	172		

Note: N – number of respondents,  $\chi^2$  - statistic, p – statistical significance, \*\* significance level .01.; \* significance level .05.

*Source: Own work.*

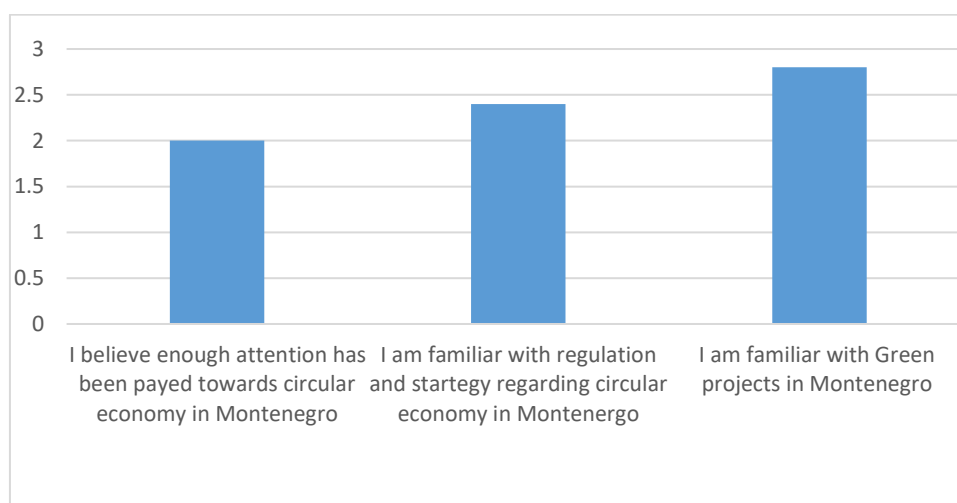
The  $\chi^2$  independence test was used to understand the correlation between recycling and the prices of alternative environmentally friendly products. It has been confirmed that there is a statistically significant correlation between the behavior of consumers, in this case, recycling, and their beliefs, in this case, that the prices of environmentally friendly

alternatives are the barrier to adopting more sustainable and green behavior. Therefore, those respondents who recycle consider that the prices of those kinds of products affect consumer behavior to a greater extent than those consumers who do not recycle.

To sum up, the third section of the survey had an aim to better understand consumers' behavior and certain actions they are willing to take that had connections to green economy.

The fourth and final section of the survey was made up of three questions. Those questions are concerned with how much respondents knew about the circular economy in Montenegro. This section of the questionnaire seeks to gauge Montenegrins' familiarity with specific initiatives, laws, projects, and tactics that are in place. Furthermore, the respondents were asked about the sources where they find information about circular economy and the validity and reliability of these sources. The fourth part of the questionnaire is designed to ascertain how much Montenegrin consumers are participating in the circular economy and what is their knowledge on the circular economy situation in their country.

*Figure 18: Level of how much consumers agree with given statements about circular economy in Montenegro*



*Source: Own work.*

The first question of the fourth and final part of this survey required respondents to rate how much they agreed or disagreed with certain statements. This question had three subquestions and the results of the survey on this question are depicted in the figure 18. The same scale was used for the previous questions. The average score to the option “I am familiar with green projects that are active in Montenegro” was 2.8. This cumulated answer lies between “I do not agree” and “I am neutral”. The next statement “I am familiar with the regulation and strategy regarding circular economy in Montenegro” was graded by the respondents with 2.4. In this case, the statement was closer to the “I do not agree” option. Finally, the last statement “I believe that enough attention has been paid towards circular economy in

Montenegro”, was graded by the respondents with a grade of 2 - meaning consumers do not agree.

*Table 13: Comparison of the gender of the respondents and how much they agree with the given statements*

Claims	Gender	N	M	SD	t	p
I believe that enough attention has been paid to circular economy in Montenegro	Male	102	2.05	0.84	0.08 2	.934
	Female	439	2.04	0.90		
I am familiar with the regulation and strategy regarding circular economy in Montenegro	Male	102	2.67	0.98	3.33 6	.001 **
	Female	439	2.31	0.99		
I am familiar with the „green” projects that are active in Montenegro	Male	102	3.11	0.97	3.26 2	.001 **
	Female	439	2.73	1.06		

Note: N – number of respondents, M – arithmetic mean, SD – standard deviation, t – statistic, p – statistical significance; \*\* statistical significance level .01.; \* statistical significance.05.

*Source: Own work.*

Depicted in Table 13 is a comparison between the two gender groups with the degree of agreement with certain circular economy claims in connection to the situation in Montenegro.

The results of the T-test of independent samples indicate that there seems to be a statistically significant difference between the two groups of respondents and the level of how much they agreed with the given claim: “I am familiar with regulation and strategies regarding circular economy in Montenegro”. Therefore, the male respondents agreed at a higher level to this claim than the female respondents.

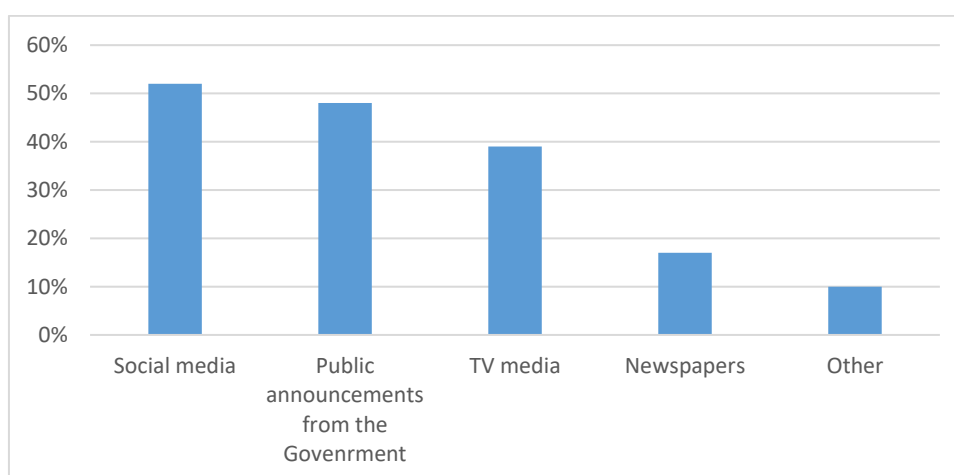
Statistical analysis of comparison of the two mentioned groups with the claim “I am familiar with the green projects that are active in Montenegro” was conducted. The results of the T-test of the independent samples showed that there is a statistically significant difference between the two groups of respondents with the mentioned claim. The respondents that are males showed greater levels of agreeableness to the given claim than female respondents.

There were no statistically significant differences that were noticed between the two groups of respondents (by gender) and the claim “I believe that enough attention has been paid to circular economy in Montenegro”. Moreover, that was also the answer where both of the

respondents provided the answers with the lowest mean, males 2.05 and females 2.04. The claim that both the male and female respondents agreed the most was “I am familiar with the green projects that are currently active in Montenegro”.

The last two questions of the survey aimed to uncover which of the following sources consumers find the most reliable and from which sources the consumers are most frequently getting information about circular economy. Both of the questions had the possibility for the respondents to choose multiple answers as well as give their own examples. Figure 19 depicting the results. Starting with the sources the consumers found the most reliable for information about circular economy in Montenegro: 52% of the respondents find social media the most reliable source regarding circular economy in Montenegro, 48% of the respondents chose public announcements from the Government, 39% chose TV media, 17% chose newspaper, while 19% of the people chose the “other” option. Answers to the „other” option were: “I do not get those information”, “NGOs”, “statistical data”, “combination of all media and channels of communication”, “email”, “official web pages”, “academic and scientific community”.

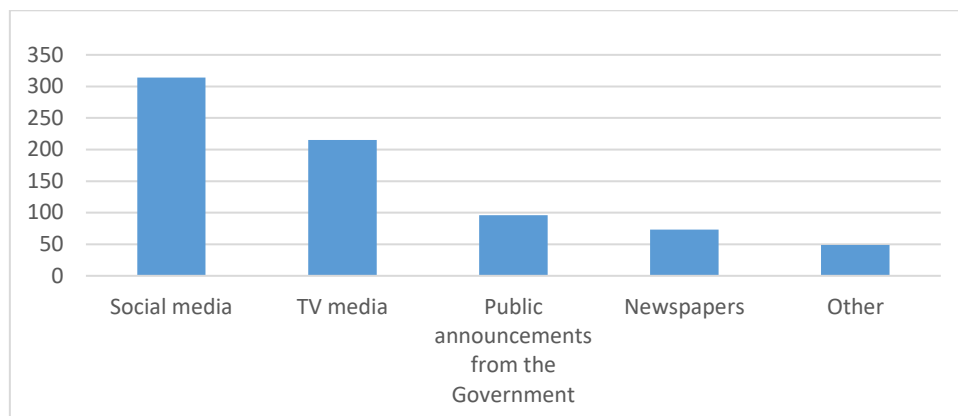
*Figure 19: Sources of information consumers find most reliable*



*Source: Own work.*

The last question was: “From which sources do you most frequently get information about the circular economy?”. Again, most of the respondents chose social media giving it 58% of the answer structure, next in line was TV media with 40%, followed by public announcements from the government 18%, newspapers 13%, and other 9%. Answers from the other option were similar to the previous one such as “I do not get those kinds of information”, “internet”, “NGO”. The results are depicted in the figure 20.

*Figure 20: Sources of Information consumers get information most frequently*



*Source: Own work*

To conclude, the readers had the chance to learn more details about the survey in this chapter. For readers to understand the essence of the study, every question in the online survey was thoroughly examined.

## **5.2 INTERVIEWS WITH THE SPECIALISTS**

### **5.2.1 Specialists and their background**

Three interviews were carried out with the specialists from the field, key findings are depicted in the figure 21. The objective of the interviews was to gather deeper insights into circular economy in Montenegro. Montenegrin consumers were surveyed about their beliefs and actions, making it imperative to ascertain the perspectives of individuals working in the field on both consumer behavior and the system. The goal was to unveil perceived hurdles and mitigating factors, as well as assess the conduct of Montenegrin residents in relation to circular economy in Montenegro. Furthermore, to establish a link between the responses provided by the residents and experts from the field.

The first interview was carried out with Ilija Kaluđerović, the founder of project Zeleni Talas. The mission of this project is to effectuate beneficial transformations in Montenegro by implementing recycling practices, minimizing waste generation, and protecting the environment. Consequently, Zeleni Talas has initiated numerous initiatives aimed at educating the consumers as well as advocating for recycling and environmentally friendly practices. This project was created in July of 2023, but Mr. Kaluđerović had been actively involved in the subject of circular economy for many years before the creation of the project. His extensive research in this area aimed to develop a sustainable project that would raise awareness about circular economy principles in Montenegro. He opted for a career path in circular economy, which inspired him to explore the difficulties faced in Montenegro and identify the initial measures consumers may take to preserve the environment.

The second interview was conducted with a specialist from the field who has been involved in the process of creation of the Roadmap Towards Circular Economy in Montenegro. Milena Rmuš embarked on her journey in the field of circular economy with the pursuit of a Master's degree focused on resource management. She began her professional journey with an internship at the Ministry of Ecology in Montenegro, thereby taking her first step in the field of ecology. Currently, Milena holds the position of the head of the environment committee and energy efficiency at the Chamber of Economy in Montenegro. Milena has actively participated in numerous projects and efforts related to the implementation of circular economy principles in Montenegro.

Finally, the third interview was held with a technical director of the company Deponija d.o.o. Mr. Ratko Pavićević who has been working for 14 years at the company. Deponija d.o.o. specializes in the construction, operation, and upkeep of municipal waste dumps, as well as the recycling of both metal and non-metal waste and byproducts. Additionally, the company engages in the trading of secondary raw materials. Therefore, Deponija d.o.o. is trying to make steps towards the transition to circular economy through product placement. Deponija d.o.o. has demonstrated environmentally conscious conduct since 2010 when they initiated green projects focused on recycling as well as the separation of waste.

*Figure 21: Key findings from interviews*

Key findings
Montenegro is at the beginning stages of the transition towards circular economy
Main challenges: skepticism of consumers, deficiency of knowledge, awareness, and human resources, lack of funding
Actively involving and educating the consumers through projects and programmes could help overcome the challenges
The responsibility towards transition is not only on the consumers but rather the entire system

*Source: Own work.*

### 5.2.2 Challenges and obstacles in Montenegro

According to Mr. Kaluđerović, the main challenges faced at the very start of Zeleni Talas were that the inhabitants were overwhelmed with discussions about the circular economy, with no tangible outcomes. Several previous projects that preceded Zeleni Talas had a short lifespan of only one or two years and did not persist beyond that. Hence, the prevailing preconceptions acted as an obstacle, causing Montenegrins to hold the belief that their country's journey towards a circular economy was unattainable. Moreover, recycling operations lacked institutional support, resulting in a loss of public trust in the system.

Consequently, a significant challenge faced by consumers was the prevailing skepticism over the real recycling of their waste. According to Kaluđerović, Montenegro is now deficient in knowledge, particularly in the realm of institutions. The non-government sector has the potential to participate in the circular economy at its most advanced level, but it requires institutional support. Insufficient financial resources provide a significant barrier to implementing a circular economy. Kaluđerović suggests that reallocating and investing these resources in education might lead to a rapid transition to a circular economy in Montenegro within two years.

As previously stated, Deponija has been prioritizing environmentally friendly practices since 2010, when they initiated their green projects. Mr. Pavićević, the technical director noted that there were two separate initiatives, each including the construction of a recycling plant: one for recycling garbage generated in residences, and another for recycling waste from cars. A few years ago, the Capital city of Montenegro chose to implement waste separation into wet and dry fractions, as previously mentioned by Mr. Kaluđerović. The objective was for consumers to carry out initial selection, but, it has not fulfilled its potential. The issues identified by the technical director pertain not only to the capital city of Montenegro but to the entire country. The primary concern is the lack of consumer awareness of recycling. They possess the knowledge that the task must be completed, yet they fail to take action. According to Mr. Pavićević, the main impediment in the circular economy is the initial selection process. The issue stems from the disorganized communal waste that is delivered to the Deponija.

The procedure entails placing communal waste from the container onto the sorting conveyors. If the garbage is not separated, the initial stage is for individuals to segregate the waste from the conveyor belt, commencing with the segregation of materials that are unsuitable for recycling, such as wires, pillow mattresses, and so on. This step necessitates the utilization of human resources, taking into consideration both their well-being and the protection of the infrastructure. Once all of the specified requirements have been met, the staff can commence the process of segregating the packaging waste. Furthermore, the problem often arises when packaging waste that has been separated does not find a purchaser. This leads us to another issue - a limited market. Despite the investment of time, effort, and resources, the product cannot be marketed. According to Mr. Pavićević, the issue is within smaller systems. He also highlights that the price of packaging waste is continuously changing. Frequently, the cost of introducing a product to the market exceeds the cost of selling it. Mr. Pavićević has observed that in other nations, these procedures are funded through public subsidies. Many other countries have environmental funds that provide financial support to other firms like Deponija. For the existence of these systems, public subsidies are a necessity, hence extended responsibility is necessary for the state to have the ability to do so. Therefore, the entire system must function well for this business to endure. The survival of the system is vital since the collection of garbage is important. According to Mr. Pavićević, the company Deponija has made progress, but Montenegro has not yet done the same. He believes that the residents of Montenegro have a significantly low



degree of understanding the concept of circular economy. He observed that individuals lack interest in the circular economy due to the absence of external pressure to be informed about it. Finally, Mr. Pavićević highlighted the high cost of recycling technologies and the absence of infrastructure in Montenegro to facilitate recycling.

Mrs. Rmuš observed that Montenegro is in the early stages of its transition and is facing a shortage of human resources. In her opinion, Montenegro suffers from a shortage of individuals who possess knowledge and expertise in this particular subject. Acquiring this knowledge involves integrating legal and regulatory frameworks, analyzing the behaviors of stakeholders, and understanding human psychology to inspire and encourage proactive activity. According to her perspective, Montenegro will not be at the forefront of the green transformation, but rather the entire world will take the lead, and Montenegro will just participate in the transition. Montenegro is actively embracing the emerging worldwide trend. Yet, one of the major obstacles encountered in developing the roadmap for a circular economy was a lack of comprehension of the concept. Currently, the situation has changed, although initially, the lack of understanding posed a significant challenge. In her perspective, the transition towards a circular economy is mostly driven by the private sector. She considers the imperative for the country or government to have an effective regulatory structure. Hence, government needs to take responsibility for regulating the green economy. If consumers and the private sector do not voluntarily adopt environmentally friendly behavior, it is necessary to implement criminal legislation. The primary observation she made is the necessity for an increase in awareness among not only the general population but also the local community and government.

### 5.2.3 Addressing mitigating factors and proposing resolutions to the issues.

As Zeleni Talas (ZT) has understood the mentioned challenges they were facing, they are seeking to overcome these obstacles and are actively involved in educating the community. ZT has successfully instructed around 1,500 children over a total of 35 workshops. It is crucial to emphasize that the workshops served not only as instructional opportunities but also as a mean to compel the children to consistently engage in environmentally friendly behavior and waste collection. Zeleni Talas has established a framework that has facilitated and promoted the practice of recycling. Furthermore, Zeleni Talas has undertaken numerous projects aimed at educating locals and boosting recycling. Thanks to their sponsors, they were able to incentivize environmentally friendly actions and encourage individuals to properly separate waste. Individuals must persist in recycling and establish a long-lasting habit. According to Mr. Kaluđerović, the most significant project is “Docekajmo zajedno 2024” (That translates to Lets celebrate year of 2024. together). The concept gained significant popularity due to extensive media coverage and its ability to inspire people to initiate waste collection efforts. Throughout the project, individuals were incentivized to gather waste, including plastic, cans, and bottle caps. The media coverage, along with the offered incentives, which promised rewards to the individual who gathered the most amount of waste, motivated individuals to bring their segregated waste. ZT has earned the trust of

numerous individuals by initiating this project and others. They are actively collaborating with their sponsors to establish trust among people that their waste would indeed be recycled. The results of the mentioned project were not only recycled waste, but in collaboration with another company they were able to create benches out of bottle cans that were later donated. In addition, ZT is particularly focused on educating institutions, as it has also been identified as a significant barrier. Their objective is to develop a model that is capable of being maintained and continued in the long term. However, Mr. Kaluđerović observed that institutions have recently become more proactive in addressing circular economy and regulations. In addition, there is ongoing discussion concerning chapter 27 in Montenegro. Consequently, Mr. Kaluđerović has the belief that the notion of environmental preservation will experience an acceleration during the next 5 years.

After observing instances of human behavior from other countries, Mr. Pavićević concluded that adopting circular economy activities is rather simple and our population might easily adapt to it. Nevertheless, it is imperative to establish a system that compels individuals to adopt more environmentally friendly behavior. Furthermore, he emphasized that Montenegrin individuals demonstrate the practice of waste separation when they travel elsewhere, thereby becoming acquainted with such behavior. In the absence of governance, consumers exhibit altered behavior. He emphasized that the responsibility for the situation should not just be placed on the consumer, but also on the communal police, inspection, and the system, which should facilitate the enrollment of consumers in those activities. One potential remedy could involve implementing punitive policies or sanctions as outlined in the “Law on Waste Management”. By examining many global companies, it becomes evident that using a combination of incentives and penalties elicits favorable reactions from the public.

According to Milena Rmuš, a mitigating factor in Montenegro is that it is a small country, which makes it easier to exert influence over a smaller population. In addition, lower amounts of waste and easier supervision are also factors to consider. However, this mitigating circumstance can also be a barrier as it limits the opportunities available to Montenegrins compared to larger countries. A comprehensive system solution and a multi-stakeholder strategy are necessary to address the potential consequences of any failure within the chain. Furthermore, there are numerous projects focused on the concept of circular economy, which is increasingly being discussed in Montenegro. As a result, people are becoming more aware of its importance.

Additionally, Mrs. Rmuš stated that the business sector is actively engaged in the move towards a circular economy, contributing a practical dimension to the concept. Montenegro occupies an advantageous position in comparison to other nations in the region. Serbia is the only country in the region that has developed a roadmap before Montenegro. Serbia has also established a Center for circular economy. The reason for Serbia being successful in this field is its abundance of human resources. More, its economy is significantly stronger than Montenegrin and it is capable of adhering to the norms and principles of a circular economy.

A significant number of multinational corporations have their headquarters in Serbia which leads to a greater abundance of resources, as well as access to information and expertise from other countries. Consequently, their corporate objective strongly motivates environmentally friendly conduct. It is worth emphasizing that multinational firms advocate such behavior not due to government coercion, but because it aligns with their corporate objective. From the perspective of Milena Rmuš, Montenegro surpasses other countries in the region in most aspects when circular economy is in question, except for waste management. It is noteworthy that problems and opportunities are essentially identical in the region. Yet, Montenegro is at an advantage since it has answered strategical questions and is promoting circular economy as the primary focus.

#### *5.2.4 Behaviour of Montenegrin Consumers in practice*

Mr. Kaluđerović considers that the behavior change of Montenegrin consumers is highly conspicuous. An excellent measure of this transformation is the quantity of waste being collected during the existence of ZT, which has previously been discussed. In addition, the public frequently contacts ZT to inquire about their initiatives and to deliver their waste for recycling. Consequently, consumers are intrigued, yet the operational aspects of recycling are inadequate. However, there are two major upcoming projects with the aim of including the population of Montenegro. One of them is a quite innovative application they have produced, with the backing of the European Bank. The program is designed for companies in Montenegro and aims to incentivize them to gather their waste materials, including paper, cans, plastic bottles, and more. By doing this, ZT is specifically targeting an additional demographic of Montenegrin consumers and simultaneously providing them with education on recycling. The second major undertaking is the implementation of state-of-the-art recyclomats, which serve the purpose of gathering plastic bottles and cans. Their objective is to establish a substantial quantity of recyclomats through collaboration with their partners. With these two projects, Zeleni Talas will continue on promoting sustainable behavior and can serve as an example of green behavior in practice.

Mr. Pavićević stated that the company Deponija does business mostly with legal entities. When it comes to the consumers, the pricelist of products that Deponija buys out exists with predetermined prices of the packaging waste. Moreover, they are collecting tires with compensation from the consumers. On the other hand, legal entities are a great generator of waste such as paper, packaging waste, etc.. This is why Deponija is trying to raise ecological awareness among many companies and create new habits of separating waste. Deponija is investing a lot of effort into campaigns to communicate with legal entities. Moreover, people believe that Deponija and Čistoća are the same company, therefore there is an issue with the perception. The aim of campaigns that are conducted by Deponija is to profile themselves not only as a local company, but also as a state company for managing waste. Mr. Pavićević believes that the level of awareness towards circular economy is really low in Montenegro when it comes to its consumers. He pointed out that people are not interested in circular economy since no one is forcing them to be aware. In his opinion that can be solved by

punishment policies and incentive measures. Mr. Pavićević noted that the project “Pogon za reciklazu vozila” was very successful in previous years, especially in 2022. This project is based on people bringing their old, used cars to Deponija to sell them. Deponija buys that car and the whole process starts with the decontamination of the fluids; followed by the dismantling of the car and the final result is to be sold for further recycling. Moreover, the glass is also separated and sold. The aim is to valorize every part of the car with as much as it can be utilized. The reason for 2022 being so successful is the price increase, hence monetary incentive is the one that kept people bringing their old, in most cases unusable cars with an aim to recycle them. The current focus is the compilation student textbooks from former students. The objective of this initiative is to encompass the entire geographical area of Montenegro. According to Mr. Pavićević, in addition to presenting themselves as a socially responsible company, they also aim to serve as a role model for others, increase awareness, particularly among children, and provide them with education. Future plans are focused on both the core region and the seaside. They have initiated a partnership with the hotels to broaden the network and advance the progress of the outcomes.

According to Milena Rmuš, consumers' reactions are influenced by their perceptions, areas of interest, workplaces, and other factors. Some consumers lack interest, and some possess a strong interest in the concept of circular economy. Circular economy is highly dependent on the individual characteristics and circumstances of each nation. Each country has distinct areas of interest that they prioritize. Varying national agendas require distinct strategies for the circular economy. Therefore, Mrs. Rmuš emphasized that their primary focus in the plan towards a circular economy was on the tourism sector. The rationale behind this decision is that it is the primary industry in Montenegro. Furthermore, it possesses significant potential for growth as it links the economy, transportation, construction sector, and even waste management. Milena Rmuš considers hotels to be of utmost importance. Several hotels in Montenegro are actively promoting awareness of the green economy through their initiatives. Furthermore, hotels typically produce a significant amount of garbage, making them an important area of concern.

## **6 DISCUSSION AND RECOMMENDATIONS**

### **6.1 CONTRIBUTIONS**

Montenegro is at the initial stages of transitioning towards a circular economy, and as a small economy, it has not been a subject of many circular economy scholars before. This study can subsequently serve as a foundation for comprehending and conducting further investigation in the realm of consumer behavior. Furthermore, it provides a more distinct depiction of the situation of the circular economy in Montenegro, including the challenges and areas that require enhancement for a successful transition. This paper also outlines the advantages and disadvantages of Montenegro in terms of its circular economy. Finally, it offers both prospects and obstacles that could aid Montenegro in accelerating its transition to a circular economy.

Similar research that has been done regarding circular economy in Montenegro by Fernandes and Vukotić (2022), focused on the industry point of view rather than on consumers as is the case in this paper. The question posed in that paper was presented in an alternative manner, however, participants were requested to evaluate the extent to which they agreed (on a scale of 1-5) with two distinct statements. The first statement, “I am familiar with regulation and strategies regarding circular economy in Montenegro” had a score of 2.4. The scenario is similar to the statement “I am familiar with green projects implemented in Montenegro,” as respondents gave an average rating of 2.8. Therefore, it can be inferred that both studies yielded comparable results regarding the level of familiarity of the Montenegrin public with the concept of a circular economy.

A research article done on the topic of circular economy in Bosnia and Herzegovina states that circular economy still has not been greatly discussed in this country. Education and consumer awareness, in addition to investments, are stated to be crucial requirements for the implementation of a circular economy in Bosnia and Herzegovina. Nevertheless, Bosnia and Herzegovina has implemented specific initiatives, laws, policies, and regulations that align with the ideas of a circular economy (Dzafić & Omerbašić, 2023). The situation in Bosnia and Herzegovina bears resemblance to the findings in Montenegro of the study conducted in this paper. Moreover, a similar survey such as the one in this research paper has been done in the Republic of Serbia and the Republic of Srpska. An online survey was conducted with participants from generation Z, which includes individuals aged 12 to 26. The aim of this survey was to examine the viewpoints of generation Z on circular economy waste management, as well as their comprehension of sustainability. This survey also examined the influence of the Covid-19 pandemic on the behaviors of Generation Z in relation to the environment. This study provides proof that Generation Z has concerns about the future of planet Earth and holds the belief that recycling is beneficial and valuable (Milovanović & Đurović, 2021). In comparison with research done in Montenegro, one can notice that a similar situation is in both the Republic of Serbia and the Republic of Srpska with respondents being concerned about the environment as well as understanding the importance of recycling.

## **6.2 PRACTICAL RELEVANCE**

Every analysis has positive and negative aspects. However, negative aspects can be adequately and cautiously addressed and turned into positive ones. It is important to use all of the information obtained through results to understand the whole picture and certain features. Moreover, the results of this analysis can be used as a stepping stone to understand what needs to be changed.

First and foremost, the respondents have expressed the highest level of concern when considering the importance of recycling, compared to the other five concepts that were examined. On the contrary, the consumers expressed the least concern regarding the issue of resource scarcity. These results are particularly intriguing since resource scarcity is one of

the motives for recycling, however, the respondents have given a contradictory response. While the respondents acknowledge the significance of recycling as well as waste piling up, they lack awareness of one of its crucial rationales – in this case, resource scarcity. There was no statistically significant difference between genders when recycling was taken into account. Conversely, female respondents have demonstrated a higher degree of apprehension regarding resource scarcity.

The survey findings indicate that the actions of the participants in the survey do not correspond with their concerns, particularly concerning recycling. Only 19% of the respondents claimed that they recycle. This means that the majority of consumers do not recycle, that is 81%. There are many possible reasons why this percentage is so high. Explanations can be found in the insufficient infrastructure, consumer behavior, or simply the accessibility of recycling. Even at first glance, these results imply that there is an issue regarding the topic of recycling. Out of all respondents that do recycle, 55% of them, stated that they throw away the garbage every day, only recycle one to two times per week. This implies that recycling is not an activity they practice every day, however, it is a good starting point. Only 7% of respondents who recycle do so on an everyday basis. The results show that 81% of respondents need to be motivated to change their behavior and start recycling more. Furthermore, out of the 19% of respondents who do recycle, 93% do not do it every day. As a result, it is important to persuade these respondents to increase their recycling habits from once, twice, or three times per week to every day.

The interviewed experts in the field have determined that this issue can be resolved by the implementation of a suitable regulatory framework and the imposition of penalties that would incentivize customers to be more environmentally conscious. Furthermore, it is crucial to enlighten the public on the significance of their role in the recycling process. Efficient waste management is a crucial obstacle to overcome to achieve sustainable development goals in the European Union, particularly in relation to the Circular Economy. Hence, the European Union has implemented a set of legal frameworks that define the obligations of all individuals involved in the waste management process (Bjelić et al., 2024). As mentioned, Montenegro has established a regulatory framework for waste management.

The results of the survey depict that the respondents have a higher level of interest in using environmentally friendly alternatives to products with the average being 4.1. On the other side, when they are asked about their behavior in practice such as what kind of bags they use while shopping, only 35% of respondents use environmentally friendly shopping bags. This means that 65% of respondents use plastic bags. It is important to note that this is a simple everyday habit that can be altered with just a little effort. To discover why consumers mostly select environmentally unfriendly products, especially in the case of plastic bags, the participants were asked to provide the reasoning behind their decisions. This was a multiple-choice question, and the most selected responses were: “I am used to plastic bags” and “Environmentally friendly alternatives are not as widely available as plastic ones”. The mitigating circumstance is that the price of alternative bags did not play a great role for the

consumers. These answers can be used as a great starting point to understand what aspects need to be improved and how to tackle those challenges.

Furthermore, the conducted study also sought to reveal the factors that would incentivize consumers to adopt more ecologically friendly behaviors. The findings indicate that the respondents' primary motivation would be discounts on environmentally sustainable choices and tax reductions on environmentally sustainable solutions. Results of the T-test of independent samples provided information that women are more prone to be motivated by discounts than male participants. In addition, they exhibit lesser levels of motivation when it comes to direct financial incentives, product packaging, and sanctions (the individuals who do not recycle would need to pay a certain amount of money).

Contrary to the results provided by the consumers of Montenegro, the experts from the field believe that a regulatory framework with sanctions would be the best solution to motivate or persuade consumers to behave more environmentally friendly. Moreover, the results of the T-test of the independent sample provided information that yet again, women are more prone to react to sanctions than men. Consumers are more likely to participate in pro-environmental actions when the advantages outweigh the disadvantages. In addition to considering costs and advantages, individuals also take into account their emotions when deciding how to act, including the social costs and rewards associated with their choices. Consequently, individuals are more inclined to engage in environmentally conscious actions when they perceive that others will also do so, or when they anticipate approval from others, particularly if they strongly identify with them. Another aspect that influences their environmentally-friendly conduct is its symbolic meaning. This means that their behavior can indicate the type of person they aspire to be, which in return has a significant impact on their adoption of green behavior and enhances their social status (Steg, 2016). During the interview, Mr. Kaluđerović from Zeleni talas highlighted the importance of educating the youth about the importance of circular economy hence they could influence their families. This is a great example of how consumers behavior could be influenced in a way to become more environmentally aware. On the other hand, there need to be other motivators that could force people to behave more green.

Finally, the participants of the survey were asked to choose what factors they consider to be obstacles that prevent them from behaving more green. As previously mentioned, the respondents were given 6 answers to choose from. The results of the survey say that the respondents believe that the greatest obstacle to adopting more sustainable behavior is “the lack of conditions that would enable such behavior” and “the lack of programs that would encourage that behavior”. By exploring the market along with the interviews that were conducted, one can conclude that there indeed are programs that could encourage that behavior as mentioned in the interview with Mr. Kaluđerović. Zeleni Talas is involved in organizing projects that promote green behavior, and even though they are satisfied with the response of the public as they are a part of those projects, the public lacks knowledge that they exist.

Moreover, Deponija d.o.o. also organizes projects mentioned above that promote separating waste by individuals as well as legal entities. On the other side, the answer was least frequently chosen by the respondents when asked about the obstacles to more sustainable behavior is the option consumers. It can be concluded that there indeed are programs that promote that kind of behavior, yet consumers are those who do not participate in them. The  $\chi^2$  independence test determined that there is a statistically significant correlation between people who recycle and consideration that consumers are an obstacle to more sustainable behavior. When compared to consumers who do not recycle, those respondents who do recycle, ones that are behaving more environmentally aware, believe that the consumers are the barrier to sustainable behavior. This means that those respondents who behave more environmentally aware, in this situation those who recycle, believe that consumers are the obstacle for not adopting more green behavior. The topic at hand is how to familiarize the population with initiatives that promote environmentally-friendly actions? The respondents were queried about the sources of information they considered to be the most trustworthy. The findings indicate that survey participants perceive social media and government public announcements as the most trustworthy sources of information, with television media and newspapers ranking second. This tool can be utilized to gain a deeper comprehension of the most effective methods for disseminating information about the circular economy. The respondents indicated that they mostly receive knowledge about the circular economy through social media and television, followed by government public announcements and newspapers. Effective media coverage is essential for the success of programs and initiatives, as it ensures that consumers are well-informed about them.

In summary, the majority of Montenegrin consumers exhibit a strong interest in the principles and practices of the circular economy. On the contrary, they lack the behavior in a way where they would express their beliefs in action. The survey reveals that respondents are familiar with the principles of circular economy and express interest in them. However, their everyday actions do not align with their interest and concern. In addition, they possess a moderate level of knowledge regarding the rules, regulations, and projects currently being implemented in Montenegro. Conversely, the survey results reveal that respondents believe that the Circular economy in Montenegro is a topic that requires greater attention. Therefore, they possess knowledge of its significance. The behavior of Montenegrin consumers often diverges from their core beliefs and requires improvement. The main promoters of the circular economy in Montenegro acknowledge the fact that Montenegro is a small country, which allows for a more direct impact on a smaller population, as opposed to trying to influence millions of people. Furthermore, consumers possess knowledge of global issues, hence it is imperative to direct this awareness towards their actions. Finally, there are regulations and a roadmap that can provide valuable guidance on the necessary steps to expedite the shift toward a circular economy. Additionally, it is imperative to enhance infrastructure and allocate greater financial resources towards initiatives that foster a circular economy. The issue in Montenegro can be resolved through the reallocation of existing resources or by exploring alternative methods of funding.



### **6.3 LIMITATIONS**

There are a few limitations to consider when discussing the results of this study. Although three interviews have already been conducted with specialists in the field to gather their perspectives, conducting additional interviews could provide further insights into the practical situation described by the experts. Another constraint is the self-selection bias among the respondents of the survey. This suggests that the survey would primarily be chosen by the individuals who are interested in the topic of circular economy, therefore providing more positive results.

Furthermore, due to Montenegro being in the early stages of transitioning towards a circular economy, there is a limited number of research publications dedicated to this subject. Additional publications could potentially serve as sources of inspiration for alternative approaches to this topic or as a foundation for further exploration. Furthermore, these research papers could be used as supplementary sources and form the foundation for a comparative analysis of the situation in Montenegro before the completion of this study.

The survey indicates a clear lack of public awareness on the topic of circular economy in Montenegro. It is imperative to educate the consumers about the importance of adopting specific behaviors and the actions they should take to contribute to the transition towards a circular economy. This can be accomplished through several means such as workshops, seminars, and other similar events. An example of population education is the workshops hosted by Zeleni Talas at schools. This can serve as an exemplary model for others. In addition, it is crucial to provide public education, which can be achieved by implementing compulsory workshops in kindergartens, schools, and universities throughout Montenegro.

### **6.4 POLICY RECOMMENDATIONS**

Based on the interviews and a comprehensive examination of research papers on laws and regulations in Montenegro, I believe that some factors must be enhanced to promote the adoption and awareness of circular economy principles among the people. It is widely acknowledged that multi-stakeholder approaches are essential for implementing public policies that address complex issues (Ghinoi et al., 2020). Thus, this transition requires the participation of all stakeholders in the market. It is not solely a matter of whether the public will engage in environmentally friendly behavior or not. They require motivation or encouragement to exhibit specific behavior. Regarding Montenegro, it is crucial to address the issue of waste management, particularly due to the existence of legislation governing this matter. The government must explore strategies to either motivate consumers to adopt environmentally-friendly practices or impose penalties to influence their behavior accordingly.

In addition, decision-makers should devise effective strategies to apply existing laws and regulations. Instances of noncompliance with pre-established regulations have been

observed previously in this paper. Even if one part of the stakeholder chain does not do its role to the fullest extent, the circular economy transition is surely at risk.

Furthermore, it is imperative to educate the general population. The law and regulation can be implemented well, yet if the public is not aware of its existence or is not educated in a way to understand it, there is a large problem. Decision-makers must devise a novel approach to educate the public about green behavior, emphasizing its significance and the necessary steps to expedite or facilitate the transition. This can be accomplished through workshops conducted in schools, kindergartens, or even universities, as previously said. Subsequently, this will result in the youth being educated and well-informed on the concept of the circular economy. Bidirectional models of influence, which are more prevalent in parent-child relationship research, emphasize the simultaneous occurrence of impact in both directions - from parent to kid and from child to parent (De Mol & Buysse, 2008). By initiating a chain of positive behavior, the youth will influence their surroundings, including their parents, grandparents, and others.

## **6.5 FUTURE RESEARCH AGENDA**

Given the scarcity of published research articles on the issue of circular economy in Montenegro, it is evident that there is a pressing need for improvement in this field. To effectively implement a strategy, accompanied by appropriate laws and regulations, it is essential to have a solid foundation of comprehending the fundamental goal of this notion. It is important to thoroughly investigate the market while considering all parties, particularly individuals and legal entities. Considering the legislation on waste management and the fact that corporate entities are producing significant quantities of paper and plastic waste, it is imperative for them to actively participate in waste separation practices.

Future research should prioritize conducting further interviews with experts in the field to gather valuable insights on the implementation of circular economy. By doing this, the hurdles and issues would be more easily identified, allowing stakeholders to determine which aspects to address to solve these problems. Furthermore, a new survey could be conducted at a later date, among the consumers of Montenegro to gain further insights into their behavioral patterns and attitudes towards the circular economy. The objective is to compare the results of this survey with the analysis presented in this paper. By doing so, one can assess whether the consumers have altered their attitudes and started exhibiting more ecologically conscious behavior.

In addition, future research should prioritize the exploration of other markets and the implementation of successful practices from such markets. It is comprehensible that nations with varying resources require distinct methods. By doing a thorough analysis of the Montenegro market and implementing various strategic approaches, it is possible to generate robust concepts that can expedite the shift towards a circular economy.

## 7 CONCLUSION

The primary objective of this thesis is to offer a comprehensive understanding of the state of the circular economy in Montenegro, with particular emphasis on consumer behavior. In that sense, this thesis analyses current consumer beliefs and practices in relation to the circular economy. The aim was to reveal the strengths, possibilities, barriers, and challenges that Montenegro is presently encountering in its transition towards a circular economy. The thesis assessed the level of awareness, level of interest, and behavior of Montenegrin consumers by considering various elements. The thesis focused on three pre-established research questions, providing distinct results and potential solutions to encountered obstacles.

The first research question on the extent of awareness of the public regarding the circular economy was examined through both an online survey and interviews conducted with experts in the field of circular economy. The conducted survey yielded results indicating that the public of Montenegro is concerned about several aspects of the circular economy, including recycling, waste pilling up air pollution, ecological issues, and the reuse or repair of obsolete products, as well as resource scarcity. Regarding the aforementioned, consumers have exhibited elevated levels of concern. One of the concepts that was the least concerning to the respondents was resource scarcity, yet they still agreed that they were concerned about it. It is noteworthy that consumers recognize the significance of these concepts. It is important to mention that even though respondents believed that recycling is important, at the same time they share the least concern towards resource scarcity. This suggests that consumers require further education on the subject of recycling since resource scarcity is one of the pillars of recycling.

The extent of resource conservation relies on the proportion of resources that can be recycled either from a technical or economic standpoint (Merz, 2015). Therefore, consumers must be informed about the importance of resource scarcity in relation to recycling. In addition, the public has demonstrated a significant degree of interest in concepts like reducing air pollution, minimizing waste, adopting more eco-friendly alternatives to items, repairing existing products, repurposing old products, and engaging in recycling. Simultaneously, the consumers found the reuse of old products to be the least captivating concept. The results of the T-test of independent samples indicate a statistically significant difference between gender and concern towards different concepts. In addition, women have demonstrated greater levels of concern for all of the stated topics, except for recycling, where no statistically significant association was observed. Conversely, men exhibited higher levels of interest in recycling. This could be due to the traditional division of labor in the family, which makes women responsible for making decisions regarding the purchase of food and clothing, their use, and disposal.

The second research question focused on the degree to which existing consumer activities and behavior match with the circular economy agenda. This research question was investigated through the survey and literature review. The roadmap towards circular

economy in Montenegro highlights that an effective and efficient waste management system is the foundation of the circular economy (Alibegović et al., 2020). The Law on Waste Management in Montenegro defines and outlines the regulations for recycling. Therefore, it was crucial to examine the attitudes and actions of Montenegrin inhabitants regarding this matter. Law on waste management entails separating paper, metal, plastic, and glass during collection, to reach a recycling and reusing rate of at least 50% for all collected garbage by 2030 (Redakcija, 2024).

Given that waste management is one of the most important aspects of circular economy in Montenegro, and the law has outlined the rules for recycling and separating waste, it is fascinating to observe that only 19% of the surveyed population engages in recycling. Out of 19% of respondents who engage in recycling, only 6% do so daily. This means that a very small number of consumers engage in this activity daily. It is important to note that recycling, from the consumers' standpoint, means separating waste that is to be recycled and bringing it, in most cases, to recycling yards. However, a staggering 97% of the participants expressed their willingness to engage in recycling if it were more accessible to them. It is crucial to emphasize that consumers are eager to modify their behavioral patterns. Yet, the recycling infrastructure in Montenegro is not well developed due to the scarcity of recycling yards and potentially their distance from the consumers as well as the significant expenses associated with its establishment. Specific conditions must be present to enable consumers to develop this habit. When talking about the behavior of consumers, the important question that was covered in the survey was the kind of bags consumers use while shopping.

The escalating global usage and the inherent durability of plastic bags have led to a mounting concern regarding the accumulation of plastic material in the environment (Tudor et al., 2018). When comparing plastic bags to more sustainable alternatives while shopping, 65% of the respondents choose plastic bags over eco-friendly options. The reasons why this happens could be that the local markets in Montenegro have limited access to more sustainable options. Additionally, the respondents might not have the habit of bringing their own bags, or might not be aware of environmentally friendly alternatives to plastic bags. Another major pillar of pollution is transport. Having that in mind, it was important to question how consumers act when they have to choose a means of transport to get to a location that is 1 kilometer away from them. The results of the survey indicate that the majority of respondents, 75% of them, chose environmentally friendly options (by foot, bicycle, or scooter). Even though the consumers of Montenegro are not engaged in the actions towards circular economy at the same degree as their concern or level of interest, there is a certain environmental cautious behavior that is present with them. In conclusion, Montenegrin individuals exhibit a certain degree of environmentally conscious behavior, but there is still potential for further enhancement.

The third research question sought to identify the factors that promote or hinder the development of the circular economy in Montenegro. It was crucial to understand what factors and in what way affect the development of circular economy in Montenegro. This

question was examined using both literature review and interviews with field experts as well as a survey that was conducted. The specialists in the field have highlighted that Montenegro is indeed really a small country. The preliminary census data from 2023 reveals that the population of Montenegro amounts to 633,158 inhabitants (Monstat, 2024). This characteristic can be viewed both as a facilitator and a limitation.

Namely, it is relatively simple to exert influence on a smaller number of individuals rather than on millions of people. In contrast, Montenegro, being a small economy, has fewer opportunities due to the limitations of its small market, and a relatively small GDP of 5 924 million euros (Monstat, 2023). Based on this information it can be concluded that it is imperative to involve all stakeholders in the transformation process, including individuals, legal entities, and decision-makers that would support green projects by securing investments. The objective is to leverage the size of Montenegro to benefit the circular economy, rather than perceiving it as a hindrance. For green projects to be supported, it is a must to invest in and commit finances for the development of infrastructure. Therefore, a significant limitation is the availability of financing to facilitate the transition. Montenegro's consumers have identified the absence of conditions and initiatives that promote environmentally-friendly behavior as the primary barriers to adopting sustainable habits. Given that there are initiatives such as Zeleni Talas, it is evident that consumers are relatively poorly informed, hence the focus should be on improving their awareness of the existence of those projects and motivating them to be a part of those projects. It is important to notice that continuity is a very important aspect of the transition towards circular economy in Montenegro. Every stakeholder needs to be involved even after the green economy project is finished. It is all about creating new habits that are sustainable and that accelerate transition.

This thesis argues that consumers in Montenegro possess a high level of awareness and concern regarding the significance of circular economy principles. Yet, the survey revealed that they did not exhibit that conduct in practice to the same degree. It is evident that consumers are concerned and educated about the concepts of circular economy, but they are not taking enough actions towards circular economy. The respondents' failure to do what they advocate can be attributed, in part, to the absence of conditions that would enable them to exhibit that behavior and their lack of awareness regarding the established projects and programs. The mitigating factor is consumers' awareness of the problems regarding circular economy and that consumers expressed they would participate in sustainable activities if they were more accessible to them. Moreover, the conducted interviews reveal that both financial means and infrastructure are identified as the primary issues. The resolution of these problems depends on either discovering substitute financing or reallocating existing funds toward solving that problem. The key is therefore, to educate the population on how they could engage in green activities, inform them about circular economy through the channels they found most reliable, find funding, and invest in infrastructure with an aim of a successful transition towards circular economy.

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## **APPENDICES**

## **Appendix 1: Abstract in Slovenian**

Pričujoče diplomsko delo obravnava krožno gospodarstvo v Črni gori in vlogo potrošnikov pri prehodu nanj. Obstaja veliko opredelitev krožnega gospodarstva, vendar je vsem skupna zamisel o krožnem sistemu. Zato lahko krožno gospodarstvo opredelimo kot najsodobnejši poskus zamišljanja trajnostnega združevanja okoljske blaginje z gospodarsko dejavnostjo (Murray et al., 2015). Bistvo koncepta krožnega gospodarstva je optimizirati dodano vrednost izdelka in hkrati zmanjšati količino odpadkov. Za podaljšanje življenjske dobe izdelka in zmanjšanje količine odpadkov je nujno, da izdelek ostane vključen v celotno gospodarstvo (Neves & Marques, 2022).

Glede na prejšnje študije velja, da je Črna gora v zgodnji fazi prehoda na krožno gospodarstvo (Alibegović et al., 2020). To pomeni, da je ta država na začetku poti do krožnega gospodarstva in da je vsekakor treba še veliko prepoznati, načrtovati in storiti. Cilj tega diplomskega dela je ponuditi celovito razumevanje stališč in prepričanj črnogorskih posameznikov glede koncepta krožnega gospodarstva. Poleg tega to delo želi vzpostaviti temeljno razumevanje procesa prehoda na krožno gospodarstvo v Črni gori.

Za dosego ciljev tega diplomskega dela je bil prvi korak podroben pregled literature. Pregled literature je bil opravljen s poudarkom na znanstvenih in političnih člankih ter knjigah, ki so povezani s krožnim gospodarstvom, njegovimi spodbujevalci, učinki in cilji. Poleg pregleda literature je v okviru te raziskave izvedena tudi spletna anketa, katere je namen bil razkriti prepričanja, stališča in vedenje državljanov Črne gore v povezavi s krožnim gospodarstvom. Tretji in zadnji korak raziskave so bili trije intervjuji s strokovnjaki s področja krožnega gospodarstva. S temi intervjuji sem pridobila poglobljene informacije o koreninah problema in možnih rešitvah zanj z vidika kompetentnih posameznikov s tega področja. Ta pristop je bil izbran z namenom, da bi se predmetnega vprašanja lotila na čim bolj učinkovit način. Razumevanje razmer na področju krožnega gospodarstva v Črni gori je bilo vzpostavljeno s temeljito analizo literature. Namen te študije je bralcem predstaviti teoretični vidik nove paradigme, kot je bila opažena z vidika Črne gore. Poleg tega to diplomsko delo omogoča pregled nad uveljavljanjem pravil in skladnostjo vseh vpletenih strani.

Ugotovitve te diplomske naloge kažejo, da so potrošniki v Črni gori močno ozaveščeni in zaskrbljeni glede pomena načel krožnega gospodarstva. Vendar pa so rezultati raziskave pokazali, da tega vedenja v praksi ne izkazujejo v enaki meri. Očitno je, da so potrošniki zaskrbljeni in informirani o konceptih krožnega gospodarstva, vendar ne ukrepajo dovolj v smeri krožnega gospodarstva. Poleg tega opravljeni intervjuji kažejo, da sta kot glavna problema prepoznana tako finančna sredstva kot infrastruktura. Ključ do rešitve omenjenih vprašanj je v izobraževanju prebivalstva o tem, kako aktivno sodelovati pri okolju prijaznih dejavnostih, razširjanju informacij o krožnem gospodarstvu prek najbolj zaupanja vrednih komunikacijskih kanalov ter zagotavljanju finančnih sredstev za naložbe v infrastrukturo, ki bodo omogočile uspešen prehod v krožno gospodarstvo.

## **Appendix 2: Questions for open-ended semi-structured interviews**

### **1. Interview with Ilija Kaluđerović**

1. When did you start your circular economy story and how did the beginning of the “Zeleni talas” look like?
2. What were the reactions of the consumers of Montenegro at the beginning of Zeleni Talas and what were the major obstacles at the beginning?
3. How did the youth of Montenegro react to the workshops you are organizing?
4. You have organized a project at one of the Montenegrins biggest music festivals Montenegro Beer Fest. Can you tell me more about the reactions of people and what were the results of that project?
5. Zeleni Talas has organized a vast number of projects since the beginning, which one would you highlight as the most important one?
6. Along with the projects you are creating, how do you think that the society should be included?
7. Is the change in the behavior of people noticeable since the beginning of Zeleni Talas, and now, one year after?
8. What do you consider Montenegro is lacking when circular economy is in question?
9. What are your expectations regarding future?

### **2. Interview with Ratko Pavićević**

1. Kako je izgledao sami početak projekata koji se tiču recikliranja?
2. Šta smatrate da su bile najveće prepreke i izazovi sa kojima ste se susrijetali pri samom početku a koje su najveće prepreke sa kojima se susrijećete danas I šta smatrate da nedostaje Crnoj Gori?
3. Kako su građani reagovali na vaše projekte koji se tiču cirkularne ekonomije na početku, i kako reaguju sada?
4. Kako reaguju preduzetnici (vlasnici ugostiteljskih objekata I slično) na vaše projekte koji se tiču cirkularne ekonomije
5. Da li smatrate da je javnost Crne Gore dovoljno uključena kada je u pitanju cirkularna ekonomija?
6. Da li smatrate da je javnost Crne Gore dovoljno informisana kada je u pitanju cirkularna ekonomija?
7. Koje aspekte biste izdvojili kao olakšavajuće okolnosti koje bi podstakle bržu tranziciju Crne Gore ka Cirkularnoj ekonomiji?
8. Na Vašem sajtu sam vidjela da se Deponija bavi otkupom sekundarnih sirovina od građana. Koliko dugo traje ta akcija, koja je reakcija građana Crne Gore i koji su ostvareni efekti?
9. Da li možete da mi kažete nešto više o pogonu za reciklažu vozila van upotrebe, gdje završava reciklirani materijal i da li imate informaciju o tome koliko je vozila reciklirano u prethodnim godinama?
10. Koji su projekti koji ste sproveli ili koje trenutno sprovodite koje biste izdvojili kao najznačajnije?

11. Koja su Vaša očekivanja u budućnosti? Da li mi možete reci koje su Vaše buduće inicijative i planovi?

### **3. Interview with Milena Rmuš**

1. Koliko dugo se bavite pitanjem Cirkularne Ekonomije u Crnoj Gori i šta Vas je podstaklo da se aktivno i profesionalno bavite istom?

2. Kako je izgledao početak priče o Cirkularnoj ekonomiji u Crnoj Gori?

3. Koji su bili ključni problemi, prepreke i izazovi sa kojima ste se susrijetali prilikom izrade Mape puta ka cirkularnoj ekonomiji?

4. Koje aspekte biste izdvojili kao olakšavajuće okolnosti koje bi podstakle bržu tranziciju Crne Gore ka Cirkularnoj ekonomiji?

5. Kako biste rekli da je Crna Gora pozicionirana u odnosu na ostale države Zapadnog Balkana i koju bi državu Crna Gora mogla uzeti kao dobar primjer procesa tranzicije?

6. Šta smatrate da su trenutno najveće prepreke i izazovi u Crnoj Gori kada je cirkularna ekonomija u pitanju i šta smatrate da nedostaje Crnoj Gori?

7. Kako smatrate da se te prepreke i izazovi mogu prevazići?

8. Kako građani reaguju na projekte i aktivnosti koje se ticu cirkularne ekonomije? Da li uviđate razliku između njihove reakcije sada, i na samom početku tranzicije ka cirkularnoj ekonomiji?

9. Da li smatrate da je javnost Crne Gore dovoljno uključena i kada je u pitanju cirkularna ekonomija?

10. Da li smatrate da je javnost Crne Gore dovoljno informisana kada je u pitanju cirkularna ekonomija?

11. Koja su Vaša očekivanja u budućnosti? Da li mi možete reći koje su Vase buduće inicijative i planovi?

### **Appendix 3: Survey - Summary**

#### **Q1 - Pol?**

- ☐ Muški
- ☐ Ženski
- ☐ Drugo:

#### **XAGE - Kojoj starosnoj grupi pripadate?**

- ☐ 17 godina i manje
- ☐ od 18 do 24 godine
- ☐ od 25 do 34 godine
- ☐ od 35 do 44 godine
- ☐ od 45 do 54 godine
- ☐ od 55 do 64 godine
- ☐ preko 65 godina

#### **Q2 - Koji je stepen Vašeg obrazovanja?**

- ☐ Diploma osnovne škole
- ☐ Diploma srednje škole
- ☐ Bachelor diploma
- ☐ Diploma master studija
- ☐ Diploma doktorskih studija
- ☐ Drugo:

#### **Q3 - U kojem regionu Crne Gore živite?**

Centralnom dijelu Crne Gore pored Podgorice pripadaju sljedeći gradovi: Cetinje, Nikšić, Danilovgrad, Tuzi i Zeta

- ☐ Sjevernom
- ☐ Centralnom
- ☐ Južnom



☐ Ne želim u Crnoj Gori

IF (1) Q3 = [4] ( Ne želim u Crnoj Gori )

#### Q4 - Gdje živate?

---

#### Q5 - Ocijenite koliko se slažete sa sljedećim stavovima:

	Uopšte se slažem	neNe slažem se	Neutralan/Ne utralna sam	Slažem se	U potpunosti se slažem
Zabrinut/a sam povodom ekoloških problema sa kojima se planeta Zemlja suočava	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zabrinut/a sam povodom nedostatka i oskudice resursa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zabrinut/a sam povodom zagađenja vazduha	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Zabrinut/a sam zbog gomilanja otpada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vjerujem da je recikliranje važno	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Vjerujem da je ponovna upotreba ili	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

popravka  
starih  
proizvoda  
važna

Radije ☐ ☐ ☐ ☐ ☐

kupujem  
ekološki  
prihvatljivije  
proizvode

**Q6 - Ocijenite svoj nivo interesovanja ka sljedećim konceptima:**

	Uopšte me interesuje	Ne me	Ne interesuje	Neutralan/Ne utalna sam	Interesuje me	U potpunosti me interesuje
Recikliranje	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ponovna upotreba starih proizvoda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Davanje druge namjene proizvodima	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Popravljanje starih proizvoda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Korišćenje ekološki prihvatljivije alternative proizvodima koji zagađuju životnu sredinu	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smanjivanje otpada	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Smanjivanje ☐ ☐ ☐ ☐ ☐  
zagađenja  
vazduha

**Q7 - Da li reciklirate svoj otpad?**

☐ Da

☐ Ne

IF (2) Q7 = [2] ( Ne )

**Q8 - Zašto ne reciklirate?**

Moguće je odabrati više odgovora

☐ Nedostatak programa ili usluga koje bi mi dozvolile da recikliram

☐ Ne znam kako da učestvujem u toj aktivnosti

☐ Nedostatak povjerenja da će otpad koji recikliram zaista biti recikliran

☐ Nisam dovoljno motivisan/a

☐ Niko drugi ne reciklira

☐ Drugo:

IF (3) Q7 = [1] ( Da )

**Q9 - Ukoliko računamo da svakodnevno bacate smeće, koliko puta nedeljno reciklirate?**

☐ 1-2 puta

☐ 2-4 puta

☐ 5-6 puta

☐ 7 puta

**Q10 - Ukoliko bi Vam recikliranje bilo više dostupno, da li biste češće reciklirali?**

☐ Da

☐ Ne

**Q11 - Kada idem u trgovnu uglavnom koristim:**

- ☐ Plastične kese
- ☐ Održiviju i ekološki prihvatljiviju alternativnu verziju

IF (4) Q11 = [1] ( Plastične kese )

**Q12 - Zašto uglavnom koristite plastične kese?**

Moguće je odabrati više odgovora

- ☐ Navikao/Navikla sam na takve kese
- ☐ Druge alternative su skuplje
- ☐ Druge alternative mi nisu dostupne u istoj mjeri
- ☐ Drugo:

**Q13 - Ako biste trebali da pođete do lokacije koja je 1 km udaljena od Vas, kako biste pošli do tamo?**

- ☐ Automobilom ili javnim prevozom
- ☐ Biciklom ili trotinetom
- ☐ Pješke
- ☐ Drugo:

**Q14 - Do koje granice bi Vas sledeći podsticaji motivisali da se ponašate više ekološki osviješćeno?**

	Uopšte me ne bi motivisalo	Ne bi me motivisalo	Neutralan/Ne utralna sam me	Motivisalo me	biU potpunosti me motivisalo
Direktni novčani podsticaji (pr. na svaku recikliranu plastičnu bocu se dobija određena svota novca)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Smanjenje poreza (pr. pri svakoj transakciji u kojoj je kupljen proizvod koji je više održiv i ekološki prihvaljiviji bio bi smanjen PDV)

☐ ☐ ☐ ☐ ☐

Popusti na proizvode koji su više ekološki prihvatljivi

☐ ☐ ☐ ☐ ☐

Sankcije (pr. ukoliko ne reciklirate platili bi određenu kaznu)

☐ ☐ ☐ ☐ ☐

Pakovanja proizvoda sa naglašenim natpisom da su više održivi

☐ ☐ ☐ ☐ ☐

### Q15 -

	Uopšte se slažem	Ne slažem se	Neutralan/Ne utralna sam	Slažem se	U potpunosti se slažem
Ne trebaju mi podsticaji kako bih se drugačije ponašao/ponašala	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Q17 - Šta smatrate da su najveće prepreke za usvajanje ponašanja koje je više održivo i ekološki prihvatljivo:**

Moguće je odabrati više odgovora

- ☐ Zakon i regulativa
- ☐ Nedostatak uslova koji bi omogućili takvo ponašanje
- ☐ Nedostatak programa koji bi podsticali takvo ponašanje
- ☐ Potrošači
- ☐ Cijene alternativnih, ekološki prihvatljivijih proizvoda
- ☐ Drugo:

**Q16 - Koliko se slažete sa sljedećim tvrdnjama?**

	Uopšte se slažem	Ne slažem se	Neutralan/Neu-tralna sam	Slažem se	U potpunosti se slažem
Vjerujem da je dovoljno pažnje u Crnoj Gori posvećeno cirkularnoj ekonomiji - koja je definisana kao paradigma proizvodnje i potrošnje pri čemu se podstiče kružna i održiva konzumacija proizvoda	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Upoznat/a sam ☐ ☐ ☐ ☐ ☐  
sa regulativom  
i strategijom  
po pitanju  
cirkularne  
ekonomije u  
Crnoj Gori

Upoznat/a sam ☐ ☐ ☐ ☐ ☐  
sa “zelenim”  
projektima  
koji su aktivni  
u Crnoj Gori

**Q18 - Koje izvore smatrate najpouzdanijim za informacije o cirkularnoj ekonomiji u Crnoj Gori?**

Moguće je odabrati više odgovora

- ☐ TV mediji
- ☐ Društvene mreže
- ☐ Novine
- ☐ Javna saopštenja od strane vlade
- ☐ Other:

**Q19 - Od kojih izvora najčešće dobijate informacije o cirkularnoj ekonomiji u Crnoj Gori?**

Moguće je odabrati više odgovora

- ☐ TV mediji
- ☐ Društvene mreže
- ☐ Novine
- ☐ Javna saopštenja od strane vlade
- ☐ Drugo:

