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Environmental Sustainability: Kosovo's Waste Management and its Road to Circular Economy

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An Honors Society Project

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Abstract

The aim of this project is to evaluate environmental degradation in Kosovo, by concentrating on waste management, and to give recommendations on how to improve waste management in Kosovo, through implementing circular economy concepts. More specifically, the focus of the project will be circular economy in the cycle of waste management, the possibilities and obstacles to implement it in Kosovo. Case studies are used to explain the waste management in UK and India and their process of switching from a traditional economy to a circular economy; as well as an analysis of Western Balkans' experiences with waste management to understand the environment that Kosovo is surrounded with. In the end, the recommendations given will be directed to the government of Kosovo in order to improve waste management and influence businesses to adopt circular economy in their business plans. This study uses a mixed research technique by combining desk research and in-depth semi-structured interviews with Kosovar companies. The findings from the research show that waste management in Kosovo is faced with several problems, most notably in the aspects of weak enforcement of laws and strategies; poor waste collection infrastructure; high number of illegal dumpsites; lack of incentives to adapt circular economy principles, and lack of data and information. As a result of these problems, circular economy has not been able to be developed to a large extent. The analysis of the case studies assisted on deriving main recommendations for the Government of Kosovo which would improve environmental sustainability, incentivize any of the 3R concepts and improve the waste management situation in Kosovo. The recommendations are divided in three main categories: policy interventions at-large; support to companies to embrace circular economy; and better-managed landfills.

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Abbreviations

CC – Customer Cooperation for Environmental Concern

CE – Circular Economy

CO2 – Carbon Dioxide

ECO – Eco Design

EPA – Environmental Protection Agency

EU – European Union

GIZ – Deutsche Gessellschaft fur Internationale Zusammernarbeit

GP – Green Purchasing

GSCM – Green Supply Chain Management

IE – Industrial Ecology

IEM – Internal Environmental Management

IR – Investment Recovery

MED – Ministry of Economic Development

MESP – Ministry of Environmental and Spatial Planning

MRF – Material Recovery Facilities

NO – Nitrogen Monoxide

NO2 – Nitrogen Dioxide

POE – Public Owned Enterprise

SO2 – Sulfur Dioxide

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1. Introduction

Environmental degradation is one the main concerns of humanity at the moment (Rinkesh, 2016). This process is affecting global ecosystems, which is harming species of all sorts (Kukreja, 2016). The main results of the climate change will be higher average temperatures, melting of the ice area, extreme weather conditions, poisonous air, water and landfills amongst many other issues ("Climate Impacts," n.d.). The harm that is done to air, water and soil takes a lot of time to recover, if it can even be recovered at all (Rinkesh, 2016).

One of the main challenges of environment is the human factor, who historically has not cared about the long-term effects of their activities (Tietenberg, 2007). And while the population of the world is increasing, resources are decreasing, and there is an implausible amount of waste in our lands. Waste includes substances which can no longer be used for their purpose therefore have to be disposed (Harrison, 2001). While water and air pollution are also important issues which are directly related to the increase of the greenhouse gases and global warming, which altogether cause incredible harm to the environment, this project is going to focus on land pollution, more specifically on solid waste and the effects it causes to the environment (Kukreja, 2016). Waste management plays a big role on how much waste impacts our climate. Waste management is the process of "collection, transportation, and disposal of garbage, sewage, and other waste products" (Rinkesh, 2020). Improper waste management has effects on climate change. According to Ackerman (2000, p. 223), waste management impacts climate change in five ways: "(1) landfill methane emissions; (2) reduction in industrial energy use and emissions due to recycling and waste reduction; (3) energy recovery from waste; (4) carbon sequestration in forests due to decreased demand for virgin paper; and (5) energy used in long-distance transport of waste". As a result, if waste is not reduced and treated, it will become a much bigger issue as years go by.

Sustainability, according to United Nations World Commission on Environment and Development, is explained as an "acting in a way that ensures future generations have the natural resources available to live an equal, if not better, way of life as current generations" (Evans, 2019). Even though sustainability affects the global community as a whole, the global community has

started rather late in history to deal with environmental issues (Sustainability for All, n.d.). Circular economy, a concept which explains the economic activity which minimizes the negative impacts the economy has on the environment, is one important component of the sustainability process (Ellen MacArthur Foundation, 2017). It consists of three main elements: "Closed cycles, Renewable energy, and Systems thinking" (Korhonen, J., Nuur, C., Feldmann, A., & Birkie, S. E., 2018).

This project focuses on the closed cycle element. While analyzing the closed cycle, an importance will be given to environmental issues, solid waste consequences, circular economy, circular supply chain, and waste management. To gain concrete insight into practices of circular economy and waste management, the experiences of two countries, namely United Kingdom and India were reviewed. By doing so, this project presents how UK and India have challenged the traditional system of waste management practices and how firms in these countries have implemented sustainability for their own cycle of work. Further, a review of Western Balkans countries gives context to the waste management practices in the region before moving on to the analysis of Kosovo. The analysis of the Kosovo waste management is based on the interviews conducted with Kosovo companies, Government representatives and a non-governmental organization which deals with innovation in many aspects, including the environmental aspect.

The main findings about Kosovo show that companies that were interviewed had the circular economy concepts, to an extent, built in their business cycles. Companies which work with circular economy principles are not supported from the government as much as they should. In addition to that, the current legislation in Kosovo, which supports circular economy and its advancement, is not very well implemented. Recommendations for the Government of Kosovo, which came as a result of the country experiences such as India, the UK, and Western Balkans, are separated in three main divisions:

- Policy interventions at-large;
- Support to companies to embrace circular economy;
- Better managed landfills.

2. Theoretical Framework

2.1 Global Environmental Issues

Climate change, as one of the biggest challenges facing humanity, has started to gain the importance it deserves in the practical sense (Zhou, Yiqi, Zhou, & Yiqi, 2006). It can now even be considered as a "national security" matter (Galgano, 2019). National Security in the sense that resources are decreasing, population is increasing and population is becoming more aware that governments are not taking the environmental degradation as seriously as they should, hence these factors could cause frustration to the world population (Galgano, 2019). According to Intergovernmental Panel on Climate Change (2013), the human factor is the dominant factor that caused global warming.

Air pollution, which is a major concern especially in big cities with large populations is caused by the emitted gases such as CO2, which is caused from cars, factories, different types of industries etc. This CO2, creates a type of armor around the globe, which stops the heat of these gases from going outside the lower part of the atmosphere, and increases the average temperatures. This is known as the greenhouse effect ("Climate Impacts," n.d.).

Land and water pollution are the contamination of land and water from substances that are harmful to keep the homeostasis of these two environments (National Geographic Society, 2012). The main problem that causes damage in these two environments is waste. Solid waste moves from landfills to water thus harming both of them. The water pollution can also be caused from the contamination of water from different oils or waste that is produced from different industries and disposed into the water areas (Stephen, 2018). When waste is dumped into landfills, which is the oldest form of disposing waste, it makes that land unusable for other purposes, and if the waste is not segregated and disposed in the right environment so it decomposes, it might cause harm to the land, the underground waters, and to the air quality (Rinkesh, 2017 & Ashford, 2010).

This project focuses on land pollution, which is one of the key global environmental concerns. The UN has stated that "there are about 12 million hectares of farmland a year get seriously degraded" from many factors (Zimmermann, 2016). After waste is disposed in a landfill it starts to decompose

while releasing many chemicals which are harmful to the land, air and water (when it is in contact with it) (National Geographic Society, 2012). To understand the effects of improper waste management, firstly the concept of waste will be analyzed.

2.2 Waste as a concept

Waste, a wide known concept, has different definitions based on what the topic is, but it can be separated into the literal (practical) sense and the conceptual sense. An example of waste in a practical sense can be the waste from the human body (the not necessary ingredients that body lets go after utilizing them), whereas, an example of waste in a conceptual sense can be waste in the academic sense (i.e. a research that is unproductive and not done correctly can be considered as waste) (Persson & Bondke Persson, 2018). Even though these two are two totally different types of waste, they are both talking about something that cannot be utilized anymore and that has no value.

Waste in the practical sense, is all the ordinary stuff that is thrown out from households or businesses, such as plastic, glass, food waste etc. They are categorized as “Municipal Solid Waste – (MSW)” (Rudolph et al., 2017). Another definition, in the UK, in the Environmental Protection Act 1990, waste is defined as “any substance which requires to be disposed of as being broken, worn out, contaminated or otherwise spoiled” (Harrison, 2001, p. 378). Until the 1970s, waste was simply disposed with the smallest cost. However, this has changed with time, when public got more conscious about the environment (Harrison, 2001).

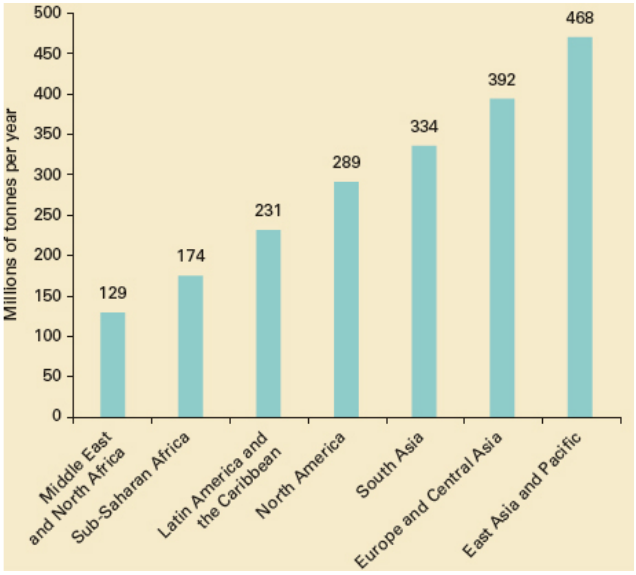
2.3 Municipal Solid Waste Consequences

According to "At a glance: A global picture of solid waste management," (2018), an article from the World Bank, the Municipal Solid waste is estimated to have achieved 2.01 billion tones globally in 2016 with the most problematic regions being East Asia and Pacific. The. Figure 1 shows the quantity of solid waste separated by each region, whereas, figure 2 shows that the countries that have the lowest impact on waste generation are the low-income countries (2018).

Figure 2 shows the share of waste generation between countries that share the same economic development level. The graph shows how high-income countries are the ones with the largest share of waste generation, whereas, the low-income countries have an incredibly lower level of the share of waste generation (2018).

Figure 1

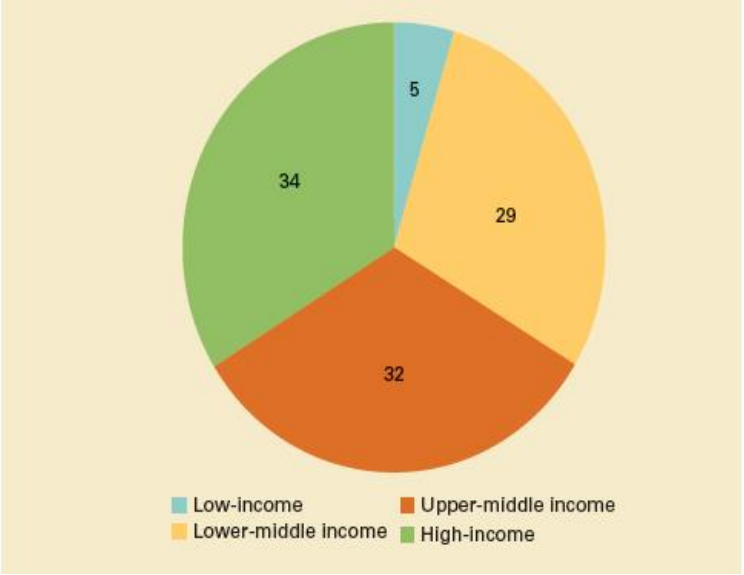
Share of waste generation (in percentage terms)



("At a glance: A global picture of solid waste management," 2018)

Figure 2

Amount of Waste Generated - by region



("At a glance: A global picture of solid waste management," 2018)

The quantity of waste does not look like it is going to decrease any time soon. Predictions state that, by 2050, the quantity of waste will increase to 2.4 billion tons of waste (2018). This means that in order for this number to be decreased, concepts like circular economy need to be put in practice, especially since countries around the world are increasingly generating incredible amounts of waste.

2.4. Circular Economy

With a continual increase in economic activity, economists and businesspeople have started to get concerned regarding the scarcity of the raw materials, thus, creating ideas of an economy that differs from the traditional one. This new concept is mostly concerned with the environmental

sustainability, taking into consideration the future generations, the wellbeing of the global citizen while utilizing products as much as they can and limiting the quantity of waste in the world (Liu, Feng, Zhu & Sarkis, 2018).

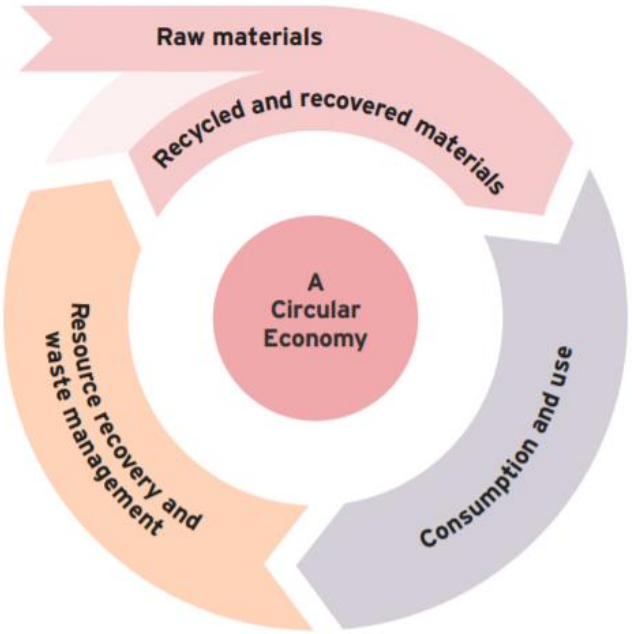
According to Ellen Macarthur Foundation, "A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems" (What is the circular economy? n.d).

The new economy would involve the line of production change from the traditional linear supply chain to a circular supply chain (Robinson, 2016). The supply chain has a huge impact in the overall waste problem in the global society, which is why a huge importance is given to this aspect of the circular economy.

The circular model seen in figure 3 shows how after consumption and use, products move to recovery which then move in the next stage where they are recycled and used as raw materials again.

Figure 3

Circular Economy Model



(HM Government, 2018)

Circular economy as a concept was introduced rather later, however, different concepts with similar goals in mind have been discussed for a longer period of time. Circular Economy was firstly mentioned by Pearce and Turner (1989) which focused on how this model would benefit future generations. Industrial Ecology (IE) was also introduced as a concept to be used as a mean to collide the concept of environment and industrial development (Ghisellini et al., 2016). Research from Von Bertalanffy in 1950 and 1968 has also been considered as a foundation for the circular economy model (Ghisellini et al., 2016).

According to, Yuan et al., (2006) and Geng and Doberstein (2008), circular economy is differentiated in three levels: micro, meso and macro. The micro level involves the adaption of circular economy to a single firm or enterprise. The meso level includes the industrial cooperation while trying to create "eco-industrial parks" (Liu et al., 2018, p. 796). The macro level is the broadest aspect of circular economy which analyzes the ecosystem as a whole, which in this case is represented as eco-cities (Liu et al., 2018).

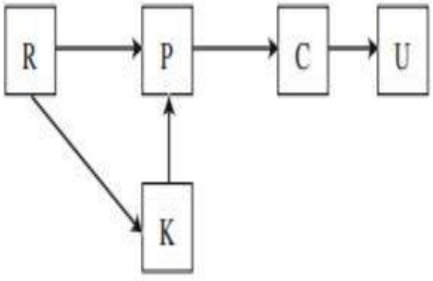
Circular economy, however, does not only focus on the environmental aspect but also on the economic and business perspective as well (Ghisellini, Cialani, & Ulgiati, 2016). This means that by using the concept of circular economy, the cost of firms is expected to go down, because the raw materials are not new but they are recovered from previous use. In a report made from the Ellen MacArthur Foundation, when analyzing circular economy in India, circular economy is based on three principles: "1: Preserve and enhance natural capital by controlling finite stocks and balancing renewable resource flows; 2: Optimize resource yields by circulating products, components, and materials at their highest utility at all times, in both technical and biological cycles; and 3: Foster system effectiveness by revealing and designing out negative externalities" (2016, p.22, 23). Principle one is concerned with the quantity and quality of fresh water, "soil degradation, loss of biodiversity," destruction of marine ecosystems (p. 22). Principle two is concerned with maximizing the usefulness of products (components and final products). Whereas, principle three is concerned with acknowledging the negative effects that linear economy has on the environment and then limiting these negative effects (2016). Even though, this report was done specifically for the country of India, the same principles because of their usefulness can be applicable any place where linear economy is present.

2.5. Circular Economy – Supply Chain

Circular economy is based on circular supply chain and industrial ecology. Both of them give importance to minimizing waste and minimizing the use of primary resources (Andersen, 2006). The difference between a linear economy and the circular one is the reuse of final products while changing their purpose from a final product to a raw material, or also known as the process of recycling.

Figure 4

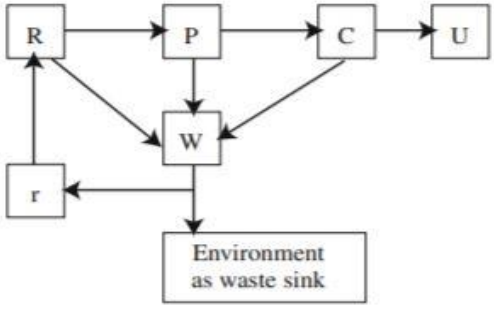
Traditional Linear Supply



(Andersen, 2006)

Figure 5

Circular Supply Chain



(Andersen, 2006)

As can be seen in figure 4, the traditional supply chain starts with natural resources, continues in production, consumption and finishes with utilization. Traditional economy, which is what most firms have had and even have today, is based on traditional supply chain. On the other hand, figure 5 portrays the model of circular economy. This model also starts with resources, moves to production, consumption and utilization, but what is added is the recycling phase which can occur after each of the three primary phases of the cycle, resources, production and consumption phase. After the recycling stage, the products go back and are used as a resource. This forms a cycle, which is where the name of circular economy comes from.

Since one of the key aspects of circular economy is the supply chain, a theoretical correlation between the two is necessary. According to Liu, Feng, Zhu & Sarkis (2018), green supply chain management impacts circular economy positively. The reason why the use of green supply chain

concept is being used here is because green supply chain does not only include the reverse logistics aspect, but it also looks at the environmental aspect from the producer and consumer perspective, which is important when we look at circular economy as a whole. To understand the correlation between the two, the concept of Green Supply Chain Management (GSCM) will be elaborated first, to then continue with the correlation between GSCM and Circular Economy.

Zhu et al. (2008) separates GSCM into five key elements: "green purchasing (GP), eco-design or design for the environment (ECO), IEM, customer cooperation for environmental concerns (CC), and investment recovery (IR)" (p. 795). GP is focused on the aspect of getting the materials from the suppliers while focusing on the environmental aspects. ECO deals with the production aspect and tries to achieve "eco efficiency" (Liu et al., 2018). IEM includes the managerial side of production and performance while focusing on environmental regulations. CC takes into account the customer perspective regarding the environmental issues. IR is a more complex principle which includes the 3R principle (reduction, recycling, reuse) which will be explained further later.

GSCM and circular economy are co-related since GSCM is a tool used to reach circular economy. The use of reverse logistics, the 3R principle and the production while taking under consideration the environmental issues are principles of both, however, circular economy pays more attention to "economic performance" compared to GSCM (Sarkis, 2012).

Another important relationship between concepts is the "3R" concept and circular economy. In order for people to work toward solving the environmental issues, according to Manrich & Santos (2008), there are three main concepts that one should focus on, namely, *reduction, reuse, and recycling*, also known as the "3R" concept.

The first aspect, reduction, is concerned with the use of materials and how to decrease it. This can be analyzed from different perspectives: the business perspective, institutions, and from the households (Harrison, 2001). When analyzing the business aspect, which will be addressed later in this paper, waste has to be analyzed from a logistics perspective, packaging, production, usability amongst many others. Institutions need to look at the quantity of what they purchase and limit that to an optimum number. Households, which is a very important section of the economy, need to implement the reduction strategy in cooperation with the reusing and recycling.

Reuse concept, in the recent years has developed its own branch in circular economy, which is called upcycling. Upcycling, involves the procedure when a product is changed (improved) to have a higher value afterward (Paras & Curteza, 2018). Since it can be done by almost anyone, it usually does not cost a lot for small products, therefore, it is usually used from household or small firms, to try and utilize products until the very end.

Recycling is a more famous concept out of the three and it is the one that costs the most and that takes more time. However, it can be considered as the most important one. Since all goods have a value and purpose, their life cycle comes to an end, and in order for them not to harm the environment they need to be converted into raw materials so they can be reused from the beginning. Another reason why recycling is very important is that resources that people use for production are scarce, so at one point there will be no more resources to produce from. Another important factor is to decrease environmental degradation (Greening Forward, n.d.).

2.6. Recycling

"Recycling is the process of collecting and processing materials that would otherwise be thrown away as trash and turning them into new products" (Recycling Basics, 2019). In nature, there is no waste because everything decomposes and then is used in different forms from different species (Maccarini & Avellaneda, 2013). Recycling tries to achieve the level of decomposition and usefulness that the nature cycle has, however, even with the best technological advances that exist until this day that cannot be possible.

According to Chini (2007) and Calkins (2009), the process of creating products from what is supposed to be waste (recycling as a broad term), can be separated in three concepts, namely: down cycling, recycling and upcycling. Down cycling is the process of recycling that results in the creation of products with lower quality than the primary ones. Recycling refers to the process of transforming the end product to a product with same quality and purpose as previously. Upcycling refers to products that have increased in economic value in comparison to their previous use.

After the products are recycled, they can be classified as: recycled, infracycled, reused or infraused (Maccarini & Avellaneda, 2013). Recycled and Infracycled products are the products that have been changed either their internal structure or their physical one. The difference between the two

is that the infracycled products cannot serve as the same product after the recycling process since their characteristic change. Reused and Infraused products are the products that have not undergone the chemical changes of the material or change the physical state. The difference between the two is that reused materials do not lower in quality but the infraused products do. Neither of them has to be used in the same aspect as they did before recycling (2013).

According to Christensen (2010), when analyzing the material of the products that can be recycled, they are separated in different categories: paper and cardboard, glass, plastic, metals, construction and demolition waste. All of these categories benefit the environment more than if they were to be put in a landfill or be incinerated. However, the cost to recycle differs from material to material and that is where the problem starts in an economic sense (Christensen, 2010). Given that firms try to maximize their profit, if it is more costly to them to recycle the materials for reuse, they are not going to do it.

3. Methodology

The main focus of this project is to analyze Kosovo's waste management and its implementation of circular economy, or lack thereof. Therefore, the research was conducted by collecting information from both primary and secondary sources.

3.1 Secondary data

For this paper, the literature review and analysis were the key method of research. Firstly, the concept of circular economy concept was researched in many journals and books, hence the reader could have a good idea of the term. Moreover, even the concepts that explain circular economy are very technical so an analysis of them was necessary to be included. Country case studies were used to elaborate the concept of circular economy in different contexts. The case studies focused on the countries' waste management practices and firms which have implemented circular supply chain.

3.2 Primary data

The analysis on Kosovo was mostly based on collection of primary data. For this current analysis, seven semi-structured interviews were conducted. Out of seven interviews conducted, there were five Kosovan firms, one Kosovan organization, and a representative of Ministry of Environment of Kosovo. The interviews are separated in four groups. The first group includes: Company A, B and C which were chosen with the convenience sampling method. The reason why this method was chosen is because many companies that were contacted by selection, did not answer or did not want to be part of the study. The second group includes companies D and E which were chosen through purposive sampling. These companies had the circular economy principle (recycling) at the basis of their business plans, , and hence were interesting to analyze. The interviews with the government and NGO representative were also chosen through purposive sampling.

3.3. Limitations

3.3.1. Limitations of the Primary Data

The limitation of the primary data was the unavailability to meet with some of the representatives of firms in person. Seven interviews were conducted, three of which were conducted in a written form (via email), whereas, four of them were done face-to-face. Answers from the interviews conducted via email were shorter than those face-to-face, which limited the quantity of information that could be obtained from them.

3.3.2 Limitations of the Secondary Data

An important limitation of the secondary data was the lack of circular economy data regarding Kosovo. Information regarding Kosovo's companies and their supply chain were also low on quantity, which limited the secondary data for the case of Kosovo. In addition to that, there was a lack of data regarding the Western Balkan countries, regarding their waste management.

5. Case Studies – Data Analysis

In this passage, data from different countries will be analyzed in order to understand how circular economy and recycling work in different types of countries. The reason why this concept cannot be analyzed in a global aspect only is because countries give importance to environmental issues differently depending on their stance and their level of development (Wilson, 2015). Circular economy in different regions is also not developed to the same extent.

The main focus of this project is to analyze Kosovo's waste management and its implementation of circular economy. Two other countries that will be discussed as case studies are India and UK. India, a developing a country, with a very large population, was chosen to be analyzed because of its poor level of effective waste management for years (Singh, Rao, Maillacheruvu, & Asolekar, 2019). UK was chosen as an example of a developed country that depends largely on landfilling (Laner, Crest, Scharff, Morris, & Barlaz, 2012). For both case studies, an analysis of waste management and examples of companies who use circular economy are provided. These two countries were chosen because they relate to Kosovo in a few aspects. India was chosen due to the high number of illegal landfills which is present in Kosovo as well, in addition to the late development of companies which apply circular economy concepts. UK was chosen because it is a developed country which uses mostly landfills as their method of waste disposal. In addition to that, UK is implementing successfully many new policies which include implementation of circular economy principles. While analyzing the several e policy implementation strategies that UK is finding successful, then these policy options could be considered in the Kosovo case.

In addition to that, an analysis of Western Balkans, as a region, is provided. This analysis will be used to understand how the problems Kosovo has with waste management are not only specific to Kosovo, but they are also present in other countries in this region.

For Kosovo, an introduction to environmental problems will be provided, an extensive analysis of waste management, and an analysis of five firms regarding the use of circular economy in their business process.

5.1 India

5.1.1 Waste Management

India, a developing country with a population of over 1, 3 billion people, creates an incredible amount of solid waste each day (Goyal, Esposito & Kapoor, 2016; Population, total – India, n.d.). Currently, India is producing more than 62 million tons of waste per day, however, this number is expected to increase to 436 million tons per day, by 2050. Out of this number, only 20% of the solid waste is treated, and the other part is landfilled causing insurmountable problems to the land, air and water in the surrounding areas (Gandhi, 2015). These waste disposal locations, with time passing by, become greenhouse gas emitters thus affecting the whole global warming effect (Singh et al., 2019). In addition to the environmental problems that are caused, the lack of effective waste management in India is also causing a great damage to the economic side of different industries. India's waste is taken from India and it is processed elsewhere. After some metals are separated from other types of waste, they are sold back to Indian companies at extreme premium rates, 50% more than the price they would have had if the metals would have been processed inside the country (Goyal et al., 2016). This means, that on top of the environmental issues, India is affected economically as well.

The waste management system in India is not regulated well and it functions by being managed from the Ministry of Environment. This industry employs 39 million people whose duty it is to look for electronic waste in places where waste is disposed. These people have incredible health issues and their life expectancy is much lower than people who work in other industries (IANS, 2016). Even when there are circular economy concepts integrated in its waste management, they are not formalized. For example, 60% of waste such as plastic is recycled, 95% of which is done informally (Ellen MacArthur Foundation, 2016). Since the system of recycling is not functional much of the circular benefits are not utilized to their maximum potential, as they would be if there would be the adequate infrastructure (regulated landfills, machines that complete waste separation etc.) to complete the circular economy loop (Ellen MacArthur Foundation, 2016). In addition to that, while India's economy is improving, the standard of living becomes higher, and jobs like recycling for money in informalized economies, are less attractive for the citizen. This means that

even the percentage of recycling that is going on now, might be decreased if there is not a change in the system altogether (Ellen MacArthur Foundation, 2016).

Because these landfills are managed badly and there is almost no inspection of these landfills, occasional fires occur, releasing methane in the air, increasing the hazardousness of the air, consequently decreasing the quality of the air in bigger regions (Singh, Rao, Maillacheruvu, & Asolekar, 2019). Water contamination is also an effect of the bad solid waste management, since the solid waste is getting into rivers and lakes thus contaminating the water and the fish living in them (Singh, et al., 2019).

One suggestion to include circular economy while improving their waste management is to create "Material Recovery Facilities (MRF)" close to landfills (Singh, et al., 2019). This would result in increase in recovery/recycling material that could be reused when it is sent in production as raw material for the next cycle. This would mean that the 3R concepts are being fully implemented (Singh, et al., 2019)

5.1.2 Examples of companies which have implemented circular economy

Some Indian companies and international companies working in India have started to use the concepts of circular economy (3R concept) to try and improve the waste management. For example, Haathi Chaap uses the reduce concept in order to create paper and similar sorts of product. Instead of using trees, they use elephant manure. This affects positively the whole environmental and economic situation in India. The process of creating paper from manure is less costly than the regular process of creating paper, it affects the employment of small villages and towns because labor is needed for this job, the leftovers from the production of paper are used to fertilize the land in farms, essentially making this firm, an incredible example for firms and societies that want to use circular economy (Goyal et al., 2019).

The reuse paradigm, is practiced by a firm called Goonj. Goonj takes clothes, supplies, unused materials which are donated from people in cities that live under good economic standards, and brings these clothes to the rural areas where a majority of people do not even have the necessary supplies needed to live in a good sanitary lifestyle (68% of women in rural areas cannot afford sanitary napkins) (Bornstein, 2012). Their work includes, taking clothes from the more fortunate

and giving to the poor, creating hygienic pads from waste cloths, teaching villagers to create products from old clothes so that they work for an income etc. This firm has mastered the reuse paradigm because it expands the lifecycle of products, mainly by reducing waste. They have managed to be very successful, by firstly using intensive "mass awareness initiatives" and training the villagers to reuse the old clothes (Goyal et al., 2019).

The recycling paradigm is used by Attero, a firm which manages electronic products and makes sure that electronic products are recycled, refurbished or reused. They separate their recycling strategy into five dimensions, offering modified solutions for different electronic assets to recovering the electronic assets so the materials can be reused to offering a platform for ordinary people to resell the products they do not need. In a way, Attero has implemented all three paradigms in their business plan (Goyal et al., 2019).

5.2 United Kingdom

5.2.1 Waste management

United Kingdom, with a population of 67 million people, has shown its interest on circular economy for many years, and is even working currently on extensive changes of policy that will affect the economic situation, on top of protecting the environment. The UK, at the moment, is going through the phase of Brexit, which means that UK will no longer have to implement EU policies but has to create its own (HM Government, 2018). The government has explained that the problems mostly stands on the traditional way of dealing with products, the model of "take, make, use, throw" (Green Alliance, 2019). It is this model that has caused the waste to pile up in Britain, where English houses are approximately producing 2 million tons of waste, precisely plastic, per year (2019). According to WRAP (2018), UK from the year 2000 to 2014 increased the circular use of products that can be returned for recycling for 20%. This shows that UK has potential to have a successful circular economy, if the policies and strategies are implemented correctly. Only in 2016, the UK sent 52.3 million tons of waste to landfills, and the numbers have not decreased as they should have with measures taken, but they have rather increased in materials like stone waste or soil (Government Statistical Service, 2020). The waste is held in approximately 500 landfills that are distributed throughout the United Kingdom. From all the waste that is destined

for landfills, approximately 11% is attributed to households, with the rest being soils, minerals and other (2020).

According to WRAP (2018), there are a few main aspects of the economy that would benefit from the circular economy:

- Productivity and economic growth would enhance
- Companies would be encouraged to invest and innovate
- UK's balance of trade would improve
- The quantity of jobs and societal benefits would increase
- A resilient and prosperous economy would be ensured
- The Carbon Budget would be impacted (2018).
- In the new "Resource and Waste Strategy" that England is implementing, sustainable production is the primary aspect of circular economy that is addressed. "Resources and waste strategy: at a glance," states that "Evidence suggests that 80% of the damage inflicted upon the environment when products become waste can be avoided if more thoughtful decisions are made at the production stage." (n.d.). This explains how important it is if firms, when they are created, are informed and encouraged to give an important role to circular economy and the 3R concepts.
- The strategy also includes certain policies and regulations that impact the everyday consumer. A tax of 30%, placed on products that are made for a single use and that are plastic, was one of the policies included in the "Resource and Waste Strategy." The successfulness of the "taxes" for specific goods can be witnessed in the usage of plastic bags, which has decreased since the tax per plastic bag increased from 5p to 10p. Since the tax was changed, there was a decrease in plastic bags for 15.6 billion units. (HM Government, 2018)
- In 2016, 12 million tons of municipal waste were landfilled, 50% of which being biodegradable waste (HM Government, 2018). Biodegradable waste is mostly food waste that decomposes into organic compounds, methane being one of them (European Comission, 2019). The Committee on Climate Change (CCC) is trying to decrease this

phenomenon and will try to change policies so by 2030, there would be no more food waste in the UK (HM Government, 2018).

- What the UK is trying to do is shift the way products are produced, used and disposed. Not only are they trying to recycle and upcycle, but they are also trying to decrease the use of materials in production altogether. The new way of thinking is that, the decrease in the creation of waste is the main change that would affect the minimization of waste the most (HM Government, 2018).
- UK environmental activists have also paid attention to plastics as a problem, where they have created the UK Plastics Pact. This pact is led by WRAP (charity) and Ellen McArthur Foundation, to try and achieve:
- "100% to be reusable, recyclable or compostable,
- 70% to be effectively recycled,
- 30% average recycled content across all plastic packaging,
- Action taken to eliminate problematic or unnecessary single-use plastic packaging items" (HM Government, 2018, p. 24).

5.2.2 Examples of companies that have implemented circular economy

UK companies such as "Amey," "Anglian Water," "Arup," "Interface," "JLL," "Jaguar," "Land Rover," "Lloyds Bank," "PwC," "Recycling Lives," "Ricoh," "Rolls Royce," "Unilever," "Veolia," "Viridor," and "Walgreen Boots Alliance" have endorsed circular economy and have adapted it to their business plans. They have had good results from their changes, such as a decrease in cost, better market positioning, adaptability of the firm etc. (The Prince's Responsible Business Network, 2018, p. 6).

PwC is a UK company which with the use of circular economy, it recycles or reuses 91% of all the waste it creates. This has resulted in a decrease in cost of £25 million and generated £500 thousand from reusing the IT products. In addition to the changes made in their production section, they also look for firms to cooperate with them which also work with principles of circular economy (The Prince's Responsible Business Network, 2018).

Another firm which uses the circular economy concept is Jaguar Land Rover. This company has used the recycling method to recycle aluminum, and as a result, produce cars with 50% recycled aluminum. In addition to that, this firm returns all their material that is left as a surplus at the end of production to be used again for production. This creates the circular supply chain from inside the firm. With the recycled aluminum, the car is lighter, therefor, the engine can decrease is size because the car would perform in the same way (The Prince's Responsible Business Network, 2018).

5.3. Western Balkans

When focusing on Kosovo's waste management and how circular economy is going to be implemented in Kosovo, one needs to analyze the region (Western Balkans) and their waste management practices This analysis is important because the case of Kosovo can be understood better if the reader knows where Kosovo stands in comparison to its neighbors.

Western Balkans is a region in the Southern Europe which consist of six countries, namely Albania, Kosovo, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia. As a region, it has a population of more than 17 million people (Eurostat, 2019). When compared with other regions in Europe, these countries are much poorer. As a result, other EU countries invest in this region to try and help these countries by improving their infrastructure or increase innovation (Holzner, & Schwarzhappel, 2018). Amongst many investments in infrastructure, waste management was also facilitated with new infrastructure (2018). According to Hogg and Vergunst (2017), key issues in the region include: "1) Poorly defined roles and responsibilities at various levels of government; 2) Weak enforcement of laws; 3) Prevalence of illegal dumping and continued use of substandard landfills; 4) Low levels of fee collection and reluctance to increase fees; 5) Existing policy measures are unlikely to drive materials up the waste hierarchy; 6) Ineffective approach to procuring / funding widespread service changes; 7) Waste collection infrastructure is unlikely to deliver against EU recycling targets; 8) Poor quality of waste data; 9) Gaps in application of extended producer responsibility; and 10) Limited administrative and technical capacity" (2017, p. 8). These problems occur in the whole region and they affect the development of this region in the aspect of waste management. The authors recognize that "the governance of the system and the operational waste management system that implement's a

country's legislation, policies and strategies on the ground" are two interlinked aspects which play a crucial role in waste management (Hogg and Vergunst, 2017, p. 9). Western Balkans' countries are not very successful on enforcing waste legislation; thus, this problem will cause problems in this area since the changes that want to be made cannot be implemented right (2017).

European Environment Agency recognizes other issues in this region as well. As the quantity of municipal waste increased, the waste facilities are not able to control how waste is managed (European Environment Agency, 2010). As these countries GDP increased, so did the waste generation. From 2003 to 2007, it was estimated that the increase of waste generation per capita increased more than 40% (2010).

Furthermore, the number of illegal dumpsites is high because there is not much control of the government in the area of waste management. The lack of information and data from this region is also an issue since it prevents correct assessments of the current state of waste management and future effectiveness of strategies (European Environment Agency, 2010). The reason for the high number of illegal dumpsites is because waste in some parts is not collected in regular basis. For example, in Bosnia and Herzegovina, only 60% of the population receives the service of organized waste collection (2010). Whereas, according to "Zero Waste Montenegro" of 2019, in Montenegro around 60% of the total waste collected is landfilled in unregulated landfills (2019). In Croatia, this aspect is better regulated where 92% of people receives the services of organized waste collection companies (European Environment Agency, 2010). Albania had a problem with waste since many of the illegal dumpsites were close to the rivers, which caused land and water pollution simultaneously. However, in the recent years, Albania's government with help from international organization has managed to decrease illegal landfills in the last years (Chua, 2019).

As an EU aspiring region, the WB countries have designed many strategies and policies in the recent years in the area of waste management. For example, Croatia has created its first legislation regarding waste was in 1995 (the waste act – CEA, 2012a). Two main policies that were created regarding Waste Management and Waste Planning were created in 2005 and 2007 (Kjær, 2013). Currently, the Ministry of Environment of Croatia has a waste management plan destined to be implemented from 2017-2022 (2013).

When it comes to Montenegro, its first step towards waste management was done in 2004 when they created the National Policy on Waste Management. The creation of legislation continued in 2005, 2008, 2011, and 2016. One of the latest projects is "The National Waste Management Plan in Montenegro for the period 2015-2020" (European Environment Agency, 2018). In 2015, Montenegro approved the Waste Management Strategy by 2030 (European Topic Centre Waste and Materials in a Green Economy, 2019).

Albania has started to implement legislation regarding waste management from 2010 when it created the "Law on Integrated Waste Management" which gave the fundamental obligations to the state to protect the environment and the people. The government created other legislative acts through the years. They lastly created the "National Strategy on Integrated Waste Management (2018-2030)" (European Environment Agency, 2018).

As can be concluded, Western Balkans is a region which has many problems regarding waste management. The main problems include, but are not limited to: high number of illegal dumpsites, low level of waste collection in some parts, lack of implementation of legislative acts and strategies, lack of adequate infrastructure etc. However, countries in the Western Balkans have been designing strategies and policies to improve the problems that resulted from poor waste management.

6.0 Kosovo

6.1 Kosovo - Environmental Issues

Kosovo, just like the majority of the countries in the world is facing environmental issues. Air pollution is one the key problems of the environmental issues in Kosovo. The air quality is very low, considering that there is quite a high percentage of harmful molecules in the air, namely: CO2, SO2, NO, NO2, dust etc. (The World Bank, 2013). The main reason for such an issue is that the main source of the energy production in Kosovo is coal. Many households in Kosovo still use their own heating system, which includes wood or coal, which also harms the air quality. Furthermore, the high number of cars in Kosovo, especially old cars which do not have filters that clean the gases that they emit, are also an issue that cause incredible harm in the quality of air (The World Bank, 2019).

Water issues in Kosovo are mainly related to the water quality and water contamination. According to the World Bank report (2013), the major water contaminator is bacteriological contamination (2013). The reason for that is the lack of "wastewater treatment plants." All rivers in Kosovo are considered to be polluted. However, at water springs, the water quality is good which means that these waters are not polluted underground but from the polluted environment, which is causing the quality of this water to decrease (World Bank, 2013).

When it comes to the solid waste problem, Kosovo has a big problem on managing waste. According to the World Bank report, the infrastructure of dealing with the waste is missing (World Bank, 2013). The majority of the waste in Kosovo is either put in landfills, illegally put in inappropriate fields or it is burned. All of these forms of dealing with solid waste, harm either the land, water or air. In the recent years, however, EU with its projects has been trying to improve the waste management in Kosovo (European Commission, n.d.).

6.2 Circular Economy in Kosovo

Despite serious environmental problems that Kosovo is faced with, environment has not been Kosovo's priority. International organizations, having a broader view about environmental issues, have tried to help the people of Kosovo by advertising the importance of environment, giving grants for firms that have this goal and encouraged laws that consequently affect the environment

(EU – Kosovo join efforts for effective waste management, n.d.). However, even though, these international organizations have tried to help Kosovo to implement regulations regarding environment, they did not manage to implement circular economy as a full concept, and even other areas such as waste management still lack key important factors that should have been implemented many years ago. However, the most work was done in the waste management sector, where a strategy was put in place in 2012 and it has been a current process ever since.

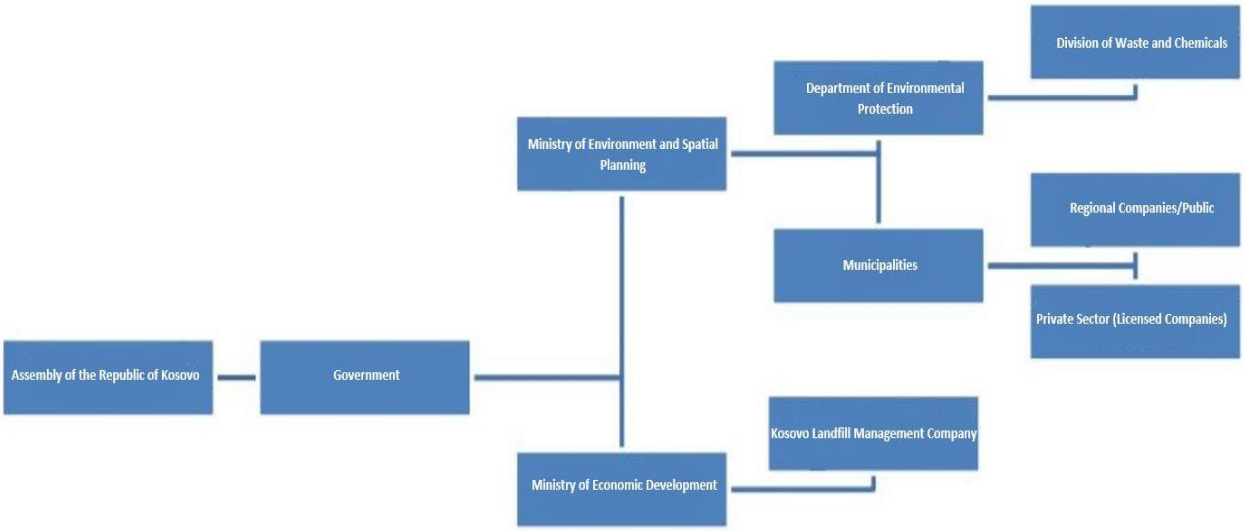
6.3 Waste Management in Kosovo

Kosovo, has a lot of work ahead of it in order to come to a level of Western European countries, in many aspects including the waste management area. According to a MESP report, the obstacles that Kosovo faces regarding waste management vary from lack of awareness, lack of machinery, to the failure to implement laws and regulations (Ministry of Environment and Spatial Planning, 2013). Some of these problems are caused because there is a lack of specific legislation and the implementation of the laws is not effective.

The responsibility of waste management falls in two categories of the government, the central government MESP, The Ministry of Economic Development (MED) and the local governments (the municipalities) (Law no.04/L-060 on Waste, 2012). While the laws, regulations, projects, policy changes are done by the central government, the collectors and the dumpsite are all managed by public owned enterprises (POE). In total there are seven regional waste companies which work in cooperation with the municipalities (Shita & Gjinolli, 2017). There is a company responsible with managing waste disposal sites, which falls under the responsibility of MED and MESP (Ministry of Environment and Spatial Planning, 2013). The municipality and the companies are shareholders of these public enterprises; therefore, they are both responsible for the success and failures of waste management in their regions. When it comes to other companies, if they want to manage waste, whether that be their own or someone else's they need to be licensed from the Government. For example, because of the lack of infrastructure, the law states that waste can be exported in order to get recycled elsewhere, or it can get imported only when the waste is not hazardous. In order to import or export waste, the company needs to have authorization from MESP (Musa, 2018).

Figure 5

Hierarchy of Waste Management



(Musa, 2018).

According to the 7th article of the Constitution Kosovo, environmental protection is one of the core values of the Republic of Kosovo (Kuvendi i Republikes se Kosoves, n.d.). The constitution also states that it is everybody's responsibility to protect its environment and every individual can show their concern regarding their environment (Musa, 2018). However, the constitution is not the only legal document that addresses environmental issues. One of the most important laws that gives a framework to how waste management is going to work is the Law on Waste No. 04/L-060. This law was changed on 2012, changes which specifically state the importance of circular economy and how it is important to implement it (Musa, 2018). For example, article 10 of this law, states that the law aims to achieve circular economy by implementing the three concepts of circular economy "reduce, reuse and recycle" (Law no.04/L-060 on Waste, 2012).

According to a European Commission report, the changes made to the law on waste in 2012 were a good start on improving the waste management current situation; however, the private sector is

not motivated to invest in any of the 3R concepts (2016). GIZ[1], in cooperation with MESP are trying to create a law which switches the responsibility of waste treatment to firms themselves, regarding the waste during the production and waste after consumption. This however is not implemented yet and it is left to be seen how successful it will be (Musa, 2018).

The way the system works now is that each household pays a monthly fee to the local waste collector companies and they come daily to collect the waste, which is then taken to the specific landfills. In urban areas 90-95% of the population are part of the waste collection system, whereas, only 20-35 % of the rural areas are included (Ministry of Environment and Spatial Planning, 2013). The POEs are responsible for collecting waste and dumping it into controlled landfills. However, a huge problem in Kosovo is the disposal of waste in uncontrolled (illegal) environments, causing even bigger issues since the land that is being used as a landfill is not previously checked from the government to see if it should be allowed to be used as a landfill. These illegal dumpsites can be on top of good land that could be used for agriculture or it can be close to people's houses which would affect the health of these families in a very negative way. According to MESP, the number of illegal landfills compared to the controlled landfills is quite close but it is decreasing. Figure 2.7 shows the ratio between controlled and illegal landfills (2013).

Figure 6

The ratio between controlled and illegal landfills

Year	General amount of municipal waste in Kosovo [ton]	Disposed waste in the controlled landfills	Waste disposed in the illegal landfills
2008	384710	218402 t (56.77 %)	166.308 (43.23 %)
2009	384710	247206 t (64.26 %)	137504 (35.74 %)
2010	384710	255546 t (66.43 %)	129164 (33.57 %)

(Ministry of Environment and Spatial Planning, 2013).

[1] GIZ – GIZ is a branch of the German Federal Ministry for Economic Cooperation and Development (BMZ), which has been working in Kosovo since 1999. "GIZ advises and supports Kosovo in its efforts to achieve political stability and democracy based on the rule of law. As part of this process, programmes which boost the economy, improve the education system, build a decentralised public administration and reduce youth unemployment are also receiving support" (GIZ, 2020).

MESP classifies waste in two ways, according to its features waste is divided in hazardous, non-hazardous and inert, whereas, when looking at the source, waste is separated into four categories, namely: municipal, industrial, special waste and medical waste (2013). Waste in Kosovo includes waste from the production of electricity, mines, factories, agricultural industry, packaging waste, tires, medical waste etc. For some of these types of waste there are special landfills, for example during the production of electricity ash is produced, where 70% of this ash is put in a 234-ha area, and 30% of it is disposed into the air (Ministry of Environment and Spatial Planning, 2013). However, for electronic waste even though there is a big pool of opportunities to recycle, not much is done in this aspect, but it is rather thrown out with other household wastes. From 2006-2010 many waste disposal sites were created in smaller municipalities and some existing ones were rehabilitated (2013).

The strategy plan for 2012-2021 was estimated to cost around 134 million euros. This strategy included changes in the waste management sector (2013). Not much was planned regarding other concepts of circular economy. However, it is necessary for waste management to be a fixed problem before starting to create factories that include recycling or upcycling products. If though this strategy was supposed to be finished by 2021, it is almost year 2020, and not many changes are seen in the sector of waste management. Not only is the infrastructure not properly fixed, but even advising the public (which was part of the strategy) has not been tackled as it should have, by for example, training people that work in the business industry on how the waste should be separated and disposed (Musa, 2018).

6.4 Companies interviewed for analysis of their business process

For this project, five companies were selected to be interviewed for an overview of how their businesses function in terms of whether they have applied any circular economy concepts in their business cycle. The companies operate in different industries. An analysis of each interview will be provided below.

6.4.1 Background of the Interviewed Companies

The interviewed companies were:

- A beer company operating in Kosovo – Company A

- A fashion designer company operating in Kosovo – Company B
- A furniture production company operating in Kosovo – Company C
- A recycling company operating in Kosovo – Company D
- A technological company operating in Kosovo – Company E

Company A is a company which produces craft beer which was founded in 2012. They produce their beer in a brewery in Gjilan by renting their equipment. They produce beers sold in retail but also work with bars to supply their kegs of beer. All their raw materials except for water are imported. Moreover, their packaging (bottles, labels, caps) all come from foreign countries.

In their production process, they have actually use circular economy to an extent.

After they produce the beer, they are left with grain and yeast that is not useful anymore for production of beer. They give the grain to a local farmer which he then feeds cows with that product, whereas, the yeast could be reused for production of beer if the company were to produce in high capacities, but they are not doing so at the moment, so the yeast is thrown out.

Their packaging comes in two types: bottles and kegs. The kegs are made out of metal and Company A reuses them. That saves the company a lot of money because they just refill the kegs with beer and give it to bars. When they are empty, they collect those kegs and do this process all over again. However, when it comes to glass bottles, reusing or recycling them is a very difficult process, according to the owner of Company A. There are numerous difficulties that come their way. Firstly, there is a difficulty in collecting them after they are used. When they first started to sell beer in bottles, they would tell bars that if they could save the bottles, they should and then Company A would come to collect them. Most of the barmen did not save these bottles, and the ones who did, they would complain that the process just takes too much of their time and space. For the period of time that they reused the bottles of glass, they would wash the bottles with high pressured water which would clean them, but it would also weaken the glass, which after a few times of recycling could not be used anymore. The owner said that the bottles used are recyclable and they cost 15-20% more than if they were to use non-recycled bottles.

Company B is a fashion designer company with their own line of clothing. This brand has been operating since 2005 and they design and create dresses and other types of clothes. During their production, there is raw material left and they reuse these raw materials in two ways. Some of the extra raw materials are put back for production of other products, and the other part of the extra materials are sent to schools of design for students to learn how to create clothes. This firm knows the importance of recycling of fabrics since they have also held workshops to show the importance of recycling of clothes.

Company C is a production company of a variety of products such as chairs, tables, kitchen and interior, and they have been operating since 2007. They take their raw materials (the wood) from Kosovo and from foreign countries, such as Germany, Finland, Slovenia etc. There is extra material that is left after production, i.e. leftover of wood and material used to create furniture. While they use the wood leftover to heat their facilities and some they sell for the purpose of heating, while some part of it is thrown away. They believe that if they would use recycled materials, their cost would go way down.

Company D is a company operating in Kosovo, which works in the recycling industry since 2006. They work mostly in the Kosovo market, but also in the region, and in more developed countries such as Italy, Germany and the US. This company collects its raw material in two ways: by collecting some types of plastics from different companies in Kosovo and by importing plastic waste from other countries. Even the way they collect waste has a good logistics process since during the day they go and distribute the recycled product, and on their way back to the headquarters, they collect the waste. The owner believes that Kosovo has a good quantity of plastic in the form as waste. The owner is optimistic regarding the potential this company can get to, since there are thousands of businesses interested to use their services.

Company E is a company operating in Kosovo, which works with the latest technology to help citizens understand the importance of environmental protection. They have created this product which is a waste bin which divides waste in three categories: plastic, aluminum and others. When waste is put in the waste bin, it gives the individual 15 minutes of free Wi-Fi or charging of your battery. The waste collected is collected from two separate companies, one recycling company

which collects the materials that can be recycled (plastic and aluminum) and one company which is the public company of the city which collects the other mixed waste. Their target markets for this innovative idea (and for other products which have per basis similar innovative ideas that the company has planned for the future) are the cities, governmental institutions, schools, other organizations and companies. The owners created this product, to help increase recycling and raise awareness that recycling benefits the society. This product is an example of circular economy being used in practice.

7.0 Analysis of the interview results

7.1. Main findings from company interviews

Companies from A, B and C are companies which work in different sectors that do not work on circular economy principles. They all had the same questions and will be analyzed in part 7.1.1 of this section. Company D and E already work with circular economy principles in place. They will be analyzed in part 7.1.2 of this section.

7.1.1 Companies A, B, and C– Main Findings

1. **All companies have some sort waste at the end of their primary production process**: Company A has grain and yeast as primary waste and then their final products after usage also add empty bottles to this company's generation of waste. Company B has left over pieces of clothing. Company C has leftover of wood and leftover of furniture material.

2. **All companies use some sort of circular economy concepts in their business cycle**: Let's analyze them individually. Company A gives the leftover product which they do not need to a farmer. Company B reuses their leftover product for their students to be taught in those materials. Company C uses their leftover product for heating or is resold to other companies. As a result, companies A, B, C the concept of ***reusing*** their products. The main reason behind using these concepts is the economic benefit from utilizing the material. As any other rational business, these companies want to minimize their cost, thus, implementing these concepts even without having as a priority environmental sustainability or circular economy. Company A had even tried recycling for some time but because of the lack of cooperation with the business this company supplied, it could not continue the recycling process.

3. **All companies said they would support any law that works toward improvement of the environment**: One of the questions for their interviews was "What steps if your firm willing to take if there would be a policy change regarding a mandatory recycling policy for customers and businesses?" (See Appendix, 10.2). All the firms stated that any initiative from the government regarding environmental protection is welcomed from the companies. Company A and B state that making the rule which obliges everyone to implement certain strategies will success since there would be no companies that benefit from the linear supply chain. All companies go on and state

that if all companies would have the same responsibilities towards this change, they would not mind the extra investment it would take.

4. **None of the companies have noticed a change in waste management after the change of Law on waste 04/L-60**: Even though the law changed emphasizes the importance of circular economy and what the government should talk action regarding this topic, none of these companies had recognized any changes on the way that waste is collected from them or any other changes. Meaning the implementation of this law was not efficient where it should have been, namely effecting the private companies.

7.1.2 Companies D and E – Main findings

1. **Both companies recognize the benefits the environment has from using circular economy concepts**: While explaining the purpose of their companies, both of them specifically state the benefits that are caused to the environment because of their companies. While one does the recycling (Company D), the other one gives an incentive to individuals to help recycle by separating waste.

2. **Both companies recognize the lack of infrastructure to help circular economy**: Company D has problems with the infrastructure because waste in the landfills is not separated based on its components. Company E has problems because the regional waste company which comes and collects the recycled material from them has very outdated machinery and the staff is not very updated with the new regulations on how waste should be managed.

3. **Neither of the companies was helped from the government through grants or other ways**: While company E stated that independent organizations have helped with grants towards the creation of their product's prototype and have supported them towards their journey, they have not received any financial support from any governmental institutions. Even when the company wanted to sell their product to the municipality of Pristina, the municipality was not interested to invest in such a product at this time. Company D also states that every investment towards the making and development of their company has totally been from the owner's pockets.

7.1.3. Government Representative- Main findings

For this project, an interview was conducted with a representative from the MESP who has worked in this Ministry since 2002. The interviewee explains that waste management companies in Kosovo, in a national level, reach a level of coverage a little above 72 %. Which means that 28% of landfills are not covered from companies that work for the municipalities. This 28% includes illegal landfills created either from industrial companies or from irresponsible individuals. The interviewee recognizes that there are issues which arise in the process of waste management, namely, the lack of compliance with the legislation, not being able to cover all landfills in Kosovo, lack of professional staff working in the landfills, lack of separation of waste at the source of waste etc. Furthermore, the interviewee states that the budget MESP has is not close to what this Ministry needs to manage Kosovo's problems with the environment. According to him/her, MESP recognizes that there are 300 million euros lost as environmental damage. The strategies that this Ministry makes are lacking in their implementation due to the lack of financial means, lack of professionalism from workers, and generally, the lack of the right mindset among citizens is present. When it comes to how much the government gives importance to circular economy, the interviewee states that there is a draft strategy which is expected to be implemented soon, which includes 40 million euros specifically to be invested for the circular economy. This strategy includes the opportunity of grants for companies which work towards implementing circular economy.

7.1.4 Non-governmental organization representative – Main findings

An interview was conducted with representatives from a non-governmental organization that focused on aiding new businesses through grants, local and international conferences and through consulting. Their primary concern was helping businesses that have a focus on companies that bring innovation into the Kosovan market. Out of these companies, they work closely with companies which help on making circular economy more prominent in Kosovo. They do this by helping their applicants - individuals and businesses that present an idea to them, that are then helped on implementation and realization. They attract applicants by doing public calls and organizing events where such ideas can be shared in their community.

In the list of companies, they have helped, stands Company E, which has been helped from this organization through grants firstly, to create their first prototype, and then through other means as offering expert consultants help, and doing their marketing in social and mass media. When it comes to how much the government has an impact in their work, they state that Ministry of Innovation and some municipalities have enabled them to help start-ups such as Company E to develop their business in aid of the environment.

8.0 Recommendations

As shown throughout this project, circular economy is vital for a creation of an economy that increases overall productivity and tries to decrease the negative effects that linear economy has done to the environment all these years. Linear supply chain is very harmful for the environment that is why a circular supply chain would be much beneficial to the betterment of the global society. Waste management is a key issue that countries have for the moment, especially Kosovo, therefore, tackling this issue would benefit the implementation of circular economy. To see how the implementation of circular economy concept works in different countries, an analysis of India and UK was provided. Examples of companies that have implemented circular economy were presented, in addition to policies that were implemented regarding waste management, recycling and reduction of waste.

Kosovo, as an EU aspiring country has to change some important aspects of the process of waste management. In addition to that, implementation of policies is a must in order for companies to start and introduce the 3R concept to their business plans. The interviews conducted with the five firms, give us clear information that the intrviewed firms have knowledge regarding environmental issues but because of the lack of infrastructure and government support, they cannot do any changes to the way their firms work now. The main reason for this was because the cost of their production would increase and therefore, they would no longer be profitable and some of them just cannot keep up with their competitors and consequently that could result in bankruptcy.

Kosovo needs to take environmental issues very seriously because from the situation that is currently going on, not only it will impact its integration to the EU, but also the health and wellbeing of all its citizens. This current project provides a list of recommendations in order to start implementing circular economy and its concepts.

Waste management is dependent on three main groups: “government, industry and individuals” and NGOs as a separate group that help with innovate ideas (Harrison, 2001). In order for new waste management policies to be effective, there are two approaches through which the policies should be applied. One approach is that these policies should start from the government by giving incentives (e.g., financial) for other parties to continue practicing these policies. The other

approach is that the government needs to tackle the "underlying causes relating to waste generation," which can be manifested through sanctions or deterrents (2001). These two approaches should be implemented in Kosovo since it would be a positive and negative reinforcement working together for one cause, that being to improve waste management in Kosovo and add circular economy parameters into the waste management equation.

Something that the government needs to be careful with is to create policies that work with each other and do not cancel each other out. This needs to be done through careful planning and long-term consequences need to be taken under consideration (Harrison, 2001). As was seen in section 6.3, the change of legislation which emphasizes the importance of circular economy happened, however, when companies were interviewed, all of them stated that they did not notice any changes because of this law. The effectiveness of this law was lacking for the reason that the infrastructure of the system has not been improved, thus resulting in the process to work the same way as always, with no changes.

In order to save the environment, incentivize any of the 3R concepts and improve the waste management situation in Kosovo, the Government needs to make some changes. The recommendations are divided in three categories:

- Policy interventions at-large;
- Support to companies to embrace circular economy;
- Better managed landfills.

Policy interventions at-large

Creation of new policies causes a change on how activities take place in a country. Kosovo needs to create more policies which are very specific on what they want to affect. The current laws and policies are not specific enough and especially there is a lack of positive reinforcement for firms. Some of the new policies that can be implemented:

- Adopt laws that limit the use of materials such as plastic (UK raising the price of plastic bags),
- Spread awareness regarding the importance of circular economy,

- Add a tax on products that are made for a single use and that are plastic or aluminum (The case of UK).
- Provide financial incentives for individuals and businesses that adopt the 3R concepts regularly.

Support to companies to embrace circular economy

The support of the government and other NGOs for companies who work upon circular economy principles helps these companies to do their job even better because the companies will know that their work is being valued. Therefore, the government can take some action to support these companies:

- Decrease cost for firms that handle their waste, and increase the cost on waste for firms by looking at the quantity of waste disposed (possibly through adding a fee),
- Support firms that have innovative ideas that involve circular economy (such as Indian firms: Haathi Chaap, Goonj, Attero),
- Open competitions with prizes for people who give ideas to reduce, reuse and recycle products,
- Advertise the companies and promote their value to the public.

Better management of landfills

Landfill management is important because the country cannot transform from a country who is concentrated in landfilling into a sustainability concentrated country without passing through a phase of improvement in waste management. Some changed that could help better management of landfills include:

- Introduce inspectors and cameras in areas near rivers and lakes so the irresponsible people pay a fee for throwing waste in illegal dumpsites,
- Invest in the infrastructure of waste management (buy more trucks)
- Divide selection of waste based on composition at the source
- Train workers of the waste management sector on how to do the separation of waste properly

- Create well controlled landfills (while also spreading the coverage from 72% to at least 95%)
- Create Material Recovery Facilities (MRF) close to landfills.

There are many steps to be taken in a country like Kosovo to improve the environmental settings. However, the main focus needs to be on implementing laws and regulation that could be put in practice, support businesses that want to implement this voluntarily, and make obligatory laws that affect all businesses the same way. The steps the government could take to improve the situation, would speed the process which is inevitable for Kosovo, if Kosovo wants to be part of countries who recognize the importance of the environment and are working on decreasing environmental degradation.

9.0 Conclusion

This project served firstly as an understanding to environmental degradation and to the factors that contribute to such an occurrence. It introduced the ways in which such degradation is a global phenomenon with catastrophic consequences. The project further introduced the concept of circular economy and its elements, but concentrated on the closed cycle element, more precisely on manners of waste management, the consequences of solid waste, circular economy and on the circular supply chain.

After introducing such concepts, they were then incorporated into an analysis of the waste management of India, UK, and Western Balkans, in order to serve as reference points when continuing to the analysis of the implementation of circular economy in Kosovo. In Kosovo, the information was gathered through primary and secondary data. Secondary data being extensive qualitative and quantitative data, whereas, primary data conducted from seven semi-structured interviews.

As a result of the research, this current study concludes that Kosovo is still not in the necessary level to fully implement circular economy and has a great way to go in terms of investments and work needed in order to create a successful strategy, so that circular economy functions well in Kosovo. Laws and regulations that prohibit further environmental degradation are of importance, however, their implementation and how they are executed is what the government needs to focus on. Landfill management needs to be controlled and improved from the government. Incentivizing individuals and businesses to work on a path towards circular economy are of the utmost importance.

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11.0 Appendix

11.1 Consent Form

Informed Consent Form for Social Science Research

RIT Kosovo

Title of Project: *Circular Economy in Kosovo*

Interviewer: ***Diella Lulaj***
RITK Student

St.“Shpetim Robaj”
Germia Capus, Pristina

10000, Kosovo

diellalulaj@gmail.com

1. **Purpose of the Study:** The purpose of this interview is to analyze how *NAME OF FIRM* logistics work regarding their supply chain, mainly how they get the primary resources and if they have ever considered recycling their products.
2. **Procedures to be followed:** You will be asked to answer 10 questions during this interview.
3. **Duration:** It will take about 30 minutes to complete this interview.
4. **Purpose of this interview:** The information taken from this interview will be used only for the “Circular Economy in Kosovo” capstone project.
5. **Voluntary Participation:** Your decision to be in this research is voluntary. You can stop at any time. You do not have to answer any questions you do not want to answer.

You must be 18 years of age or older to take part in this research study. If you agree to take part in this research study and the information outlined above, please sign your name and indicate the date below.

You will be given a copy of this form for your records.

11.2 Interview Questions for Firm A, B and C

1. Can you please explain how *NAME OF FIRM* operates in Kosovo? What does it produce? How long has it been in business and is the business working well?
2. Where does *NAME OF FIRM* get the raw materials needed for their production?
3. Have you ever heard of circular economy?
4. Do you have any extra material that is left over after production? If yes, what happens to that extra raw material?
5. Has the firm ever thought of creating a system of taking back their products in order to reuse the materials for reproduction?
6. If your firm were to use recycled material, what do you think that will do to your cost?
7. Do you think there is a future on recycling in Kosovo?
8. How concerned is your firm regarding the environmental issues that are caused by plastic, aluminum and glass?
9. Have any of the firms you work with ever brought forward the idea of recycling the packaging of their products?
10. What steps if your firm willing to take if there would be a policy change regarding a mandatory recycling policy for customers and businesses?