Tackling Waste Issues
Eco Island Krk – A Case Study

A Research Paper presented by:

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Croatia

in partial fulfillment of the requirements for obtaining the degree of
MASTER OF ARTS IN DEVELOPMENT STUDIES

Major:

Agrarian and Environmental Studies
AES

Specialization: ESD

Environment and Sustainable Development

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The Hague, The Netherlands
December 2014

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Acknowledgements

First and foremost, my most profound gratitude goes to my father who has enabled me to embark on this journey. There are no words to describe how much your constant support means to me.

An enormous thanks goes to my dear friend Tomislava who has been my rock and my pillar when I felt that the world was crashing down on me, you held me together and I will never forget that.

Thank you to my sister who was there in my roughest moments, ready to listen to me and help me cope with the challenges that were set in front of me, and to my friend Martina who was there to give me the support I needed during my research.

My dear Freda, my spiritual guide, thank you for your constant words of wisdom and emotional support. Thank you for reminding me that it's all about learning and growing.

Jida, I am grateful to this paper for bringing us closer together, you became the friend I needed here. Thank you for pushing me when I was struggling to keep going, and for helping me keep it together, you were like an angel watching over me. I look forward to the path that is in front of us and to us reminding each other that we can change the world.

Andrea, il mio angelo, you gave me a helping hand when I needed it the most, you have no idea how much your kindness and support have meant to me. Thank you for giving me the final strength I needed to finish this journey.

Claudia Lucia, I will never forget the love and support you gave me on that day in September, thank you so much.

Thank you to *Ponikve* Krk, for their support in my research, their warm welcome and openness to provide all the help I needed. Especially Ivan, who was my nice guide throughout my research period.

Thank you to my Supervisor, Dr Murat Arsel, for all the advice and patience, and to my second reader, Dr Stasja Koot for pushing me to do better.

Thank you to all my family and friends who have kept me in their thoughts during this journey.

Thank you to all my fellow students, my ISS family, you have made this hard and challenging journey well worth while and I will always hold you all dear to my heart. Now let's go change the world!!

Dedicated to

my father, whose constant support of

my crazy endeavours never seizes to amaze me

and to

Cécile, without you, this journey

and this paper would never have happened…

…in more ways than one.

Thank you both.

In loving memory of my mom, Ana.

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List of Acronyms

KN	Kuna (Croatian currency)
MSWM	Municipal Solid Waste Management
NPG	New Public Governance
NPM	New Public Management
POSAM	Posebno sabirno mjesto (in Croatian) (Special Collection Point for waste)
SAM	Sabirno mjesto (in Croatian) (Collection Point)
SMSWM	Sustainable Municipal Solid Waste Management
SWM	Solid Waste Management

Abstract

There is no single place on this planet which is not faced with the problem of waste. The modern way of life together with rising numbers in population are culprits for the growing amounts of waste generated in cities and locations all over the world. This paper explores the issue of waste in the touristic setting, within a small locality, an island in Croatia, which has decided to tackle the issue of waste on its own. The study was motivated by the example of Krk island, which seemed to have found a way to manage its waste in an ecological and sustainable way.

In order to preserve the environment, it is of utmost importance for every locality to find a solution to waste problems. However, solving the issue of waste is often faced with numerous obstacles. There are often difficulties with policy design and implementation on local levels. Local governments are often unable to solely resolve waste problems and the divergence that is often present between local governments and the state are making the search for solutions even more difficult. By looking at the case of Krk island and the way it tackled the issue of waste, this paper explores the innovations in local governance, policy design and implementation, and the role of political will in solving issues of the 21st century in the context of sustainable development.

Relevance to Development Studies

Developing countries are no exception to the problems that waste poses for the health of the citizens and the environment. Even more so, developing world is faced with a bigger challenge due to logistical and financial issues. This paper explores the notion of governance innovation and looks into the possibility of it providing better solutions for more local independence in solving local problems and improving their own development.

Keywords

Sustainable Municipal Solid Waste Management, Local Government, New Public Management, New Public Governance, Policy Design and Implementation, Sustainable Development, Ecotourism, Krk island (Croatia)

Chapter 1
Introduction

1.1. Nature of the Research Problem

There are very few countries in the world that are not struggling to find a solution to the problem of waste. With the constantly growing population, and the consequences the waste produced by such a great number of people is causing to our planet, the challenge of finding a way in which waste would not jeopardize the health of people, animals and the planet is constantly present. Proper waste management is one of the keys to preventing disastrous consequences the waste can have.

'As the world hurtles toward its urban future, the amount of municipal solid waste (MSW), one of the most important by-products of an urban lifestyle, is growing even faster than the rate of urbanization' (Hoornweg and Bhada-Tata 2012: ix). It is estimated that the yearly production of solid waste in urban centres around the globe circles around the number of 1.3 billion tons, with the expected rise by 90% in the next ten years. The ever-growing negative impact the solid waste is having on the environment, health and global climate, is turning it into one of the most important issues every corner of the world will have to face and find a solution to. Local governments are usually the ones who are providing the services for municipal solid waste management to the residents, and are thus nowadays challenged by the growing numbers and costs of managing it.

The modern world we live in requires a 'waste management system to be sustainable, it needs to be environmentally effective, economically affordable and socially acceptable... ...and to be effective it must be accepted by the population' (Nilsson-Djerf and McDougall 2000, as found in Morrissey and Browne 2004: 298); or as Petts (2000) puts it, 'the most effective management of MSW has to relate to local environmental, economic and social priorities'. However, it is not easy to develop a sustainable waste management system.

MSW usually requires the largest budget among all the city's services, especially in the low-income countries. Moreover, implementing systems and policies has so far proven to be a huge obstacle as well. Creating a policy that is effective both in the design and in the implementation is not an easy task. 'Waste management is representative of an area where the implementation stage is unlikely to be an automatic process, since it involves the coordination, planning, resources and support of a range of actors in both the public and private spheres' (Connaughton 2013: 1). This definition is very much different from the past debates of policy implementation, namely those of 'top down' and 'bottom-up' approaches.

The 'top down' perspective 'starts with a policy decision and examines the extent to which its legally-mandated objectives were achieved over time and why... ... [while] the bottom-up perspective starts with an analysis of the multitude of actors who interact at the operational (local) level on a particular problem or issue' (Sabatier 1986: 22). However, the contemporary theories favor the combination of the two approaches and advise to acknowledge the sig-

nificance of both in the implementation process. Moreover, the study of implementation has lately been significantly linked to the study of governance especially because it has been recognized that 'implementation inevitably takes different shapes and forms in different cultures and institutional settings' (Hill and Hupe 2008: 1-2). Entwistle (1999: 376, as found in Davies 2008: 173) claims that local authorities are principal players in the networks of waste governance … [and that] their limited resources, flexibility and authority undermine their capacity to enable sustainable waste management'. Hill and Hupe (2008: 2) also point out the importance of linking the studies of implementation with that one of governance.

This paper intends to look into one single case of a sustainable waste management system, implemented on the island of Krk, Croatia, and explore the dynamics behind the implementation of the system to try to understand

how important local government was in the process, and what factors were needed to improve it, while also taking into consideration the fact that the region heavily relies on tourism development, so the whole case will be observed through the lens of Ecotourism.

1.2. Introduction to the Case

Island name: Krk

Country: Croatia

Location: Adriatic Sea (Northern)

Area: 405 km^2

Population: 19,374 (2011) (during the summer period, June-August, rises to 120,000 due to the great number of tourists)

Map 1. The island of Krk within Croatia ('Karta Hrvatske', n.d.)

Map 2. Krk island ('Island of Krk Location', n.d.)

Map 3. Detailed map of the island with municipalities[1] ('Krk Map', n.d.)

In late 1990s waste disposal became a worrying problem for the island when the landfill they were using started filling up too fast, and the ecological cathastrophe started looming around the corner for the island whose future was relying heavily on tourism. The island was forced to try to find a solution to their waste problem so they ordered a policy study for ecological waste management which would help them tackle the issue. In June 2005, an ecological system of taking care of municipal waste was introduced on the island. The project treats all types of waste, and is the first of its kind in Croatia, and one of only two such systems currently existing in Croatia ('Europska Komisija Će Kazniti Hrvatsku Zbog Otpada' 2013).

All municipal governments on the island are co-owners (Table 1.) of the Commercial Utility Services Association *Ponikve Ltd.*, which takes care of the waste management, water supply and the sewage and wastewater in the area on the island.[2]

TABLE 1: Ownership of the Commercial Utility Services Association *Ponikve Ltd.*

No.	FOUNDER – MEMBER	THE SIZE OF THE VOTING SHARE BASED ON THE STARTING CAPITAL INVESTMENT IN %
1.	KRK TOWN	23,36 %
2.	MALINSKA-DUBAŠNICA MUNICIPALITY	17,81 %
3.	OMIŠALJ MUNICIPALITY	16,09 %

4.	BAŠKA MUNICIPALITY	13,93 %
5.	DOBRINJ MUNICIPALITY	12,31 %
6.	PUNAT MUNICIPALITY	10,55 %
7.	VRBNIK MUNICIPALITY	5,95 %

Adapted from *Ponikve Annual Report 2013: 4*

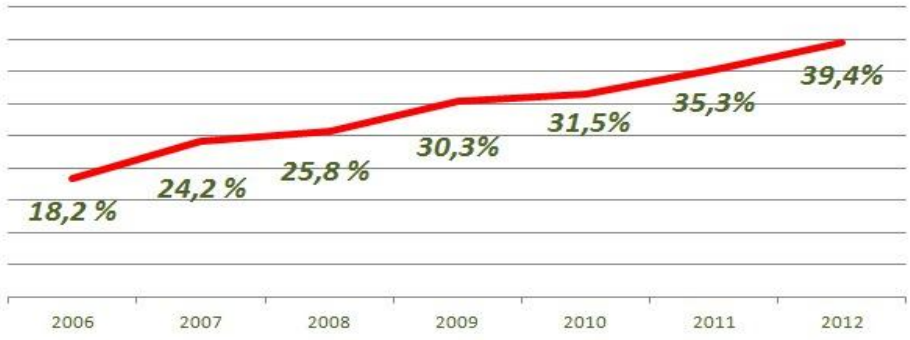
It is a common practice in Croatia to have a waste management company owned by the city, which is usually financed by the fee every household has to pay for the waste management. The difference on this island is that different municipalities joined together to solve the problem of waste, moreover the company on Krk is not only financed by the waste management fee, but also by the profit from waste recycling. What makes this case particularly interesting is the fact that the mayors/prefects from the different municipalities which are participating in the system, are also members of several different political parties, some extremely opposing to each other which in the Croatian context is often an insurmountable obstacle in solving problems as opposing parties are rarely found to collaborate.

Since the Krk company is organized as an association, the governing body is an assembly of seven representatives from each municipality (the mayors/prefects) which have the corresponding voting capacity based on the share of their capital investment (Table 1.). The assembly provides guidance for the company's operations, decides on the long-term business plans, development and investment plans, annual plan of business, household fees, work rules and regulations, standards etc. and appoints the CEO of the company who manages the business on their behalf (a four-year mandate). The CEO executes the Assembly's decisions.

The project of waste management was called *Eco Island Krk* and included regulation and modernization of a single landfill (*Treskavac*) for the entire island, and the collection and disposal of waste. The investment came from loans, outside funding and internal funding (each municipality contributed with a certain, but different, percentage). The whole investment was worth 37 million KN (~ 5 million €), and was used for the rehabilitation and modernization of the landfill area; and the acquisition and distribution of 7,000 containers of waste in 1,400 spots (Blažević Pajdaš 2010: 59).

The project has been very successful in terms of its steady development and constant increase in the percentage of segregated waste (Figure 1.). The goal was to increase the share of segregated waste by 2-3 percent every year. The share of sorted waste has risen from 18% in 2006 to 39% in 2012 ('Ponikve d.o.o. Krk' n.d.). In comparison, according to the report by the European Environment Agency in 2013, Croatia is recycling only 4% of the municipal solid waste on a national level ('Managing Municipal Solid Waste - a Review of Achievements in 32 European Countries' 2013).

Figure 1. Eco Island Krk - Efficiency of the system, the proportion of segregated waste 2006 – 2012 (Ponikve d.o.o. 2014)



1.3. Waste Management in Croatia - State Context

According to the report by the European Environment Agency in 2013, Croatia is recycling only 4% of the municipal solid waste on a national level ('Managing Municipal Solid Waste - a Review of Achievements in 32 European Countries'2013: 34). There are only two places in Croatia that have a completely developed program of waste management, Krk being the first that developed a sustainable and ecological waste management system.

Currently many cities in Croatia are struggling to meet the requirements set by the accession to the European Union[3]. In July 2013, a new *Law on Sustainable Waste Management* was enacted in Croatia, which obliges each and all local governments in Croatia to analyze the current state of waste management in their region and develop a sustainable waste management policy in line with environment protection. The Law (Croatian Parliament 2013) also mandates that local governments are required to do the following, among other things:

1. provide public service of mixed and biodegradable waste collection,

2. enable separate collection of paper, metal, plastic and textile, as well as bulky municipal waste

3. conduct educational activity in their own region

4. provide possibility of special waste collection activity

5. provide at least one recycling yard for their region

6. set up adequate number of and types of bins for separate collection of paper, metal, glass, plastics and textile

7. provide service of bulky waste disposal at the request of the user/citizen.

For the past few months[4], the issue of waste has broadly been discussed as cities are failing to adapt and improve their current systems of waste management in accordance with the new Law. Zagreb, the capital of Croatia is behind on all schedules and still has not been able to start up the project of sustainable waste management ('Odgođeno Razvrstavanje Opada U Zagrebu' 2014). One of the most important tourist locations on the Adriatic coast, Makarska, has no

location for the disposal of waste, and has currently been having enormous financial losses because the only place that wanted to accept their waste, which reached 30 tons per day during the summer touristic season this year, is 500 km away. Thus, Makarska not only has to pay expensive fees for the waste management, they also have to pay for the transport of that waste to the distant location ('Put Varaždina Krenulo 35 Tona Smeća Iz Makarske' 2014). On the other hand, the island of Krk has already been providing all those services required by the new Croatian Law on Sustainable Waste Management since 2005 and has already met most of the goals set by the *Law*, which are predicted to be met by 2020 by other parts of Croatia.

In light of current happenings in the country, it seems important to understand what has been done on that island that made the program work when other parts of Croatia are still struggling to meet the EU demands for a better and sustainable waste management, as well as how the island managed to tackle the problem of waste. The example of Krk island shows how a local government does not have to wait for the State to give the guidelines and can be a leader in sustainable development.

1.4. Research Objective

Understand how the island of Krk tackled the problem of waste and what were the important factors that helped the island in attempt to solve it.

1.5. Research Questions

1. How was the problem of waste approached on the island and what steps were taken to try to solve it?

2. What have been the outcomes of the ecological solid waste management system?

3. Why is the ecological solid waste management system working on this island when other places in Croatia have been struggling to implement changes?

1.6. Methodology

The research focused on one case – the Island of Krk, which seemed to be a good example of how local governance can be very important for local development especially when the state is failing to provide guidance or solutions to the problems, since at the time when Krk started its battle with the waste prob-

lem, the state of Croatia did not have any Laws or Policies on waste management that would provide guidance to the local governments.

The research used a number of primary and secondary resources. Main primary resources were obtained during the research through the interviews with the actors involved and by observance when visiting the locations on the island. Many secondary sources were obtained from the company itself, as they were extremely transparent about their work and enabled access to all necessary data. Other secondary resources include journals, books, and web pages from different sources.

Ethnographic approach was employed during the research to observe and try to comprehend what makes this island succeed where other regions from Croatia are failing. 'What ethnography can offer the policy process is an element of critical reflection, a means to understand in individual cases how, as Mary Douglas (1980: 54) writes, "the work that thought does is social . . . thought makes cuts and connections between actions"' (Mosse 2004: 667).

Many places in Croatia are currently having trouble solving waste problems in line with the new Law which requires the process to be ecological. The island of Krk seems to be different from the rest of the country as a system which is following the current guidelines was implemented back in 2005 and seemingly without so much struggle. 'In my research, I planned to focus on the people and their role in making this project successful. I planned to look deeper into relations between the actors, stakeholders and the driving force behind it, and try to understand how is it that this island found it so easy to implement a policy when in practice implementing policies has proven to be a difficult task'(Vuckovic 2014, essay[5]). Hill (1997: 17) points out that 'implementation depends on good management and good planning, especially good planning of objectives because often the objectives are unrealistic and difficult to implement'. 'The results of the project on the island of Krk suggest that they did not have so many difficulties implementing their policy. For that reason I wanted to have a closer look at the whole area, observe the people and the location, and try to understand what is so different about them, and what kind of dynamics have taken place. Ethnography seemed like the logical choice when trying to understand people and their actions' (Vuckovic 2014, essay[6]). As Mosse (2004: 646) explains 'the ethnographic question [of policy implementation] is not whether but how development projects work; not whether a project succeeds, but how success is produced... ...and the way in which policy ideas are produced socially'

The idea for the ethnographic research was to conduct several interviews and observe the dynamics between the people in the company itself, and on the island while trying to understand what lies beneath the success (when compared to other parts of Croatia).

Several interviews were conducted and they included:

1) The CEO of the municipal waste management company.

2) Prefect of Vrbnik who was a member of the Assembly in the starting stages of the project - to investigate if there were any difficulties between the stakeholders, negotiations involved to start the project, opposing opinions etc.

3) Current Deputy Mayor of Krk town - to determine the satisfaction with the system and its benefit for the municipality.

4) Citizens - to find out if, and why they are participating in the waste separation.

5) Tourists – to find out if, and why they are participating in the waste separation while staying on the island.

1.7. Scope and limitations

The research originally intended to include all political figures involved in the system, i.e. all current seven municipal representatives (mayors and prefects) and all seven who were representatives when the project was started. However, the time of the research was very unfortunate as it is a period of summer vacations, some politicians were on vacation at the time I was on the island, and some who were still there showed little will to cooperate, and referred me to the leadership of the company itself. For that reason, only two politicians were interviewed, one who was an assembly representative when the project was in its starting stages, and one who is currently a vice-mayor of Krk town but has proven to be a good addition to the research as he was an employee at Ponikve at the starting stages. It is possible that more interviewees that are political figures would have provided a different picture of what was happening behind closed doors during the period of decision-making.

During my first introductory meeting at *Ponikve* I noticed that people were a bit unease at the mention of recording the conversations, I evaluated that I would get more out of my interaction with them in a more relaxed and less official manner so I decided to take notes of the conversations by hand and not use any recording device. This decision influenced my ability to fully ethnographically observe the surrounding, body language and such, however it did not diminish data collection as when needed I asked my interviewees for a clarification if I needed something repeated in order to get all the facts correctly. All interviews were conducted in Croatian so the language was not a barrier as the same language is spoken in all parts of Croatia. However, had I met any of those people before and had spent some time on the island, it is possible the interaction with them would have given more inside information.

Since I had never visited the island before, it took a few days to find my way around and start with the research, it is possible that different perception would haver been acquired at the very beginning of my visit to the island. Moreover, due to financial restrictions and the fact that I had to finance my stay at the island for over a month, I had to abandon the idea of driving to all the locations around the island and visiting all seven municipalities.

1.8. Structure of the Paper

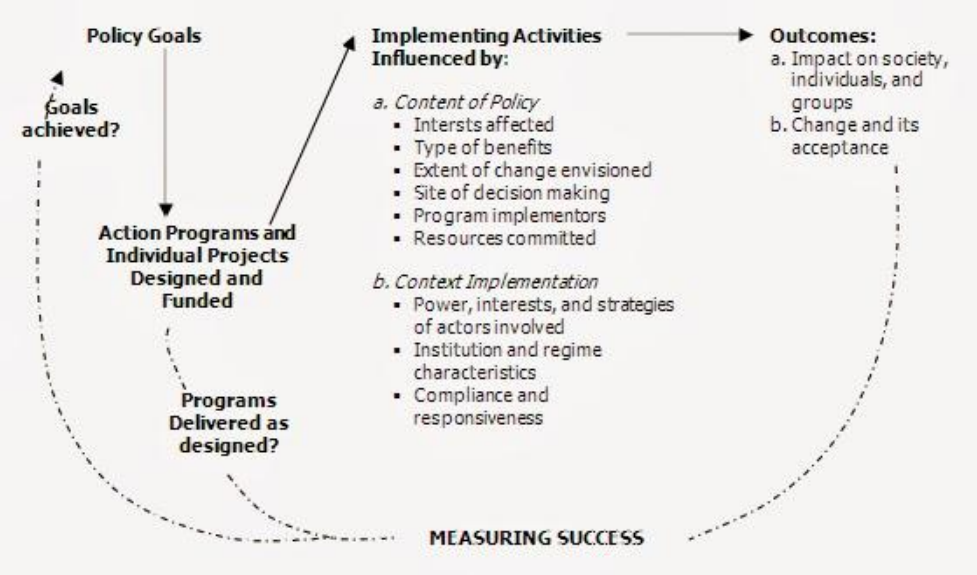
The paper is divided into six chapters. First chapter provides introduction to the research problem and gives important information about the case study. Furthermore, it explains the research questions and methods that were used during the research. The second chapter will explain the theoretical framework that will be used to explain the case study. Chapter three will provide the information about the case, the problem of waste management on the island of Krk and the steps that were taken to solve it. The fourth chapter will give a more of an in-depth look into the case based on the personal research that was undertaken. The fifth chapter will connect the theoretical framework to the findings and give elaborate answers to the research questions. Finally, the last chapter will provide a conclusion, and suggest possible interesting paths for further research.

Chapter 2 Theoretical Framework

2.1. Grindle's Model of Policy Implementation

The research will be analyzed through the lens of Grindle's model of policy implementation (Figure 2.), which sees policy formulation and implementation as interdependent. According to that theory, various actors are constantly involved in the implementation, which is an ongoing process. The outcome depends on the content of the policy, the interaction of the decision makers and the politico-administrative context, which all play a significant role in implementation process (Grindle 1980, as found in Ogunkanmi 1987: 29)

Figure 2. Grindle's model of policy implementation



Source: <http://1.bp.blogspot.com/-q69fv-IOd_c/Uox3aYa4RnI/AAAAAAAAAXc/hJRYOwW7e3I/s640/New+Figure.bmp>

2.2. Municipal Solid Waste Management

'Municipal solid waste management (MSWM) encompasses the functions of collection, transfer, resource recovery, recycling, and treatment. The primary target of MSWM is to protect the health of the population, promote environmental quality, develop sustainability, and provide support to economic productivity. To meet these goals, sustainable solid waste management systems must be embraced fully by local authorities in collaboration with both the public and private sectors' (Henry et al. 2006: 92).

2.3. Local Environmental Governance

Local initiatives have become more and more important as policies coming from the States have had plenty of implementation issues. 'The Rio Earth Summit of 1992 formalized the notion of 'thinking globally, acting locally' as the modus operandi of sustainable development. This ethic underpins the so-called Local Agenda 21 framework for governance that implements the global aims set out at Rio through a set of scaled national, regional and local policies for action' (Evans 2004: 270). As the importance of local governance rises, it is crucial to look into the dynamics on the local level, which can help with the sustainable development. Some authors doubt that local authorities can successfully take care of waste in a sustainable manner: 'One problem for local authorities is that privatized and contracted waste collection and disposal systems create fragmented networks of service providers who are more difficult to control', while 'local authorities are principal players in these networks of governance … their limited resources, flexibility and authority undermine their capacity to enable sustainable waste management' (Davies 2008: 173). There is something on the island of Krk that obviously does not correlate to the Davies's claims and the aim of this paper is to look into what makes the system on Krk different.

2.4. Agency

Agency is an important part of every action, especially when different actors are included, in this case those are citizens, tourists, local government officials, private stakeholders etc. The paper will explore the role of agency in the implementation process, and its connection to the outcomes of the policy. Apart from the individual agency which Berner (1998: 4) defines as 'the capacity of humans to ultimately decide what action to take', the paper will explore two more types:

a) Proxy Agency

'One agent acting on behalf of another. Common examples of proxy agents are employees acting on behalf of employers, managers acting on behalf of the owners of a firm, or officials acting on behalf of a government' (Mills et al. 2009: 13). In the case of Krk, Ponikve is a company owned by seven local municipalities, the managing director of the company acts as a proxy agent acting on behalf of the seven assembly representatives who decide on which projects the company is going to pursue.

b) Collective Agency

'When individuals collaborate they create collective entities; insofar as such entities engage in effectual activity, they become collective agencies. Among the numerous examples of collective agencies are firms, states, classes, and social movements' (Mills et al. 2009: 13). The whole project on Krk could be seen as a collective agency project because on all levels there are individuals

collaborating in the project, from seven mayors to company employees and the citizens.

2.5. Policy Design and Implementation

The process of policy design and implementation is the central part of the research. The paper looks into the links of local governance and agency with that process and tries to understand how they correlate. 'Policy is a political process, an organizational process and a process of social learning, and... ...these processes interact with one another...it is important to see policy as part of practice, not as something forged elsewhere and then imposed from above' (Colebatch 2009: 145).

Michael Hill (1997: 17) points out that 'getting things done, or implementation, is a crucial aspect of the real world of public policy-making'. In his words 'implementation relates to 'specified objectives', the translation into practice of the policies that emerge from the complex process of decision making' (Hill 1997: 17). Implementation depends on good management and good planning, especially good planning of objectives because often the objectives are unrealistic and difficult to implement (Hill 1997: 17). Looking at the case of Krk island one gets the impression that all those difficulties were somehow made easier since the performance of the system was quite well since the very beginning. This is why it seemed necessary to look deeper into the project and understand the dynamics behind it especially in relation to governance.

2.6. New Public Management and New Public Governance

The theory of New Public Management (NPM) emerged from the stem of Public Administration (PA). The era of PA was a long one, lasting for almost 100 years from the late 19th century, NPM followed since the beginning of 1980s and recently, since the beginning of this century, the era of New Public Governance (NPG) has started (Osborne 2006: 377). All of these three have been closely related to the 'design and implementation of public policy and the delivery of public services' (Osborne 2010: 1). NPM emerged when PA was starting to fail, public resources could not meet the public needs anymore and the expectations were that NPM would help improve the 'efficiency and effectiveness' of public services (Thatcher and Hughes 1995, as found in Osborne 2010: 3). Osborne (2010: 3, 4, 39) explains that New Public Management (NPM) is about changing 'the public sector so that it looks and acts a good deal more like the private sector' and calls for 'focus upon entrepreneurial leadership within public service organizations' among other things, as well as the intraorganizational focus. The research of NPM separated the management of public services and public service organizations from that of public policy process. However, lately NPM has been criticized because of its intraorganiza-

tional focus and together with PA accused of not being able to 'capture the complex reality of the design, delivery and management of public services in the twenty-first century' (Osborne 2010: 5). Since the modern world is more and more about interorganizational relations, Osborne (2010: 5, 7) asks if maybe there is another way to try and understand the complex field of public policy implementation and public services delivery with the theory of New Public Governance, which would be better suited considering 'the complexities' of the twenty-first century, even though 'elements of each regime can and will coexist with each other or overlap' (Osborne 2010: 2).

David Osborne (1993: 349 - 350) talks about the importance of local governments in creating solutions in the modern era and how the inability of public sector to change in line with the changing world has been the underlying root of many problems. He emphasizes that bureaucratic top-down organizations need to be more entrepreneurial and effective. 'To be effective today, an organization must be lean, fast on its feet, responsive to its customers, capable of adjusting to constant change, able to improve productivity continually' (Osborne 1993: 351). Hartley (2005: 27-28) also points out to the need for innovations in governance such as 'new political arrangements in local government… as well as changes in the organizational form and arrangements for the planning and delivery of services'. Understanding and recognizing their own local context is very important for innovations in local areas, and on the other side, what is needed is apprehension of 'how innovation is fostered, supported, sustained and implemented' (Hartley 2005: 32). Research has shown that innovation is 'as much a 'bottom-up' and 'sideways-in' process as a 'top-down' process', however, Hartley quotes Borins in explaining that politicians still have an important role in the process because 'politicians and senior public servants create organizational climates that will either support or stifle innovations from below' (Hartley 2005: 32).

Innovations in Governance within the public sector need to be better explained, it is important to understand 'in what ways is the shift an innovation, how does the innovation emerge and how is it sustained?'. It is also important to research several other things like: what are the important features that enabled the innovation to be successfully implemented or why a certain organization is receptive of an innovation; how the good innovation from one place can be transferred and developed in a different context; or look into the importance of collaboration between policy-makers and managers, as well as exploring the significance of context, both geographical as well as organizational. We need to understand the organizational processes of innovation development, the role of organizational managers in developing new ideas, and the 'lateral innovation coming from good practice adoption and adaption' (Hartley 2005: 34).

2.7. Ecotourism

The term ecotourism first emerged in 1980s, Ceballos-Lascurain (1987: 14) gave the first definition back in 1983 (Fennell 2001: 404), which described ecotourism as 'traveling to relatively undisturbed or uncontaminated natural areas with the specific objective of studying, admiring, and enjoying the scen-

ery and its wild plants and animals, as well as any existing cultural manifestations (both past and present) found in these areas' (Ceballos-Lascurain 1987: 14, as found in Donohoe and Needham 2006: 193). Over the years, many definitions have emerged. In his study of content analysis of ecotourism definitions Fennel (2001: 416) analyzes 85 different definitions of ecotourism and states that there are probably many more out there. Other authors have also done an analysis of the numerous definitions (see for example Donohoe and Needham 2006, Sirakaya et al. 1999). Donohoe and Needham (2006: 193) point out the confusion that has been created by the numerous different definitions and how 'these diverse interpretations of ecotourism are causing a myriad of difficulties for managers and planners who are in need of operational guidance'. After analyzing over 20 different definitions Sirakaya et al. (1999: 171) found what all the definitions had in common and came to the conclusion that Ecotourism is:

> 'a form of tourism that is expected to result in (1) minimal negative impacts on the host environment; (2) an increased contribution to environmental protection and dynamic conservation of resources; (3) the creation of necessary funds to promote sustained protection of ecological and sociocultural resources; (4) the enhancement of interaction, understanding, and coexistence between the visitors and locals; and (5) a contribution to the economic (monetary profits and job opportunities) and social well-being of the local people.'

Olsder (2004: 10) on the other hand, cited a slightly different definition of ecotourism by Ceballos-Lascuráin (1996) which describes it as 'environmentally responsible, enlightening travel and visitation to relatively undisturbed natural areas in order to enjoy and appreciate nature (and any accompanying cultural features both past and present) that promotes conservation, has low visitor impact, and provides for beneficially active socio-economic involvement of local populations'. If we consider this definition the question arises, what makes a type of tourism be *ecotouristic*? Is it the tourists themselves who are supposed to behave according to this definition? Is it the concept of tourism that is considered to be as such? Or, is it the local community, touristic boards, local government who are supposed to make sure that the touristic options they offer are environmentally responsible? This paper will consider ecotourism as something a local area needs to provide and make sure that tourists behave in an environmentally responsible way looking at a single case of an island in Croatia, which has implemented a sustainable waste management system in order to protect its environment and preserve the island for the future generations. Olsder (2004: 10) also mentions how nature travel is often wrongly mixed with ecotourism because nature travel often does not help conserve the nature. If we take nature conservation into account then what goes on the island of Krk can be considered as an example of ecotourism.

Another set of long debates that has been going on is about whether ecotourism can only be small-scale. Many of the researchers like Gilbert (1997), Jones (1992), Khan (1997) Lindberg and McKercher (1997), Lück, (1998), Orams (1995) Thomlinson and Getz (1996), Warren and Taylor (1994), Wheeller (1994) have said that ecotourism needs to be small-scale (Lück 2002: 361). However, Lück (2002) questions that notion by presenting two mass tourism examples, which implemented a number of changes to protect the environment to show that such tourism can also be environmentally friendly

maybe even more so than the tourism labeled as ecotourism. So where does that leave us, do we rule out a location from ecotourism if it is not small-scale? How do we define a tourism that is concentrated on protecting the environment but does not fall into the definitions of ecotourism? Maybe the term sustainable tourism could be a solution. Olsder (2004: 8) explains that 'ecotourism is a form of tourism that takes place in natural areas, contributes to conservation of nature and the well-being of local people and has an educational component for the tourist. Sustainable tourism is broader and can apply to any form of tourism, when the tourism product is set up in such a way that effects on environment, nature, local communities and culture are prevented' but also reminds that 'the concepts sustainable tourism and ecotourism are often used as one and the same Furthermore he explains that good development plans are needed in tourism industry but are often lacking and that 'as opposed to mass tourism, with ecotourism or sustainable tourism the impacts of development are, supposedly taken into account' (Olsder 2004: 10). Olsder (2004:9) talked about the growth in the tourism industry and how many countries rely on their tourism to help the industrial development. Croatia relies on its tourism in the same way, summer season is the time when labour is needed and when many unemployed Croatians rush to the seaside finally being guaranteed a job for a few months. Olsder (2004:9) states that tourism is still considered as 'clean industry' even though it has a significant effect on both the society and the environment. If we just consider the high number of tourists who flood areas, and the sources that such a high number of people requires, it is clear that tourism puts a lot of strain on the environment it occurs in. Using the example from this case study, the island of Krk in Croatia, this paper will attempt to show the level of pressure tourism puts on resources. However, the main focus of this paper will not be resource management in the area but it will look deeper into waste issues and waste management.

Following that line, Wall (1997: 483) argues that 'sustainable tourism and ecotourism are not synonyms, many forms of ecotourism may not be sustainable, and if ecotourism is to contribute to sustainable development, then careful planning and management will be required.' Indeed, over the years the concept of sustainable tourism has often been linked to ecotourism, especially because it is often considered that mass tourism cannot be sustainable or ecological. Clarke (1997: 224) explains that sustainable tourism is 'a goal that all tourism must strive to achieve' and goes on showing how both mass tourism and ecotourism can be sustainable. Clarke (1997: 230) also includes the concept of *reduce, reuse, recycle* which is closely connected to waste. If we consider that improper waste disposal is often listed as one of the main threats of both tourism and ecotourism (see for example Stem et al. 2003, Weinberg et al. 2002, Olsder 2004, Coccossis and Nijkamp 1995, Briguglio et al. 1996, Coggins 1994) it is somewhat surprising that not much attention is being paid to how (eco)touristic destinations are managing that problem and which ways are they finding to tackle the problems of environmental degradation due to waste disposal. As Coggins states (1994: 155) 'all travel and tourist activity generates solid waste which must be managed if it is not to impact on the local or global environment'. Fennell (1999: 31) explains how 'Hetzer (1965) used the term 'ecotourism' to explain the intricate relationship between tourists and the environments and cultures in which they interact. Hetzer identified four fundamen-

tal pillars that needed to be followed for a more responsible form of tourism. These included: (1) minimum environmental impact; (2) minimum impact on – and maximum respect for – host cultures; (3) maximum economic benefits to the host country's grassroots; and (4) maximum 'recreational' satisfaction to participant tourists'. In addition, Olsder (2004: 11) argues that 'ecotourism can be a sustainable means of socio-economic development, provided that it is implemented in a sustainable way'. For these reasons it seems even more important to look into that single case in Croatia, a touristic island which has taken steps towards bettering the waste management system on the island in order to preserve the environment and enable sustainable development by implementing an integrated and ecological system of municipal solid waste management, the first of its kind in Croatia. Looking into the island of Krk is even more important taking into considerations that Croatia is currently being faced with a new Law on Sustainable Management (enacted in 2013) which obliges all municipalities to manage their waste according to the European ecological and sustainable standards, a task which most of the municipalities are currently not living up to.

2.8. Political Will

'An oft-cited culprit when government does not take action is a lack of political will'. However, the concept of political will has not been clearly defined even though it is often considered crusial in policy outcomes (Post et al. 2010: 654). Brinkerhoff (2010: 1) explains that the concept of political will is complex because 'it involves intent and motivation, which are inherently intangible phenomena', and because it can both be individual and collective. Hammergren (1998: 12) calls it 'the sina qua non of policy success which is never defined except by its absence' and is often used to elaborate why policies did not succeed.

This paper will not go into the discussion of what a political will is but employ the definition given by Rose and Greeley (2006: 5) which define it as 'the sustained commitment of politicians and administrators to invest political resources to achieve specific objectives, and that of Brinkerhoff (2000: 242) who defines it as 'the commitment of actors to undertake actions to achieve a set of objectives', and explore the role of political will in this particular case in trying to understand how important it might have been in the solution of the waste problem the island was faced with.

Chapter 3 ECO ISLAND KRK – A CASE STUDY

This chapter will provide more information about the case study. Firstly, a historical overview of *Ponikve Ltd.*, the governmental company that is taking care of the waste on the island, will be given. Followed by more information about the waste problem the island was faced with. Thirdly, the paper will look into the policy study design that was created to solve the issue of waste. After that, the policy implementation process will be described.

3.1. Ponikve Ltd. [7] History

Ponikve Ltd. is a Commercial Utility Services Association, which takes care of the waste management, water supply and the sewage and wastewater in the area on the island of Krk. The association was founded in 1960 for the purpose of water production and distribution. Its headquarter has from the start been in the city of Krk. In 1986, *Ponikve* merged with a utility company *Komunalac* from Omišalj, which was taking care of the waste on the island. Neither of the two companies was privately owned, both were owned by local governments[8]. The merge happened because the business of *Ponikve* was going well but *Komunalac was* not doing well (Jurešić 2014, personal interview[9]). Apart from water services, the association was now providing services of waste collection and disposal, cleaning services in office spaces, public and green area cleaning, cemetery maintenance and funeral services. In that same year, *Ponikve* also took over maintenance and development of existing sewage systems on the island. After 1991, the reduction of services started so that nowadays, the company is focused on water production and distribution; collection, treatment and disposal of wastewaters; and collection and disposal of municipal waste ('Povijest Društva | Ponikve Krk' 2014).

1970s marked the beginning of the development of the island when the airport was built on it for that region of Croatia. The airport soon brought about another key factor that helped with the development, a new five star hotel complex in Malinska, which brought on a more serious touristic development. With the tourist complex, the island became the top-level location in ex-Yugoslavia at that time. In 1980, the bridge connecting the island with the mainland was built, another factor for even quicker progress and development. After the Croatian War of Independence (1990-1995), the development of touristic apartments started which also enabled even bigger overall development of the island.

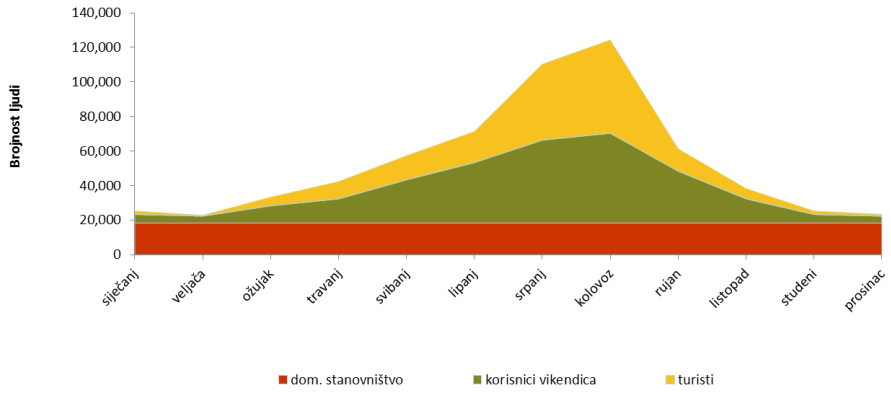
Since 2000, there have been three big schemes for the development of the systems on the island

1. 2001 to 2012 – Water Systems Development - a huge and expensive project, very important condition for further development of the island.

2. 2000 to 2012 – Development of Ecological System of Waste Management on Krk Island.
3. 2015 to 2023 – Sewage System Development - 'The main goal of this project is to protect ground waters and sea-shore thus protecting human health as well' ('Razvojni projekti | Ponikve Krk' 2014).

All three services of Ponikve are under immense pressure for forty days during the year (July and August) and all the systems need to be well prepared to sustain that pressure[10]. Figure 3. shows how much the amount of people living on the island rises during summer months. The X-axis shows all twelve months of the year, while the Y-axis gives the population number. (See Appendix A for a clearer figure).

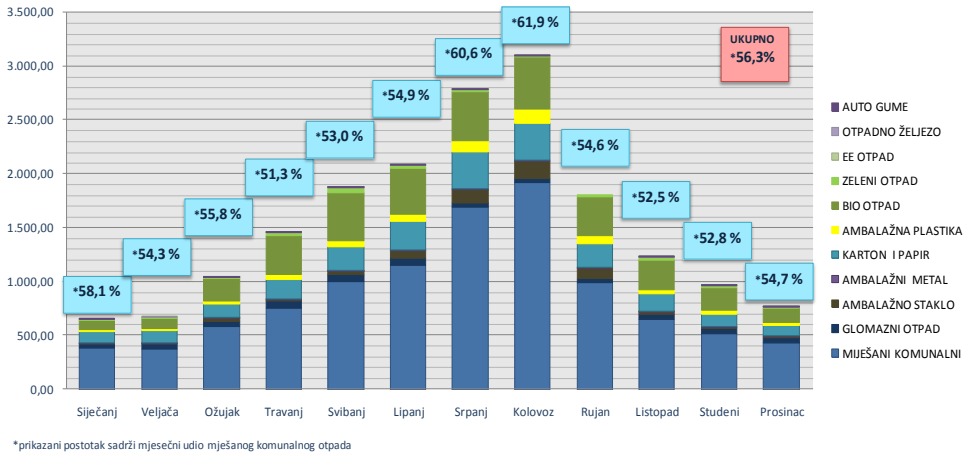
Figure 3. Population changes on the island in summer months



Source: Ponikve Krk

Figure 4. shows the amounts of waste generated over the year and the high numbers that occur during the summer months. The percentage shows the monthly amount of mixed waste, while other colours relate to different types of waste that is segregated (green for example is biowaste). The X-axis shows the months of the year, while the Y-axis shows the tons of waste generated in thousands. (For a clearer presentation, see Appendix B).

Figure 4. Rise in the amount of waste generated over summer months



Source: Ponikve Krk

3.2. Facing the Waste Problem on the Island

Since 1992, waste collection was covering three municipalities: Omišalj, Baška and Krk. In 2001, municipalities of Punat and Vrbnik were added to the list, and as of 2006, the association collects waste on the whole island. In 2005, an ecological system of waste management was introduced in order to separately collect and recycle as much waste as possible. The waste that is not separated is disposed on the landfill of *Treskavac,* which is also managed by the association.

In the past, a usual practice with waste in ex-Yugoslavia was to dispose of it on the landfill and burn it occasionally in open air to make room for more waste. As a child, I remember the dreadful odour that would cover my home-town on those days, 'They are burning the waste again' was the sentence we would here from the adults. The practice continued in the 1990s after Croatia became independent. Krk island is no exception to this. In mid 1990s, there were constant protests by the Punat municipality, which was close to the landfill, because of the awful smell that would spread above the town when the waste was put on fire. Therefore, in 1996 when Frane Mrakovčić became the managerial director of Ponikve the first decision his team made was to stop the burning of the landfill (he has been living in a village close to the landfill so he was also one of those being affected by waste burning). 'One never knows what is present in the waste, what comes out during the burning, dioxins, carcinogenic substances… burning should never be done because you never know what the consequences might be' (Čedomir Miler, personal interview[11]). After the effects of war subsided more and more tourists started coming back to Croatia, rising numbers of holiday homes, and new tourists also brought on the rise in the amount of waste generated (Blažević Pajdaš 2010: 141). In 2000, the problem of waste on the island culminated when it became clear that the landfill was filling up fast and that soon there would be no room for waste anymore. *Ponikve* purchased more land around the existing landfill, some from pri-

vate owners, some from the state. However, they realized that even that would only buy them a bit more time but that it would not solve the problem since after buying the surrounding land there was no room for an additional expansion of the landfill. They realized that they had only a few years left before it becomes an ecological hazard for the island, which would jeopardize the whole future of the island and its citizens, especially because of their dependence on tourism. Krk was an important tourist destination and they wanted to keep it that way, especially protect the ground waters and the seashore because their beaches had Blue Flags[12]. As my Ponikve guide said, 'Once you get bad reputation, it is extremely hard to rectify it', thus it was important to introduce the system of waste separation at the same time as it would prolong the life span of the landfill (Jurešić 2014, personal interview[13]).

At that same time there was a county plan to build a regional centre that would take care of the waste for a bigger region including the island of Krk that was supposed to be ready for use by 2000. Therefore, Krk waited for three years for the regional centre to become reality. However, that plan was not moving forward (even now, 14 years later it is still an idea on a piece of paper). Krk did not have time to wait anymore, 'We asked for suggestions and help from the Croatian Ministry of Environment Protection and were told that Croatia does not have a policy nor a strategy for waste separation and that there were no funds to help us' (Mrakovčić 2014, personal interview[14]). Krk did not want to wait for others to solve the problem so they tried looking for solutions on their own. At first, the idea was to find a concessionaire who would invest money to solve the problem. They started collaborating with a company from Germany and developed a concept. However, after realizing that the German concessionaire was only interested in earning money and not considering what was best for the island the deal fell through. Maybe it was destiny that in the early 2000s *Ponikve* was collaborating with two professors on the water issues they were having. Prof. Slaven Dobrović and prof. Stanko Uršić were helping *Ponikve* with the water project and since waste became a burning issue for the island around the same time, together with the people from *Ponikve,* they started thinking about a solution for the waste problem as well. So after an unsuccessful attempt to collaborate with the German company Ponikve turned to domestic experts for help.

3.3. Policy Study Design

The period of preparation activities altogether lasted for five years. In 2001, the two professors started working on a policy study that would design an ecological waste management project for the island. In 2003, the policy study was presented to the representatives of the assembly and later received full support from all the councils on the island. Finally, in 2005 the integrated system of ecological municipal solid waste management was implemented on the island, 'first of its kind in Croatia' (Blažević Pajdaš 2010: 57).

The Policy Study itself is a document on 62 pages, first giving an overview information about waste management solutions in European Union and

the United States, and then defining the problem on the island and the goal of the project. After that, the study explains in detail current state on the island at that time, the population numbers, as well as details about weekend visitors and tourists, together with the amounts of waste being generated. It also provides detailed instructions on how to deal with different waste categories. The third part of the study is dedicated to the detailed description of the ecological waste management system for the island. The fourth part explains the educational and communications support systems for the project. The last part offers the financial analysis of the whole project.

According to the 2001 Population census there were 18,361 people living on the island at that time, in 6,207 households. The assumption was that there were also around 11,000 holiday homes, which add around 50,000 people in the summer months. When the registered number of tourists staying on the island during summer months is added, the total number of people staying on the island rises to 120,000 (Uršić and Dobrović 2003: 11). Analyzing the data about waste amounts from earlier years, it was evident that there was a rise in municipal waste disposal. The study shows the staggering number of 52% more waste disposed on the landfill in 2002 compared to 1998.

3.3.1. Waste categories

The study (Uršić and Dobrović 2003: 16-19) provided detailed explanations of what categories of municipal waste exist and what they can be composed of. It lists eight categories:

1) biowaste/ biodegradable waste
2) paper and cardboard
3) glass
4) polymers – plastics
5) metal
6) other waste
7) household hazardous waste
8) bulky waste

1) Biodegradable waste

It is explained that kitchen waste (fruit and vegetables remains, remains from fish or meat, bread and cooked food remains) and garden waste (leaves, flowers, branches, mowed grass, and sawdust) belong to this category. The study stresses that paper packages stained with food, tissues and ash from wood are also allowed in the biowaste. Items that are not allowed are printed-paper, cleaning substances, paints and varnishes, batteries and similar items.

2) Paper and cardboard

Items that belong into this category are: newspapers, magazines, books and notebooks, paper bags, any type of cardboard or items made of paper and

cardboard. The things that should not be put with this type of waste are liquid packaging board, photo paper and any other materials not made of paper.

3) Glass

The study instructs that lids and labels should be taken off the glass bottles or jars before putting them in the special bins. Window glass should be taken onto a special collection point (POSAM).

4) Polymers – plastics

The study explains that these will be collected as two main segments, PET bottles and other plastics (food packagings, soap and shampoo packagings, detergent and similar cleaning substances packagings. In case the packaging is from hazardous materials like glue, solvents, medicaments they should be disposed of as hazardous waste.

5) Metals

Steel, tin, aluminum, copper, lead, zinc are all items that belong in this category. Beer cans and soda cans will have a special bin; all other metal items should be disposed of on one of the special collection points (POSAM).

6) Other waste

Items that belong into this category are: diapers, unspecified plastic packaging, different small compact items like lighters or toys, ceramics and porcelain etc. This is the only category that is not separately collected. Items that fall into this section are the only items that are disposed of on the landfill, but due to their inertness, the issues regarding possible pollution of ground waters or creation of landfill gases are significantly reduced.

7) Household Hazardous waste

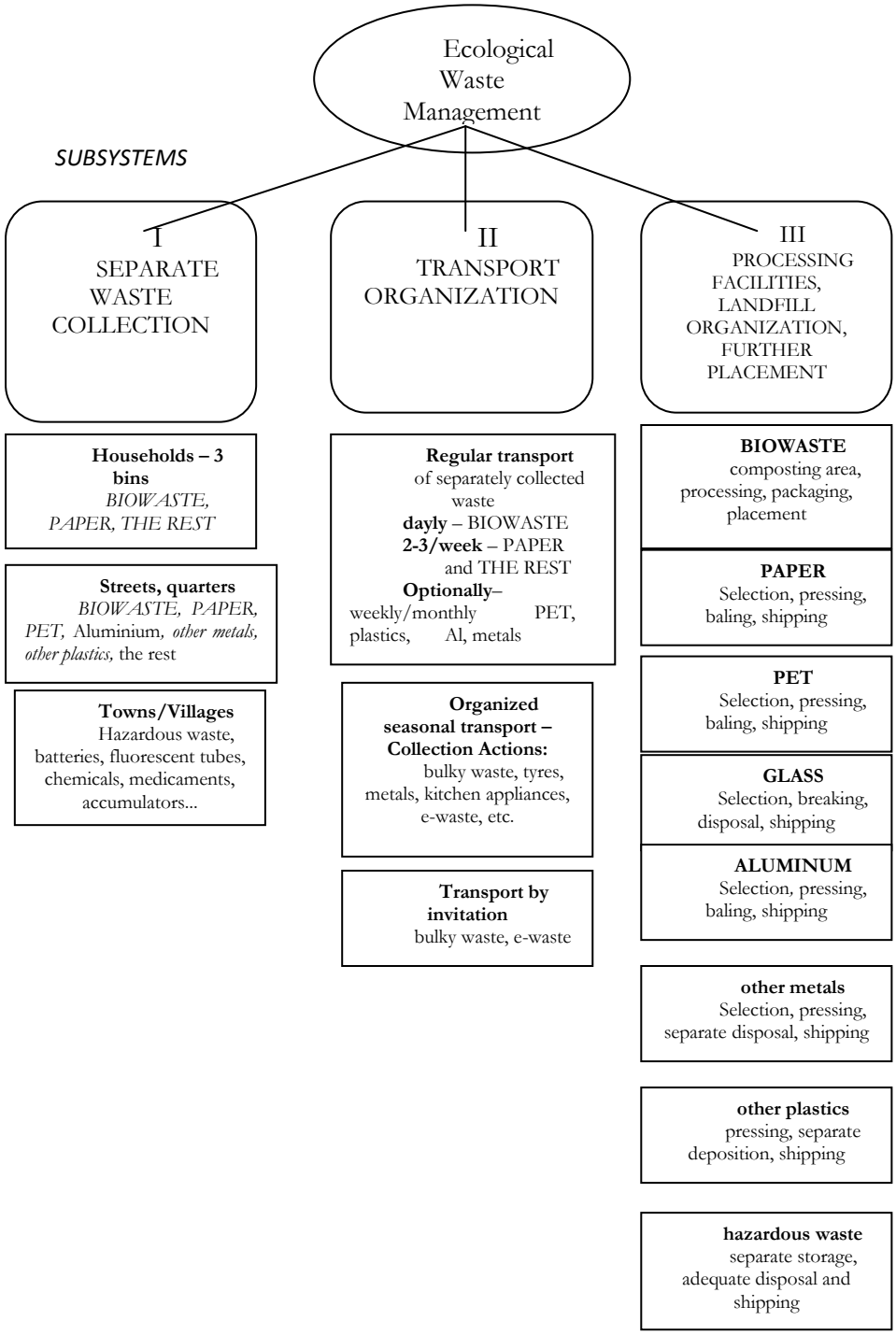
Hazardous materials that cannot be accepted at POSAMs are items like explosives and different ammunition, compressed gases (except aerosols), infective, biomedical, radioactive and other unknown materials. Those can be taken care of by special state services. Waste that does belong to this group and can be disposed of at POSAM are items like: warn out accumulators, all sorts of packagings (chemical, pesticide, paints, oils, cleaning substances, solvents, glues), fluorescent tubes and mercury bulbs of all kinds, batteries, pressure vessels, motor oil, medicaments and cosmetic remains, old mercury thermometres and all other items containing dangerous elements or compounds.

8) Bulky waste

Kitchen appliances, furniture, cars, car tyres, e-waste are all items that fall into this category and should be disposed of on POSAMs.

3.3.2. Description of the Ecological Waste Management System for Krk Island

Figure 5. Organizational scheme (Uršić and Dobrović 2003: 22)



The scheme above explains the three subsystems, which need to be organized within *Ponikve Ltd.* in order to manage waste in an ecological way. The Policy text explains each subsystem, what they involve and how they are envisioned.

Thus, the separate waste collection part explains what types of bins should be used in the households, at the collection points (SAM) and special

collection points (POSAM); how big they should be, and how many should be distributed around the island and where. The policy also defines a collection point (SAM) which is 'a point on the public area where a group of bins for separate collection of waste are located' (Uršić and Dobrović 2003: 24) whereas a special collection point (POSAM) is 'a fenced area of about 100m^2, which is properly illuminated, has a driveway and has collection containers for the disposal of hazardous waste (such as toxins, heavy metals, flammable and corrosive substances) which can have adverse effects on human and environmental health (Uršić and Dobrović 2003: 25).

The transport part analyzes the current vehicle fleet, the current collection dynamics in the summer (May-October) and winter (October-May) regime and explains the changes that need to be implemented as well as the new vehicles that need to be purchased. It was not expected the transition onto the new system to cause special difficulties as the goal was to maximally use and upgrade the existing one (Uršić and Dobrović 2003: 32).

The third part of the scheme explains how to treat separate segments of waste giving the most attention to biowaste because 'biowaste treatment is of utmost importance for the whole ecologically based system since it eliminates the biggest part of the problems that arise during unecological treatment – microbiological/hygienic/environmental ones and the pollution of the water, air, soil and the environment… in fact none of those problems appear during composting' (Uršić and Dobrović 2003: 34). The whole process of treating biowaste is explained in detail, starting from separation and collection end ending with elaborate instructions for the whole composting process. It also mentions an important aspect of biofertilizers which are produced from biowaste and can contribute to 'agriculture development, especially olive growing and viticulture on the island' (Uršić and Dobrović 2003: 34). After that, the policy also explains how to treat all other types of waste (paper, glass, PET and other plastics, metals and hazardous waste).

The penultimate part of the policy offers an explanation of the support system for the project: program of constant communication with citizens through INFO-telephone and INFO email, monthly flyers, web site, poll organization and any other means of media support as well as the ideas for constant education needed to enhance the acceptance and citizen participation in the new ecological waste management system as it is not obligatory but based on the completely voluntary participation.

The last part of the policy is dedicated to the cost and benefit analysis and shows the amount of investment that is needed, the estimate of yearly expenses and possible revenue from selling waste materials on the Croatian or international market.

3.4. Adoption and Implementation

When the policy study was finished, it needed to go through a double approval course. First, the seven members of the Assembly needed to give their approval, however since municipal prefects did not have much political power at the time and municipal councils were making all the decisions, the policy study also had to be approved by seven municipal councils on the island.

Things at the Assembly did not go so smoothly. Even though the landfill at that time was looking pretty bad, everybody was skeptical about such a system working on the island. 'We thought a thing like that can only function in Germany' (Toljanić 2014, personal interview[15]). Apart from that, every municipality was faced with different problems that seemed more urgent. Not all parts of the island were equally developed; Vrbnik and Dobrinj still did not have the developed water system while Krk and Malinska were in the process of sewage development. At the Assembly meeting, each member was trying to push for the issues that their municipality was faced with. However, the managing director of Ponikve, Mr. Mrakovčić was able to get everybody to see eye to eye. 'Mrakovčić managed to make others see why the idea was good, he was always open for compromise and was always trying to reconciliate assembly members with different views' (Toljanić 2014, personal interview[16]). Or as another of my interviewees said, 'Mr. Mrakovčić's perseverance and the quality of the project lead to the mutual understanding and agreement' (Miler 2014, personal interview[17]).

After the policy study was approved by the Assembly, each Prefect had to present it at their own municipality council meeting where it also had to be voted on for adoption. However this process turned out not to be complicated as almost every council reached a unanimous decision to support the project of *Eco Island Krk* (although there was one council member in Baška that was restrained). The importance of this information lies in the fact that each council consisted of members from different political parties, some even very opposing to each other, which in Croatia often do not find a way to collaborate. This shows that development and progress should be more important than any political disagreements.

After the policy study was adopted the preparation period for the implementation started. It was now time to go searching for financial support to make the idea happen. This is another segment where the managing director played the most important role as he was constantly travelling to Zagreb, the capital of Croatia, knocking on numerous doors asking for financial help. 'Mrakovčić takes ten copies of the plan and goes around different state offices in Zagreb asking for support' (Miler 2014, personal interview[18]). In the end, they managed to get support from then newly set up State Environmental Fund, which covered 60% of the investment, the rest they got from a bank loan, with municipalities paying back one part and *Ponikve* another part. The money was used to first improve the state of the landfill, set up recycling yards and the recycling hall. Then they purchased five types of bins in different col-

ors (biowaste, paper, glass, PET, the rest) and placed them on various locations around the island. '7,000 bins were put on 1,400 locations' (Blažević Pajdaš 2010: 59). In the end, they invested money in vehicles and everything else that was needed to start with the project. The whole company was involved in the implementation process. 'Everybody was handing out small bins for the households, even me as a technical director' (Miler 2014, personal interview[19]).

Chapter 4 Eco Island Krk – An In-Depth Look

This chapter will provide details and information I collected and observed during my visit to the island, the landfill and waste management area, as well as offer my personal experience of the whole waste management system.

Eco Island Krk is the name of the system that was implemented in 2005. It has not been completed yet as it is constantly being upgraded. After the preparation period of five years (2000 to 2005) the program was accepted by all local municipalities and the green light was given to start with the implementation. Considering the fact that 2/5 of the population constantly lives on the island, while 3/5 are there temporarily (weekend holiday home owners, tourists) they decided to go with the special locations for separate waste disposal instead of the door-to door system[20], especially because the old city center is not accessible by vehicles. 7,000 containers were set up on 1,400 locations along the island keeping in mind that they are not more than 150 m away from each household and that each set of bins is intended for 10 households.

Apart from the bins distributed around the island, each of the seven municipalities has a special collection point (POSAM) also known as a 'recycling yard', where citizens can dispose of bulky waste free of charge (metals, old tyres, old furniture, household appliances, larger bio waste such as branches, because not all can fit into the bins placed around the towns). All POSAMs are very simple locations; it is just a piece of land with several big containers for different types of waste. All POSAMs are located on the outskirts and every one also has an employee present because people would throw things into wrong containers, and there would be no control. That employee also accepts and counts plastic bottles from the citizens and issues a refund certificate for the amount that the citizen can go use in a shop that has accepted to collaborate with *Ponikve*. The shop waives 12 lipas per bottle (refund per bottle in Croatia is 50 lipas; 1 kuna = 100 lipas) and since they collect 5 million bottles per year it amounts to 600,000 KN which cover the costs of the recycling yard and the employee.

Another service offered to the citizens is that every citizen is entitled to one free rental of a big container. The company delivers it in front of the house and the citizen has it on disposal for 24h to dispose of any bulky waste they have, the rule however is that it is not allowed to mix different types of waste, branches with old furniture for example.

Separate collection makes the cost of mixed waste cheaper; disposal of mixed waste in regional centers will be much more expensive. Ivan quoted one German colleague who said that 'Those who separate will pay the same amount, but those who do not will pay much more' (Jurešić 2014, personal interview[21]).

> 'The general thinking in Croatia was like this "we are throwing waste onto a landfill and nobody is asking us any questions, why would we care, the new elections are in two years, let somebody else worry about it". The cheapest way of managing waste is separate collection if one wants to take

> care of waste the right way; of course, one can always dump it in the nature but what are the consequences of such action? We are trying to preserve this island for us and for our children, and the new laws on waste prove to us that we have been treading on the right path' (Jurešić 2014, personal interview[22]).

This project was not only about setting up the bins, it is envisioned as a whole system that encompasses everything; they focused on branding as well. The idea of this project was to have an integral project that could also be used as a touristic product. They allowed the Tourist Board to use the slogan *Eco Island Krk*. 'It is not difficult, all you need to do is round up the story' (Jurešić 2014, personal interview[23]).

Municipalities are the ones who are accountable, the association is their responsibility because local governments are the ones who founded the Association to do those services for them and if something is not according to rules and laws, it is the local governments who are held accountable. For example, in a situation where Ponikve thinks that a POSAM needs to be improved and local government needs to provide a better location for it but is not doing anything about it, in case of a state inspection it is the local government which will be held responsible. Other than such situations, the collaboration with municipalities is going well because financially municipalities do not need to give any money, all they provide are the locations for POSAMs. 'The project that we offered them is such that they cannot say no. Of course the politicians would change the influence if they could but the system is set up so that a vote of 57% is needed for any changes, and at least four out of seven representatives need to agree on a decision to pass it, thus, there is no will of one person' (Jurešić 2014, personal interview[24]).

4.1. Visit to POSAMs in Krk and Malinska

On our way to Treskavac we take a stop at the POSAM in Krk. I am surprised what a simple place it is. Just a piece of land. There are numerous containers spread around with signs above directing people what they can throw in each container. Cars keep on driving up, two men are unloading a big mattress into a container (Figure 6), on the other side a truck drives up and another two men start unloading big metal pieces (Figure 7), I consider myself lucky, I get to take a few photos of metal being put on a scale. In all POSAMs citizens can dispose of metal, but only in Krk, they get money in return, a private company *Metis* buys out metal from the citizens. They buy out 1000 tons of metal per year.

As I look around my guide Ivan keeps on explaining, 'this is why it is an integrated system – we take care of all types of waste, bulky, hazardous… even though we collect it for free from the citizens but have to pay to a third party for it to be taken care of. According to the law it is not allowed to charge

citizens for disposing bulky or hazardous waste but make it possible to them free of charge' (Jurešić 2014, personal interview, July 28).

I comment on how simple it all seems and Ivan replies: 'It *is* simple, our system is not out of this world. You just need a little bit of good will to make an agreement with the local government to provide the location. Of course you need to invest, and get the people to cooperate but it is possible' (Jurešić 2014, personal interview, July 28).

The system is under immense pressure during the summer season, 100,000 of plastic bottles are collected out of season compared to two million in the summer season. The POSAM in Malinska (600m^2) collects 20,000 bottles per day during the season, which is the most of all POSAMs. We were there one day in the morning hours, around 11 a.m.; there was a huge pile of plastic bottles already collected that morning alone (Figure 8). There were cars with all sorts of plates, from all over Croatia and Europe, people bringing bottles and collecting a refund for each in return. POSAM in Malinska has such a huge number of bottles collected per day because it is the only place in that municipality that accepts the bottles for a refund, there is one big supermarket that also collects them but since it is not their primary activity they are not giving it much effort. On the other hand, in Krk, there are two supermarkets, which also collect bottles, and when POSAM is added to that, it gives much more options to the citizens.

Figure 6. Citizens disposing of a mattress at POSAM in Krk

Figure 7. Bringing in metal to POSAM in Krk

Figure 8 – A pile of collected plastic bottles within 3 hours at the POSAM in Malinska

4.2. Visit to Landfill Treskavac

At the entrance to the landfill area, there is a scale for waste trucks. Truck drivers have a card that they use for each entrance and exit, everything is documented, there is a scale in between two ramps, they weigh them on entrance

when they are full, and on going out when they are empty. Since 2005, all waste is being weighed.

Ivan explains that the landfill has been set up according to all ecological standards, and has been fully prepared for the future as well. They also have a reloading station set up which is prepared for the future times when they will have to transfer all their waste to a regional centre.

As we drive up to the landfill, Ivan comments in a joking manner, 'Here, so you get to experience the dirty side too'. However, I am surprised as the landfill itself does not smell much at all. It is because the biodegradable waste is not present at the landfill. He shows me the new landfill area and explains that it has a bottom liner (see Appendix C), which prevents pollution of the groundwater. There is another empty surface right next to the one being currently used where the bottom liner is clearly visible. He then points out to the old surface, which is not being used since 2005 and explains that it was remediated; it does not have the bottom liner but a capping of a four mm foil, which prevents all new water to go through the landfill and into the ground waters. He further explains:

> 'We are doing this because of direct benefits (disposal in the regional centre will be extremely expensive) and indirect benefits (environment protection, abetting tourism). We do not cover our costs with secondary raw materials but with this we are already reducing the costs we will have in future because we will have to pay huge amounts of money for disposing our waste in the regional centre.' (Jurešić 2014, personal interview, July 28).

As we are getting ready to drive towards the other part where the composting area and the recycling hall are located, a truck drives up unloading trash on the landfill. Clearly visible there is a pile of branches on top of the waste load. I ask my guide why they are dumping the branches here when they should be going to the composting area. He replies 'I'm wandering the same thing, let's ask the driver', as he dials the number and puts the call on the speaker. I am completely surprised, I expected some kind of an evasive explanation, or him talking to the driver privately and then coming back to me, but this open approach is something that I have never experienced in my own country. The driver explains to us how it is only a couple of branches on top and the rest is waste for the landfill and that he picked it up from one of the private companies on the island. Ivan warns him that they should be more careful about such things and after he hangs up, he turns to me:

> 'This container is an example of one of the issues we have to deal with, according to law we are not allowed to punish the users. This company is paying us to take care of their waste, so our hands are tied, but we also still need to educate our workers to start thinking that they can also help separate those things from the waste if they can. This is why we say we still have a lot of things to do to be better' (Jurešić 2014, personal interview[25]).

4.2.1. Composting Area

As it is described in the policy, biowaste is being treated out in the open. Since the great majority of biowaste is made of branches (85% branches, the rest is kitchen waste), the first thing that is done is shredding. After that, the material is spread around the area and treated accordingly, in several phases (Figure 9.)

Figure 9. Composting area

An important part of biowaste treatment is olive cake – waste material generated during the production of olive oil, which, if improperly disposed of becomes toxic to soil and waters. In the production of olive oil only 15% of the material ends up as olive oil, 85% is waste. Homemade olive oil is a tradition in the coastal area of Croatia thus huge amounts of olive waste material is produced every season. On Krk, Ponikve urges its citizens to bring the olive cake for them to treat in order to avoid pollution of the environment. Olive cake is too acidic to be taken into the compost area so it is treated separately with the help of Icelandic Algae, which are used to reduce the acidity. Those algae also speed up the composting process, which with their help takes only one year instead of five. The composted product is sold back as it can be used in the olive groves for composting.

4.2.2. Recycling Hall

Recycling hall is used for separating paper and plastic waste. Ponikve decided to adjust the policy and make things easier for the citizens so that all packaging materials are thrown into the yellow bin and all types of paper products (even milk and juice packagings) are thrown into the blue bin. In order to sort those out in the recycling hall three employees are working on a moving line and dropping different types of waste into three separate containers below (Figures 10 and 11). This system allows for better control of separating waste, which is important especially because some raw materials are more profitable than others. Recycling hall is also used for storing separated materials until they are placed on the market (Figures 12-14).

Figure 10. Waste waiting for more detailed separation in the recycling hall

Figure 11. Separating waste in the recycling hall

Figure 12. Separated cardboard

Figure 13. Aluminum cans

Figure 14. Compressed plastic bottles

4.3. Being open about everything

To my great surprise, my hosts at Ponikve never tried to sugarcoat anything. At my comment that their system seems to be successful compared to other places in the country they replied how they do not consider it successful, as it can always be better. Because it is a voluntary system, there are many impurities, as they openly admit. The issue is that they cannot reward those that do well nor punish those that do not as the law does not allow it. In reality, 10-20% needs to be deducted from the numbers because it is not perfectly separated, so only 38% of waste collected separately is usable. They do not want to distend the results but show the realistic situation. I must say their realistic situation is so much better than what the rest of the country is faced with.

4.4. Collaborating and learning from others

They collaborate with other places that have more developed systems of waste separation. While I was on Krk, representatives of Ponikve, went to the Treviso region in Italy, which currently has 85% of segregated waste. They started like Krk did, with big containers in public areas and with that method they managed to reach 38% of segregated waste (Krk is doing better with the same method with 45% as of 2013). In the next step in Treviso, they introduced a door-to-door collection of separated waste with fixed payment of services and reached 66%. Their latest change has a mix of a fixed rate as 75% of the cost (according to the number of household members) and a variable rate according to the number of collections, five being the minimal number of collections for a four-member family, and with that system they have now reached 85% of segregated waste. Representatives of Ponikve often go to neighbouring countries like Italy, Austria, and Germany and look for improvements they can apply on their island. They also open their doors to all who wish to come and learn about their system, and they have confirmed that many politicians from all over Croatia come, but unfortunately rarely do they hear again from them for further collaboration. Main problem usually being inability of politicians in those places to agree on the course of action.

4.5. Education and Promotion

Great importance is given to the promotion of the system and education of the citizens, especially children. The education methods include:

- Sending info material to the citizens
- Spring action of donating compost to the citizens
- Collaboration with Krk schools and kindergartens, and generally work with preschool and school-age children
- Organizing workshops, presentations and visits to the recycling yard

and the landfill Treskavac.

Once a year a representative from Ponikve goes to schools and holds a presentation to pupils. For example, one year they showed the video about waste separation, asked the children if they like it, if they do it the same way at home, and explained more things about separating waste. Collaboration with nursery schools and elementary schools is ongoing; there is an annual competition with waste separation as the topic, asking for literary works, video clips, paintings and such. Using social media is also helping to get the message across; there are Twitter, Facebook and YouTube sites with the name of *Eco Island Krk*.

4.6. Citizen and Tourist participation

During my research, I set up a stand on the most frequent walking area of the Krk town to ask citizens and tourists about their participation in the waste separation. Some 20 people were interviewed. Among the tourists, a lot of them did not even know that the waste was being separated on the island, nor that the island is a champion in waste management in Croatia. It clearly shows that more information needs to be conveyed towards the tourists in order to get them to participate more. The reason why a lot of them do not know is because there are no recycling bins in the old centre of the town where most of the tourists spend their time if they are not on the beach. Basically, if, as a tourist, one is staying in a hotel or inside the old town, one could very easily never see the five recycling bins at all. Both the tourist board and *Ponikve* need to find a better way to inform the tourists of the recycling practices so that the seasonal issues that are appearing during the summer could be remedied.

With the local citizens, one interesting thing was observed. Many older, retired citizens did not show any interest in separating waste. It proves what my interviewees from *Ponikve* had told me, that 20% of the citizens will never embrace the recycling system. Numerous citizens and tourists had also confirmed that children were the ones who knew most about recycling and who would warn their parents if the separation they were doing at home was different to what they had learned in classes. This proves that the approach of relying a lot on children education is a good way of investing in the future of the island.

4.7. What others are saying

Krk has been praised in Croatian media for years since it was the first area to start taking care of their waste in an ecological way, it was later joined by Čakovec, a town in the northern part of Croatia, which also started with waste separation. Only this year are other cities joining the ecological path forced by the changes in law. Now that everybody must separate their municipal waste

Krk is the place everybody mentions as a role model for others and many articles and TV programs explain how and what others could learn from Krk. Titles like *If Krk can do it so can the rest of Croatia* ('Ako Može Krk, Može i Cijela Hrvatska' 2013), *Eco Island Krk – a good example from practice* ('Ekologija : News' 2007) or *When will the rest of Croatia do what Krk does?* ('Kad Će Ostatak Hrvatske Kao Krk?' 2012) have often been seen. Many representatives from around Croatia have visited the island in order to try to transfer the system to their areas. In the past years rare were the ones who have succeeded in that. A similar governance system was considered for the island of Korčula, which is in the very south part of the Adriatic, however the task proved impossible due to lack of cooperation between politicians from different parties. It would be interesting to see why others cannot copy the system, adapt it to their area and make it work. What is it about this island in particular that has made this system possible?

Chapter 5 Analysis and Conclusion Remarks

The aim of this paper was to look at the case of Krk island in order to try to understand how the island coped with the waste problem. A research has been conducted in order to answer the following questions:

1. How was the problem of waste approached on the island and what steps were taken to try to solve it?

When the island was faced with the waste issue due to the lack of land to dump more waste on, and the danger of an ecological catastrophe threatening to result from it, the local government on the island was forced to try to find a solution to the problem. At that time, in the late 1990s, there was a regional plan to build a centre for waste management that would also include the island of Krk, however the regional plan was not progressing and the island did not have much more time to wait. Their whole future as a touristic location was depending on their island keeping its reputation. Since a single company, owned by local municipalities on the island was taking care of the waste, the managerial director of the company was trying to get help from state offices, ministries and state funds but to no avail. The state had no money to provide financial support at that time in 2000. In the end, the company started the collaboration with two professors and asked them to develop a policy for setting up an ecological waste management system on the island. The result of this collaboration was a detailed policy explaining exactly how the island should tackle the problem of waste and what they need to do. After the policy was created, it needed to go through the adoption process, first in the Board of Assembly, and after that in seven local councils. It was adopted in 2003 and the preparations for implementation immediately started. Finances were partially provided from then newly formed State Fund for Environment Protection, and from bank loans. The money was used to build and equip the recycling hall, buy necessary vehicles and bins for separation to be placed all around the island. The ecological waste management system was implemented in 2005.

Following Grindle's model of policy implementation, which sees a policy design and implementation interrelated, and continuous (Grindle 1980, as found in Ogunkanmi 1987: 29), the case of Krk proves Grindle's explanation that a policy process depends on the content as well as political and administrative context. A special policy was created for the island specifically, and it was adapted according to what they thought was feasible or what with time they realized would work better. Maybe it is time public policies stop being provided from the top-down as many examples have shown that there are often issues with policy implementation in different contexts. Local governments should try to focus more on developing policies for their own surrounding, adapted to their own needs and their own specific context. As Hill (1997: 17) points out planning and good management are crucial in policy implementation, thus it is much easier to have a policy succeed if it was planned specifically for a smaller area as was the case on Krk. Moreover, what has lately been happening in Croatia with the whole country now being forced to implement the new Law on waste management and having enormous difficulties enforces the idea that policies coming from top-down are a thing of the past.

2. What have been the outcomes of the ecological waste management system?

The separation percentage has had a steady increase since the start of the project. In the first year, the level of separation was 18.2 %, and by 2012, it reached 39.2 %. Even though seemingly it looks like everything is going great, the island has been facing numerous challenges. There are two main issues that are preventing even better results. The first one is the fact that the whole waste separation is completely voluntary, the citizens are not obliged to separate waste, thus there is no way to warn them or punish them if they are not doing it, nor is there a way to reward those who are participating. The system solely relies on citizen's agency to participate in the separation. While the collective agency seems to have been working better as political, private and social individuals have been successfully collaborating on the project; individual agency is still creating obstacles, as there are citizens who still simply refuse to participate.

Another big problem are touristic summer months when thousands and thousands of tourists flood the area producing vast amounts of waste, much of which is not separated. The research among tourists revealed that a lot of them are not even aware of the fact that waste is being separated on the island. Since the old centre of the town, where most of the tourists spend their time if they are not on the beach, does not have any bins for separation most of the tourists leave the island not even noticing the bins in other spots. It is clear that the education of tourists needs to be improved in order to get more of the summer season. This is where the island should use Ecotourism more and influence its visitors to relate more to ecotouristic principles of 'environmentally responsible travel' (Ceballos-Lascurain 1996). Since the island of Krk emphasizes its plans of bettering sustainable development in the future they should rely more on Ecotourism following Olsder's (2004: 11) idea that it can be a 'sustainable means of socio-economic development if implemented in a sustainable way'. The island has already stepped into the sustainable field with its ecological waste management system, and is planning to go forward. It is somewhat surprising that the island has not given Ecotourism a more important role in their development so far.

3. Why is the sustainable solid waste management system working on this island when other places in Croatia have been struggling to implement changes?

Other places in Croatia are currently faced with the new law, which now obliges all municipalities to manage their waste in an ecological and sustainable way in accordance with European standards, and are faced with big problems in implementing the Waste policy. The policy is there, but the frame that needs to support it is not. Suddenly waste needs to be separated on a state level but local municipalities have not been properly prepared and are faced with the lack of finances, lack of logistics and expertise to cope with the issue and solve the problem. Many representatives visit Krk in order to get familiarized with their system, find ideas, and inspiration and transfer some things into their location. However, many places are struggling. Other islands (Korčula, for example) have tried to do the same thing but their projects cannot even start because politicians cannot agree on how to act together. Every attempt to create a similar organization to that on Krk simply fails. This clearly shows that the political will that has been present on the island of Krk has played a very sig-

nificant role. This political will is very unusual for Croatian circumstances because rarely do opposing parties manage to collaborate in Croatia. On Krk they are collaborating, the interest of the whole island, its citizens and the idea to protect the environment were stronger than refusing to cooperate with one's politically sworn enemy. Other places should learn from Krk, because the modern era requires politicians, organizations and governments to evolve, adapt and find solutions to the new challenges.

Another thing that seems to be important in why this island has so successfully been tackling the waste problem are the innovations that were implemented within the Local Government arena. Numerous authors have been pointing out that innovative governance is necessary to deal with issues of modern times. The way in which the public services organization on the island is set up is unique in Croatia. Many places have the NPG system with the public services organization resembling a private company. However, the Board of Assembly, which is composed of seven representatives from seven different municipalities and several different parties, is an innovation in itself. Their political will to cooperate together in making decisions while having the best interests of the island in mind seems to be an important key that has allowed this island to excel in what they are doing. As Osborne (2010: 2) explains, NPG might be a better option to deal with the 'complexities' of the twenty-first century. What is happening on the island of Krk supports Osborne's (2010: 2) claims that elements of PA, NPM and NPG can coexist and overlap in the modern surrounding. If we consider Hartley's (2005: 27) claims that 'new political arrangements' and organizational changes are needed in local government it is clear that the case of Krk supports his theory.

Third thing that might be responsible for the success of the island is the manager of the organization. He has been the driving force for the whole project, he has been the one who was pushing forward when things seemed hopeless, and who was finding ways to get the politicians find common grounds. Having a driving force seems important for the success of the policy. Having an innovative and strong manager goes in line with the theory of New Public Management which explains how changes which are bringing public services closer to private sector can make positive changes in it. Hartley (2005: 34) asks for a better understanding of the role of managers in innovation. In the case of Krk, the manager was involved in the whole process of ecological waste management project, starting with the idea, through the policy design when he collaborated with the policy-designers, and in implementation. Even though this whole project was not his sole merit, and other actors and their influence played a significant role, it appears that without the force and the push the manager was providing, the project might have not been so successful. Entrepreneurial leadership Osborne (2010) called for, does seem to have given the necessary push the case of Krk needed with its battle against waste problems.

Fourthly, it needs to be considered that the location of the island might have played a big importance as well. As Hartley (2005: 34) emphasizes that the geographical context holds great significance. Krk is located in the Northern part of the Adriatic, which is relatively close to Italy, Austria and Germany, much closer than for example the island of Korčula, which is at the far south end of the Adriatic. When Krk was faced with the problem the officials from the island went to neighbouring European countries, which are only several hours drive away, to see how waste was being taken care of in those areas and

to look for ideas and inspiration from locations that were already tackling waste issues in a more ecological way. To this day, officials from Krk still pay visits to other European areas, exchanging experiences, knowledge and ideas in order to learn from others and keep on improving their own system.

Lastly, let us not forget the role of Ecotourism. Even though the definition of Ecotourism has been confusing, if we take into consideration Sirakaya et al. (1999: 171) and their broad idea that Ecotourism contributes to 'environmental protection and has minimal negative impacts on the environment' we can consider the case of Krk as an example of an island trying to provide Ecotourism in their surroundings. Ecotourism and the sustainable future of the island seem to have been one of the driving forces for the development of the ecological MSW system. The island relies heavily on tourism, and protecting the environment in order to preserve and protect it, has clearly been one of the pillars of the development on the island. Maybe the ecological MSW system would never have been adopted and implemented had it not been for the need of keeping the island preserved in order to keep the tourists.

Following the debate over whether ecotourism can only be small-scale and looking at the case of Krk where we have an example of a bigger-scale type of tourism but that is focused on protecting the environment, the research supports Lück's (2002) claims that big-scale tourism can also fall into the category of ecotourism. Why would we not call it Ecotourism when it might even be more environmentally friendly than tourism in other locations that is labeled clearly as Ecotourism? Moreover, if we consider the connection mentioned between Ecotourism and sustainable tourism as explained by Olsder (2004: 8-10), and the definition of sustainable tourism being the type of tourism that 'is set up in such a way that effects on environment, nature, local communities and culture are prevented' it might be confirmed that the case of island of Krk shows the path towards sustainable tourism and its relation to Ecotourism.

Chapter 6 Conclusion

In conclusion, this paper has looked into the issue of waste management on the island of Krk in the Croatian Adriatic, and tried to explore the connection between policy issues and governance. The case of Krk proves that innovations in governance are necessary in order to tackle the issues of the modern era and that with clear goals, initiatives and motivation problems can be solved. Practice has shown that policy design and implementation is an extremely complex process. It is very difficult to implement a universal policy in different contexts and adaptation of them is crucial. Every locality should consider improving the policy to their own surrounding in order to get the best of it, or even consider developing a policy for their own needs. Modern theories of policy process link it closely to governance and emphasize the importance of bringing in innovations in order to improve problem solving.

The challenging field of sustainable development requires new ideas, collaboration between different actors and stakeholders, and ability to adapt to circumstances. Political will is also proving to be a crucial factor in modern governance. Politicians and different stakeholders need to find a way to collaborate with one another if they are determined to live up to the challenge of developing issues. Sustainable development needs to be looked at as something that is possible, every small step that is taken in being closer to sustainability matters. We cannot expect every action in development to be completely sustainable, however, is it not better if there is some sign of getting closer to what sustainable means? Is it not better to find a way to take care of waste, for example, in a more ecological way, try best to protect the health of the humans and the environment, than do nothing because full sustainability is impossible?

This paper has analyzed an example of good practice with waste management and what lies behind it. Considering that so many locations in the developing world are faced with numerous issues waste problem is causing, it would be interesting to look into other locations and explore how they are dealing with the issue, or what changes learned from this research could be adapted to other places and maybe help them solve the issue. Finding connections between what works and what does not seems necessary in order to face the challenges of the twenty-first century.

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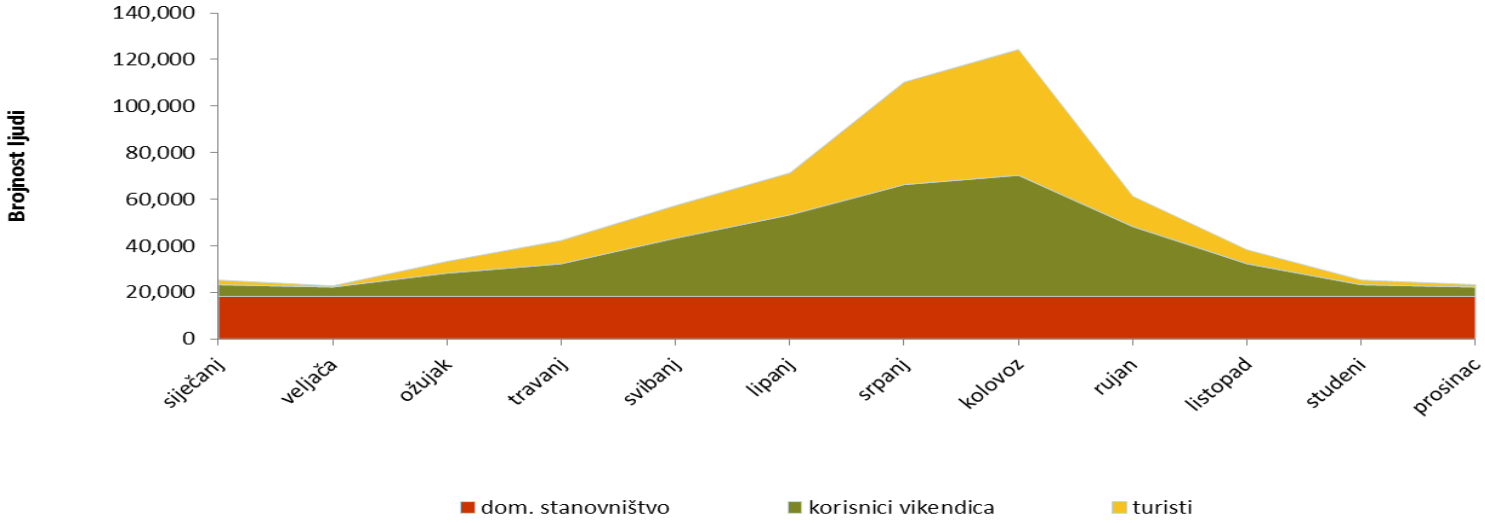
APPENDIX A: New Landfill area covered with a liner to protect wastewaters

APPENDIX B: Recycling Bins at Various Locations on the Island

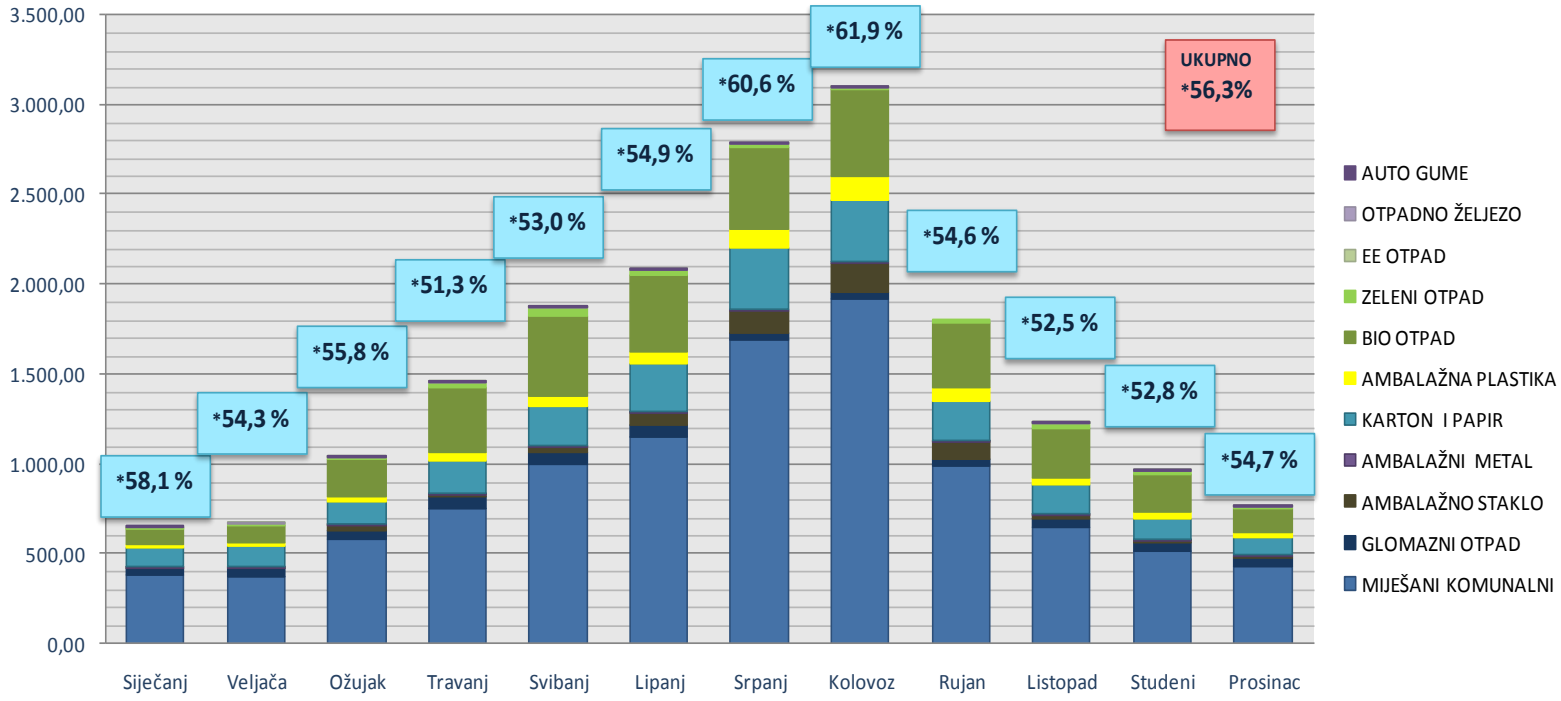

PLASTIKA
PET TIP
PAPIR KARTON


PAPIR KARTON
PAPIR KARTON
BIO OTPAD
STAKLO
MJEŠANI KOMUNALNI OTPAD

APPENDIX C: Population Changes During the Summer Season



APENDIX D: Percentage Of Mixed Waste And The Rise in Total Waste Generation During the Summer



*prikazani postotak sadrži mjesečni udio mješanog komunalnog otpada

Endnotes

[1] Six municipalities are written in bold letters, Vrbnik is the seventh municipality.

[2] Islands in Croatia have no governing position, the state is divided into 20 counties, and each county is subdivided into municipalities and cities (which have the same level of power). So the islands are made up of cities and municipalities and belong to a particular county.

[3] Croatia is the newest member of the European Union, officially entered on 1 July 2013(EU. n.d.)

[4] This paper was written in October 2014.

[5] Vuckovic, B. (2014) 'Implementing Municipal Solid Waste Management Policy - an Ethnographic Approach', Essay. Den Haag: ISS.

[6] Vuckovic, B. (2014) 'Implementing Municipal Solid Waste Management Policy - an Ethnographic Approach', Essay. Den Haag: ISS.

[7] The Association has had to change its name and structure recently in accordance with the new Croatian Law on Waters which required all utility services associations to separate other services they provide from that of water related. Because of that, since January 1st, 2014, Ponikve Ltd. has changed its name to *Ponikve Water Ltd.* which takes care of water supply and drainage, and two new associations have been created: *Ponikve Eco Island Krk Ltd.* for utility services (waste management and energetics) and *Ponikve services Ltd.* for joined charging of water and utility services, office services, bookkeeping and administrative works ('O Nama | Ponikve Krk'2014). All three associations are located in the same building, and the same person holds the position of the managing director of each (receiving a paycheck for managing the business of *Ponikve Water Ltd.* and providing managerial services for the other two on a voluntary basis). For the purpose of this paper and to avoid confusion, the name *Ponikve Ltd.* or simply *Ponikve* will be used throughout the paper.

[8] It was the era of communism in Croatia, all companies were state owned.

[9] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 23 July 2014.

[10] For example, twenty-five waste collection vehicles are operating in July and August, and only 5 enough during the rest of the year.

[11] Personal interview with Čedomir Miler, Deputy Mayor of Krk, previously technical director at *Ponikve* for 26 years, Krk, 18 August, 2014.

[12] "The Blue Flag is a voluntary eco-label awarded to more than 4000 beaches and marinas in 48 countries across Europe, South Africa, Morocco, Tunisia, New Zealand, Brazil, Canada and the Caribbean. The Blue Flag works towards sustainable development of beaches and marinas through strict criteria dealing with Water Quality, Environmental Education and Information, Environmental Management, and Safety and Other Services. The Blue Flag Programme is owned and run by the non-government, non-profit organisation the Foundation for Environmental Education (FEE)" ('Blue Flag Programme Eco-Label for Beaches and Marinas'n.d.)

[13] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 23 July 2014.

[14] Personal interview with Frane Mrakovčić, managing director at *Ponikve Ltd.,* Krk, 20 August 2014.

[15] Interview with Franjo Toljanić who was a Prefect of Vrbnik and a member of the Assembly in 2003; Vrbnik, 16 August 2014.

[16] Interview with Franjo Toljanić who was a Prefect of Vrbnik and a member of the Assembly in 2003; Vrbnik, 16 August 2014.

[17] Personal interview with Čedomir Miler, Deputy Mayor of Krk, previously technical director at *Ponikve* for 26 years, Krk, 18 August, 2014.

[18] Personal interview with Čedomir Miler, Deputy Mayor of Krk, previously technical director at *Ponikve* for 26 years, Krk, 18 August, 2014.

[19] Personal interview with Čedomir Miler, Deputy Mayor of Krk, previously technical director at *Ponikve* for 26 years, Krk, 18 August, 2014.

[20] The project is now entering the next phase where they will start with the door-to door collection (except for the old city centre where door-to-door collection will never be possible because of very narrow streets).

[21] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 28 July 2014

[22] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 28 July 2014

[23] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 28 July 2014

[24] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 13 August 2014

[25] Personal interview with Ivan Jurešić, assistant director at *Ponikve Ltd.,* Krk, 28 July 2014.