Inspiring Change: Planning a River Float and Documentary to Raise Awareness about the Drin River

Nicole Quintal
Gareth Solbeck
Daniel Stomski
Jessica Wedell

Project Advisors: Professors Robert Hersh and Robert Dempski

Submitted to: Worcester Polytechnic Institute
Water Supply and Sewerage Association of Albania

Inspiring Change: Planning a River Float and Documentary to Raise Awareness about the Drin River

An Interactive Qualifying Project submitted to the Faculty of WORCESTER POLYTECHNIC INSTITUTE in partial fulfilment of the requirements for the degree of Bachelor of Science

Report by: Nicole Quintal, Gareth Solbeck, Daniel Stomski, Jessica Wedell

Report submitted on: December 17, 2015

Report submitted to: The Water Supply and Sewerage Association of Albania, Professors Robert Hersh and Robert Dempski, Worcester Polytechnic Institute

Abstract

The Drin River, a natural resource in Albania and neighboring countries, is used for hydroelectric power, fishing, irrigation, and recreation. Sewage, garbage, agricultural runoff, and mine drainage have polluted the river. Our sponsor, SHUKALB, sought to promote the river as a means of connecting cleanup efforts throughout the Drin River Basin and motivating people to take action to improve the conditions of the river. To work towards this goal, our project planned a river float and a storyboard for a future documentary. Through key informant interviews, we found that many people living along the Drin don't believe the river is polluted. We hope that the documentary can challenge this view and inspire people to protect the Drin River by working together to reduce the sources of pollution.

Acknowledgements

We would like to thank the following people and groups for their contributions to our project:

Our sponsor, the Water Supply and Sewerage Association of Albania (SHUKALB), and in particular Philip Giantris, Elisabeta Poçi, and Olta Ceca. Without their inspiration, this project would never exist, and they have provided advice and direction throughout the project.

The members of the Young Water Professionals who have helped us during our time here with their insight and by travelling with us all over Albania: Arlinda Ibrahimllari, Fjordi Bisha, Sagita Guce, Sejla Kokojka, Xhensika Lëngu, Erlinda Xhebexhia, and Anida Zeqirllari. They will be carrying on with the project after we leave, and going on the float in the spring. We wish them the best of luck.

Ilir Hysa, tour guide for Outdoor Albania and owner of the Tirana Backpacker Hostel. He provided invaluable guidance in planning the route and logistics for the float, and will be a part of this project moving forward.

Ernesti Markeçi and Besmir Gjoçi, owners of the Peshkopi Backpacker Hostel, who were not only incredibly welcoming during our time in Peshkopi, but also helped set up interviews with local government officials at short notice.

Everybody who we interviewed and talked to about our project. The information gained from these individuals was immensely valuable to our project in many ways.

Our advisors, Professors Robert Hersh and Robert Dempski. They helped us prepare for our time here, and their advice and support has guided our project and report.

Professor Peter Christopher, who established the project center in Albania and introduced us to the culture of Albania.

Worcester Polytechnic Institute, for providing us with the opportunity to take part in this eye-opening experience in another country.

Executive Summary

The Drin River

At 175 miles long, the Drin River is the longest river in Albania. It is used as the main source of hydroelectric power in the country, as well as for fishing, irrigation, and recreation (shown in Figure 1). Over the past several decades, however, the river has become increasingly polluted due to inadequate wastewater treatment, the dumping of trash in the river, agricultural runoff, and discharge from abandoned mines. As a result, high concentrations of bacteria, such as E. coli, and heavy metals and nitrates are found in the river (Bushati, 2014). Additionally, hydroelectric power plants have altered the natural course of the river, causing increased flooding (Faloutsos, 2012).

Although efforts have been made to improve the water quality of the Drin River, progress has been uneven. The Drin River Basin encompasses not only Albania, but also Montenegro, Macedonia, Kosovo, and Greece, which has complicated efforts to manage the river basin (Libert, 2014). Another challenge to protecting the Drin River is the lack of education and awareness in Albania about the pollution of the river, the destruction of habitats along the river, and how these affect the water quality and ecosystem.

Figure 1: Boats along the Drin River

Project Objectives

One key stakeholder working to improve the conditions of the Drin River and surrounding river basin is our sponsor, the Water Supply and Sewerage Association of Albania (SHUKALB), which has worked with teams from WPI over the past few years to improve water education and awareness in Albania.

The goal of this project was to inspire action to improve the conditions of the Drin River and work with the Young Water Professionals of Albania (YWP) to help begin a movement to encourage water advocacy. Our project worked towards this goal by planning a river float down the Drin and developing a plan for a compelling documentary about the river. The float and documentary will then be completed in 2016 by the Young Water Professionals and a second team from WPI. In order to achieve our overall project goals, we established three core project objectives:

- Develop a route and itinerary for the float, with critical points such as obstacles and stops indicated, and plan logistical tasks related to the river float including equipment, supplies, and safety precautions
- Develop themes for a documentary about the Drin River, provide recommendations for film footage to capture during the float including possible interview locations, and create a storyboard for the documentary
- Improve collaboration with the Young Water Professionals and contact other Balkan water-sector and environmental organizations to involve them in the project

Methods

To develop a route for the float, we collaborated with key informant Ilir Hysa, a river guide from Outdoor Albania, who has led rafting trips on the Black Drin. We also used maps, orthographic photos, and satellite imagery to identify obstacles along the river, including dams, shallow areas, and rapids. Additionally, we visited sites along the river to observe the conditions of the river and conduct interviews.

To develop a consensus about the themes and the purpose of the documentary, we conducted interviews and group discussions with the stakeholders in the river such as environmental groups, government officials, and people living along the river. Our interviews addressed the following questions:

- Who is the audience for the documentary and what is its primary purpose?
- What style of documentary will be the most effective for the intended audience?

- What aspects of the river do Albanians care about the most?
- What do Albanians know about the pollution of the Drin River and conservation efforts?
- What important locations along the river should be featured?
- What story should the documentary tell?

Through our collaboration with the YWP, we worked to contact various stakeholders in the river who could be involved in the project. We conducted interviews with many of these stakeholders, and identified groups and people who could be involved in the float and documentary. We asked the YWP of Albania about their own experience in the water sector and how we could incorporate YWP groups from other countries. We also learned about transboundary interactions in the water sector by taking part in the Balkans Joint Water Conference in Kosovo, where we listened to speakers from different countries discuss challenges the water sector faces.

Project Results

Developing a Route and Planning Logistics for the Float

We developed a route for the float to take, as shown in Figure 2. The float will take about six days to complete, and will cover most of the Black Drin River, portions of the main Drin River, and the Buna River.

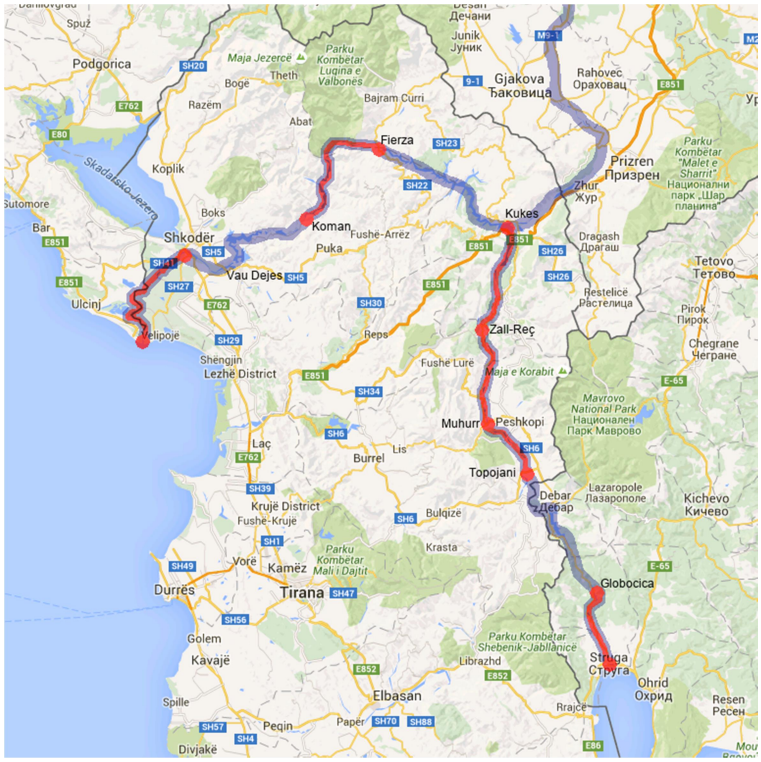


Figure 2: Route map: The river is marked in blue, with sections to include marked in red

The first day of the float will begin in Lake Ohrid and travel up part of the Black Drin River in Macedonia (Figure 3). In this stretch of the river the float will be able to see how the river is connected to Macedonia, how people use the river, as well as observe endemic species in and around the lake, such as the Koman trout.

Figure 3: Lake Ohrid (Hersh, 2015)

The second part of the float will travel from Topojani to Kukës. This is a vital area to collect footage that shows the natural beauty of the river, as the beginning of this portion of the Drin passes through areas that are nearly untouched by humans. As the float continues to travel north, they will be able to collect footage of trash as they travel closer to towns and cities, and also conduct interviews with the people that live along this stretch of the river.

The third part of the float will be from the Fierza dam to the Koman dam, and will allow them to collect footage that shows how the dams impact the flow of the river. This includes the lakes created by the dams and erosion along the banks. This section of the river can also show how the river is a means of travel (Figure 4).

Figure 4: Boating on the Drin River

The final stretch of the route from Shkodër to the Adriatic Sea will be the concluding leg of the journey. In this stretch, the float will be able to collect footage showing how the river basin includes Montenegro and connects to the sea.

Throughout the float, conversations among float participants as well as others they meet during the journey should also be recorded, as they are important to show opinions and personal views of the river.

Developing Themes and a Vision for the Documentary

Efforts to improve the conditions of the Drin have struggled to gain public support. In our interviews, we were often told the Drin is not seen as "dirty" because the current of the river carries trash away from where it is dumped. Taking this perception into account, we sought to determine what themes in the documentary could motivate the audience to take action to improve the water quality of the Drin.

The first theme in the documentary is the importance of the river. This would include the importance of the river to people in their everyday lives, the importance to the wildlife that lives in the basin, and the hydroelectric power the river provides. This pattern can be seen in other documentaries about pollution, such as *One for the River: The Vjosa Story* (2015) and *74 KM: Water is Life* (2015). When interviewing people, one of the first things we learned about was the beauty of the river (Figure 5). We also learned about how the river is used in everyday life, such as for swimming, washing, irrigation, fishing, and hydroelectric power.

Figure 5: Lake Koman, part of the Drin River

The second theme is the pollution of the river and its consequences. For people to be motivated to clean the Drin River, they need to believe that the problems with the river are real. Many of our interviewees told us about how trash, sewage, and construction materials are dumped into the river, but also said that the river is clean because there is no visible trash in the river where they live. Therefore, the theme of pollution is important to include in order to show that the river does not clean itself, and that the pollution simply ends up further downstream. This will include showing the dumping of trash, wastewater, and construction materials, that we learned about through our interviews, as well as showing some of the negative effects of flooding (Figure 5).

Figure 6: Trash in the Përroi i Llixhave, a tributary of the Drin

The final theme is a message of hope, to follow the more negative theme of pollution. If the documentary were to simply end after showing the problems with the river, it would not be effective: presenting a problem without a potential solution is not motivating. Instead, the documentary should conclude by discussing what efforts are being made to improve the conditions of the Drin River, and what the audience can do on the individual level.

Collaborating with Drin River Stakeholders

During our time at the water conference in Kosovo, we presented our project and spoke with members of the YWP of Kosovo. They were interested in the project because they view our project as a way to improve collaboration in the water sector in the Balkan region. We also found similar interest in the project from others interviewed along the course of the river within Albania. As such, we concluded that this project could be a source of connection not only between Albania and neighboring countries, but also between regions of Albania.

Conclusion

Over the course of our project, we heard many thoughts about the Drin River from people throughout Albania and in Kosovo. People spoke about the river in their everyday lives and the problems they see the river facing. In addition, we saw the river in its many forms, from the narrower areas of the Black Drin to the placid lakes behind the dams on the northern Drin. Despite their differences, all these perspectives are of the same river. The Drin River is a resource shared by the Balkan region, and the region must come together to share the responsibility as well.

The culmination of this project will be the production of a documentary about the Drin River. Based on the suggested themes and our observations, we have concluded that the primary theme for the documentary to focus on should be “connectedness.” The Drin River connects the people and wildlife that rely on it, although many people don't consider the river outside of their locale. The documentary can draw attention to this by including groups from all over the river. By comparing the collaboration that went into the float with the collaboration necessary to keep the Drin River healthy, the documentary can show that collaboration is both possible and beneficial. The project has the potential to not only improve the conditions of the Drin River, but also bring together the people of the Balkan region towards a common goal.

Authorship

Nicole Quintal, Gareth Solbeck, Daniel Stomski, and Jessica Wedell each contributed to every part of this report including research, organization, drafting, and editing. This list below shows the primary author of each section for the report. All sections were edited by every member of the team. Pictures used throughout this report that are not cited were taken by Nicole Quintal and Jessica Wedell.

Abstract: Quintal, Solbeck, Stomski, Wedell
Acknowledgments: Solbeck, Wedell
Executive Summary: Quintal, Solbeck, Wedell
Chapter 1. Introduction: Stomski, Wedell
Chapter 2. Background: Quintal, Solbeck, Stomski, Wedell
- **2.1 The Drin River Basin:** Quintal
- **2.2 Conditions of the Drin River:** Wedell
- **2.3 Challenges to Effective River Basin Management:** Stomski, Wedell
- **2.4 Approaches to Managing the Drin River Basin:** Stomski
- **2.5 Act4Drin:** Solbeck

Chapter 3. Methodology: Quintal, Solbeck, Stomski, Wedell
- **3.1 Developing a Route and Planning Logistics for the Float:** Quintal, Solbeck
- **3.2 Developing Themes and a Vision for the Documentary:** Wedell
- **3.3 Collaborating with Drin River Stakeholders:** Stomski

Chapter 4. Project Results: Quintal, Solbeck, Stomski, Wedell
- **4.1 Developing a Route and Planning Logistics for the Float:** Quintal
- **4.2 Developing Themes and a Vision for the Documentary:** Solbeck
- **4.3 Collaborating with Drin River Stakeholders:** Wedell

Chapter 5. Conclusions: Stomski
- **Storyboard:** Quintal, Solbeck, Stomski, Wedell

References: Quintal, Solbeck, Stomski, Wedell
Appendix A: Quintal, Solbeck, Stomski, Wedell
Appendix B: Solbeck
Appendix C: Wedell
Appendix D: Quintal, Solbeck, Stomski, Wedell
Appendix E: Quintal, Solbeck, Stomski, Wedell
Appendix F: Quintal, Solbeck, Stomski, Wedell
Appendix G: Quintal, Solbeck, Stomski, Wedell
Appendix H: Quintal, Solbeck, Stomski, Wedell
Appendix I: Quintal, Solbeck, Stomski, Wedell
Appendix J: Quintal, Solbeck, Stomski, Wedell
Appendix K: Solbeck, Stomski
Appendix L: Wedell

Table of Contents

Abstract i

Acknowledgements ii

Executive Summary iii

The Drin River iii

Project Objectives iv

Methods iv

Project Results v

Developing a Route and Planning Logistics for the Float v

Developing Themes and a Vision for the Documentary vii

Collaborating with Drin River Stakeholders ix

Conclusion ix

Authorship x

Table of Contents xi

List of Figures xiii

List of Tables xv

1. Introduction 1

2. Background 3

2.1 The Drin River Basin 4

2.1.1 Geography of the Drin River Basin 4

2.1.2 The Drin as a Critical Habitat 4

2.2 Conditions of the Drin River 6

2.2.1 Flooding from Hydropower Plants 6

2.2.2 Rural Pollution 8

2.2.3 Urban Pollution 8

2.2.4 Impacts on Biodiversity and Health 10

2.3 Challenges to Effective River Basin Management 11

2.3.1 Transboundary Interactions 11

2.3.2 Education and Awareness 13

2.4 Approaches to Managing the Drin River Basin 13

2.4.1 The Water Supply and Sewerage Association of Albania (SHUKALB) 13

2.4.2 Young Water Professionals 14
2.5 Act4Drin 15
3. Methodology 17
3.1 Developing a Route and Planning Logistics for the Float 17
3.2 Developing Themes and a Vision for the Documentary 20
3.3 Collaborating with Drin River Stakeholders 22
4. Project Results 24
4.1 Developing a Route and Planning Logistics for the Float 24
4.1.1 Route and Logistics of the Float 24
4.1.3 Budget 33
4.2 Developing Themes and a Vision for the Documentary 34
4.2.1 Motivation for Change 34
4.2.2 The Drin River in Everyday Life 37
4.2.3 Industry Along the Drin River 39
4.3 Collaborating with Drin River Stakeholders 41
5. Conclusion 46
References 59
Appendix A: The Water Supply and Sewerage Association of Albania 63
Appendix B: Similar Projects 66
The Grand River Expedition 66
The Rio Santiago 66
Appendix C: History of the Drin River 68
Appendix D: Interview Questions for Ilir Hysa from Outdoor Albania 69
Appendix E: Interview Questions for Albanians Living along the Drin River 70
Appendix F: Interview Questions for the Young Water Professionals 71
Appendix G: Observations at Sites Along the Drin River 72
Appendix H: Interview Questions for Environmental Groups 73
Appendix I: Interview Questions for City or Government Officials 74
Appendix J: Poster for Balkans Joint Water Conference 75
Appendix K: Organizations to Contact Regarding the Project 76
Appendix L: Video Footage to Collect during the Float 78

List of Figures

Figure 1: Boats along the Drin River iii
Figure 2: Route map v
Figure 3: Lake Ohrid vi
Figure 4: Boating on the Drin River vii
Figure 5: Lake Koman, part of the Drin River viii
Figure 6: Trash in the Përroi i Llixhave, a tributary of the Drin viii
Figure 2.1: The Drin River and its basin 3
Figure 2.2: The city of Kukës 4
Figure 2.3: The endangered Dalmatian pelican on Lake Prespa 5
Figure 2.4: Image of the Drin River near the Koman Dam 6
Figure 2.5: Vau i Dejës hydroelectric power plant in Albania 7
Figure 2.6: Albanian cities, including those along the Drin River 10
Figure 2.7: Member organizations of the Drin Core Group 12
Figure 2.8: Still from "Echoes from the Drin" showing fishermen on the Drin River 16
Figure 3.1: Google Earth image of the Fierza Hydropower Power Station 18
Figure 4.1: The route of the float 25
Figure 4.2: Lake Ohrid, where the float will start 27
Figure 4.3: Day 1 of the float 27
Figure 4.4: Days 2, 3 and 4 of the float 28
Figure 4.5: The Drin River near Peshkopi 29
Figure 4.6: Topojani Bridge 29
Figure 4.7: Day 5 of the float 30
Figure 4.8: Vau i Dejës Hydropower Dam 31
Figure 4.9: Image of the Drin River taken from the Lake Koman Ferry 31
Figure 4.10: Day 6 of the float 32
Figure 4.11: The Buna River where it meets the Adriatic Sea 32
Figure 4.12: Stops for the river float 33
Figure 4.13: Lake Koman, on the northern Drin 36
Figure 4.14: People transporting livestock on the Drin 37
Figure 4.15: Trash along the banks of the Drin River on Komani Lake 38

Figure 4.16: Swimming in the Black Drin in Struga 39
Figure 4.17: Construction waste along the Përroi i Llixhave, a tributary of the Drin 40
Figure 4.18: The Drin River near Shkodër 41
Figure 4.19: Groups to meet with during the float 43
Figure 4.20: The White and Black Drin Rivers converging in Kukës 45
Figure A.1: Benefits for Members of SHUKALB 64
Figure C.1: The Mes Bridge 68

List of Tables

Table 3.1: Criteria for selecting sections of the river to include in the float 19

Table 3.2: Criteria for selecting stops along the float route 19

Table 3.3: People Interviewed 21

Table 4.1: Itinerary for the river float 26

Table 4.2: Budget for the float 34

Table 4.3: Suggested documentary themes 35

Table 4.4: Groups Interested in participating in the project 42

1. Introduction

At 175 miles long, the Drin River is the longest river in Albania. It is used as the main source of hydroelectric power in the country, as well as for fishing, irrigation, and recreation. Over the past several decades, however, the river has become increasingly polluted due to inadequate wastewater treatment, the dumping of trash in the river, agricultural runoff, and discharge from abandoned mines. As a result, high concentrations of bacteria, such as E. coli, and heavy metals and nitrates are found in the river (Bushati, 2014). Additionally, hydroelectric power plants have altered the natural course of the river, causing increased flooding (Faloutsos, 2012).

Although efforts have been made to improve the water quality of the Drin River, progress has been uneven. The Drin River Basin encompasses not only Albania, but also Montenegro, Macedonia, Kosovo, and Greece, which has complicated efforts to manage the river basin (Libert, 2014). Another challenge to protecting the Drin River is the lack of education and awareness in Albania about the pollution of the river, the destruction of habitats along the river, and how these affect the environment, public health, and livelihoods.

Our sponsor, the Water Supply and Sewerage Association of Albania (SHUKALB), has two overarching goals. First, it hopes to raise public awareness about the importance of the Drin River Basin in order to improve water quality. Secondly, because it sees the Drin River as a potentially unifying force in the Balkans, it wants to create opportunities for water professionals in the Balkan countries to collaborate and develop more effective transboundary strategies to manage the river. To work towards these goals, SHUKALB proposed creating a documentary about the Drin River. The video will capture the diverse aspects of the river through a rafting trip as well as the perspectives of different groups along the river. To complete this project, SHUKALB needed help in gathering detailed information about the geography of the Drin, important natural and cultural sites along it, and, in order to tell a compelling story, the feelings and motivations of people who live along the river (P. Giantris, personal communication, September 10, 2015).

The goal of our project was to develop a plan for the float and documentary, including a float route and itinerary, suggestions for other groups to collaborate with, and a storyboard for the documentary. To achieve many of these objectives, we collaborated with the Young Water Professionals (YWP), a partner organization of SHUKALB. We used maps, orthographic photographs, geographic information system data, interviews with tour guides, and field investigation, to map the Drin River and

identify any obstacles and potential stopping points along the river. Interviews and group discussions were conducted with Albanians living along the river and local environmental groups to develop potential themes for the documentary. The route for the float was determined by the themes that emerged from these interviews and through collaboration with a Drin River tour guide, Ilir Hysa. Additionally, photos and footage of the river were collected and used to develop an initial story for the documentary. The logistics and larger thematic plan developed by our project will help the Young Water Professionals undertake the river float in the spring of 2016 and collect additional content (e.g. footage, interviews, sound recordings) for the Drin River documentary. We hope that the completion of the float and documentary will improve public knowledge about the influence of the Drin River Basin, inspire action to improve the condition of the Drin River, and establish and strengthen connections among the groups tied to the Drin who each bear a personal stake in the well-being of the river.

2. Background

The purpose of this chapter is to describe the Drin River and its transboundary river basin, the challenges involved in protecting it, and the conservation efforts that have been made already. In the following section, we describe the characteristics of the river. In Section 2.2, we discuss the current conditions of the Drin River. In recent years, the Drin has become polluted by industrial, agricultural, and domestic usage. In many cases, environmental concerns have taken a back-seat to the more material concerns of the developing country, leading to the river's current conditions. In Section 2.3, we look at the challenges involved in coordinating transboundary environmental efforts necessary in the Drin River Basin. Section 2.4 discusses our sponsor, the Water Supply and Sewerage Association of Albania (SHUKALB), the Young Water Professionals (YWP), and their motivation for starting our project. Finally, in Section 2.5 we discuss the Act4Drin project launched in 2014, which is working to raise awareness about the problems with the Drin River.

Figure 2.1: The Drin River and its basin are highlighted in yellow (SHUKALB, 2013)

2.1 The Drin River Basin

2.1.1 Geography of the Drin River Basin

The Drin River Basin is shared by 1.5 million people and connects Albania to the surrounding countries of Kosovo, Macedonia, Montenegro, and Greece (see Figure 2.1). There are three lakes in the Drin River Basin that are shared internationally: Lake Ohrid (Albania and Macedonia), Lake Prespa (Albania, Greece, and Macedonia), and Lake Shkodër (Albania and Montenegro). Lake Prespa feeds groundwater into Lake Ohrid, where the Black Drin River begins. The 93-mile-long Black Drin flows north through the Korab Mountains along the border of Macedonia until it connects with the White Drin (88 mi). The White Drin flows south from Kosovo, beginning in the Metohijan region, and continues to its junction with the Black Drin in the Albanian town of Kukës (see Figure 2.2). From this confluence, the Black and White Drin Rivers continue on as the Drin River, flowing west to the Adriatic Sea near the city of Shkodër. At a total of 175 miles long, the Drin River is the longest river in Albania and is bordered by a diverse landscape, ranging from mountains to farmland to cities; some parts of the river lie practically undisturbed (Libert, 2014).

Figure 2.2: The city of Kukës is located in the upper right corner of Albania (http://www.europe-east.com/albania/)

2.1.2 The Drin as a Critical Habitat

The Drin River is important to Albania because it serves as a habitat to many different species of wildlife, some of which are native only to the Drin. The Drin River is an internationally recognized

Important Bird Area (Biodiversity-Albania, n.d.). It is a vital winter habitat for the endemic and endangered pygmy cormorant, the sturgeon, the Dalmatian pelican (Figure 2.3), and 70 other different kinds of waterbirds, as well as migratory bats and insects (Dedej, n.d.). The Drin River Basin is also home to more than 30 endemic species and subspecies of fish (Tockner, 2009). Specifically, Lake Ohrid is a vital habitat for the endangered Koran trout, which is threatened by overfishing (P. Giantris, personal communication, September 10, 2015).

Figure 2.3: The endangered Dalmatian pelican on Lake Prespa (Act4Drin, 2014)

The Drin River is also known for its natural beauty. The river runs just south of the Albanian Alps giving a spectacular view of the mountains. According to tour guide Ilir Hysa, tourists particularly enjoy the beautiful deep blue and green water, as seen in Figure 2.4 (I. Hysa, personal communication, November 2, 2015).

Figure 2.4: Image of the Drin River near the Koman Dam

2.2 Conditions of the Drin River

Since the fall of communism in 1992, Albania has been under significant pressure to quickly improve living standards, often at the expense of developing sustainable environmental practices (Skoulikidis, 2009). Both water quality and habitats have been negatively impacted by hydropower, mine drainage, poorly-treated municipal wastewater, and agricultural runoff (Skoulikidis, 2009). The pollution and poor water quality of the river threaten the ecosystem and impact the people living along the river. In particular, flooding, improper waste disposal, chemical runoff, and overfishing have reduced the water quality and biodiversity of the Drin (Bushati, 2014).

2.2.1 Flooding from Hydropower Plants

The Drin River and its basin are an important source of rural livelihoods in Albania and also play a large role in the economy. The citizens of Albania and the surrounding countries rely on the river for agriculture, fishing, industry, recreation, and hydropower. The river's most well-known use is its hydropower; Albania began building hydropower plants in the 1970s, and by 1990 almost 98% of the domestic power generation of Albania came from hydroelectric power (Rugg, 1994).

The construction of the dams under the rule of Enver Hoxha, such as the Vau i Dejës hydropower complex shown in Figure 2.5, led hydropower to quickly become Albania's largest source of electricity. Building the dams increased Albania's power output, allowing faster industrialization, and also providing jobs (Rugg, 1994). By 1994, approximately 90% of Albania's electricity was produced by

hydropower, 70% of which was produced by the Drin River (Drin Core Group, 2011). Between 1990 and 2010, however, no new power plants were built, so the country was forced to import power. To reverse the trend of energy importation and get Albania back to being an important hydroelectric force, the Ashta Hydropower Plant was built in 2010 on the Drin River by the city of Shkodër. One of the major goals of building this plant was to maximize the energy production potential of the Drin River (Overton, 2014).

Figure 2.5: Vau i Dejës hydroelectric power plant in Albania (Platts, 2008)

However, the damming of the river to create hydroelectric plants has had serious environmental effects (Rugg, 1994). Although the hydropower plants were a great stimulant for the economy, their construction led to changes in the hydrological conditions, such as changes in sedimentary deposits and disturbances to the ecosystems supported by the river (Faloutsos, 2012). Evidence of the effects of the dams can be seen in a 2008 study of the sediment in Lake Shkodër, a lake connected to the Drin in Northwestern Albania, which showed that the damming of the Drin River had caused the water level of the lake to decrease (van Welden, 2008). The water level of the Black Drin is also affected by hydroelectric dams; every day at 13:00 (UTC +1), water is released from the Spilje dam in Macedonia, causing the water level of the Black Drin to increase for a period of time (I. Hysa, personal communication, November 2, 2015).

Damming the Drin River has led to less frequent but more powerful flooding because the dams alter the path of the river (Cave, 2013). Blocking the river causes it to flood, creating lakes instead of a flowing river. These lakes are more susceptible to flooding because extra water from rain or snowmelt does not have anywhere to go, and instead pools in one area, overflowing the banks (Opperman, 2015). The construction of three hydropower dams on the Drin River flooded the surrounding areas, creating three artificial lakes: Fierza, Koman, and Vau i Dejës (I. Hysa, personal communication, November 2,

2015). These dams also flooded the Lake Shkodër area, destroying beaches along the river. Flooding was made worse in this region by construction companies taking materials from the banks of the river, making the banks easier to flood (M. Basha, personal communication, November 13, 2015). The flooding is a major issue because it affects the people who live along the river, flooding both agricultural fields and houses, as well as disrupting the ecosystem (The World Bank, 2012).

2.2.2 Rural Pollution

The Drin River is also threatened by rural land uses. A significant portion of the land surrounding the river is used for agriculture, and much of the waste generated by agriculture flows directly into the river (Skoulikidis, 2009). Although the use of hazardous fertilizers or pesticides is rare, runoff from agricultural fields has raised the level of nitrogen and phosphorus in the river (Drin Core Group, 2011, p.7). Additionally, abandoned mines, particularly chrome and copper mines, contribute to river pollution because rock debris and heavy metals from the mines mix with water that then flows into the river. The lower portion of the Drin has been particularly affected by mining effluents, and has high sediment concentrations of chromium, copper, iron, nickel, and other heavy metals (Skoulikidis, 2009).

The Drin River is also used for fishing, but many fishing practices are considered unsustainable, such as the use of electric generators to catch fish (Naboli, 2014). Other unsustainable fishing practices include using inappropriate nets, using explosives and poisons, fishing during spawning season, and introducing non-native species into the ecosystem. These fishing practices have been allowed to continue due to the lack of enforcement or regulation of overfishing (Drin Core Group, 2011, p.12). This has put many species in danger of being overfished, which damages the river's ecosystem (Vlachogianni & Vogrin, 2012).

Another major problem is the disposal of household sewage and garbage into the river, an issue that our sponsor has observed personally (P. Giantris, personal communication, September 10, 2015). The Drin Core Group reports that this "unsustainable management of domestic liquid and solid waste exerts pressure in the water quality in other parts of the basin as well" (Drin Core Group, 2011, p.7). As a result, the Drin River has a high level of fecal microbes which can have negative health impacts on people living along the entire length of the river (Bushati, 2014).

2.2.3 Urban Pollution

Following the fall of communism in the 1990s, the rapid urbanization of Albania led to increased population densities in cities as people migrated out of rural areas. However, many of these cities did

not have the waste management infrastructure needed to support these populations. This resulted in more pollution, which contributed to the declining conditions of the Drin River (Pojani, 2009). One source of pollution was a sharp increase in motor vehicles and car usage in the 1990s that resulted in more air pollution and oil runoff, some of which entered the Drin watershed (Pojani, 2009). Additionally, an increase in the size of the cities within Albania, such as Shkodër and Kukës (Figure 2.6), led to more municipal waste generation (Pojani, 2009). Unfortunately, many of these growing cities have not properly disposed of human waste, industrial waste, and garbage, some of which has made its way into the Drin River. In the town of Pogradec in Albania, "the waste of about 30% of the town is collected but is simply discharged into Lake Ohrid near Tushemisht," which directly feeds the Drin River (Avramoski et. al., 2006, p.324). Another city that has particularly contributed to the pollution is Peshkopi. According to Ilir Hysa, garbage is dumped in the Përroi i Llixhave river, a tributary of the Drin. As a result, there is a lot of trash along the banks of the river after it flows past Peshkopi (I. Hysa, personal communication, November 2, 2015). Additionally, a 2013 study of the microbes and chemicals in the Lake Shkodër area of the Drin River found that "the discharge of industrial and urban wastes into the river is causing a high pollution" (Bushati, 2014, p.149). The study also concluded that the pollution of the Drin River was hazardous to the environment and the humans who lived near the river (Bushati, 2014). The phenomenon of dumping sewage into the Drin River is not unique to Albania; a 2011 analysis of the Drin River found that untreated and poorly treated wastewater as well as raw sewage was dumped into the Drin River in Albania, Macedonia, and Montenegro (Drin Core Group, 2011, p.10).

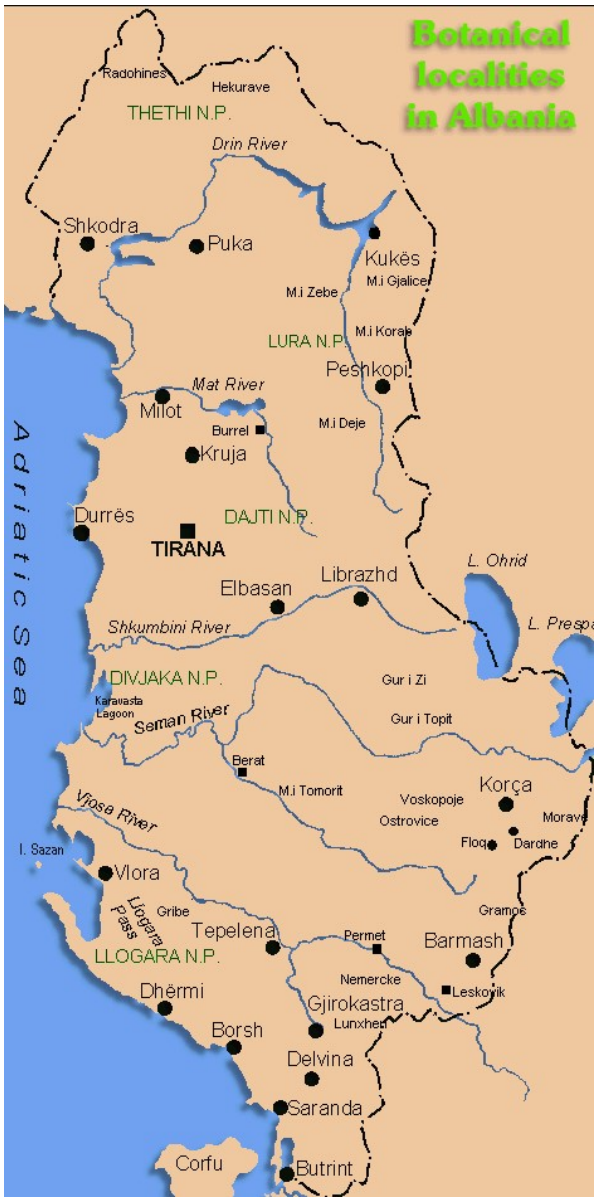


Figure 2.6: Albanian cities, including those along the Drin River (Barnes-Botany, n.d.)

2.2.4 Impacts on Biodiversity and Health

Albania has one of the highest losses of biodiversity in Europe due to deforestation, soil erosion, uncontrolled land use, pollution, and unsustainable levels of hunting, fishing, and grazing. In the past 25 years, 27 species of mammals, 89 species of birds, 6 species of fish, and 4 species of plants in Albania have lost 50% of their population (Biodiversity-Albania, n.d.). The Koran trout, found only in Lake Ohrid, has been particularly overfished and has become endangered (P. Giantris, personal communication, September 10, 2015). Other commercial fish species have also seen population drops, including carp, bleak, and belvica (Drin Core Group, 2011, p.12). Loss of habitat is also caused by erosion, which is

exacerbated by deforestation and forest fires. Erosion is a severe problem because it increases sediment flow, which degrades water quality as well as the soil quality of the land surrounding the river (Skoulikidis, 2009). Furthermore, dams prevent fish from migrating upstream, which many species depend upon for their mating cycles (Cave, 2013). For example, the Atlantic eel, which used to migrate between Lake Ohrid and the Adriatic Sea, has disappeared completely from Lake Ohrid (Drin Core Group, 2011, p.4).

In addition to the environmental impact, the pollution of the Drin River also poses a threat to human health. The presence of fecal matter and other pathogenic microbes in the river can cause E. coli and other water-borne illnesses (Bushati, 2014). The Drin River also has an extremely high concentration of nitrates, which can cause severe gastric health issues in humans and animals, particularly babies. Although the Drin River is not generally used as a source of drinking water, therefore lowering the risk of health problems, bacteria and chemicals can still be spread to humans through using the water to irrigate farmland and through exposure to the water through recreation and fishing (Skoulikidis, 2009). For example, beaches along the Black Drin are used for swimming, and people bring horses to the water to drink, despite the high pollution of the river (I. Hysa, personal communication, November 2, 2015). Additionally, heavy metals in the river as a result of mining, such as chromium, copper, cobalt, and nickel, are toxic to fish, and these toxic metals can be passed along to humans through the food chain (Drin Core Group, 2011, p.9).

2.3 Challenges to Effective River Basin Management

There are many challenges associated with effective river basin management of the Drin. First of all, the Drin River Basin includes Albania, Kosovo, Montenegro, Macedonia, and Greece, and so any management efforts must be coordinated between these countries. According to the Drin Core Group, “sectoral organization of governments and the fragmented responsibilities among not well coordinated institutions with limited human and financial capacities have further exacerbated the situation,” making it difficult for transboundary cooperation to occur (Drin Core Group, 2011, p.17). Another challenge is the limited environmental education of Albanians with regards to water advocacy and awareness.

2.3.1 Transboundary Interactions

The Drin River spans five different countries, so protecting the river will require transboundary cooperation. “The difficult conditions of the past e.g. political instability, long transition period of the countries towards a market based economy, [and] limited social cohesion” have played a major part in

the relations of the countries surrounding the Drin River basin (Drin Core Group, 2011, p.17). In order to start overcoming these divisions, on May 30, 2012, the United Nations Economic Commission for Europe (UNECE) and Global Water Partnership-Mediterranean helped in supporting the first meeting of the Drin Core Group, a collective group of the Drin River riparians, joint commissions, the UNECE, the Global Water Partnership-Mediterranean, and the Mediterranean Information Office for Environmental Culture and Sustainable Development (Libert, 2012). Figure 2.7 shows all of the organizations involved in the Drin Core Group, which helps illustrate the complexity of the river management system.

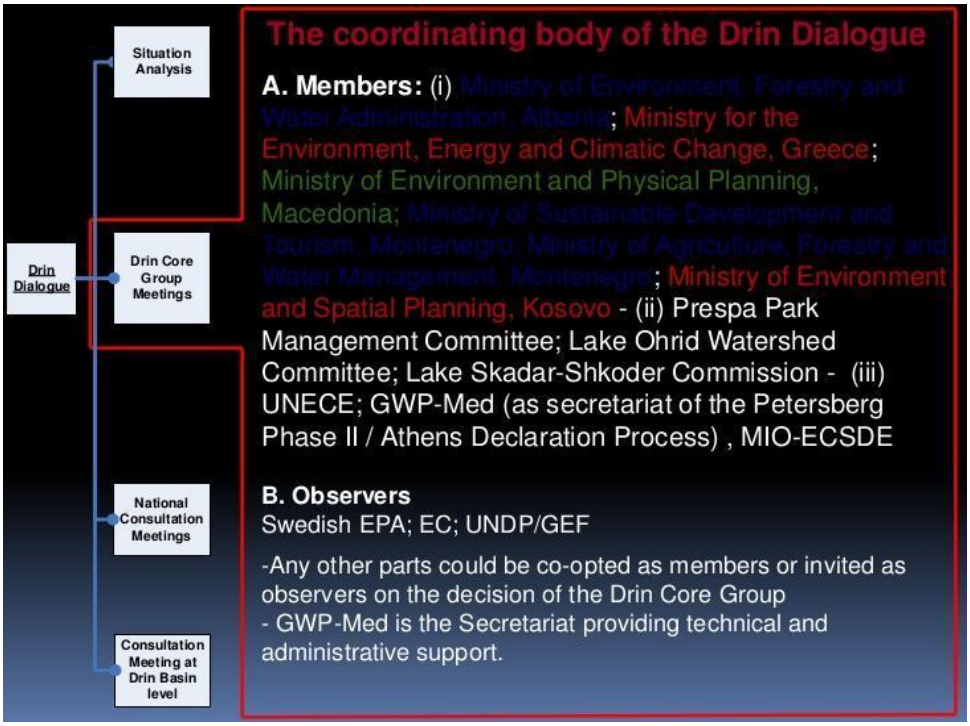


Figure 2.7: Member organizations of the Drin Core Group (Drin Core Group, 2011)

In 2013, the Drin River riparians (Albania, Greece, Kosovo, Montenegro, and Macedonia) met to discuss the Memorandum of Understanding of the Shared Strategic Vision for the Sustainable Management of the Drin River Basin, in order to enhance their cooperation and address the urgent issues surrounding their water management (UNECE, 2013). Before the meeting occurred, stakeholders met to discuss a $4.5-million project funded by the Global Environmental Facility that hopes to further cooperation in the basin, such as organizing demonstrations to promote sustainable development along lakes and rivers (UNECE, 2013). These examples show that initiatives are already being taken "to safeguard and restore to the extent possible the ecosystems and the services [shared water resources in the Drin Basin] provide, and to promote sustainable development" (The Drin Basin, 2012). Philip Giantris, executive director of SHUKALB, explained in an interview that, "we are all looking to gain EU

status… but we need to start thinking of [the Balkans] collectively" and not just individual countries. He believes that the collective cleanup and conscious efforts of water management is the best way to do this because the water sector is one of the strongest ties between the Balkans (P. Giantris, personal communication, September 10, 2015).

2.3.2 Education and Awareness

Another challenge surrounding conservation efforts in Albania is the lack of education and awareness about environmental issues (Pojani, 2009). According to Hall, because of Albania's extreme isolation from the rest of the world while under communist rule for nearly 50 years, Albania did not experience an environmental movement like the United States had in the 20th century. As a result, many Albanians have not had as much education about environmental issues; instead, the government prioritized economic issues (Hall, 2000). Hysa feels that the lack of awareness of environmentalism in general, and river pollution specifically, has led to the polluted condition of the Drin River today.

However, efforts are being made to improve the education of Albanian citizens. In fact, a 2015 study of Albanian residents in the Lake Prespa region in Southern Albania showed that many Albanians of different ages had positive feelings towards pollution control and improving water quality (Grazhdani, 2015). The Lake Prespa study focused on residents' willingness to pay for improving water quality through the reduction of non-point source (NPS) pollution. It found that residents were willing to pay an average of €6.4 more per year, and also that respondents with higher yearly incomes and education were more willing to pay for pollution control (Grazhdani, 2015). Based on the results, the study concluded that increasing environmental education and awareness would be effective for improving water quality in Albania (Grazhdani, 2015).

2.4 Approaches to Managing the Drin River Basin

2.4.1 The Water Supply and Sewerage Association of Albania (SHUKALB)

One key stakeholder working to improve the conditions of the Drin River and surrounding river basin is the Water Supply and Sewerage Association of Albania (SHUKALB). SHUKALB was founded in the spring of 2000 by eight representatives from different water supply and sewerage enterprises in Albania. These founders came together with a common goal to improve the management of the water supply and sewerage sector throughout Albania (SHUKALB, 2015).

SHUKALB has worked with teams from WPI over the past few years on improving water education and awareness in Albania, and is sponsoring our project this year. Our project is to plan out a

float down the Drin River and a compelling documentary about the river that will feature footage from the float. The float and documentary will then be completed in 2016 by the Young Water Professionals, a partner group of SHUKALB.

SHUKALB's motivation for starting this project aligns with its broad goals to reduce conflict in the Balkans, and to encourage Balkan countries to think of the region as a collective instead of taking a more nationalistic view. One way to find common ground with other countries is to focus on a shared resource, such as the Drin River Basin, and to develop transnational river basin management strategies that could benefit the region. For example, each year SHUKALB and SHUKOS, the Water Supply and Wastewater Works Association of Kosova, hold the Balkans Joint Conference so that "water professionals, policymakers, and business people from the sector can gather and discuss issues of concern, exchange information, and share experiences in an effort to help the further development of the water supply and wastewater sector in the Greater Balkan region" (Balkans Joint Conference, 2015). In addition to their vision of transboundary cooperation, SHUKALB desires to change attitudes about environmentalism from an early age. SHUKALB has several programs aimed at the youth, including an elementary school water conservation curriculum and a high school science fair. They see our project as another way to raise awareness for water conservation, and ultimately improve the conditions of the Drin River (P. Giantris, personal communication, September 10, 2015).

2.4.2 Young Water Professionals

SHUKALB also works closely with a partner group: the Young Water Professionals (YWP) of Albania. The YWP program is based through the International Water Association as a way for water professionals, either finishing school or starting their careers, to network. The program was started in Albania in 2010 after the Regional YWP Conference in Serbia due largely to SHUKALB's encouragement. As part of the Albanian YWP's mission statement, the young professionals are encouraged to become involved with SHUKALB and work in an environment where they can network and share their ideas. People can join the YWP as long as they have a career in the water supply and sewerage field and are under 35 years of age, or are a student pursuing a degree in a subject-related field (SHUKALB, 2015).

During our time in Albania, the YWP helped us identify people to interview, reached out to environmental groups from the surrounding countries, taught us more about the Drin River and their own experiences working in the water sector, and consulted with us about the plans we are developing for the documentary and river float. The YWP will be responsible for completing the river float in the

spring of 2016 and taking the video footage that will go into the documentary (P. Giantris, personal communication, September 10, 2015).

2.5 Act4Drin

Our project is not the first project concerned with the environmental condition of the Drin River. There are several projects relating to river protection that we looked into as references for our own project (see Appendix B). One project that relates closely to ours is the Act4Drin project, led by the Mediterranean Information Office for Environment, Culture, and Sustainable Development (MIO-ECSDE), which aims to improve knowledge about freshwater ecosystems in the Drin River Basin and enable NGOs to protect these ecosystems.

Act4Drin was funded in 2014 by the Critical Ecosystem Partnership Fund (CEPF), a fund that provides grants for projects to protect biodiversity hotspots across the globe. The project ran from March 2014 to December 2015, and includes several initiatives. Firstly, the project worked to raise public awareness about the importance of the Drin River Basin and its ecosystems, both at the local and national levels. Secondly, it aimed to empower NGOs to promote water resource management and biodiversity conservation in transboundary settings such as the Balkan region. Finally, the project worked to enhance coordination and cooperation between NGOs working in the Drin River Basin, and to involve them in projects and processes including the "Drin Dialogue," a plan for a series of conferences between the Balkan countries along the Drin River (Act4Drin, 2014).

To guide its NGO initiatives, the project ran a voluntary survey on NGOs in 2014 to determine the challenges and constraints that NGOs face when working with transboundary water management or biodiversity projects. The survey found that NGOs felt that education and awareness efforts were the most important activities to spend their time on, and that while they felt comfortable communicating environmental information to all stakeholders, they were less experienced in conducting assessments of water quality and identifying pressures and impacts. In the following year, Act4Drin organized a workshop in Albania to provide a collective venue for environmental NGOs to share their experiences with transboundary issues, and to learn and develop promising practices. Case studies from this workshop were collected and used as the basis for an informational booklet released by Act4Drin that presented strategies for transboundary collaboration. A similar workshop was hosted during an event called "Act4Drin Day" on May 17, 2015, which also included awareness-raising efforts such as a nature walk along the shore of the Drin River and a photo contest about the river (Act4Drin, 2014).

One of the most relevant initiatives of Act4Drin is the production of a documentary series called "The Drin Travelogue." This series aims to "enhance public awareness on the vital benefits that watershed bodies provide," by highlighting the natural beauty, rich ecosystem, and human interactions of the Drin River (Drin Travelogue, 2014). To create this film, the team laid out a series of key messages to be conveyed in the documentary. These included the common natural heritage of the Drin River, its importance as a biodiversity hotspot, and the importance of acting upon this issue, even on the local and individual scales. The team filmed footage at Jablanica Mountain, Struga, and Lakes Ohrid and Prespa; this is a relatively small section of the river, which allowed the team to focus on the features of the area in detail (Act4Drin, 2014).

Parallel to "The Drin Travelogue," Act4Drin released a series of three short videos entitled "Echoes from the Drin." These videos aimed to present the diverse ecosystem of the Drin River, and encourage individuals to realize their personal impact on the well-being of this ecosystem (Act4Drin, 2014). Each video is less than 3 minutes in length, and presents a different perspective on the river: the river itself, the ecosystem surrounding the river, and the human impact on the river. These perspectives are presented through film footage accompanied by captions; the films contain no dialogue. Early footage includes the river, local birds such as the Dalmatian pelicans, and people working along the river, as seen in Figure 2.8. In the final video, "Echoes from the Drin: Impressions of Humans," the tone shifts somewhat; the video includes footage of trash dumped by the river, industrial facilities, and animals harmed by the pollution. The video then shifts to a hopeful tone, ending with a call to action for its audience (Mediterranean Information Office, 2015). We used these videos and other films to identify effective documentary techniques.

Figure 2.8: Still from "Echoes from the Drin" showing fishermen on the Drin River (Act4Drin, 2014)

3. Methodology

The goal of this project was to inspire action to improve the conditions of the Drin River and work with the Young Water Professionals of Albania to help begin a movement to encourage water advocacy. Our project worked towards this goal by planning a river float down the Drin and developing a plan for a compelling documentary about the river. The float and documentary will then be completed in 2016 by the Young Water Professionals and a second team from WPI. In order to achieve our overall project goals, we established three core project objectives:

- Develop a route and itinerary for the float, with critical points such as obstacles and stops indicated, and plan logistical tasks related to the river float including equipment, supplies, and safety precautions
- Develop themes for a documentary about the Drin River, provide recommendations for film footage to capture during the float including possible interview locations, and create a storyboard for the documentary
- Improve collaboration with the Young Water Professionals and contact other Balkan water-sector and environmental organizations to involve them in the project

3.1 Developing a Route and Planning Logistics for the Float

Our first project objective was to develop a route for the float down the Drin River, identifying any important locations to include or avoid, and to determine the logistical details necessary to carry out the float. The goal of our research was to establish a route that avoids obstacles, includes major towns, and features important historical or cultural landmarks along the river. To develop a route for the float, we collaborated with key informant Ilir Hysa, an Albanian river guide from Outdoor Albania, who has led rafting trips on the Black Drin. We worked with Hysa to come up with starting and ending points for the float, places to stay overnight, and the expected duration of each leg of the journey.

Figure 3.1: Google Earth image of the Fierza Hydropower Power Station with Lake Fierza on the right and Lake Koman on the left (Google Earth, 2015)

The first step in developing the route was to identify obstacles along the river, including dams, shallow areas, and rapids. Table 3.1 summarizes the criteria we considered when researching where the float would be able to travel. We investigated these obstacles using satellite digital images through online services such as Google Maps (Figure 3.1). In addition, our sponsor provided us with detailed GIS (Geographic Information System) data in the form of orthographic photos and satellite imagery, which provided a more detailed look at the river. Based on this preliminary mapping, we chose specific cities along the river to visit ourselves, where we noted significant features and took photos and video footage of the river at each site. A list of types of observations recorded can be found in Appendix G.

Criteria	Description
River depth	If the water is too shallow, larger boats will not be able to pass through.
River speed	Faster sections of the river may be too hazardous to travel on, while stagnant sections will require powered boats to traverse.
Ease of road access	Road access to the river will allow the land team to follow along with the float, taking footage. It is also important in the case of an emergency.
Hydropower dams	Hydropower dams on the river are impassable, requiring that boats and equipment be carried around the dam.
Thematic content	The route should include parts of the river that highlight the themes of the documentary. Examples include natural beauty, wildlife, pollution, and fishing.

Table 3.1: Criteria for selecting sections of the river to include in the float

Furthermore, we researched cities and towns along the river where float participants will spend the night. The criteria we considered when selecting these stops are summarized in Table 3.2. We consulted with Ilir Hysa about where he has stopped on his previous raft trips, and he helped us look into accommodations in these cities and villages. Additionally, we also discussed with our sponsor their vision for the scope of the float, such as the intended duration of the event, hours spent on the river each day, and food and lodging at night.

Criteria	Description
Availability of lodging	Although camping is an option, this requires additional equipment and preparations. Having lodging in the city is a good alternative.
Connections to YWP	Having YWP in the area will make travelling and finding basic facilities easier.
Local municipality support	Having municipal support for the project will help with any activities in the city, and possibly gain the government's perspective in interviews.
Other established contacts	Having established contacts in the city will provide a starting point for interviews and discussions in that city.
Thematic content	Cities or locations that we want to feature in the documentary would be good to stop at in order to take video footage.

Table 3.2: Criteria for selecting stops along the float route

In addition to determining the path of the float, we researched the logistics of the trip in order to facilitate a successful journey. One of the most important tasks was to create a safety plan. Most of this information was found through interviewing Ilir Hysa. The interview questions we asked him can be found in Appendix D. His personal experience helped us to anticipate safety and liability concerns specific to different parts of the Drin River. The YWP participating in the float will learn the safety procedures and go through a training course with a professional from Outdoor Albania to ensure that they are prepared for the float.

One of the last things we determined for the river float was the type and number of cameras needed in order to take quality video footage of the float. We reviewed technical data and other product reviews to identify which models were good matches with respect to durability, portability, and cost.

3.2 Developing Themes and a Vision for the Documentary

To create an overall vision for the documentary, we sought to identify critical themes, locations, activities, and interviewees. To develop a consensus about these themes and the purpose of the documentary, we conducted interviews and group discussions with the stakeholders described in Table 3.3 below. Our interviews addressed the following questions:

- Who is the audience for the documentary and what is its primary purpose?
- What style of documentary will be the most effective for the intended audience?
- What aspects of the river do Albanians care about the most?
- What do Albanians know about the pollution of the Drin River and conservation efforts?
- What important locations along the River should be featured?
- What story should the documentary tell?

Interviewees	Location	Description	Questions Asked
Members of the YWP	Tirana	Group of water sector students and employees founded by SHUKALB	Appendix F
Ilir Hysa	Tirana	Owner of the Tirana Backpacker Hostel. Conducts rafting trips down the Black Drin	Appendix D
Mirsad Basha and other members of EKO Mendje	Shkodër	Environmental group in the area of Lake Shkodër and the Drin River	Appendix H
Alma Bazhdari Naraci	Shkodër	Owner of the Mi Casa es tu Casa Hostel in Shkoder	Appendix E
Ernesti Markeçi Besmir Gjoçi	Peshkopi	Owners of the Peshkopi Backpacker Hostel	Appendix E
Jake Farris	Peshkopi	Peace Corps volunteer in Peshkopi	Appendix E
Deputy Director of Public Health	Peshkopi	Government official in Peshkopi	Appendix I
Urban Planning Specialist	Peshkopi	Government official in Peshkopi	Appendix I

Table 3.3: People Interviewed

In order to research the target audience for the documentary and learn more about their goals for the project, we interviewed our sponsor SHUKALB and members of the Young Water Professionals. Our complete interview questions can be found in Appendix F.

To explore potential documentary themes, we conducted interviews and group discussions with Albanians living along the Drin and asked them to tell us stories about their experiences with the river. A complete list of our interview questions can be found in Appendix E. In order to determine what aspects of the river are most important to Albanians, we asked questions about the role of the river in their lives, and how it is used for work and recreation.

We interviewed people living along the river because it allowed us to learn what is most important to the people who actually rely on the river. This is important because many of these people will likely be included in our target audience, and interviewing them allowed us to hear about their personal experiences with the river. Group discussions provided many of the same benefits as the interviews, while allowing us to hear different perspectives.

We also interviewed people that impact or work on the river, such as environmental groups and government officials, to learn more about what has been done to protect the river, the obstacles to conservation, the extent to which Albanians are aware of pollution and conservation efforts, and their views about potential themes for the video. Our interview questions for the environmental groups can be found in Appendix H, and those for government officials in Appendix I.

We also researched important historical, ecological, and cultural locations along the river, both through literature review and interviews. We conducted a literature review first, in order to learn about some lesser-known historical and ecological sites that could be interesting to feature in the documentary, such as the Via Egnatia and the Mes Bridge. Additionally, we interviewed Albanians living along the river about what locations along the river are important to them. Combining this information allowed us to suggest sites and film footage in the plan that show what is most important to people, as well as important sites that are not as well-known.

We faced several challenges in conducting our interviews. Many people did not speak English, but the members of the YWP were able to translate for us, and could consult a recorded transcript if need be. A second problem was related to sampling. Since the Drin River is long and difficult to reach in many places, we could not interview people along its entire length during our field work. To get a diverse range of perspectives, Ilir Hysa's contacts at hostels in other cities along the Drin River helped us to obtain interviews with local environmental groups and other interested parties.

3.3 Collaborating with Drin River Stakeholders

Another goal of this project was to collaborate with the Young Water Professionals of Albania to promote water advocacy throughout the entire Drin River Basin, which encompasses Albania, Kosovo, Montenegro, Macedonia, and Greece. We worked with the Young Water Professionals of Albania to contact stakeholders in the river, such as environmental groups, governmental officials, and Young Water Professionals in the surrounding Balkan countries.

To learn about transboundary interactions, we researched the following two questions: what obstacles exist in transboundary cooperation regarding water in the Balkans, and how can we incorporate these issues into the documentary and river float? We interviewed the YWP about their experiences working with other countries, projects they have done in the past, and their motivations for participating in the project (see Appendix F for full interview questions).

Another way we learned about transboundary relations was by taking part in the Balkans Joint Water Conference in Kosovo, where we attended a workshop about training in the water sector, and

listened to speakers from different countries discuss challenges the water sector faces. We created a poster and handouts for a booth at the conference exhibition in English and Albanian and had informal conversations with conference attendees about our project. The design for the poster can be found in Appendix J. Additionally, we presented our project to an audience of YWP from both Albania and Kosovo, and talked to members of the Kosovo YWP about how they could become involved in the project.

One challenge in this line of research was that the Balkan region has a complex history of tensions and border disputes. We were careful to keep this in mind when conducting interviews and talking about our project so that we didn't offend any of the people we talked to. We also consulted with our sponsor about our poster and handouts to make sure that we used the correct language and images when referencing countries in the Balkans.

Additionally, we collaborated with the YWP of Albania to identify and contact groups within Albania that could be included in the project. We spoke to the owners of hostels in Peshkopi and Shkodër, as well as an environmental group in Shkodër. We asked them if they would be interested in the project, how they could see themselves getting involved, and how they thought the project could improve the conditions of the river.

4. Project Results

In this chapter we present the results of our work in Tirana. In the following section, we explain the route for the float and the logistics to ensure that the float is feasible, safe, and within budget. In section 4.2, we analyze the results of our research relating to developing a story for the documentary. We discuss why the river is important to people, how it is used, what problems the river faces, the challenges associated with its improvement, and what people would like to see portrayed within the documentary. Lastly, section 4.3 discusses our collaboration with the Young Water Professionals and other groups throughout Albania and the Balkans, and our recommendations for their involvement. This section also provides a summary of organizations that have done projects related to the Drin River Basin or other water sources in Albania, who could be contacted for information and provide possible sources of funding for this project.

4.1 Developing a Route and Planning Logistics for the Float

4.1.1 Route and Logistics of the Float

We developed a plan for the route of the float, shown in the map in Figure 4.1. The float will start at Lake Ohrid and end where the Buna River empties in the Adriatic Sea. We recommend this path for the float because it will allow for the float to cover most of the river, but will avoid difficulties such as hydropower dams, border crossings, and slow currents for rafting.

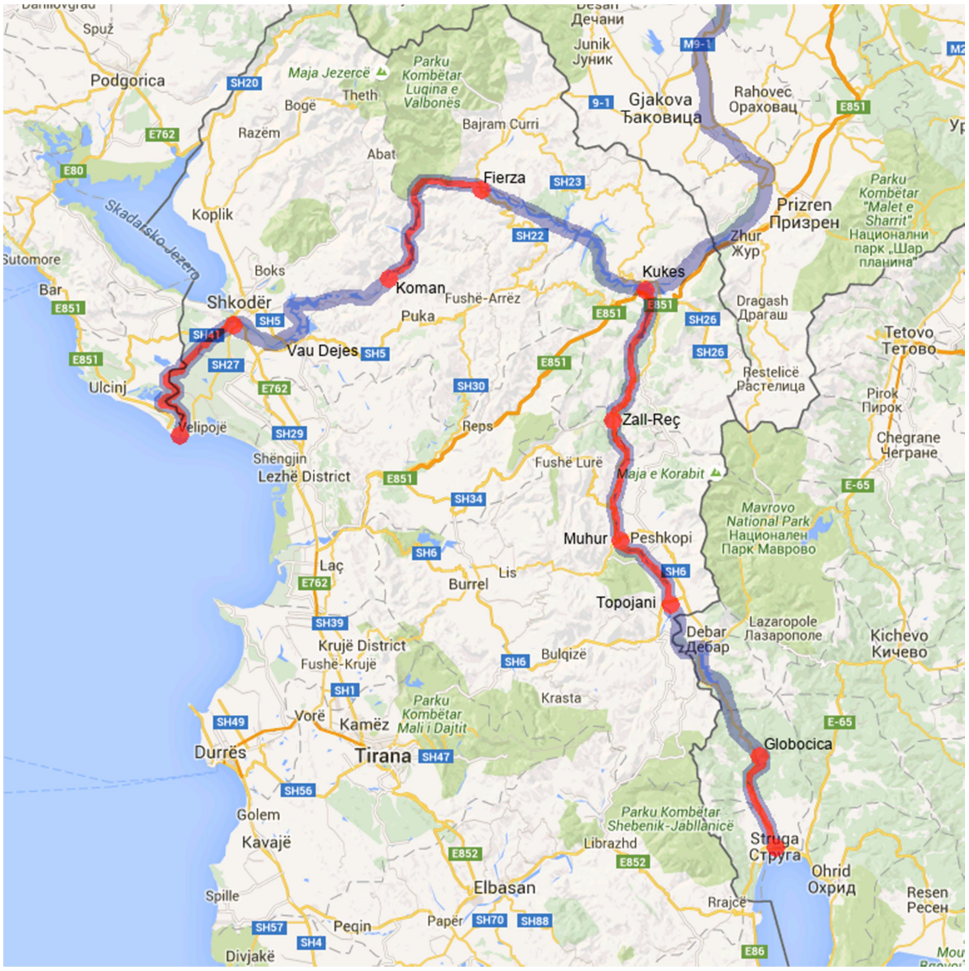


Figure 4.1: The route of the float: the Drin River is marked in blue and the sections of the river that the float will cover are marked in red

The float would last six days, following the itinerary in Table 4.1. The float is broken down into four segments, which are explained in further detail below: Lake Ohrid to Globocica, Topojani to Kukës, Kukës to Shkodër, and Shkodër to the Adriatic Sea.

Segment	Start	Ending Point	Duration	Vehicle	Details
Day 1: Lake Ohrid and the Black Drin in Macedonia	Lake Ohrid	Before Globocica Dam	2-3 hours	Powerboat	Meet with Macedonia YWP at Lake Ohrid. Travel around the lake, and then up part of the Drin River before returning.
Days 2-4: Rafting trip on the Black Drin in Albania	Topojani	Muhur	5 hours	Rafts	Start of the rafting trip. Minibus will be following along with food and camping supplies. Camp overnight in Muhur and meet with Peshkopi hostel owners.
	Muhur	Zall-Reç	5-6 hours	Rafts	Camp overnight in Zall-Reç.
	Zall Reç	Bushat	5-6 hours	Rafts	Stay the night in Kukës. Can meet with Kosovo YWP at this point, or at the start of the next segment.
Day 5: Driving and Ferry Ride from Kukës to Shkodër	Kukës	Fierza	2.5 hours	Van or bus	Drive to the Fierza hydropower plant to take the Komani Lake Ferry. Alternatively could use motorboat on Lake Fierza.
	Fierza	Koman	2.5 hours	Lake Koman Ferry	Take the Ferry from near the Fierza dam. The Ferry leaves from Fierza at 6:00am and 1:00pm each day. Alternatively use motorboat.
	Koman	Shkodër	1.5 hours	Van or bus	The ferry arrives near the Koman hydropower dam. From here, drive to Shkodër. Stay overnight in the Mi Casa es tu Casa hostel, and meet with EKO Mendje. Alternatively use motorboat on Lake Vau i Dejës.
Day 6: The Buna River to the Adriatic	Shkodër	Adriatic Sea	2 hours	Motorboat	Rent a motorboat in Shkodër and travel along the Buna River to the Adriatic Sea. Note that the duration listed is an approximation.

Table 4.1: Itinerary for the river float

Figure 4.2: Lake Ohrid, where the float will start

We recommend that on the first day the float starts by powerboat at Lake Ohrid (Figure 4.2), and then travels several hours up the river through Macedonia, stopping before it reaches the Globocica hydropower plant. This can be seen on the map in Figure 4.3. Powerboats are preferable to use on the lake to rafts or kayaks because the lake does not have a strong current, so it would take a long time to paddle across it (I. Hysa, personal communication, November 2, 2015). We recommend completing the Lake Ohrid and Macedonia portion of the float separately in order to avoid traversing around the Globocica and Spilje hydropower dams, and to avoid crossing the border between Albania and Macedonia while on the river. The float would then start the rest of its journey several days later at the Topojani Bridge in Albania, based on the schedules of the participants.

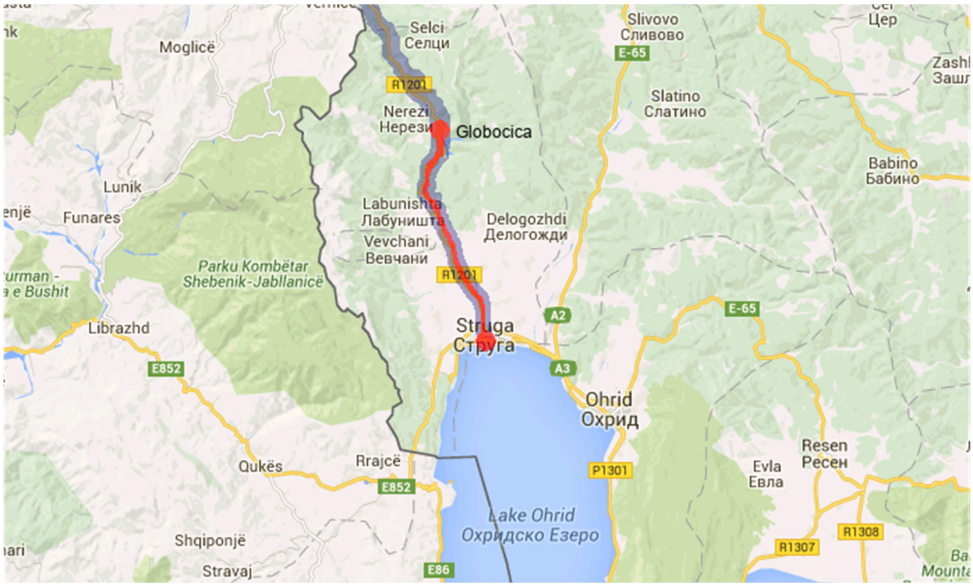


Figure 4.3: Day 1 of the float: the river is marked in blue, the route is marked in red

The next leg of the float, seen in Figure 4.4, will last three days and cover the length of the Black Drin. The float will stop in Muhur the first night, Zall-Reç the second night, and reach Bushat and stay in Kukës on the third day. Of the YWP we interviewed, none of them had previous experience kayaking or rafting. Therefore, we recommend having a guide and using rafts for this segment of the float. The float will use rafts that can fit 6-8 persons rather than canoes or kayaks as the rafts are safer because they require less technical skill, and have a lower risk of capsizing. Outdoor Albania also provides safety training and equipment for rafting trips (I. Hysa, personal communication, November 2, 2015). Additionally, from the photos and site observations, we gathered information about the depth and width of the river, and determined that rafts would be able to travel down the river in Peshkopi and Kukës (Figure 4.5).

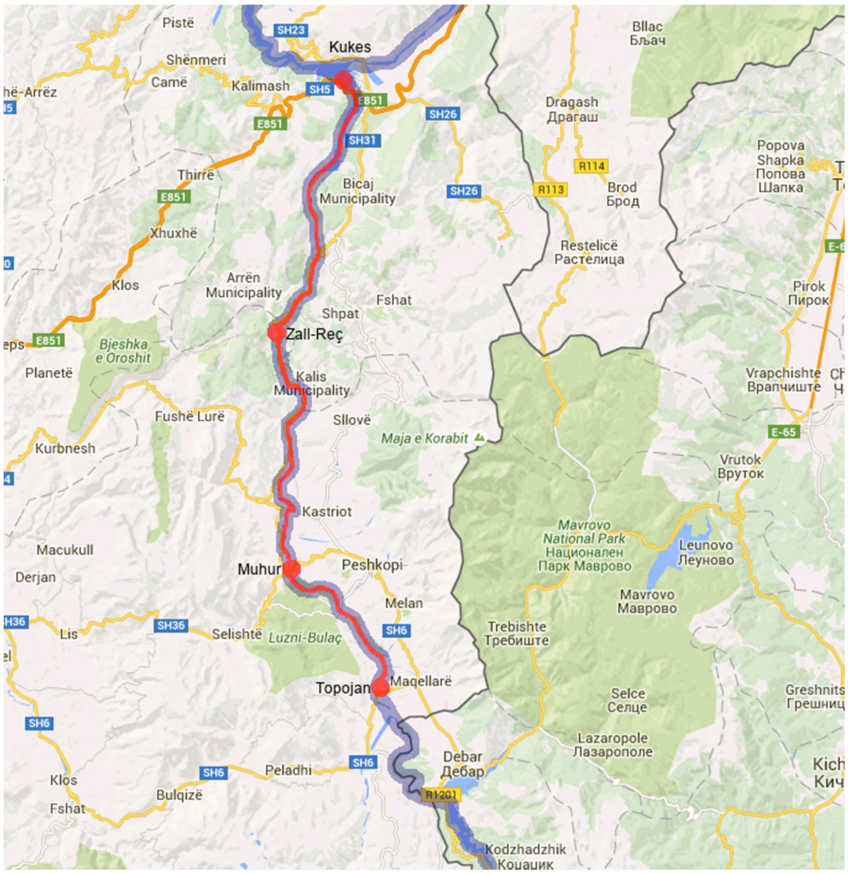


Figure 4.4: Days 2, 3 and 4 of the float: the river is marked in blue, the route is marked in red

Figure 4.5: The Drin River near Peshkopi: the river is wide and deep enough for rafts to pass through

The Spilje hydropower dam in Macedonia releases water every day at 1pm, which increases the flow and depth of the Black Drin downstream (I. Hysa, personal communication, November 2, 2015). Based on this information we anticipate that when the float starts at Topojani (Figure 4.6), it will begin around the time of this release of water as the increased flow of the river will provide a sufficient current for the float to travel on. When the float begins, the participants will be able to collect footage of how these dams are impacting the river by filming the impact they have on the current. We also learned about which parts of the river might be more challenging to raft on, such as the rapids near Gradec. However, Hysa routinely guides people without rafting experience safely through these rapids, and doesn't think they will be a problem for the float (I. Hysa, personal communication, November 2, 2015). We include this information to make sure that the members of the float are fully informed about the route that they will be traveling.

Figure 4.6: Topojani Bridge, where the float will start on day 2 (Google Earth, 2010)

In addition to the float members, we recommend having a small land team following the float by car or van taking footage of the float and river, and meeting the float each day at their final destination. They will be able to assist the float during their journey, which is important in the case of an emergency. Since there are parts of the river that do not have road access, such as between Topojani and Muhur, the land team will not be able to follow along with the float until it reaches Muhur (I. Hysa, personal communication, November 2, 2015). During this time that road access is not available, the float team will make sure that everyone is informed that the Tirana hospital has a helicopter that is on call for an emergency at all times should something happen when the land team cannot reach the float.

The 5th day of the float would start in Kukës and reach Shkodër, as seen on the map in Figure 4.7. Key areas of concern in this stretch of the river are the large lakes created by the dams built on the main Drin River between Kukës and the Adriatic Sea. These lakes would take a very long time to raft as there is hardly any current. However, the float would be able to use powerboats to cross these lakes (I. Hysa, personal communication, November 2, 2015). The float would also need to leave the river to avoid the three dams: Fierza, Koman, and Vau i Dejës. An image of the Vau i Dejës dam can be seen in Figure 4.8.

Figure 4.7: Day 5 of the float: the river is marked in blue, the route is marked in red

Figure 4.8: Vau i Dejës Hydropower Dam: impassable (Tutt, 2015)

We recommend that the float team leaves the water after reaching Kukës and drives to Fierza Lake where they should take a ferry to Koman Lake. This ferry ride will take about 2.5 hours and will allow the team to take footage of the river and also interview locals that are using the ferry as a means of transportation. Members of our team were able to take this ferry, and found that it was a good way to get photos and videos of the natural beauty of the river (Figure 4.9). Once the float arrives in Koman, the team would drive to Shkodër where they can stay the night and meet with the environmental group EKO Mendje. An alternative to this route would be to rent small powerboats to travel along Lake Fierza, Lake Koman, and Lake Vau i Dejës. This option would give the team more flexibility to stop during the trip.

Figure 4.9: Image of the Drin River taken from the Lake Koman Ferry

The 6th and last day of the float would start in Shkodër, where the Drin River and the Buna River come together, as shown in the map in Figure 4.10. The float would travel down the Buna River to where it empties into the Adriatic Sea (Figure 4.11). The current is not strong on this section of the river, and actually sometimes flows the opposite direction, so a powerboat would be more effective for traveling down the Buna than rafts or kayaks (Members of EKO Mendje, personal communication, November 13, 2015). One complication of this section of the river is that the Buna River lies along the border between Albania and Montenegro. The float will need to make sure that they do not cross the border, and that the land team will be able to reach them. The float will take the powerboats down the Buna to the Adriatic Sea, which would conclude the float.

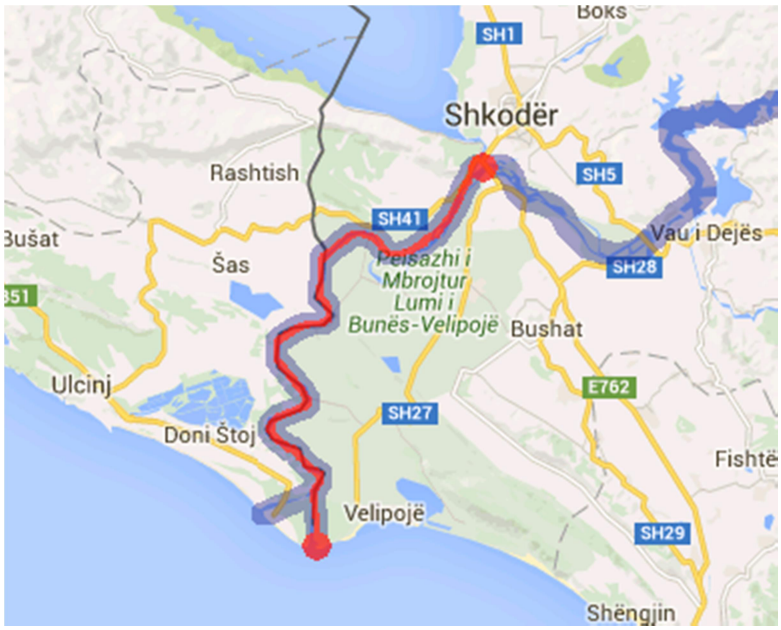


Figure 4.10: Day 6 of the float: the river is marked in blue, the route is marked in red

Figure 4.11: The Buna River where it meets the Adriatic Sea (GNU-FDL, 2006)

In addition to planning out the route of the float, we also identified places where the float participants could stay the night, seen in Figure 4.12. Muhur, Zall-Reç, and Kukës would be the best cities to stay the night during the segment of the float on days 2-4. The float would camp overnight in Muhur and Zall-Reç, and stay in a hotel in Kukës. The float can stop in Shkodër on day 5, and stay at the Mi Casa es tu Casa hostel (Ilir Hysa, personal communication, November 16, 2015).

Figure 4.12: This map shows stops for the river float: Starting points are labeled in yellow, endpoints are labeled in red, and overnight stops are labeled in blue

4.1.3 Budget

Based on our recommendations for the path of the float and through working with Hysa, we developed an overall budget for the entire float, shown in Table 4.2. With this budget, our sponsor can plan the float based on the number of individuals that are available to participate in the float. The budget takes into account equipment, overnight lodging, cameras, and the cost of having a tour guide for the float. The budget is in a per-person format so that the total number of people participating in the float can be adjusted. Most of the equipment would be provided by Outdoor Albania, although members of the float will need to bring their own sleeping bags for the overnight stops in Muhur and Zall-Reç. Additionally, we recommend that GoPro cameras be bought or rented separately, as well as several video cameras for the land team to use.

Item	Description	Link	Cost per	Number	Days	Total cost	Total cost (EURO	Total Cost (ALL	Comments
Camera	GoPro Hero	http:/	$129.00	2		$258.00	€237.93	Lek32,830	$1=€0.922 and €1=137.983ALL
GoPro Mount	chest	http:/	$10.00	2		$20.00	€18.44	Lek2,545	
	head	http:/	$8.00	2		$16.00	€14.76	Lek2,036	
Camera	JVC Everio*	http:/	$399	2		$798	€735.92	Lek101,544	Cheaper alternatives include Sony HD Video Recording HDRCX405 and Canon VIXIA HF R600
Batteries	Amazon	http:/	$7.99	1		$7.99	€7.37	Lek1,017	
Rafts and Guide for 3 days	Outdoor Albania	http:/	€40	8	3	€960	€960	Lek132,464	Assuming 8 people in the rafts for 3 days
Camping Equipment	Outdoor Albania		€7	8	2	€112	€112	Lek15,454	
Mini Bus	Outdoor Albania		€80.00	1	2	€160.00	€160.00	Lek22,077	
Food	Outdoor Albania		€5	8		€40	€40	Lek5,519	
Lodging in Kukës	Hotel Gjallica	http:/	€25.00	4	1	€100.00	€100.00	Lek13,798	Price for 4 two bed rooms
Lodging in Shkodër	Mi Casa es Tu Casa	http:/	€12	8	1	€96	€96	Lek13,246	
Lake Koman Ferry	Fierze to Koman	http:/	€5	8	1	€40	€40	Lek5,519	
Mini Bus or Van	Outdoor Albania or Other Rental		€80	1	2	€160	€160	Lek22,077	To Drive from Kukës to Fierze and from Koman to Shkodër, then possibly back to Tirana (approximate)
Powerboat rides	Buna River	http:/	€30	8	1	€240	€240	Lek33,116	This company is one possiblity, need to look into motorboat company options (approximate)
Entire Trip							€2,922.41	Lek403,243	

Table 4.2: Budget for the float

4.2 Developing Themes and a Vision for the Documentary

After the completion of the float, another team of students from WPI will work with SHUKALB in the fall of 2016 to produce a documentary about the river, using footage gathered during the float. We believe the following themes should be incorporated into the documentary.

4.2.1 Motivation for Change

Notably, our research uncovered that efforts to improve the conditions of the Drin have struggled to gain public support. This is largely because the Drin is not seen as a dirty river. Thus, as part of our interviews, we tried to determine why people felt that the river was not polluted, and what content in the documentary could convince people and motivate them to change their views about water quality in the Drin.

Many of our interviews confirmed that people did not think of the Drin River as polluted. In Peshkopi, the Deputy Director of Public Health (D.Sh.P.) insisted that the river is very clean. He acknowledged that the tributary that runs through Peshkopi collects trash and other waste, but felt that it "cleans itself" before reaching the Drin River because it flows so quickly (personal communication, November 20, 2015). In Shkodër, it was suggested that our focus would be better placed on Lake Shkodër, which is visibly polluted in locations (Members of EKO Mendje, personal communication, November 13, 2015).

We learned that the public sees trash being dumped into the river, but the swift current carries this trash away from these pollution sources (B. Gjoçi, personal communication, November 19, 2015). The trash ends up further downstream, or stuck along the banks of the river (I. Hysa, personal communication, November 2, 2015). Regardless, for many the sentiment is "away from the eye, away from the heart," meaning that if people don't see the problem, they don't care about it (B. Gjoçi, personal communication, November 19, 2015).

Based on these sentiments, we sought to determine what documentary themes will motivate the audience to take action. We posed this question to each person and group that we interviewed, and learned what they thought was important to include in a documentary about the Drin. Through these interviews, several recurring themes arose, summarized in Table 4.3 and elaborated upon in the following paragraphs.

Theme	**Description**
Importance of the river as a resource and landmark	The river is essential to the livelihood and entertainment of those living along the river. In addition, it is a beautiful natural resource.
Pollution of the river and consequences	The ecosystem and natural state of the river has been harmed by industrial and domestic pollutants, and by the flooding of dams.
Improving the river	With the proper support, these problems can be addressed; the current habits of pollution can be changed.

Table 4.3: Suggested documentary themes

The first theme to establish in the documentary is the importance of the river, which will get the audience emotionally invested in the river. This pattern can be seen in other documentaries about pollution, such as *One for the River: The Vjosa Story* (2015) and *74 KM: Water is Life* (2015), which are discussed in more detail in Appendix B. When interviewing people, one of the first things we learned about was the beauty of the river (Figure 4.13). Hysa spoke about the clear dark-green water along his rafting trips (personal communication, November 2, 2015). Having never experienced the Drin River before, members of the YWP felt that the beauty of the river itself and of the surrounding natural areas was important to capture (personal communication, November 10, 2015). This theme will also incorporate the uses of the river, discussed in detail in Sections 4.3.2 through 4.3.4.

Figure 4.13: Lake Koman, on the northern Drin

The second theme to be brought up is the pollution of the river and its consequences. For people to be motivated to clean the Drin River, they need to believe that the problems with the river are real. This would include showing the dumping of trash, wastewater, and construction materials, which we learned about through our interviews, as well as showing some of the negative effects of flooding. In addition to this, Jake Farris, a Peace Corps volunteer in Peshkopi, pointed out that it was important to include the consequences of this pollution (personal communication, November 19, 2015). For example, if there is evidence of polluted water used for irrigation harming crops and thus affecting the food industry, that would be a powerful motivator to include in the documentary.

The final theme that arose from our interviews is the necessity for a message of hope. If the documentary were to end after showing the problems with the river, it would not be effective: presenting a problem without a potential solution is not motivating. Instead, the documentary should conclude by discussing what efforts are being made to improve the conditions of the Drin River, and what the audience can do on an individual level. The documentaries we reviewed followed this framework as well; they ended the documentary with what is being done, or what could be done, for their respective rivers (One for the River, 2015; 74 KM, 2015). Members of the YWP emphasized the importance of this final theme, to move the documentary from the previous negative theme of pollution to an inspiring conclusion (personal communication, November 10, 2015).

4.2.2 The Drin River in Everyday Life

The Drin River plays an important role in everyday life along the river. Our background research failed to capture this, as reports tended to be more focused on usage by various industries, rather than individuals. Nevertheless, as we heard from the owner of the Shkodër hostel, "water is life;" the people by the river rely on its water for many aspects of day-to-day life (personal communication, November 13, 2015). For nearby villages, the river is an important resource for washing clothes, animals, and is a means of transportation, as seen in Figure 4.14 (E. Markeçi, personal communication, November 19, 2015). It is also used in many places for garbage disposal, since the river carries the trash away (Ilir Hysa, personal communication, November 2, 2015). As one of our interviewees said, the common sentiment is "if it's outside of the house, it's somebody else's problem" (B. Gjoçi personal communication, November 19, 2015). However, this trash gets stuck along the banks of the river, leading to build-up in some places (Figure 4.15). Larger cities such as Peshkopi also drain sewage into the river (E. Markeçi, personal communication, November 19, 2015).

Figure 4.14: People transporting livestock on the Drin

The Drin River is not generally used as a source of drinking water. Many people will opt to use water from the tributary sources instead, because the water is much cleaner at its source, where it has not yet been exposed to any pollutants. In Peshkopi, water is limited because it needs to be brought down from the springs in the mountains each day. Efforts to bring water from the Drin River to the city instead have been unpopular due to the lower quality of the river water (J. Farris, personal communication, November 19, 2015).

Figure 4.15: Trash along the banks of the Drin River on Komani Lake

The Drin River also serves as a popular destination for swimming and other recreation, seen in Figure 4.16. In Peshkopi, we heard about the many beaches along the Black Drin in the area, which are visited by locals and tourists alike during the summer. The beaches downstream of tributaries such as Përroi i Llixhave (the stream running through Peshkopi) often have trash deposited, although this doesn't seem to decrease their popularity significantly (J. Farris, personal communication, November 19, 2015). In Shkodër, swimming was also brought up as a source of entertainment. However, since Shkodër is downstream from the Vau i Dejës dam, there are more concerns about the impacts of flooding on the beaches of the area. A member of EKO Mendje said that "because of the deviation of the river, beaches are lost" (personal communication, November 13, 2015). Flooding caused by the dams leads to erosion, causing beaches to wash away downstream with the river when the water rises (Members of EKO Mendje, personal communication, November 13, 2015).

Figure 4.16: Swimming in the Black Drin in Struga (Pudelek, 2014)

4.2.3 Industry Along the Drin River

We also learned more about the industry along the river previously discussed in Section 2.2. The Deputy Director of Public Health (D.Sh.P.) in Peshkopi mentioned that it supplies the irrigation for farms along its banks (personal communication, November 20, 2015). However, nobody that we talked to mentioned the mining industry along the river. This may be because mining tends to be in less populous areas, or that many of these mines are now abandoned. Regardless, it means that the runoff from these mines goes unnoticed, despite the evidence of their pollutants in our background research.

In cities, the river is also a resource to extract materials for construction. In Shkodër, a few construction companies dig up sand and gravel from the riverbed for use in concrete and other materials (Members of EKO Mendje, personal communication, November 13, 2015). However, if this process, called dredging, is not regulated properly, it can cause a number of problems to the river's ecosystem and topology. Dredging can release heavy metals and other toxic chemicals from under the river bed into the water. Furthermore, the holes left by removing material can persist for many years, depending upon the flow of the river. These holes tend to be low in oxygen content, making them uninhabitable for wildlife of the river (Darnell, 1976).

In addition, construction materials may be dumped into the river (Figure 4.17) as an alternative to paying for them to be hauled away (J. Farris, personal communication, November 19, 2015). For solid materials, this can cause problems similar to domestic dumping. The sediments from construction materials may significantly increase turbidity, leading to reduced oxygen content in the water (Darnell, 1976). As with any change to a river's chemistry, this can cause significant damage to the ecosystem.

Figure 4.17: Construction waste along the Përroi i Llixhave, a tributary of the Drin

In addition, our interviews reinforced our earlier research about the importance of hydropower dams along the river to the country as a source of electricity. However, these dams also changed the course of the river and caused flooding to the surrounding regions. The Drin River near Shkodër has been split in two directions by the Vau i Dejës dam, with one branch continuing on towards Shkodër and the other meandering southeast towards Central Albania (Members of EKO Mendje, personal communication, November 13, 2015). Featuring both the benefits and the consequences of hydroelectric dams in the documentary will help give the audience a balanced understanding of the dams.

Because of its natural beauty (Figure 4.18) and uses for recreation, the river also helps to bring tourism to nearby cities. In addition to swimming, there are several restaurants and bars along the river, which bring more people to its banks (I. Hysa, personal communication, November 2, 2015). The Deputy Director of the D.Sh.P. in Peshkopi feels that tourism is one of the key aspects of the river (personal communication, November 20, 2015). While tourism is much less relevant for rural areas, cities such as Peshkopi benefit from the industry.

Figure 4.18: The Drin River near Shkodër, a popular tourist destination

4.3 Collaborating with Drin River Stakeholders

One of the most important aspects of this project is to make it collaborative by involving groups throughout the region. Because of the size of the river's basin, addressing the river's problems will require active participation from groups along the length of the river. Getting these groups interested now can serve as a basis for future cooperation. As mentioned previously, our primary collaborators have been the Young Water Professionals of Albania. For the members of the YWP, this project bears both personal and professional significance. One member spoke of their personal responsibility "to take care about nature [and its resources] in order for the life to be continued and the ecosystem to continue its normal process" (A. Zeqillari, personal communication, December 11, 2015). Another referred to the project's relevance to the YWP as a professional organization, describing it as "an exceptional opportunity for horizontal exchange of experience" and "an occasion to familiarize with good practices as a channel for my personal development" (X. Lëngu, personal communication, December 11, 2015).

In addition, we spoke to several groups along the river, and found that they were interested in becoming involved in our project in some capacity. A list of the groups we talked to can be found in Table 4.4. EKO Mendje, an environmental organization based in Shkodër, focuses on many types of environmental issues. One key area of concern for it is water conservation, because Lake Shkodër and the Drin River are so important to the city. The organization has nearly 70 people involved in its work and would be interested in organizing an activity with the float when it arrived at Lake Shkodër. Members of EKO Mendje believe the project is important as it may bring more awareness to the river.

The organization also wants to connect with other environmental groups outside of Shkodër to broaden and publicize its mission and learn from these other groups. One of the founders of the organization told us that EKO Mendje has created several videos about the river and lake (Members of EKO Mendje, personal communication, November 13, 2015). The group's experience in this area could be valuable to the project, as the members could help capture video footage of the float and the river. We also spoke to the owner of the Mi Casa es tu Casa Hostel in Shkodër, Alma Bazhdari Naraci, who said she would be willing to serve as a contact for the float in Shkodër. She wants to help with the project because she believes that "Uji është jeta," (water is life) and supports the protection of water resources in Albania. (A. Naraci, personal communication, November 13, 2015).

Organization	**Location**	**Interest in Project**	**Contact**
Young Water Professionals of Albania	Various cities in Albania	• Organizing float • Taking part in the float and land party • Taking video footage • Conducting informal interviews and discussions	Arlinda Ibrahimllari *arlinda.ibrahimllari@gmail.com*
Young Water Professionals of Kosovo	Various cities in Kosovo	• Traveling down the White Drin, meeting the Albanian YWP in Kukës • Taking video footage	Rrezarta Bllaca Vehbi Duraku *Facebook*
EKO Mendje	Shkodër, Albania	• Organizing an activity with the float in Shkodër • Participating in on-camera interviews and discussions	Mirsad Basha *069-254-5500* *Facebook*
Mi Casa es tu Casa Hostel	Shkodër, Albania	• Source of lodging in Shkodër • Serve as a contact	Alma Bazhdari Naraci *hostelshkoder@gmail.com*
Peshkopi Backpacker Hostel	Peshkopi	• Source of lodging in Peshkopi • Participating in on-camera interviews and discussions	Ernesti Markeçi Besmir Gjoçi *068-277-6848*
Youth in Free Initiative	Kukës	• Meeting the float at Kukës or around Lake Fierza	Lavdrim Shehu *lavdrimshehu@yahoo.co.uk*

Table 4.4: Groups interested in participating in the project

The owners of the Peshkopi Backpacker Hostel want to help with the project because they would like to see the conditions of the Drin River and the tributary of the Drin that runs through Peshkopi improve. Improving water quality, they believe, could enhance business opportunities and help increase tourism to Peshkopi, and to Albania as a whole. They also said that they would be willing to take part in informal discussions about the river while on camera (E. Markeçi and B. Gjoçi, personal communication, November 19, 2015). Incorporating EKO Mendje and the owners of the Peshkopi Backpack Hostel into the project would give the float contacts in both Peshkopi and Shkodër.

To help make this a collaborative project, we recommend that the float meet with the owners of the hostel, Ernesti and Besi, in Peshkopi and members of EKO Mendje and Alma Bazhdari Naraci in Shkodër. Additionally, we recommend contacting Youth in Free Initiative who has done projects to help clean Lake Fierza, and could potentially meet with the float in Kukës. Figure 4.19 illustrates where the float would meet with each of these groups, as well as the YWP groups discussed below. Including the interactions of these different groups would help show that people throughout Albania want to protect and improve the condition of the Drin River.

Figure 4.19: Groups to meet with during the float

One source of international outreach in this project was the Balkans Joint Water Conference in Kosovo. We learned that at least two members of the YWP of Kosovo are interested in participating in the float. They believe that the water sector in the Balkans needs to work together and see our project as a step towards accomplishing this. One of the YWP members mentioned a personal motivation for

taking part in the project. He lives near the source of the White Drin in the Zhleb Mountains in Northwestern Kosovo. There, the water is pristine, but further downstream the river becomes polluted by trash and sewage dumped by villages along the river. He believes that educating people about the effects of disposing waste in the White Drin could help improve the conditions of the river. The YWP members that we spoke with also suggested that there are other members interested that they could contact. However, it was not clear how many people would ultimately be involved (Members of the Kosovo YWP, personal communication, November 5, 2015). This could be a difficulty if there are not enough members of the Kosovo YWP able to participate. Therefore, SHUKALB and the YWP of Albania will need to stay in contact with the Kosovo YWP as they prepare for the float, in order to confirm that they will be able participate.

To help make this a collaborative and hopefully transboundary project, we recommend incorporating members of the YWP as much as possible. We recommend that members of the Kosovo YWP float down part of the White Drin River, taking footage, and then meet the Albanian YWP float in Kukës (Figure 4.20). This would allow for the documentary to get footage from both the Black and White Drin Rivers. In addition to the Kosovo YWP, we also recommend contacting members of the YWP in Macedonia and Montenegro. Ideally, the Macedonia YWP could meet with the Albanian YWP at Lake Ohrid, which is shared by Albania and Macedonia, and the Montenegro YWP could meet with the float at Lake Shkodër, which is shared by Albania and Montenegro. A member of the YWP of Albania emphasized the importance of making the project a collaborative effort, saying that "this project could help in networking with other cities, since [the] Drini river [is] a river which passes in same cities, so we may collaborate for this project, and in conclusion this may serve even for networking and for the awareness of Drini river" (A. Zeqirllari, personal communication, December 11, 2015). Collaborating with the YWP from surrounding countries, as well as groups within Albania will help show that the Drin River is a connecting force, and that people throughout the Balkans are coming together to protect it.

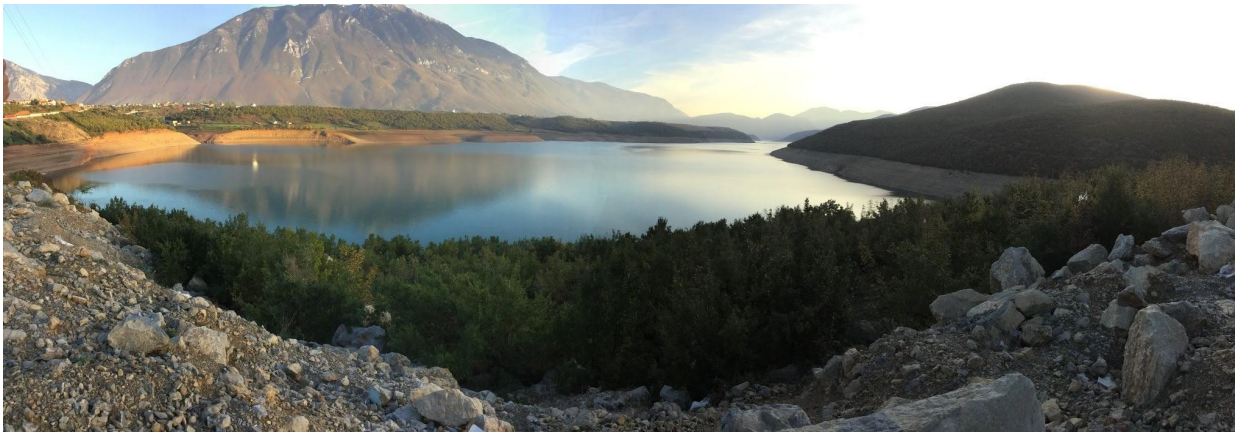


Figure 4.20: The White and Black Drin Rivers converging in Kukës

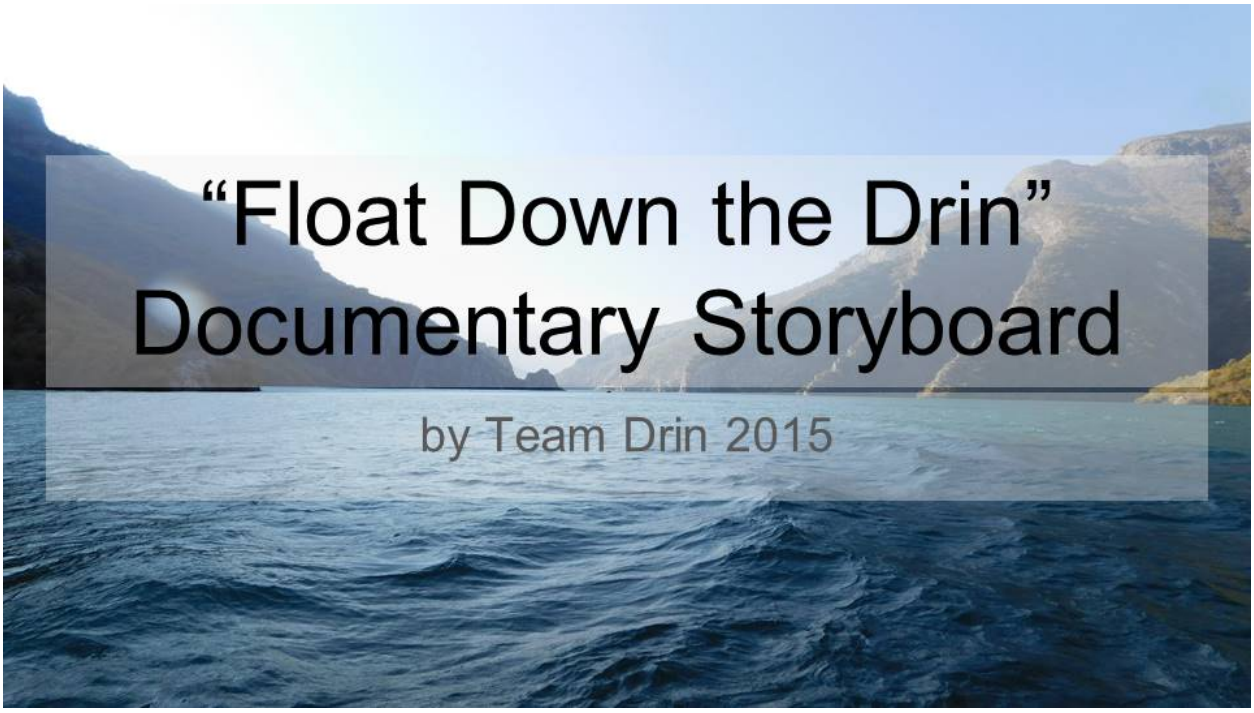
In addition to groups we spoke with who would like to take part in the project, we also researched large projects related to the Drin and other water sources in the Balkans. From this research, we created a list of organizations who could be contacted to learn about their work and possible sources of funding. We recommend that SHUKALB and the YWP contact some of these organizations, in order to establish sources of funding for the project. A summary of these groups can be found in Appendix J.

5. Conclusion

Over the course of our project, we heard many thoughts about the Drin River from people throughout Albania and in Kosovo. People spoke about the river in their everyday lives and the problems they see the river facing. In addition, we saw the river in its many forms, from the narrower areas of the Black Drin to the placid lakes behind the dams on the northern Drin. Despite their differences, all these perspectives are of the same river. The Drin River is a resource shared by the Balkan region, and the region must come together to share the responsibility as well.

The culmination of this project will be the production of a documentary about the Drin River. Based on the suggested themes and our observations, we have concluded that the primary theme for the documentary to focus on should be “connectedness.” The Drin River connects the people and wildlife that rely on it, although many people don't consider the river outside of their locale. The documentary can draw attention to this by including groups from all over the river. By comparing the collaboration that went into the float with the collaboration necessary to keep the Drin River healthy, the documentary can show that collaboration is both possible and beneficial. The project has the potential to not only improve the conditions of the Drin River, but also bring together the people of the Balkan region towards a common goal.

To help visualize our ideas for the story of the documentary, we compiled a simple storyboard that we will give to SHUKALB and the YWP. The storyboard outlines our vision for the overarching story of the documentary, using the footage and photos we collected from our trips to Kukës, Lake Koman, Peshkopi, Shkodër, and Lake Ohrid. It also identifies ideas for footage to take and provides topics for conversations to hold in different locations, along with the people who can be interviewed when the float arrives in their region. The storyboard, which is the final product of our background research, interviews, and on-site evaluations, is presented in the following pages.



Overall Story of the Documentary

- Focus on theme of "connectedness"
  - The Drin River connects all the people and animals who rely on it
  - Through bringing people together the conditions of the river can be improved
- Start by introducing the river and why it is important
  - Background information about the river (size of basin, length of river, history, etc)
  - Show the natural beauty of the river
  - Show the wildlife that rely on the river
  - Show how people use the river and why it is important to them (fishing, swimming, boating, etc)
- Show the problems the river has and why action needs to be taken
  - Pollution (trash, wastewater, heavy metals from mines)
  - Flooding (from hydropower dams, deforestation)
- Introduce and show the float as a step that is being taken to work together to protect the river
  - Show the different groups coming together, people's motivation behind the project
- End on a message of hope
  - Through working together to protect the river, the river has the potential to be even better

Natural Beauty

- Start off with the beauty of the river
- Wide panoramic views and videos

Photo from Koman Lake

Natural Beauty

- Look at the mountains around that the river runs through, the flow of the water, the landscape, the trees and plants

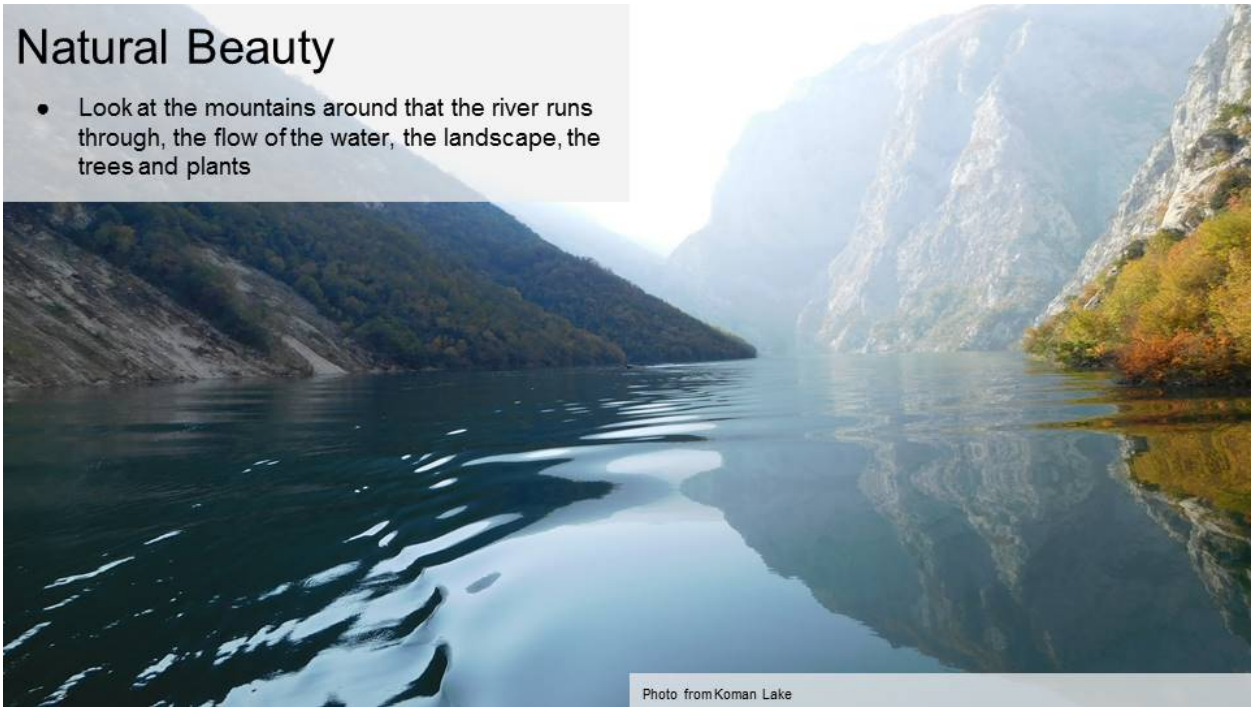


Photo from Koman Lake

The Drin River

- Start to give some background about the river
- Show a map of the land to show exactly where the river lies on the map. Use the map to actively "zoom in" on the river

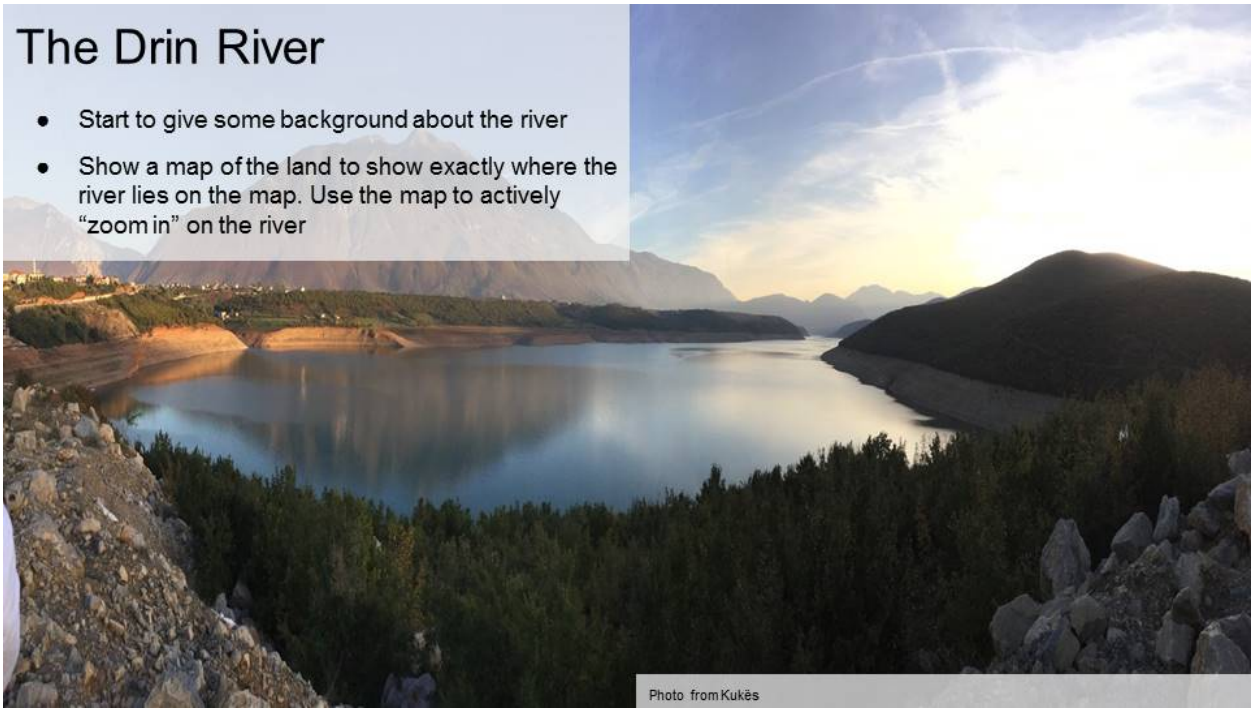


Photo from Kukës

The Drin River

Answer the questions:

- How big is it?
- Where is it? What Countries does it inclue
  - Where does it start and finish?
- What are some other "fun facts" about the river (how much electricity it generates, history...)

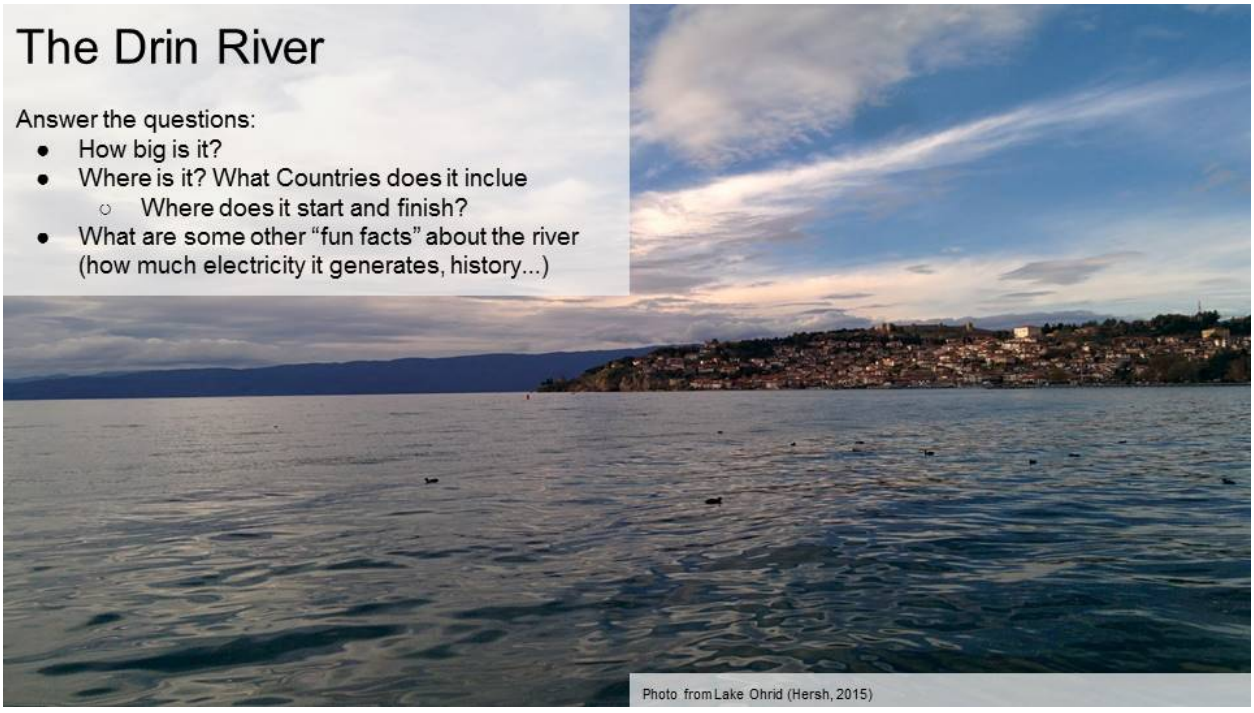


Photo from Lake Ohrid (Hersh, 2015)

Wildlife of the Drin River

- Show animals (wild and farm), fish, plants
- Look for Ohrid trout and dalmatian pelicans

Photo from Lake Koman

Wildlife of the Drin River

- Include shots of the landscape as well as close ups of animals (if possible)
- Brief information about the unique flora and fauna that rely on the river (Endemic species, number of species, endangered species)

Photo from Vau i Dejës

People Along the River

- Industry (fishing, construction, hydropower),
- Recreation (swimming, rafting/kayaking/boating, playing, washing)
- Show people traveling to the river during the summer to show that people from around the country use it
- The tourist attractions (restaurants and bars)

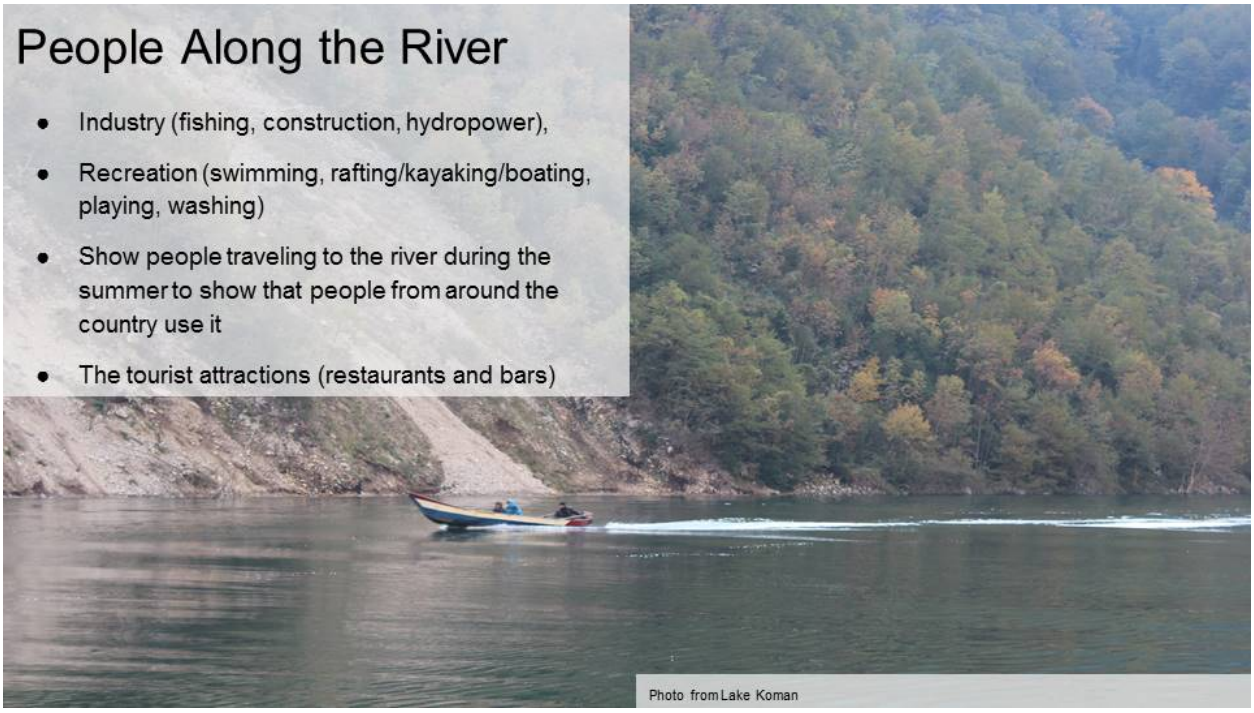


Photo from Lake Koman

People Along the River

- Start doing short interviews here or show conversations between people by the river

Photo from Lake Koman

People Along the River

- Fisheries,
- Fishing boats
- Boats as a means of transportation
- People carrying water to water plants or irrigation

Photo from Vau i Dejës

Pollution

- Start doing panoramic views of the trash
- Show where it lies along the river bed and is caught in the plants along the side of the river

Photo from Lake Koman (Ofsthun, 2015)

Pollution

- Do more zooming in
- Talk about some of the sources of pollution (sewage, garbage, construction, mining)

Photo from Kukës

Pollution

- Talk about consequences of this pollution (loss of species, habitat, risk of human illness from food, swimming, etc)

Photo from Peshkopi

Pollution

- Include conversations/interviews/discussions on why the river has become polluted.
- Could use this as voiceover on footage of pollution

Photo from Peshkopi

Flooding and Dams

- Footage of the hydropower dams,
- Flooding, release of water from the dams

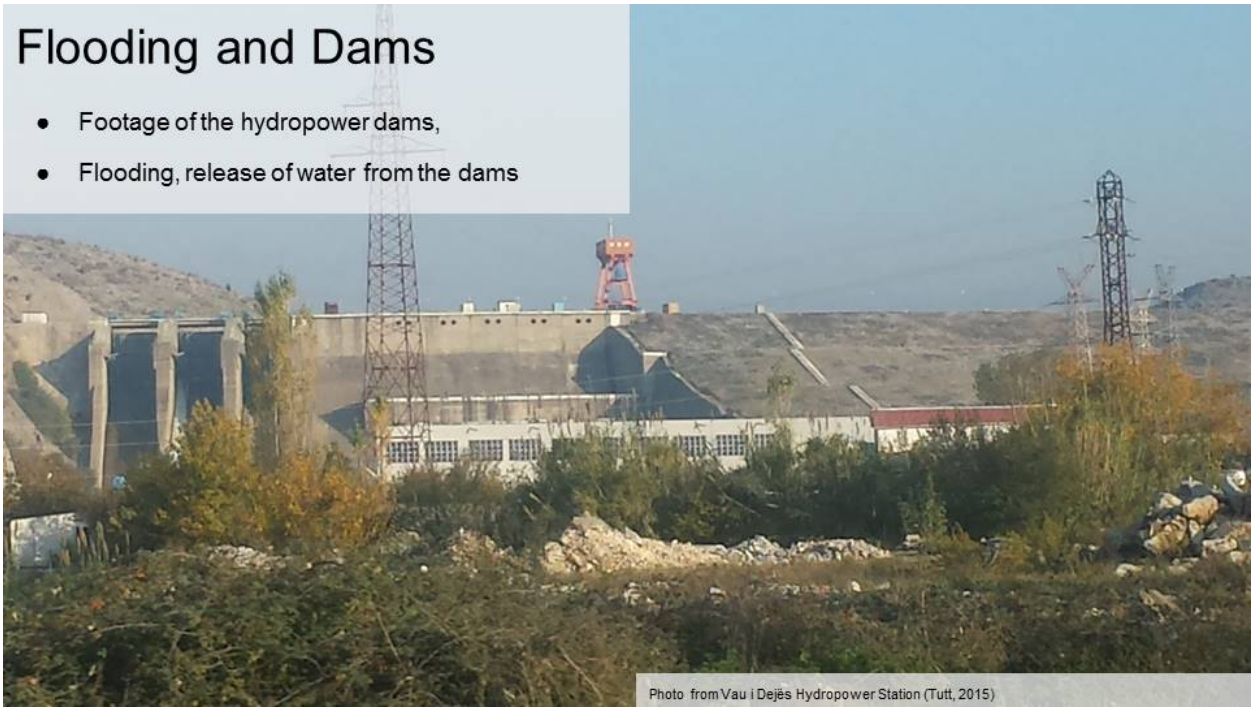


Photo from Vau i Dejës Hydropower Station (Tutt, 2015)

Flooding and Dams

- Explanation/discussion of why dams cause problems (flooding, erosion, block fish from migrating upstream to mate, etc)
  - Could include discussions with EKO Mendje group in Shkoder

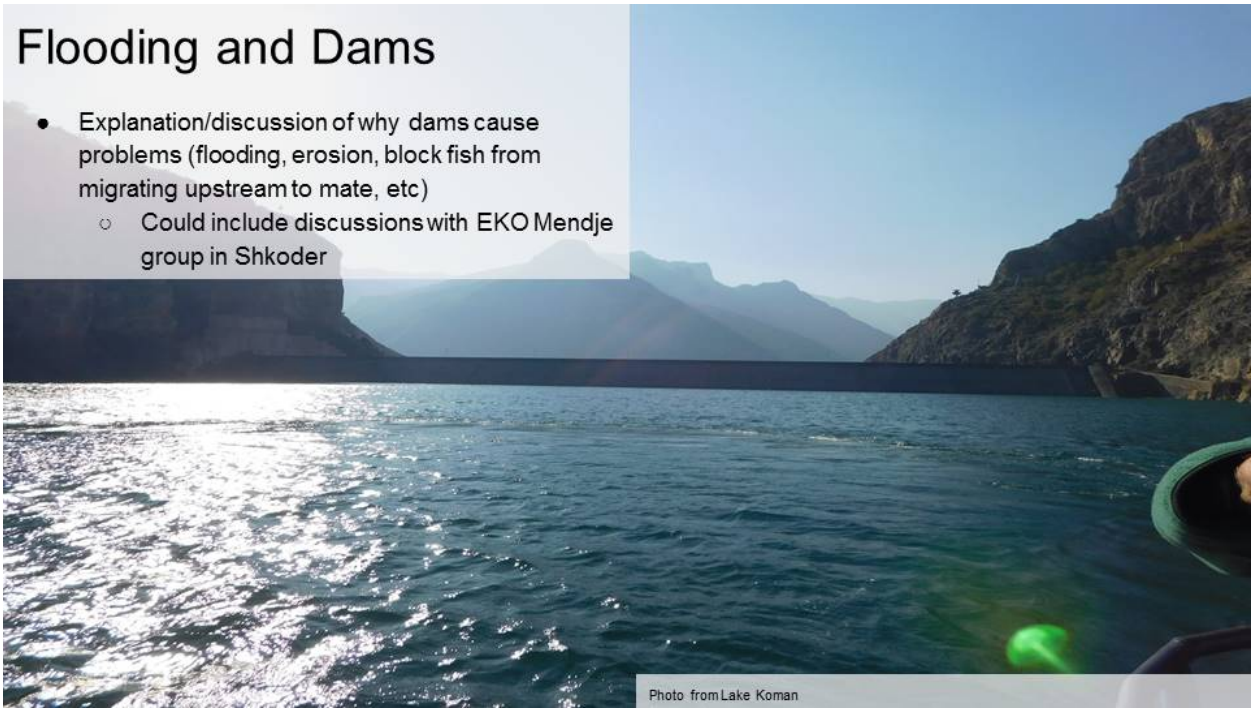


Photo from Lake Koman

What Can Be Done

- Shift away from negative message towards message of hope: people can work together to protect the river
- Include conversations about people's hopes for the river

Photo from Lake Fierza (Donti, 2015)

Introduce the Float

- Introduce the project and float as an step that is being taken to protect the river
- Include audio/video clips of who is participating in each part of the float, why they are participating, why they think the project is important

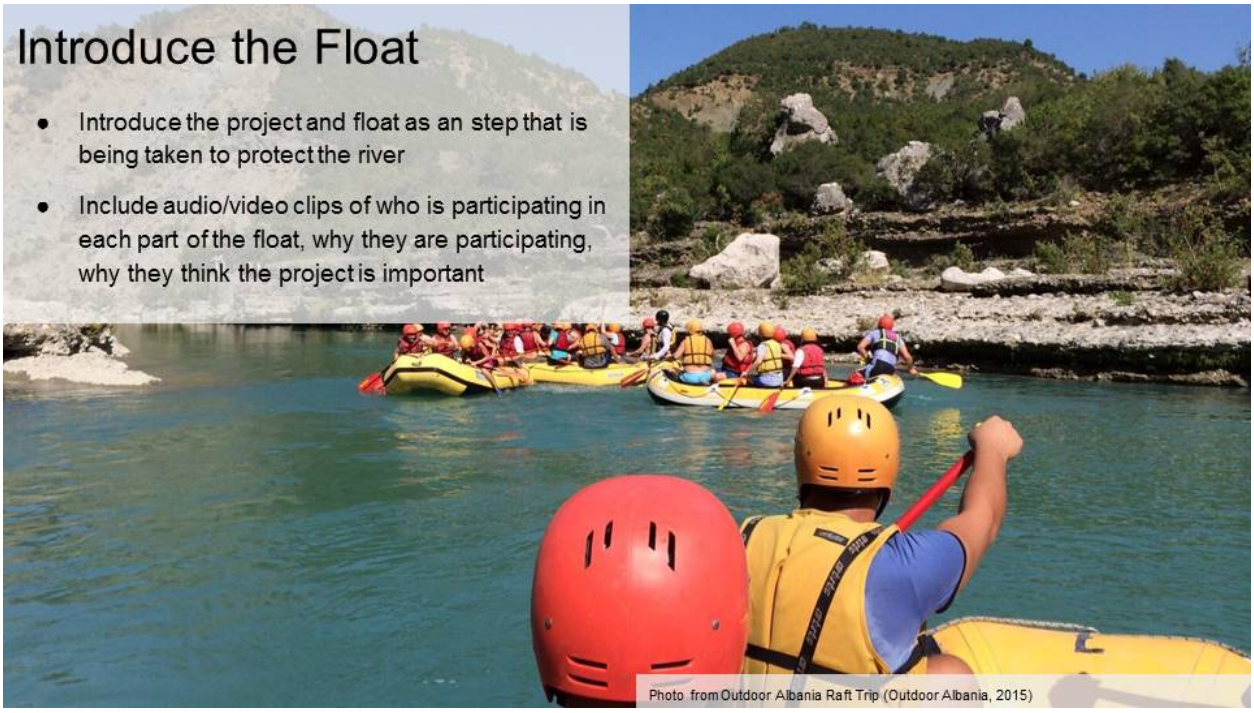


Photo from Outdoor Albania Raft Trip (Outdoor Albania, 2015)

The Journey

- Show footage of the float getting ready, people meeting each other, putting the boats in the water
- Show the float as it travels up the river (footage both from GoPros on the float and from cameras of the "land team")

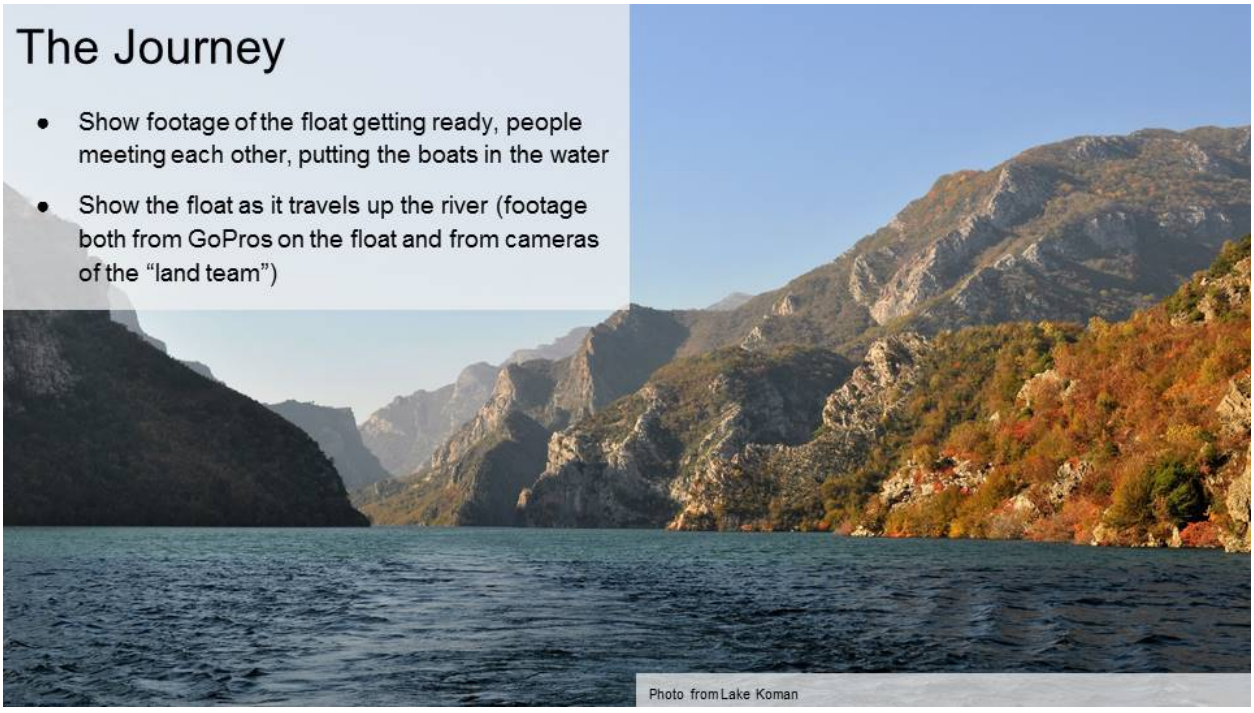


Photo from Lake Koman

The Journey

- Show some of what is experienced as they travel, such as seeing beautiful parts of the river as well as seeing trash or other problems
- Include conversation about this and people's reactions

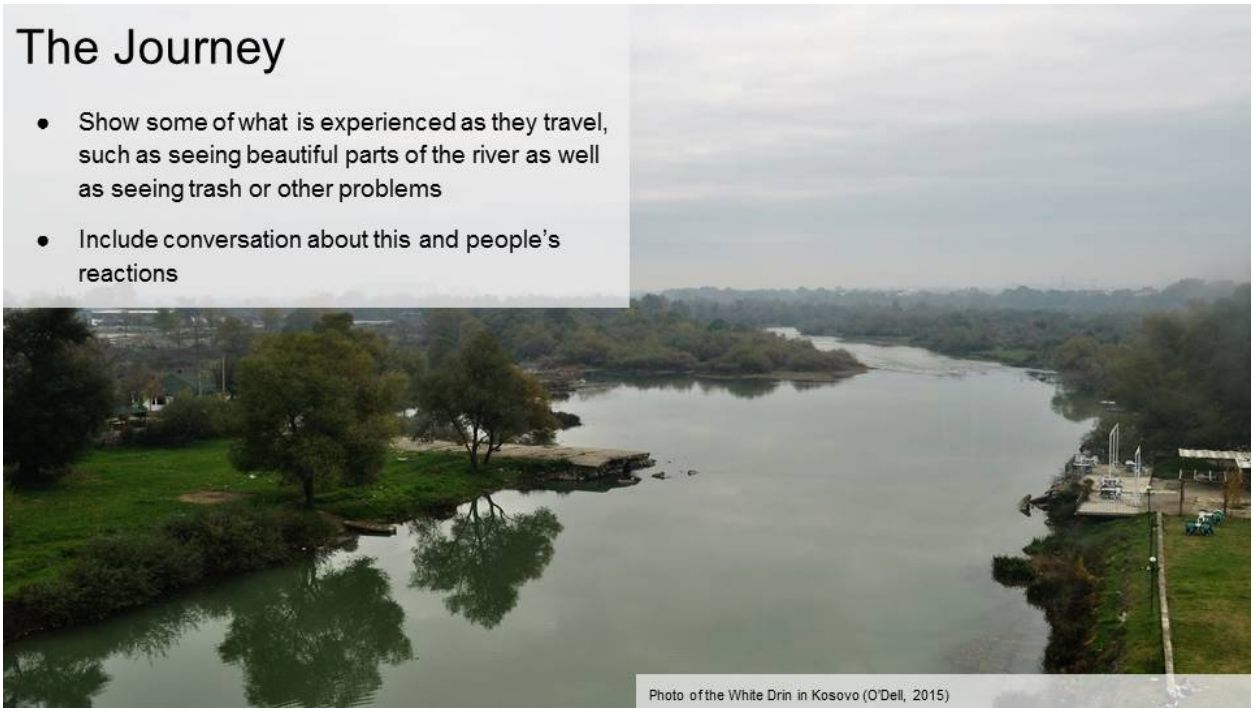


Photo of the White Drin in Kosovo (O'Dell, 2015)

Connecting People

- Show the interactions between all the different groups involved in the float (YWP from each country, Ernesti and Bessi, EKO Mendje)
- Emphasis on working together, Drin connects everybody

Photo from Peshkopi Backpacker Hostel

Conclusion of the Float

- Show the float arriving at the Adriatic Sea
- Include conversations of people's reflections from the float: how they felt, what they saw, what they got out of it, what they think needs to be done next
- Next Steps: the float is over but work to protect the river is just beginning

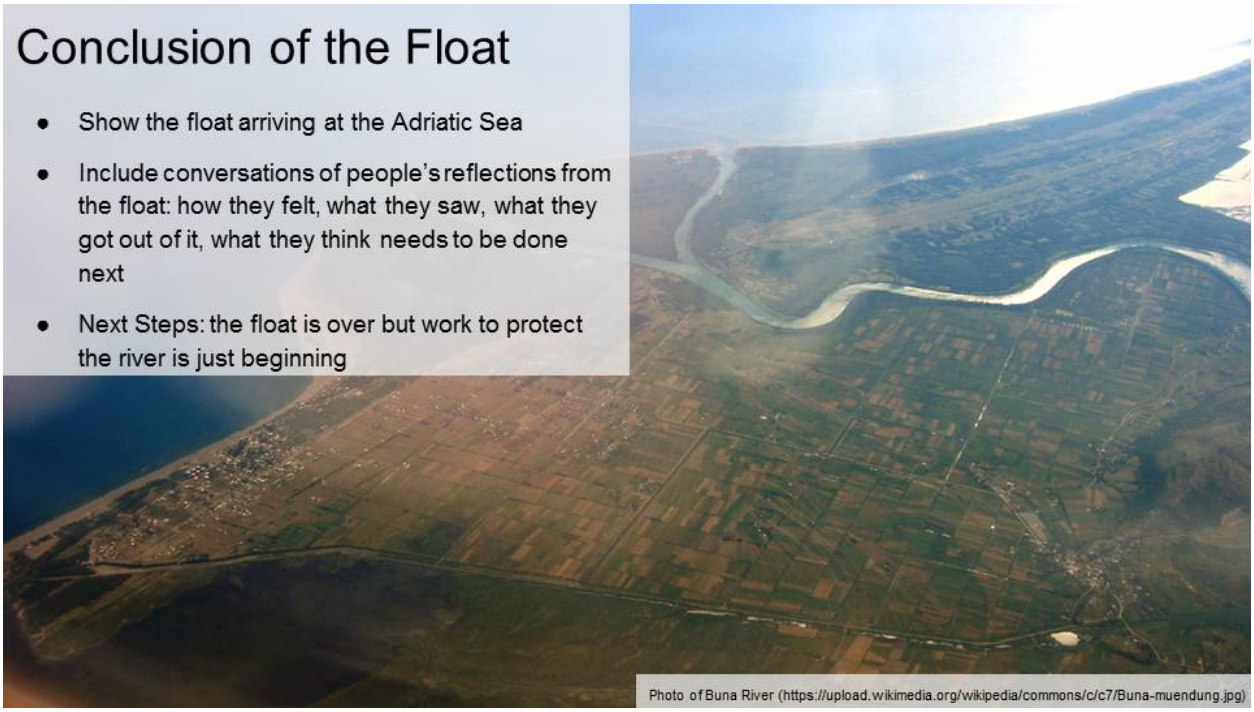


Photo of Buna River (https://upload.wikimedia.org/wikipedia/commons/c/c7/Buna-muendung.jpg)

Potential of the River

- What the river could be
- River can be protected if people work together (message of hope)
- Safer for recreation and irrigation, protects species and habitats
- Include footage of both people and animals using the river here, as well as images of the clean/beautiful parts of the river

(https://upload.wikimedia.org/wikipedia/commons/1/1e/Cuivre_River_SP_-_Lake_Lincoln_2005.jpg)

References

Act4Drin at a glance. (2014). Retrieved October 2, 2015, from http://act4drin.net/?page_id=724

Avramoski, O., et al. (2006). Lake Ohrid: Experience and Lessons Learned Brief. Retrieved October 2, 2015, from http://www.worldlakes.org/uploads/19_Lake_Ohrid_27February2006.pdf

Balkans Joint Conference. (2015). Retrieved Nov 9, 2015, from http://balkansjointconference.org/

Barnes, P. (Cartographer). *Botanical Localities in Albania*.

Basha, I. (2015). Interview with Mirsad Basha from Eko Mendje. In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Biodiversity - Albania. (n.d.). Retrieved September 10, 2015, from http://www.climateadaptation.eu/albania/biodiversity/

Bolling, D. M., & River Network. (1994). How to save a river : a handbook for citizen action. Washington, D.C.: Island Press.

Burdett, M. (2013). EBRD to fund dam safety project. *Energy in East Europe*,

Bushati, L. (2014). Microbial Water Pollution of Drin River in Scutary Area, Albania. *Albanian journal of agricultural sciences, 13*, 149-152.

Cave, C. (2013). The Ecology of Dams. Retrieved October 9, 2015, from http://chamisa.freeshell.org/dam.htm

Critical Ecosystem Partnership Fund. (2015). Retrieved Nov 30, 2015.

Darnell, R. M. (1976). *Impacts of Construction Activities in Wetlands of the United States.* Corvallis, OR: Corvallis Environmental Research Laboratory.

Dedej, Z. (n.d.). BIODIVERSITY IN ALBANIA. The Nature Protection Directory, 1-34. Retrieved September 10, 2015, from http://www.catsg.org/balkanlynx/05_wildlife-management/5_4_biodiversity/Pdfs/GIRDA_&_Dedej_-_Biodiversity_in_Albania.pdf

"The Drin Basin." - *TWRM-Med*. Transboundary Water Resource Management in Southeastern Europe, 2012. Web. 30 Aug. 2015.

Drin Core Group. (2011). *Drin Basin: A Situation Analysis.*: Global Water Partnership - Mediterranean.

The Drin Dialogue Consultation Meeting in Tirana: Moving towards a shared vision for the management of the extended Drin Basin. (2011). Retrieved from http://mio-ecsde.org/the-drin-dialogue-consultation-meeting-in-tirana-moving-towards-a-shared-vision-for-the-management-of-the-extended-drin-basin/

The Drin Travelogue. (2014). Retrieved Sep 6, 2015, from http://act4drin.net/?page_id=2

Expedition Rio Santiago. Retrieved 30 Aug 2015, 2015, from http://santiagoriver.com/.

Faloutsos, D. (2012). Drin Basin: A Situation Analysis: Global Water Partnership-Mediterranean.

Farris, J., Gj, B., & Markeci, E. (2015). Group Discussion at the Peshkopi Backpacker Hostel. In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Fishta, I., & Schmidt-Neke, M. (1997). Nationalism and national Myth: Skanderbeg and the twentieth century Albanian regimes. *The European Legacy, 2*(1), 1-7.

Giantris, P. (2015). Interview with Executive Director of SHUKALB. In D. Stomski, J. Wedell, N. Quintal & G. Solbeck (Eds.).

Giantris, P. (n.d.). *Seventh Framework Programme: SHUKALB.* Retrieved September 2, 2015, from http://www.noviwam.eu/pdf/SHUKALB.pdf

Global Water Partnership Mediterranean. (2012). Retrieved Nov 30, 2015

Grazhdani, D. (2015). Contingent Valuation of Residents' Attitudes and Willingness-to-Pay for Non-point Source Pollution Control: A Case Study in AL-Prespa, Southeastern Albania. *Environmental Management, 56*(1), 81-93.

Hall, D. R. (2000). Tourism as sustainable development? The Albanian experience of 'transition'. *The International Journal of Tourism Research, 2*(1), 31-46.

Hydroelectric Power Plants in Albania. *Power Plants Around the World.* Retrieved Sep 15, 2015, from http://www.industcards.com/hydro-albania.htm

Hysa, I. (2015). Interview with Ilir from Outdoor Albania. In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Interview with the Deputy Director of Public Health in Peshkopi. (2015). In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Interview with Urban Planning Specialist in Peshkopi. (2015). In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Jens Schmitt, O. (2008). Scanderbeg: an Uprising and its Leader. Retrieved Sep 2, 2015, from http://www.albanianhistory.net/texts21/AH2008_2.html

Johnson, D. W. (1917). Topography and Strategy in the War.

Libert, B. (2012). UNECE supports international cooperation on Drin River Basin to prevent floods and protect waters: UNECE.

Macedonian Ecological Society. (2013). Retrieved Nov 30, 2015

Mediterranean Information Office for Environment, Culture and Sustainable Development. [MIO - ECSDE]. (2015, April 15). *Echoes from the Drin - Part I, II, and III* [Video files]. Retrieved Oct 3,

2015, from http://www.youtube.com/watch?v=ouU-aQ3wk6Q, http://www.youtube.com/watch?v=z-2HA3n2BvE, and http://www.youtube.com/watch?v=EbjweXGMuGY

Members, E. M. (2015). Interview with members of EKO Mendje. In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Naboli, E. (2014). Guardians of Lake Skadar Turn Blind Eye to Illegal Fishing. Retrieved Oct 2, 2015, from http://www.balkaninsight.com/en/article/guardians-of-lake-skadar-turn-blind-eye-to-illegal-fishing

One for the River: The Vjosa Story (2015). In Leeway Collective (Producer).

Opperman, J. (2015). Why Rivers Flood - and How to Reduce Risk. Retrieved Nov 16, 2015

Ottoman Conquest, 1478. Albania: Onufri Publishing House.

Overton, T. W. (2014). Top Plant: Ashta Hydropower Plant, Shkoder, Albania. *Power.*

Peacock, W. (1914). *Albania, the foundling state of Europe*. London: Chapman and Hall.

Pojani, D. (2009). Urbanization of Post-communist Albania: Economic, Social, and Environmental Challenges. *Journal of Contemporary Central and Eastern Europe, 17*(1).

Rugg, D. S. (1994). Communist Legacies in the Albanian Landscape. *Geographical Review, 84*(1), 59-73.

74km - Water is Life (2015). In OSCE (Producer).

SHUKALB: Water Supply and Sewerage Association of Albania. (2015). Retrieved 01 September 2015, 2015

SHUK ALB (March 3, 2014). *Shoqata Ujesjelles Kanalizime Shqiperise 10 Vjetori* [Video file]. Retrieved from https://www.youtube.com/watch?v=wcc4xpZ_1gs

Skoulikidis, N. T. (2009). The environmental state of rivers in the Balkans—A review within the DPSIR framework. *Science of The Total Environment, 407*(8), 2501-2516.

Tockner, K., Uehlinger, U., & Robinson, C. T. (2009). Rivers of Europe

UNECE Mission. (2015). Retrieved Nov 30, 2015

Unknown. (2013). UNECE supports first Meeting of the Parties to Drin River Basin treaty: UNECE.

USAID: Where We Work: Albania. (2015). Retrieved Nov 30, 2015

van Welden, A., Beck, C., Reyss, J.-L., Bushati, S., Koci, R., Jouanne, F., et al. (2008). The last 500 year of sedimentation in Shkodra Lake (Albania/Montenegro): paleoenvironmental evolution and potential for paleoseismicity studies. *Journal of Paleolimnology, 40*(2), 619-633.

Vlachogianni, T., & Vogrin, M. (2012). Drin River Basin: The Blue Heart of the Balkans. Retrieved Sep 2, 2015, from http://mio-ecsde.org/wp-content/uploads/2012/12/drin-river-basin_brochure_02.pdf

Water Resources Managements in South Eastern Europe: Country Water Notes and Water Fact Sheets. (2003). Washington DC: The World Bank.

Young Water Professionals. (2015). Interview with members of the YWP. In N. Quintal, G. Solbeck, D. Stomski & J. Wedell (Eds.).

Appendix A: The Water Supply and Sewerage Association of Albania

The Water Supply and Sewerage Association of Albania (SHUKALB) was founded in the spring of 2000 by eight representatives from different water supply and sewerage enterprises in Albania. These founders came together with a common goal to improve the management of the sewerage sector and also the water supply throughout Albania and thus further enhance the lives of its citizens. Originally SHUKALB faced a lot of challenges including connecting with the government. Philip Giantris, one of the original founders, talks about the improvement of the company, saying,

> *... we started to invite Government officials to come and talk with us, but they did not because they did not know who we were. Today, as you know, we host conferences in the center of Tirana, and we have Prime Ministers, and Presidents who speak with us. We have grown and we have gained respect, because we have worked based on the Albanian legislation to develop the sector (SHUK ALB).*

In the fifteen years that SHUKALB has worked to improve Albania, they have made incredible strides in reaching their goals of creating a better water system for the country.

SHUKALB is a non-profit organization, which consists of individual, corporate, and institutional members across Albania who have an interest in the advancement of the Water and Sewerage Sector. SHUKALB has put forth the following mission objectives, in accordance with its goal to improve the water sector's efficiency, sustainability, and effectiveness:

- To advocate the collective interests of professionals in the water sector in Albania.
- To serve as a leading resource for knowledge, professional development and networking.
- To invest time and resources to build awareness and attract future generations to seek a career in the water sector.
- To be a positive force for mutual understanding, collaboration and regional partnerships in the Western Balkans (SHUKALB).

SHUKALB's members make up a General Assembly, which is governed by the Board of Directors. The Board is elected from the General Assembly, by the General Assembly, every three years. The Board of Directors consists of members from the various categories of the Assembly, split into the following categories:

- Two Utility Directors from each of four defined regions of the country (for a total of eight utility directors)
- One representative from the Private Sector members
- One representative from the Public Institution members
- One representative from the Individual members

The Chairperson of the Young Water Professionals of Albania is also included in the Board of Directors. (SHUKALB)

Members make up an important part of the association, and SHUKALB works to encourage a diverse membership, including options for students, corporations, public institutions, and individual professionals who are interested in advancing the water and sewerage sector in Albania. Members who pay annual dues are part of the Association's General Assembly, and can be elected to the Board of Directors. They also receive benefits such as reduced rates for training courses and participation in activities organized by SHUKALB, as well as additional benefits listed in Table 1 (SHUKALB).

	Individual		Public Institutions	Companies	
	Individual Professionals	Students	Institutions	Water Utilities	Private Companies
Events & Networking					
1. Annual Conference and Exhibition	X	X	X	X	X
2. Young Water Professionals Group*	X	X	X	X	X
3. Western Balkans Water Associations Partnership				X	
Capacity Building & Career					
1. Workshops and Training Courses	X	X	X	X	X
2. Study tours in and outside Albania	X	X	X	X	X
3. Summer Internship Program		X			
Advocacy & Expertise					
1. "Watchdog" to follow initiatives affecting the water sector	X	X		X	X
2. United voice promoting policies, legislation and regulations to support good water utility practices				X	X
3. Water and Sewerage Expertise			X	X	X
Publications & Documents					
1. Burimi Quarterly Newsletter	X	X	X	X	X
2. Publications on Water and Wastewater	X	X	X	X	X

* Individuals under 35 years old

Figure A.1: Benefits for Members of SHUKALB (SHUKALB)

Funding for SHUKALB comes largely from the project grants that it pursues. Other sources of funding include members' dues and other donations. SHUKALB uses grants to pursue a variety of projects related to improving the water and sewerage sector in Albania, such as encouraging policy dialogues and capacity development in the Danube region, optimizing management of water supply systems in the IPA Adriatic region, and establishing a national training and certification program in

Albania (SHUKALB). SHUKALB uses the funding it receives from donors and members to run several programs and activities. These programs include educational programs for 3rd graders and 8th graders, a science fair program for high school students, and an internship program for university students. It also organizes annual activities for the National Water Week of Albania the first week of November and World Water Day on March 22 (Giantris, n.d.).

SHUKALB also works closely with a partner group: the Young Water Professionals (YWP). The YWP program is based through the International Water Association as a way for water professionals, either finishing school or starting their careers, to network. The YWP program also allows these professionals to "follow their interests and experiences" as a way of pursuing their careers. The program was started in Albania due largely to SHUKALB's encouragement in their push for the success of the water sector in the country. The group was created in 2010 after the Regional YWP Conference in Serbia. The Albanian YWP group then considered the need of support and sharing of experience, and decided upon signing a formal cooperation agreement the YWP group of Austria. They went on to sign a Memorandum of Understanding "to establish a collaborative arrangement between the two groups to achieve some stated topics." As part of the Albanian YWP's mission statement, the young professionals are encouraged to become involved with SHUKALB and work in an environment where they can network and share their ideas (Young Water Professionals). People can join the YWP as long as they either have a career in the water supply and sewerage field and are under 35 years of age, or are a student pursuing a degree in a subject-related field. In addition to working with SHUKALB, we will also be cooperating closely with the YWP over the course of our project (SHUKALB).

Appendix B: Similar Projects

The Grand River Expedition

A project called the "Grand River Expedition '90" relates to the goals and scope of our project; it is a large-group river float aiming to raise public awareness of Michigan's Grand River environmental issues. The float, organized by experienced travellers Verlin and Valerie Kruger, travelled down the river in 1990. The Krugers' goal was to raise the general population's familiarity with the river's pollution problems. The event was successful, gathering 125 people in 55 canoes over the course of the journey. In addition to the journey itself, the Grand River Expedition included scheduled trash collection and water quality surveys along the way. The expedition also reached out to the community, creating educational displays and interviewing local residents for oral histories of the river (Bolling, 1994). In addition to their impact in 1990, the Grand River Expedition has seen two reunion floats, in 2000 and 2010.

The Rio Santiago

In Mexico, there is an ongoing documentary project about the heavily polluted Rio Grande de Santiago, also known as the Rio Santiago. In 2014, a six-person team made the 300-mile journey down the entire length of the river. The team consisted primarily of river guides who were well-equipped to deal with the challenges of navigating the Rio Santiago. Along the way, the team interviewed local residents and other stakeholders in the river. However, unlike the Grand River Expedition, the Rio Santiago project did not organize the float as a publicity event itself; instead, the project aims to garner public awareness primarily through the documentary of their experiences on the river. This documentary, *From Delta to Deadwater*, is still in development, and will be shown at film festivals within the next year. (Expedition Rio Santiago, 2015)

Documentaries about the Rivers Vjosa and Ishem

Two recently released documentaries pertaining to river management in Albania are *One for the River: The Vjosa Story* (Vjosa River) and *74 km - Water is Life* (Ishem River). These documentaries show the conditions of the rivers, highlighting points of concerns along each river that are impacted by pollution. We drew from the techniques of these documentaries to outline the documentary to be produced from our project.

One for the River was produced by Leeway Collective, and follows several kayakers down the Vjosa River in Southern Albania. The film uses footage from GoPro cameras on the kayaks, as well as other cameras on land. It features a single narrator throughout, without any interviews or other people speaking. The film showcases the natural beauty of the river, and illustrates the impact of hydropower dams and industrial plants upon the river (One for the River, 2015).

74 km - Water is Life was sponsored by the Organization for Security and Cooperation in Europe (OSCE) and produced by Tirana Express. It examines the pollution of the Ishem River through interviews with locals along the river. The documentary is split into several different sections with titles to separate them. Unlike *One for the River*, this documentary does not have a narrator - it relies on the interviews and imagery to convey its message (74 Km - Water is Life, 2015).

Appendix C: History of the Drin River

The Drin River has played an important role in the history of Albania. In particular, the Albanian national hero Skanderbeg, who led many battles against Ottoman rule in the 1400's, has become a mythological legend in Albanian lore (Fishta & Schmidt, 1997). One of his most famous battles took place during the Albanian-Venetian War of 1447 where Skanderbeg crossed the Drin River to meet a much larger Venetian force, and was then able to defeat them (Schmitt, 2008). A 1914 account of the Drin River claims that the Drin actually flows past the castle of Skanderbeg's father (Peacock, 1914). The river was also considered a safety feature; a deep gorge in the river was considered virtually impossible for an attacking army to cross. When the Serbian army crossed it in 1912 during the First Balkan War it was considered a great military feat (Johnson, 1917). The Drin was also considered "essential to war strategy" by the ancient Illyrians, when the Drin served as a border between tribes (Peshkopi Urban Planning Specialist, personal communication, November 20, 2015).

Figure C.1: The Mes Bridge (http://argophilia.com/albania/mes-bridge.html)

The Drin was also significant to the Romans; several ancient Roman roads ran alongside the Drin River, following it south along the Black Drin. The roads reached all the way to the edge of Lake Ohrid where they joined the Via Egnatia, a famous Roman road (Johnson, 1917). The Ottoman Empire also found the river important for the trade of agricultural goods. In the 18th century, it created the famous Mes Bridge (shown in Figure C.1), which is one of the longest Ottoman bridges built, stretching over the Drin River and the Kir River (Peacock, 1912).

Appendix D: Interview Questions for Ilir Hysa from Outdoor Albania

1. Can you tell us a little more about yourself and what you do with Outdoor Albania?
2. What type of tours does Outdoor offer of the Drin River? How well do you know the river?
3. Do you think it is possible to do a canoe or raft float down the entire Black Drin and Drin Rivers?
4. Would Outdoor Albania be able to provide a river guide for a project like this?
5. What would the cost be for such a float?
6. Are there any parts of the river you find particularly dangerous? What obstacles should we be aware of?
7. Do you have any maps of the river that show obstacles/rapids/low water?
8. Is the river more dangerous at certain times of year?
9. Are there places on the river that can't be accessed by road?
10. Are there any parts of the river that you would particularly recommend visiting? Why?
11. What do people enjoy most when they are on the Drin River?
12. Are there any areas of the river that you have noticed are polluted or damaged by flooding?
13. Have you observed any effects of pollution or flooding on the wildlife or people who live along the river?
14. What safety precautions do you take for tours of the Drin River? Do you offer safety training?
15. Would you be interested in being involved in the safety training for this project?
16. If not, do you have recommendations for other groups that could provide training?
17. What types of groups do you typically take on the Drin River? What is the maximum number of people you would bring at one time?
18. What types of vessels do you typically use (canoes, kayaks, raft)? What skill level is required for these vessels?
19. How many people can fit in each vessel?
20. What types of materials/equipment are needed?
21. Would you be able to work with us to develop a route and itinerary for the float?

Appendix E: Interview Questions for Albanians Living along the Drin River

1. Would you be interested in a documentary about conserving the Drin River? Why or why not?
    a. What story do you think a documentary about the Drin River should tell? What topics or themes would you include?
2. How do you use the river for work or recreation?
3. Do you have any important personal experiences with the river? What role does the river play in your city/village?
4. How frequently do you use the river?
5. Do you feel that the pollution of the Drin River affects your life in any way? Have you observed any effects of flooding of the river?
6. Are there any locations along the river that are particularly important to you?
7. What do you fish for on the river? How has fishing changed?

Appendix F: Interview Questions for the Young Water Professionals

1. Can you tell us more about your work and what you do with the YWP? Does any of your work relate to the Drin River?
2. Who do you think that the best audience to target is for the documentary?
3. What story do you think the documentary should tell? What topics or themes would you want to see included in it?
4. What awareness efforts related to environmentalism or water conservation have you worked on in the past? What was successful and what could have been done better?
5. Have you worked with YWP from other countries? What are your relationships with them like? Were any challenges involved in projects you've completed with them or outside groups?
6. What are what your motivations behind joining this project? Why do think the project is important?
7. Who/how many of you are interested in being on the float? Who is interested in the land team?
    a. Have any of you taken a water safety course?
    b. Do any of you have skills in canoeing?
    c. Do any of you have skills in swimming?

Appendix G: Observations at Sites Along the Drin River

1. Take pictures of the surrounding area (panorama style)
    a. Be sure to include: towns and roads, images of the river, any obvious obstacles, any interesting features, wildlife
2. How do the people here interact/use the river? Include examples and/or photographs.
3. How deep is the river here? Can you measure it if it seems shallow?
4. How wide is the river here? Can the float fit?
5. How fast is the water moving? Is it rapids or relatively slow?
6. What is the distance from the town to the river? Can you access this easily? Take a picture.
7. Are there places where people on the float could stay? List possibilities if applicable.
8. How big is the town? Roughly how many people?
9. Do we know anyone here? YWP?
10. Are there people who are willing to do interviews? Include their contact information if possible.
11. What kind of town is it? Are there industries here (fishing, hydropower, mining, agriculture etc.)?

Appendix H: Interview Questions for Environmental Groups

1. Can you tell us more about your organization? How does your organization's work pertain to the Drin River?
2. Why is the Drin River important to people? How is it used? Do you have any personal connection to the river?
3. Have you observed the pollution of the Drin River? What are some of the main sources of pollution?
    a. Have you observed any effects of the flooding of the Drin River?
4. What projects have you done related to the Drin or other water sources in Albania?
    a. What challenges did you experience during these projects? How did you handle these challenges?
5. What aspects of the Drin do you think would be important to include in the documentary?
6. What story do you think a documentary about the Drin River should tell?
7. Have any of your projects worked with people or groups from other countries? Can you describe some of your experiences working with them?
8. Would your organization be interested in being involved in our project?
9. How do you think raising awareness of the river can improve the conditions?
    a. What do you think some of the obstacles to improving the conditions of the river are?

Appendix I: Interview Questions for City or Government Officials

1. Can you tell us more about what you do for the government?
    a. Does your work deal with the Drin River or other bodies of the water in the area?
2. Why is the Drin River important to people? How is it used? Do you have any personal connection to the river?
3. Have you observed the pollution of the Drin River? What are some of the main sources of pollution?
    a. Have you observed any effects of the flooding of the Drin River?
4. Do you know of any work being done to improve the condition of the river?
    a. Does the government have any systems in place to help protect the river?
5. What do you think some of the obstacles to improving the conditions of the river are?
6. What aspects of the Drin do you think would be important to include in the documentary?
7. What story do you think a documentary about the Drin River should tell?

Appendix J: Poster for Balkans Joint Water Conference

FLOAT DOWN THE DRIN

SHUKALB WPI

THE TEAM

This project is a collaboration between the Young Water Professionals of Albania and a team of four third-year students from Worcester Polytechnic Institute in the United States: Nicole Quintal, Gareth Solbeck, Daniel Stomski, and Jessica Wedell. The project is sponsored by SHUKALB. The Drin project team can be contacted at a15drin@wpi.edu.

THE DRIN RIVER

The Drin River flows from Lake Prespa along the Black Drin and from Zhleb Mountain along the White Drin. They meet in the city of Kukës, where they form the Drin, which flows west to the Adriatic Sea. The Drin River Basin encompasses Albania, Greece, Kosovo, Macedonia, and Montenegro, and is home to over 30 endemic species of wildlife.

The Drin River is an important resource that is used for hydroelectric power, as well as for fishing, irrigation, and recreation. However, the river has become increasingly polluted due to inadequate wastewater treatment, agricultural runoff, and effluent from mining activity. Additionally, hydroelectric powerplants have caused increased flooding and erosion, which weakens the soil quality around the river and pulls more contaminates into the river. This project aims to raise awareness about these issues and inspire action to improve the condition of the river.

GOALS

The goal of this project is to increase awareness about the Drin River as a natural resource as well as the current conditions of the river. This project also aims to promote water advocacy through transboundary cooperation in water sector organizations across the Balkans.

OUR PROJECT

The project will take place over two years. Multiple teams will work on the project, divided up as follows:

- Fall 2015 (WPI Team 1): Plan the route and logistics of a canoe float down the length of the Drin River
- Spring 2016 (YWP): Float down the river. Collect film footage of the river, and conduct interviews with people along the river
- Fall 2016 (WPI Team 2): Produce the documentary using footage of the river and interviews

LUNDRIMI PERGJATE DRINIT

SHUKALB WPI

EKIPI I PROJEKTIT

Ky projekt eshte nje bashkepunim ndermjet Profesionisteve te Rinj te Ujit te Shqiperise dhe nje grupi prej kater studenteve te vitit te trete nga Instituti Politeknik i Worcester-it ne Shtetet e Bashkuara: Nicole Quintal, Gareth Solbeck, Daniel Stomski, dhe Jessica Wedell. Ky projekt eshte sponsorizuar nga SHUKALB. Ekipi i projektit te Drinit mund te kontaktohet nepermjet a15drin@wpi.edu.

LUMI DRIN

Lumi Drin rrjedh nga Drini i Zi, i cili buron nga Liqeni Prespes si dhe nga Drini i Bardhe, i cili buron nga Mali Zhleb. Ata takohen ne qytetin e Kukes-it, aty ku formojne Drinin, i cili vazhdon rrjedhjen ne perendim drejt Detit Adriatik. Baseni i Lumit Drin perfshin Shqiperine, Greqine, Kosoven, Maqedonine, Malin e Zi, dhe eshte shtepi e mbi 30 llojeve endemike te kafsheve te egra.

Lumi Drin eshte nje aset i rendesishem i perdorur per energji hidroelektrike, si dhe per peshkim, ujitje, dhe rekreacion. Gjithsesi, lumi eshte bere gjithnje e me shume i ndotur prej trajtimit te pamjaftueshem te ujerave te zeza, derdhjeve te mbetjeve agrikulturore, dhe prej derdhjeve nga aktiviteti minerar. Pervec kesaj, hidrocentralet kane shkaktuar rritjen e permbytjeve dhe erozionit, i cili dobeson cilesine e tokes perreth lumit dhe thith me shume ndotesa ne lume. Ky projekt ka per qellim te rrisi ndergjegjesimin per keto ceshtje dhe te frymezoje veprime per te permiresuar gjendjen e lumit.

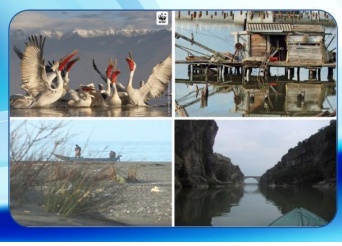
QELLIMI

Qellimi i ketij projekti eshte te rrisi ndergjegjesimin per Lumin Drin si nje burim natyror si dhe per gjendjen aktuale te lumit. Ky projekt gjithashtu ka per qellim te promovoje advokimin e ujit nepermjet bashkepunimit nderkufitar ne organizatat e sektorit te ujit anembane Ballkanit.

PROJEKTI YNE

Projekti do te zhvillohet gjate dy viteve. Grupe te shumefishta do te punojne mbi kete projekt, te ndara si me poshte:

- Vjeshte 2015 (Grupi 1 i WPI): Planifikim i rruges dhe logjistiken e nje lundrimi me kanoe pergjate Lumit Drin.
- Pranvere 2015 (PRU): Lundrim pergjate lumit. Mbledhje e pamjeve filmike te lumit dhe intervista me njerez pergjate lumit.
- Vjeshte 2016 (Grupi 2 i WPI): Prodhimi i dokumentarit duke perdorur pamjet e lumit dhe intervistat.



Appendix K: Organizations to Contact Regarding the Project

Organization	Description	Projects	Contacts
Mediterranean Information Office for Environment, Culture and Sustainable Development	Non-profit federation of more than 128 Mediterranean NGOs working on environment and development. Brings together different NGOs, as well as funding sources (Act4Drin, 2014).	Main stakeholder in Act4Drin project	**Prof. Michael Scoullos Chairman** e-mail: scoullos@mio-ecsde.org
Organization for Security and Cooperation in Europe	Organization with 57 member countries, aiming to improve security in its politico-military, economic, environmental, and human facets. Funded by contributions from the participating countries (OSCE, 2015).	74 km-Water is Life, Documentary about River Ishem	**Joana Karapataqi** Office: +355 4 223 5993 ext. 232 Fax: +355 4 224 4204 Joana.Karapataqi@osce.org
Global Water Partnership-Mediterranean	Network of water resource management groups and interests in the Mediterranean region, working towards the sustainable use of water resources. Funded by member countries, local funding, and other sources (GWP-Mediterranean, 2012)	Secretariat of Drin Core Group	**Mr. Dimitris Faloutsos Senior Programme Officer - Head, Southeastern Europe** dimitris@gwpmed.org
US Agency for International Development	United States governmental agency working to enable other countries to realize potential in a number of areas, including economic, governmental, and environmental. Projects are funded by a variety of donors.	Currently working on a water sector certification program with SHUKALB	**Judith Robinson** USAID Bureau for Europe and Eurasia Phone: 202-567-4033 Fax: (202) 567-4261 Email: JRobinson@usaid.gov

(USAID Regional Contact)	(see above)	(see above)	**American Embassy/Tirana** USAID Rr. e Elbasanit, Nr. 103 Albania Phone:+355-4-224-7285 Fax:+355-4-223-3520
Critical Ecosystem Partnership Fund	A joint initiative of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank, who provide grants to NGO's to protect "biodiversity hotspots"(CEPF, 2015)	Funding the Act4Drin Project	**Mediterranean Contact:** **Liz Smith** **BirdLife International** liz.smith@birdlife.org Mailing Address: Wellbrook Court, Girton Road Cambridge CB3 0NA UK
Macedonian Ecological Society	An ecological NGO which conducts projects and organizes professional gatherings to advance ecology and nature conservation (MES, 2013).	Water for Lakes, Bogs, Streams, and people on Jablanica Mountain: sister project to Act4Drin	Ul. Vladimir Nazor no.10 1000 Skopje Macedonia Phone: +389 (0)2 2402 773
United Nations Economic Commission for Europe	One of five regional commissions of the UN promoting economic integration. Brings together 56 countries both within and outside of the EU to cooperate on economic and sectoral issues (UNECE, 2015).	Many environmental projects dealing with transboundary water cooperation	**UNECE Information Service** Phone: +41 (0) 22 917 12 34 (switchboard) Fax: +41 (0) 22 917 05 05 e-mail:info.ece@unece.org **Convention on the Protection and Use of Transboundary Watercourses and International Lakes** water.convention@unece.org **National Policy Dialogues on Integrated Water Resources Management** npd@unece.org

Appendix L: Video Footage to Collect during the Float

General Footage to Collect

- The natural beauty of the river (Include wide panoramic views, as well as still footage, and close ups)
    - Mountains
    - Water
    - Bridges
    - Wildlife (close up shots would be good as well as wide shots show both the landscape and the animals)
        - ➢ Fish, birds, farm animals on the shore, plant life
- People using the river
    - Swimming
    - Fishing
    - Boating
    - Bars/Restaurants along the river
    - Irrigation/farming
    - Taking animals to the river
- Industry/commercial usage of the river
    - Hydropower dams (take footage from both sides)
    - Construction (construction materials dumped near river)
    - Mining/abandoned mines (
    - Fishing (both small fishing boats and larger fisheries)

Specific Footage to Collect

- Lake Ohrid
    - Meeting with YWP from Macedonia (if possible)
        - ➢ Discussions/conversations between the two groups about the lake, the river, the project
    - Footage of the float in the lake (both from GoPros, and from cameras on the land)
    - Look for wildlife to video here
        - ➢ Specifically fish (Lake Ohrid Trout) and birds (dalmatian pelicans, pygmy cormorant)
    - Footage as the float leaves the lake and starts up the Drin River
    - Discussions about why people think the project is important, why they are participating, what they hope to get out of it, what they hope the project will accomplish
- First part of the trip (Topojani to Muhur)
    - Change in water level due to Spilje dam
    - Trash in the tree roots (sometimes visible in this part of the trip)
    - Footage of the bridge
    - Starting the float

        - ➢ Getting equipment ready, putting the rafts into the river
        - ➢ Include conversation from the participants: how are the feeling about the float, why do they think the float is important, why are they participating?
- In Muhur and Peshkopi
    - Footage of the pollution of the Përroi i Llixhave tributary that feeds into the Drin River
    - Discussions with people in Peskopi: Ernesti, Bessi, possibly Jake, Gov. Officials
        - ➢ Talk about: how the river is important, how it is used, pollution and flooding, why the problem hasn't been solved, how the problem could be solved
    - Footage of the river near the city
        - ➢ Bars and restaurants along the beach, people using the beaches for swimming, washing clothes/animals, etc
- Second part of the trip (Muhur to Zall-Rec)
    - Any trash in the Drin River after Peshkopi
        - ➢ Many people say that the Drin is clean because it flows fast: showing pollution downstream could help change this thinking
- Third part of the trip (Zall-Rec to Kukës)
    - Conversations about how people are feeling after the first few days of the float
        - ➢ What surprised people? What was the same as expected?
- In Kukës
    - Meeting with the Kosovo YWP where the two rivers come together
        - ➢ Include both GoPro footage, and a view from on the shore of the two groups meeting
        - ➢ Conversations between the two groups
            - About the trip, what it was like, what was seen, what was experienced, how people are feeling
- Driving past Lake Fierza
    - Footage of the power plant and dam
    - Footage of any trash in the lake, particularly near the shore
- On Lake Koman
    - Footage of the power plant and dam
    - Footage of any trash in the lake, particularly near the shore
- Driving past Lake Vau i Dejës
    - Large fisheries here, which can be seen from both the lake and the road
    - Footage of the power plant and dam
- In Shkodër
    - Meeting with the EKO Mendje environmental group
        - ➢ Include both GoPro footage, and a view from on the shore of the two groups meeting
        - ➢ Conversations between the two groups
            - What the trip has been like so far, what some of the challenges unique to the Shkodër area are, what can be done to clean the river and/or the lake

        - Discussions about some of the changes to the area due to flooding
- Buna River
    - Capture footage where the river feeds into the adriatic
    - Footage of the beaches along the river here
    - People's reflections on the trip as a whole, feelings about completing it, significance of making it all the way to the Adriatic Sea

<u>General Tips When Collecting Footage</u>

- Collect as much footage as possible: having more footage to work with will make editing and putting the documentary together much easier
    - Feel free to take footage of things in addition to what we have listed here
- Collect different types of footage
    - Panoramic shots
    - Still shots (camera is not moving)
    - Actions shots of the float
        - ➢ Both from the GoPros on the float and from cameras on shore: GoPros on the rafts give more of the experience of floating down the river, stable cameras on the shore will be less dizzying
    - Footage of conversations/interviews/discussions
        - ➢ This is critical in order to include the perspectives of different people throughout the documentary
        - ➢ This could include conversation before and during the float, discussions with YWP from other Balkan countries, Ilir Hysa, the owners of the hostel in Peshkopi, EKO Mendje, and any other people you are able to meet and talk to during the float
            - *Ask for permission to record footage of people talking before taking any videos of them*
        - ➢ These conversations can be both completely informal, or have more of an interview style, where somebody is responding to a specific questions; once again, having a mix of the types of conversations recorded will allow for greater flexibility when producing the documentary