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REGIONAL ENVIRONMENTAL CENTER

NORWEGIAN MINISTRY OF FOREIGN AFFAIRS

AMMK
Kosovo Environmental Protection Agency

# Report

## Kosovo Water Polluters Cadastre

Phase I

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# Contents

# Minister of MESP's statement

## Dear readers,

One of the most important duties and responsibilities of the Ministry of Environment and Spatial Planning (MESP) is the management of water resources, protection and monitoring of their quality. In order to fulfill this obligation, the Ministry of Environment and Spatial Planning, besides institutional empowerment was also engaged in developing an efficient program and legal framework in compliance with European directives on water resources, which is also in compliance with the needs and requirements of the Republic of Kosovo.

While the MESP has made a sustainable progress in the development of the legal framework, the efficient protection of water resources still remains a challenge for the MESP in particular, as well as our society in general. Therefore, the protection of water resources is one of the key objectives of MESP for the future.

Urban sewerages, intensive agriculture and various industrial activities are currently the main factors which are threatening the quality of water resources through the increased deployment of various polluters in these waters. During this year, a very good progress has been noted in terms of the identification of water polluters and the compilation of the Cadastre for these polluters. This was achieved as a result of joint efforts from Regional Environmental Center (REC) – Office in Kosovo, Kosovo Environmental Protection Agency (KEPA), Water Department and Hydro-meteorological Institution of Kosovo. On this occasion, I express my gratitude to the Norwegian Government for supporting this project of great importance for the water sector in Kosovo.

We believe that the identification of potential water polluters and the compilation of the Cadastre for these polluters is an important step towards the solution of the problem of polluted waters in Kosovo. Hence, our orientations in the future will also include support and encouragement for projects dealing with sewerage treatments and the monitoring of sewerage deployments in surface waters.

The development of a Strategic Plan for Water Administration will be a priority within our future engagements. During this process, special attention will be given to the administration of sewerages.

The cooperation of responsible institutions within the water sector is one of the issues which requires a greater commitment with regards to the efficient management of waters in Kosovo. We hope that our engagements for this issue, will also benefit from the support of donors as well as the help of regulatory offices, public enterprises and civil society organizations.

Water is the key ingredient of our natural habitat and our lives; therefore, we should all be committed to preserve this precious resource for the benefit of our environment, as well as for the benefit of current and future generations.

***Mahir Yagcilar, Minister of MESP***

# REC's Statement:

The 21st century brings two joint challenges for global waters: quantity and quality. It is estimated that by year 2025, about 2/3 of world countries will be faced with water stress. Clean, safe and adequate water is vital for the existence of living organisms and the normal functioning of ecosystems, communities and the economy. However, the quality of waters has been substantially jeopardized with the increase of human population, the expansion of agricultural and industrial activities. Every day, millions of tons of untreated waters of urban, agricultural and industrial sewerages, are deployment in our waters worldwide. Every year, rivers, lakes, and oceans receive the pollution of over 6.6 billion people in our planet.

Low quality waters jeopardize human health and the integrity of ecosystems, they decrease the quantity of drinkable water available, and decrease the economic productivity. There are also a number of human and natural activities such as: agriculture, industry, mines, waste deployment, increased population, urbanization and climate changes, which influence the biological, chemical and physical characteristics of waters, hereby causing a substantial decrease in their quality. The main challenges regarding the quality of waters today can be summed up in a few areas such as: water contaminants, nutrients, erosion and sediments, water temperate, acidification, salinity, pathogen organisms, heavy metals, chemicals, etc.

The quality of waters plays a central role in the functions that water plays in our lives. The usage of water by humans for drinking purposes, cleaning and recreation, requires the water to be free of biological, chemical and physical contaminants. Plants, animals and habitats which support biodiversity also require clean water.

Kosovo features water resources which thanks to the geomorphology and relief, very quickly leave its territory and flow in the direction of three different seas, which constitutes a rare case for such a small territory. The quality of these waters is very low, as there is not even minimal treatment for sewerages before deployment in water bodies and underground aquifers.

**Dr.sc. Zeqir Veselaj**
**Director, REC – Office in Kosovo**

# Abbreviations

| | |
|---|---|
| **KEPA** | Kosovo Environmental Protection Agency |
| **EU** | European Union |
| **DS** | Dissolved Salts |
| **KHMI** | Kosovo Hydro-Meteorological Institute |
| **MESP** | Ministry of Environment and Spatial Planning |
| **SM** | Suspended Materials |
| **EO** | Economic Operations |
| **REC** | Regional Environmental Center |
| **COD** | Chemical Oxygen Demand |
| **BOD5** | Biochemical Oxygen Demand for 5 days |
| **AD** | Administrative Directive |

# Gratitude and Acknowledgments

This report is a result of a one year field work by experts of various professions and experiences, who have conducted field research to identify the primary polluters of waters throughout the territory of Kosovo. Without alluding that by completing this project and publishing this report, the work on the Cadastre of Water Polluters in Kosovo has been completed, we still believe that the ones who have contributed in the implementation of this project and the compilation of this report deserve the deepest gratitude from REC and other partners.

REC expresses deep acknowledgments for the high officials of the MESP: Dr. Ilir Morina, Chief Executive of KEPA, who was also the person assigned by the MESP for this project, z. Arben Çitaku, Mr. Sc Naser Bajraktari, MSc. Muhamed Malsiu, Dr. Sylë Tahirsylaj, Sabit Restelica, Tomor Çelaj, Hazir Çadraku, Adriana Pllana, Msc. Merita Mehmeti etc, who have helped in the successful implementation of this project by providing specific actions, suggestions and comments.

REC also express their sincere gratitude to the team of field experts, who have spent months conducting their field work in almost every part of Kosovo: Mr.sc Avdulla Nishori as the leader of the team of field experts, Isak Gërxhaliu, MSc. Dardan Bashota, Blerina Hoxha, Mr.sc. Vehbi Goxhuli, Ilknur Ibrahimi, and to those from the MESP: Bajram Kafexholli, Përparim Gashi, Agron Shala, Zeqir Imeri, Sami Behrami etc.

We also express our deepest gratitude to the representatives of public water management companies and municipality officials, who helped us without hesitation in gathering data for the AD Forms: Jehona Mavraj, Merita Dobërqani, Riza Muqolli, Haki Bekolli, Nazif Shala, Mehdi Salihu, Adnan Bullatovci, Igor Rasic, Viktor Djokic, Hazbi Ejupi, Galip Belallari, Ramadan Tafallari, Isuf Hajdari, Hasan Dishallari, Merita Luzha - Kuraja, Miftar Shala, Qaush Berisha, Rexhep Rexhepi, Elfete Blakaj, Xhelal Shabani, Rasim Mlinaku, Beqir Mehmeti, Afrim Ademi, Ajne Ibërhysaj, Faik Tofaj, Bionndina Ramaj, Esat Paçarizi, Fehmi Agushi, Ruzhdi Reshitaj, Musaj Ismajli, Ibrahim Kastrati, Skender Avdyli, Alban, Sokoli, Minir Haxhimusa, Bujar Dullovi, Milos Stojkovic, Raif Bajrami, Srdjan Vesic, Nadire Mici, Nebojsa Kenic, Ljubisa Mijacic.

# Some important terms within this publication

**Pollutant -** In terms of this Report, this term implies a person or a company which causes environmental pollution.

**Waste Water -** Is the term used to describe waters which were seriously affected in terms of quality, after human influence through: liquid household waste, commercial facilities, industry and agriculture. These waters contain a wide spectrum of polluters in high concentrations.

**Water Pollution -** Implies every quantitative or qualitative distortion of water content, including its natural chemical, physical and biological qualities, which produce undesired consequences in human health, the economy and the ecosystem in general.

**Sewerage treatment -** Implies the process used to make water as much more acceptable as possible for drinking purposes, by removing chemical, physical and biological contaminants from water, so that its possible to reuse it for various needs, without causing negative effects to the natural environment.

**Ground waters -** This term is used to describe all waters flowing on the ground, its pores and its litological formations.

**Surface waters -** This term is used to describe all waters flowing in the ground surface or in creeks, lakes, rivers, seas and oceans.

**Sewerage -** An infrastructure of pipes, canals or similar structures used for flowing industrial, municipal, or household liquid products.

**Cadastre -** A public registry, review or a map of values, spreads and ownership of land with the purpose of tax appointment[1].

**Aquifer -** Represents an underground layer of water-containing rocks or other unconsolidated materials such as rocks, sand, gravel, clay and slob, from which, ground waters can be extracted through the use of wells or perforation.

**Deployment -** Refers to every single dumping of polluted waters, treated or untreated, of used water, sewerages, chemical products and sub-products, industrial waste and substances, without taking into consideration their nature, in surface and ground waters, ground surface, underground or dogged sites.

1 http://www.yourdictionary.com/cadastre

# Preface

Earth is often referred to as the Blue Planet, since 2/3 of its surface are covered by water. However, the water quantity that can be used and that is available to humans, does not surpass 3% of this quantity. When we remove from this percentage, the quantity of water that cannot be used, since they are far from habitation, or very deep into aquifers, the shortage of drinkable water increases even more. Nowadays, in the global, regional, national and local aspect, the quantity is not the only challenge regarding water, but its quality as well.

There is a large number of natural and human processes which significantly influence the biological, chemical and physical characteristics of water, thereby affecting its quality. There are a number of activities that affect the quality of water, such as: agriculture, industry, mines, waste depository, population increase, urbanization and climate changes.

Agriculture as a sector, causes the contamination of water through the use of nutrients and pesticides, as well as salinity. The enrichment of water with nutrients (nitrates and phosphates) has become one of the key problems regarding the quality of water, by heavily contributing to the eutrophication process of water bodies. While the use of pesticides in mass, especially in dry years, affects the growth of their waste in the soil and thus increases the content of heavy metals in the land digestion through which the water gets contaminated. Today, estimates show that t over 2 million tons are used annually (PAN 2009).

Every year, 300-400 million tons of heavy metals, solvents, toxic and other waste, are deployed in water globally as a result of industrial activities (UN WWAP Water and Industry). Mines and perforations produce large quantities of waste and sub-products which present larger scale challenges.

The lack of adequate depository spaces for human urban waste has led to the mass contamination of water. Today, approximately 2.5 billion people in the world live without the necessary sanitation (UNICEF & WHO 2008) and over 80% of sewerages in developing countries are deployed in recipients without any treatment (UN WWAP 2009). The rapid increase of global population will only deepen these problems, while in the other hand, the climate changes are creating new challenges for the quality of water as well.

Water contamination weakens or destroys the natural ecosystems which support the health of humans, food production and biodiversity. The ecosystems of fresh water are the most degraded ecosystems in the planet. Most of fresh and polluted waters end up in seas and oceans by damaging fishing and the coasts in the first place.

Every year, there are more people dying from dirty water than from all forms of violence combined (including war), and the most threatened ones are the children. Dirty or inadequate water, lack of sanitation and hygiene causes nearly 3.1% of deaths (or 1.7 million deaths in a year). About 90% of these deaths are children under the age of 5 (WHO 2002).

In certain ways, Kosovo is also affected by all of the above mentioned aspects of pollution . This should serve as an initiative that besides the quantity, the strategic planning should also take into consideration the quality of water. Whereas, the community needs to be aware that besides saving water, there must be an additional effort to protect it.

# Introduction

Kosovo has limited water resources, both in terms of ground water and surface water. Thereby, the protection and rational usage of these resources is of vital importance in the sustainable economic development of our country. Due to its geographical position, Kosovo rivers penetrate a very small part of its territory (Rivers: Ibri, Lepenci, "Lumëbardhi" River of Prizren and "Morava e Binces" River of Binqa) and quickly flow out of Kosovo territory. The larger part of Kosovo rivers, are seasonal rivers which are mostly dependent on atmospheric rainfalls, therefore during the summer when the request for water is at its peak, the river collections are minimal.

In a year with average humidity, Kosovo rivers bring 3.6 x $10^9$ $m^3$ of water, respectively 121.2 $m^3$/sec, whereas the overall volume accumulated in existing accumulations is 569.690.000 $m^3$, which represents only 15.7% of the overall quantity. Natural lakes are few in number and without any significant importance regarding water supply, whereas artificial lakes are: Batllava, Gazivoda, Badovci, Radoniqi and Perlepnica. The resources of ground water are also limited and they are mainly found in the western part of Kosovo, where the resources of surface water are also large compared to the eastern part which features fewer reserves and the south-eastern part where the need for water is very high. Based on the above data for water reserves, population density and natality, it is obvious that water resources will be more and more limited every day; and when we add the uncontrolled urban development to this equation, it is evident that the situation will only escalate even more in the future.

The continuous increase in demand for water, food and energy, the continuous deployments of waste in rivers and unsanitary depository sites, as well as climate changes, are clear indicators which oblige a different approach towards this limited resource.

As a direct consequence of these causes, today, approximately 2/3 of the world population is stressed about water. If we add the lack of a national strategy, mismanagement and the misuse of water, to this scenario, the issue will only roughen even more.

With an estimated quantity of 1600$m^3$ of water per capita for one year, the protection, preservation and the development of water resources is very important and its also an environmental challenge with a high importance regarding public health. We are witnesses of various actions and activities which damage the water resources, whether its physical damage or damage caused due to the deployment of urban, industrial and agricultural waste, as well as due to polluted water.

| Regional Water Management Company | No. of Municipalities | % of the spread of water-supply services | % of the spread of sewerage services |
|---|---|---|---|
| "Prishtina" | 7 | 77 | 66 |
| "Hidroregjioni jugor" | 4 | 49 | 44 |
| "Hidrodrini" | 4 | 65 | 34 |
| "Mitrovica" | 3 | 55 | 47 |
| "Radoniqi" | 3 | 95 | 62 |
| "Hidromorava" | 3 | 33 | 36 |
| "Bifurkacioni" | 2 | 42 | 29 |
| **Total** | **25** | **60** | 48 |

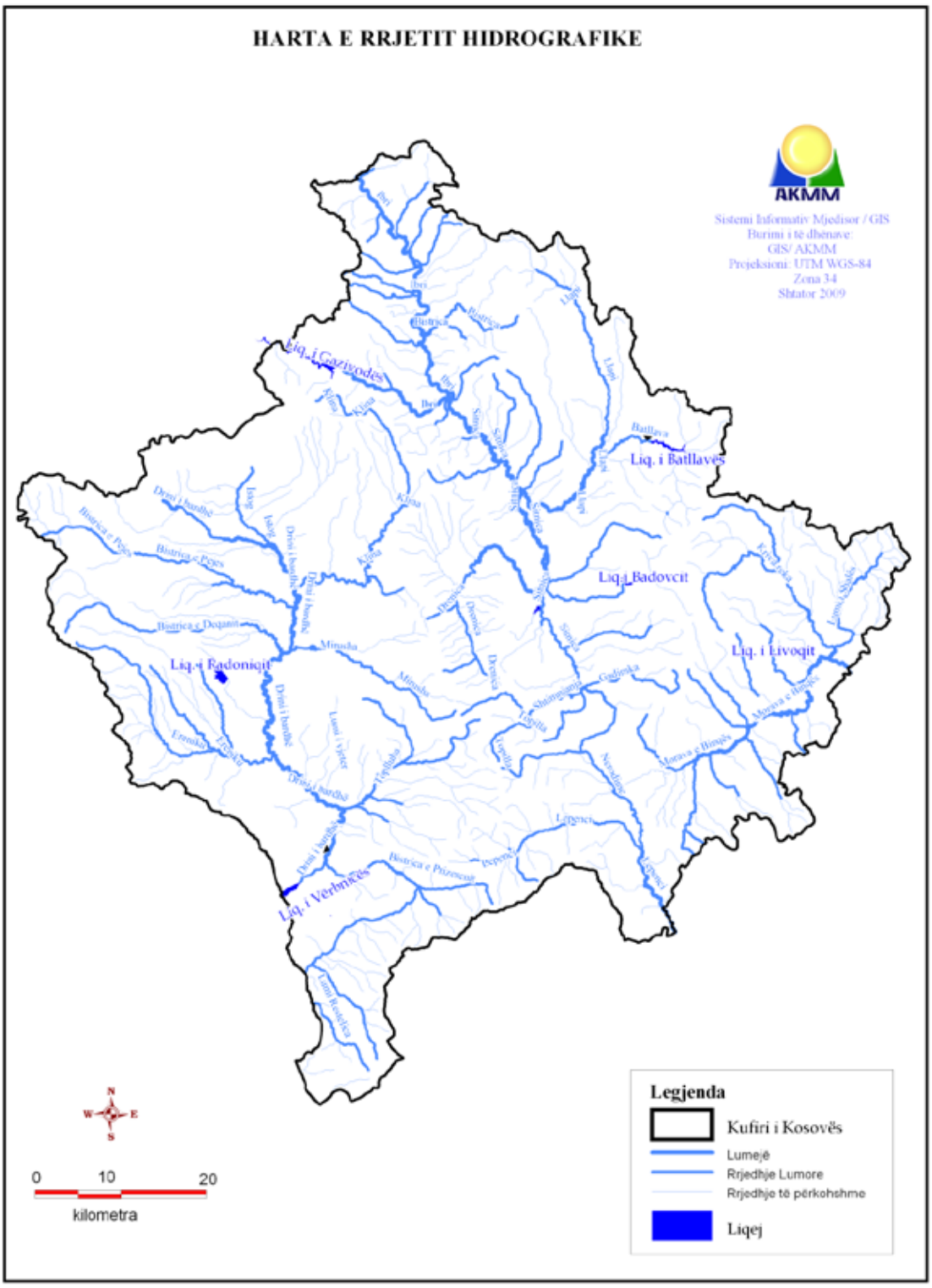
Percentage of water-supply and sewerage services offered by 7 RWMC in Kosovo

The deployment of polluted water in water resources is a necessity and we are well aware of this. However, these deployments should be controlled and managed in such manner that we do not convert our water resources into in-

2 "Report :"The water situation in Kosovo" MESP / Kosovo Agency for Environmental Protection, Pristina 2010

fection resources.

Therefore, the Cadastre of Water Polluters is the most important step towards an integrated management of this national resource with high importance for a sustainable development of our country.



# About the project

The project entitled "Compiling Water Polluters Cadastre" is part of the Kosovo Environmental Action Plan 2006-2010, which was prepared by MESP and REC in 2006. As a part of a document for specific and practical implementation of environmental policies, the project was financed by the Norwegian Ministry of Foreign Affairs, whereas it was implemented by the Regional Environmental Center (REC) – Office in Kosovo, in cooperation with MESP, specifically with the Kosovo Environmental Protection Agency.

The primary goal of this project is to create a Database which will assist all relevant institutions in Kosovo in the field of integrated management of Kosovo water resources. The Development of the Cadastre of Water Polluters is an integral part of the Informative System for Management of Water Resources in Kosovo. A specific software was developed for entering data which is gathered during field work, and it will continue to be updated with new data in upcoming years.
Besides its main activity, this project also includes a number of other activities such as:

1. Organizing the First Forum on Waters in Kosovo, during the World Day on Water 2010, with the participation of over 100 participants from central and local level institutions, water management companies, donors community, academic community, civil society, businesses etc.
2. Activities with regards to capacity building for relevant officials of governmental institutions, water management companies in the cadastral field, using the software etc.
3. An awareness campaign consisted of a video clip for the protection of water from pollution entitled "Clean water for a healthy life" in the World Day on Water 2010, various bulletins dealing with water as a topic, etc.

Specific objectives of this project are:

- Gathering and processing of historic and existing data for potential water polluters;
- Development, organizing and archiving of the database;
- Information exchange between interest groups;
- To assist the water department in the development of the strategic plan through reports and information for the future monitoring network;
- To contribute in the decrease of water polluters, both industrial and household polluters, through a public information/awareness campaign.
- However, we must note that with the funding and time available for this project, was not enable to completely develop the Cadastre of Water Polluters. The reasons behind are part of this report.

# Work methodology

The project started in year 2009, with preparatory activities for the work of field teams. Initially, after the public vacancy published by REC, the team of field experts was chosen, which was consisted of experts from various fields such as: agriculture, chemistry, biology, technology, GIS, etc. The project team initially worked in elaborating the Administrative Directive No. 61/2005 for the Cadastre of Environmental Polluter Emissions and the Forms which are part of this AD and which deal with polluters in general, and specifically with water polluters. For this purpose, a number of consultative meetings were held between high officials from MESP (who have drafted the AD), KHMI (as the institution which monitors the surface water) and REC.

After joint review of every article within the AD, and a few technical and language adjustments of the Forms, the project team supported by the MESP officials, initially started its activities on gathering field data on the Prizren region.
Drafting the activities plan for field teams was the following step. Based on this plan, the work was supposed to start by gathering data in the basin of river White Drin, starting with the Prizren region and then moving to the Peja region. Field work started on the Basin of the river White Drin, more specifically in the municipality of Prizren, to continue in the future in all municipalities of this region, always working in close cooperation with MESP officials.

Before the field visits, first contact is made with the Department for Environmental Protection, respectively with Environment officials of the respective municipality with the aim to inform than about the project and to cooperate with them in the gathering of existing data for collective polluters and EO-s, as well as individual polluters.
Primarily, we have contacted municipal environmental officials or the department for environmental protection, in order to inform them about the project and the Forms. From municipality officials, we have gathered data for individual and collective polluters, which deal with:

a. The list of individual polluters,
b. People and contact telephones, if any,
c. Localities which posses water-supply and sewerage,
d. Number of inhabitants of that locality,
e. Categorization of polluters according to their pollution activity and size.

The work followed in cooperation with municipal officials by contacting public companies which operate and maintain the water-supply and sewerage, from which we gathered data on collective polluters.
After obtaining the lists for collective polluters from municipal officials and the list of EO-s from MESP, the work continued with visits to every single EO, this way gathering respective data according to their economic activity and influence in the environment, respectively towards water pollution. It must also be noted that the majority of environmental officials from municipalities did not poses enough information regarding the AD for Cadastre of Environmental Polluter Emissions and the Forms which are derived from the AD. After gathering the required data, all the collective polluters were contacted, more than 50 households, which have organized sewerage, from where we gathered the required data for filling the Forms and gathered the deployment coordinates with GPS in the **Kosovo-Ref 01** system.

The main information collected from collective polluters are: the number of inhabitants of that habitation, quantity and the source of the drinkable water, the deployment site respectively the coordinates and the amount of deployments into the recipients.

In most cases, we are faced with lack of data for the quantity of used water and the amount of deployments. In these cases, our team used indirect mathematical methods for calculations, based on the average water consumption per capita in Kosovo, which is estimated as 200 l/day and the number of inhabitants of that habitation.

In cases when the total amount of used water for a specific habitation is known, that amount is than divided by the number of inhabitants of that habitation or collective polluters according to the following formula:

$$q = Q / n_{inhabitants}$$

It must be noted that in specific habitation where the water resources are sufficient, the water quantities used are above 250 l/day (Prizren) and in some other cases above 700 l/day/per capita (Mamusha, Junik and Istog). The amount of polluted water deployments in a recipient is calculated based on the number of inhabitants/household and the emission factor according to the expression:

$$Q_{polluted\ water} = N_{umber\ of\ inhabitants} \times fE$$

(emission factor)

or based on the overall drinkable water quantity used, according to the following formula:

$$Q_{polluted\ water} = Q_{drinkable\ water} \times 0,6$$

(coefficient: from all used water, 60% is transformed to polluter water)

After the necessary initial explanations, Forms from the AD were provided for every single polluter, and enough time was given to complete these forms. This work method had a significant influence in the dynamics of work completion of the planned activities.

Initially, this method had a negative influence in the realization of planned activities and a decision was made for the Forms to be completed in a single day, as a result of joint cooperation between the field team and competent official for every polluter. This decision had a positive effect in terms of accelerating the realization of planned activities.

## Classification of Polluters

Based on the provisions of the AD on the Cadastre for Environment Polluter Emissions, the polluters are initially categorized in individual and collective polluters.

**Collective Polluters -** This project targets all those collective polluters or habitations which consist of more than 50 households and have organized sewerage or joint septic tanks.

**Individual Polluters –** or the EO-s targeted by this project, are mainly those operators with a heavy potential for pollution such as the industrial ones, agricultural, car dumpsites/ironmongeries, or large chemical cleaners. In the case of EO-s we do not have a precise criteria; however, after careful review of the lists compiled by the municipality together with the MESP officials and during the visits to deployments sites, we will decide about EO-s that are estimated to have a large influence in water pollution due to their deployments. Special polluters or EO-s targeted by this project are:

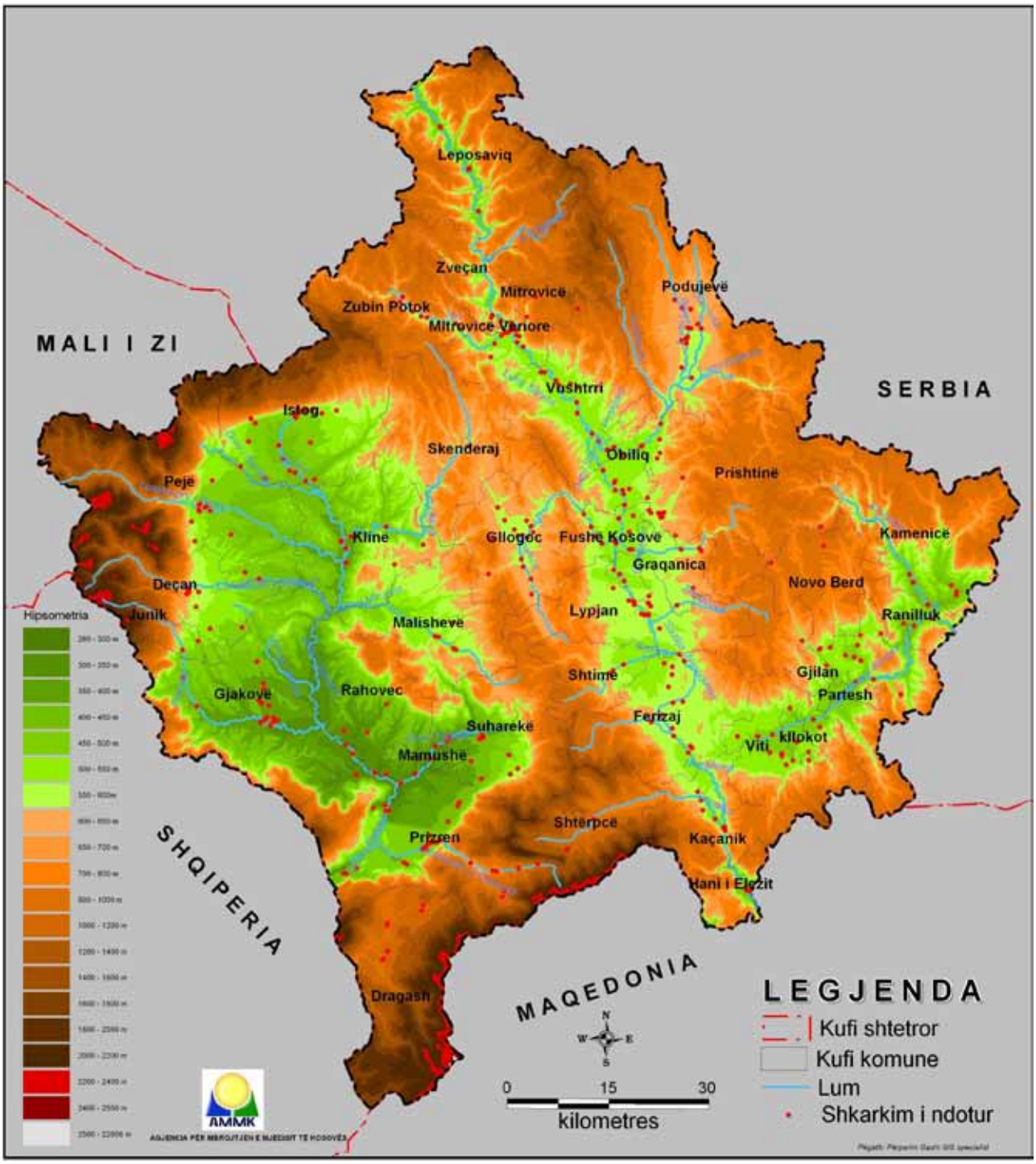
- Foundries;
- Iron Mills;
- Ironmongeries/car dumpsites;
- Asphalt manufacturers;
- Laundry detergent and soap manufacturers;
- Textile manufacturers ;
- Large chemical cleaners;
- Production and processing plants for food and beverages (normal and gassed juices, conservation/refining and production of oil etc);
- Milk factories (milk and dairy products)
- Livestock and wildfowl farms;
- Meat slaughterhouses

One problematic aspect regarding the classification and gathering of this data was the fact whether these polluters are active or passive (usually, privatized or un-privatized public enterprises which are not operating).

## The Structure of Forms

The data gathered through Forms are structured in a number of segments:

- Categorizing the Polluter (Collective/ Individual);
- Polluters activity;
- Polluters location or the deployment site;
- Quantity of used water;
- The quantity of polluted water which is deployed;
- Type of polluted water;
- The quality of polluted water;
- Evacuation method, and
- Cleaning method.


Leposaviq
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Kamenicë
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Novo Berd
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Ranilluk
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Rahovec
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# Executive Summary

The project for the development of the Cadastre of Kosovo Water Polluters, has mobilized a very large number of institutions from the central and local level, water management companies, large polluters and experts of various fields.

The project for the development of the Cadastre of Kosovo Water Polluters, during the time period 2009-2010: 2 regions of Kosovo's water ponds have been covered, 5 regional separations, 35 municipalities and 180 habitations have been analyzed. In this publication, the polluters are presented based on the regions according to which the field work has been conducted.

Based on the field work of our experts, a total of 368 water polluters were registered. Out of this number, 266 are collective polluters[3] whereas 102 are special polluters.

Based on the points registered from our field teams, we can state that outside of the surface ground bodies, there are a total of 49 polluters who deploy into the water, 5 of which are collective polluters and 44 are individual polluters. In the Region of the "White Drin" Pond, a total of 154 polluters were registered, out of which 99 are collective polluters and 56 are individual polluters. The most loaded rivers by the number of pollutant discharge points are: : the Istog River with 12, "Lumbardhi" River of Prizren with 11, "White Drin" with 9, "Lumabardhi" River of Peja with 7, and Klina with 5 polluters, while, by the quantity, river Lumbardhi – Prizren is the leading one. However, all of these rivers are eventually merged with "White Drin" and then continue towards the Adriatic Sea.

In the Region of Ibri, Lepenci and "Morava e Binces" Ponds – a total of 214 polluters were identified. In the Ibri Pond, 100 polluters were registered out of which 75 are collective polluters whereas 25 are individual polluters. The rivers with higher number of deployment sites; of this pond are: Sitnica with 32 deployment sites, Llapi with 22, Drenica with 18, Ibri with 14, and Prishtevka with 7 polluters, but the most loaded river with deployment quantity is certainly Prishtevka.

In the "Morava e Binces" and Lepenci Pond there are a total of 24 polluters. Some of the most loaded rivers are: "Morava e Binces" with 14 deployment sites and Mirusha River with 8 collective deployment sites. In the Lepenci Pond the most loaded rivers are Lepenci and Miloshtica themselves, in terms of the number of inhabitants who deploy.

The individual polluters which are part of this registry, include large polluters such as KEK, Trepca etc. and all the way to small businesses such as agricultural farms, slaughterhouses, ironmongeries etc. Out of these individual polluters, 13 of them deploy polluted water into the ground water, whereas the remaining 18 deploy in the water bodies of Kosovo. In numerical terms, "Lumbardhi" River of Prizren[4] and River of Istog lead the list with 8 polluters each, followed by the "Lumbardhi" River of Peja and "Llapi" with 7 polluters each, "Sitnica" with 5 polluters etc. The "Iber" river, even though it receives deployments from only one individual

3 In this list, with few exceptions of neighborhoods fewer than 500 inhabitants, and individual discharges, separate houses, restaurants and polluting rivers edge individualy who had no ownership or activity determined are not included.

4 There are 5 restaurants near Lumbradhi- Prizren, Because of their large number and distribution, it was decided that at this stage, the hotel facilities are not being included

polluter directly, having in mind the fact that it also takes the water of "Sitnica" and "Llapi" river with itself, it than becomes the primary recipient of polluted water from individual polluters.

However, all the work done did not cover smaller collective and individual polluters, not to mention individual deployments (private households, restaurants etc). Likewise, in some cases we did not include potential individual polluters which are not active in the production process (i.e. The Factory for Absorbers) or because of the fact that due to the privatization process they do not have a specific owner.
Hence, the work which was completed during these months, must continue in the future as the second phase.

## Water Polluters According to the Regions

# Prizren Region

The first field activities for data gathering and filling of the Forms were conducted in the pond of "White Drin", more specifically in the Prizren municipality. Initially, a visit was made to the Municipality's Department for Environment in order to inform that with the goals and objectives of the projects and to inform them with the Forms which are part of the AD. It is important to note the understanding and full cooperation in the realization of project activities, as well as the help offered to us by officials for the environment with regards to data gathering for polluters, as well as the joint visits made to all EO-s and habitations of this municipality, which are covered in terms of public sewerage and organization evacuation of polluted water.

The team project, supported by MESP and Municipality officials has registered a total of 78 polluters, 56 of which are collective polluters and 22 are individual polluters, in the Prizren Region. The table below represents the data on polluters according to their categories and municipalities.

| Region | Municipality | Collective Polluters | Individual Polluters |
|---|---|---|---|
| Prizren | Prizren | 29 | 16 |
| | Suhareka | 13 | 2 |
| | Rahovec | 3 | 2 |
| | Dragash/Sharr | 6 | 2 |
| | Malisheva | 4 | 0 |
| | Mamusha | 1 | 0 |
| Total | | 56 | 22 |

Table 1. Polluters according to their categories and municipalities – Prizren Region

# Collective Polluters

## The Municipality of Prizren

In this municipality, we have identified 29 collective polluters and 16 individual polluters. As far as collective polluters are concerned, there are 13 deployment sites only in the city of Prizren, whereas the other 16 are located in the surrounding villages of this municipality.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Prizren | City | 185 600 | "Lumbardhi" river of Prizren |
| | Gjonaj | 5 300 | "White Drin" river |
| | Romaj | 2 700 | Deshtica stream |
| | Korisa | 7 200 | Korisha river |
| | "Hoqa e Qytetit" | 5 000 | Buna river |
| | Zhuri | 9 500 | Dobrusha stream |
| | Prevalla | 150 | In 5 septic tanks |
| | Lower Lubinja | 2 100 | "Lumbardhi" river of Prizren |
| | Upper Lubinja | 2 300 | "Lumbardhi" river of Prizren |
| | Pirana | 2 400 | Toplluha river |

Table 2. Collllective Polluters – The Municipality of Prizren

None of the collective polluters is equipment with cleaning equipment or mechanical, biological or chemical treatment for polluted water. Most of the individual polluters are connected to the city sewerage, with the exception of those EO-s which are located outside the urban area or close to a water stream.

"Farmakos" is estimated to have the highest potential for affecting the environment; however, this enterprise is currently operating at reduced capacity and it is not constantly active. The products of this EO are mainly pills which are produced only by applying pressure to respective raw materials and they do not use any water, therefore the deployments of this individual polluter are only of sanitary nature.

Most of polluted waters from the municipality of Prizren flows into the "Lumbardhi" river of Prizren. Approximately 150400 inhabitants from the city and the 2 villages which have sewerage, deploy their polluted waters into this river. . Other threatened rivers include: The Dobrusha stream with 9500 inhabitants, the Korisha river with 7200, "White Drin" river with 5300 inhabitants etc. In the touristic center of Prevalla, there is no sewerage, and although there are only 150 inhabitants, its 4 septic tanks are very loaded due to a large number of people travelling.

## The Municipality of Suharkea

Suhareka is one of the rare municipalities where over 70% of habitations posses public sewerage or an organized evacuation of polluted water. From the individual polluters in this municipality, it is important to mention "Ballkani New Co" which produces rubber tapes and bands, and the raw materials or leftovers which are deployed into the economical garden are the primary polluters of atmospheric water.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Suhareka | City | 1500 | Toplluha river |
| | Gjinovc | 3 965 | Leshani river |
| | Grejkovc | 4 000 | Grejkovc river |
| | Mushtisht | 6 200 | Black and White rivers |
| | Samadraxha | 5 000 | Toplluha river |
| | Savrova | 1 300 | Savrova river |
| | Sopi | 1 340 | Savrova river |
| | Studenqan | 5 000 | Toplluha river |
| | Nëperbisht | 1 280 | Toplluha river |

Table 3. Collective Polluters – The Municipality of Suhareka

The most loaded river due to deployments is most definitely the Toplluha river with about 94,580 inhabitants. It is followed by the Black and White rivers with 6,200 inhabitants which flow into the Toplluha river, than we have the Grejkovc river and Leshtan river with about 4,000 inhabitants.

## The Municipality of Malisheva, Dragash, Rahovec and Mamusha

In the municipalities of Malisheva and Rahovec, we must note that even though there was good cooperation, the insufficient experience of the officials for environment and the lack of the required information regarding various polluters led to the identification of fewer individual polluters. In these municipalities we do not have any EO-s with high effect in the water pollution; the only EO worth mentioning is the Rahovec Winery.

The Municipality of Mamusha, similar to other new municipalities, does not have specific officials for environment yet; however, we were able to obtain the necessary data for our questionnaires without any difficulties from other municipal officials. A unique characteristic of this municipality is the available quantity of drinkable water per capita, which according to municipal officials goes beyond 800 l/inhabitants/day.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Dragash | City | 3 000 | Leshtan river |
| | Bordesan | 3 550 | Plava river |
| | Pllava | 1 300 | Plava river |
| | Zgatar | 1 190 | Plava river |
| Malisheva | City | 5 000 | Mirusha river |
| | Banja | 4 500 | Mirusha river |
| Mamusha | City | 6 000 | Toplluha river |
| Rahovec | City | 25000 | Duhllu river |
| | Xerxe | 3 300 | "Drini I Bardhe" river |
| | Krusha e Madhe | 5 600 | "Drini I Bardhe" river |

Table 4. Collective Polluters – The Municipality of Dragash, Malisheva and Mamusha

All the deployments of these municipalities are done in the rivers and there are no deployments in ground water. The rivers which are most loaded with pollution are: "Duhllu" river with 78,600 inhabitants of Rahovec. It is followed by the Mirusha river with 9500, "White Drin" river with 8900, Toplluha river with 6000 inhabitants etc.

# Individual Polluters

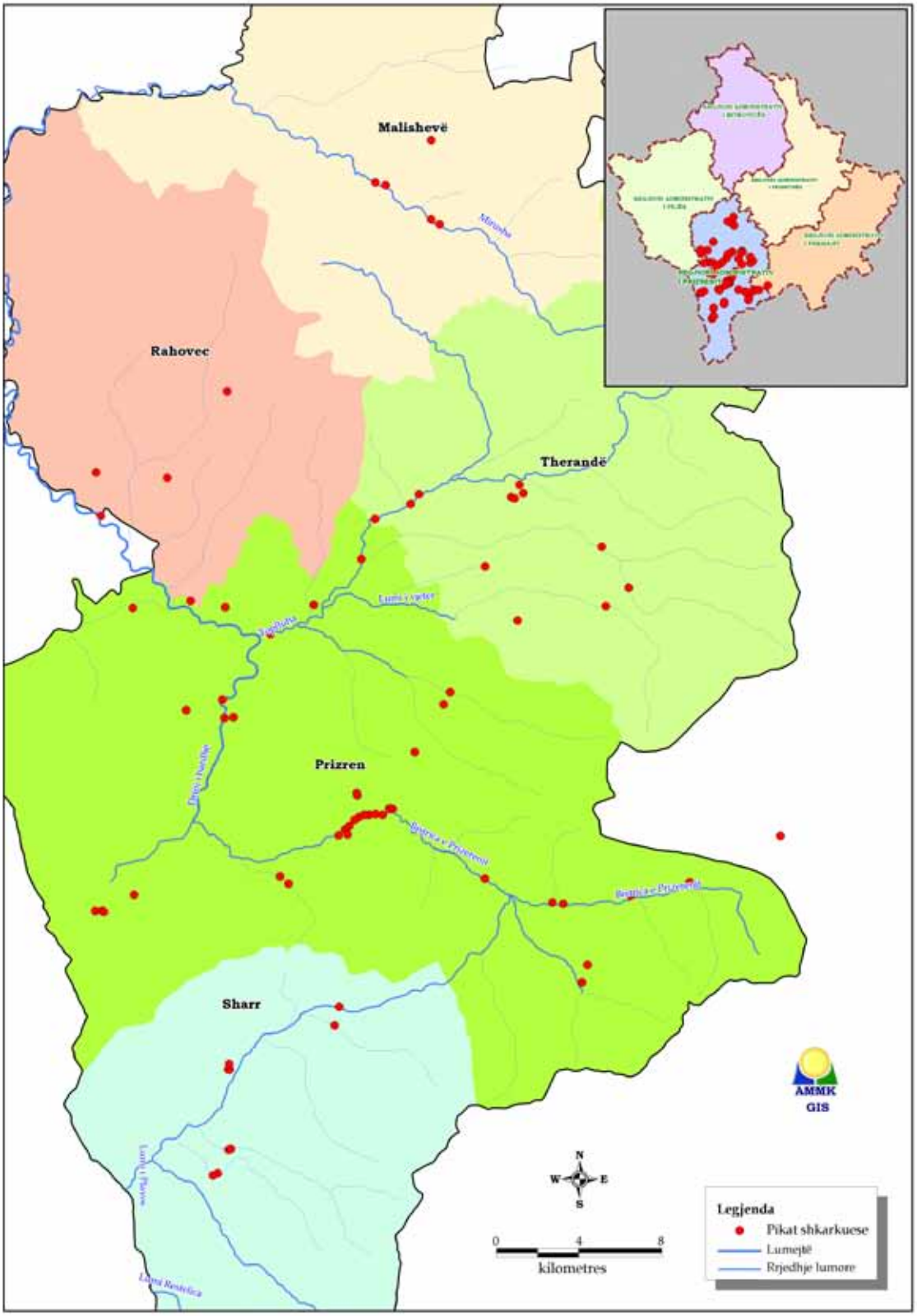
Initially, all the EO-s and municipality officials were given the necessary Forms and the appropriate time to fulfill the required data.

| Municipality | Polluters Name | Activity | Deployment site |
|---|---|---|---|
| Prizren | Abi & Elifi | Food industry | City sewerage |
| | AK Company | Chemical cleaning | Underground water |
| | Demi | Ironmongery | Underground water |
| | Drini Company | Asphalt Manufacturer | Underground water |
| | Frutti | Beverage producer | "Lumëbardhi" river of Prizren |
| | Iliria | Hotel | "Lumëbardhi" river of Prizren |
| | KAG | Asphalt Manufacturer | Underground water |
| | Lindi & Gea | Food industry | City sewerage |
| | Liqeni | Hotel | Drini i Bardh river |
| | Mifabeli | Hotel | Drini i Bardh river |
| | Sharri | Hotel | "Lumëbardhi" river of Prizren |
| | Villapark | Hotel | "Lumëbardhi" river of Prizren |
| | Sat Styro | Styropor producer | "Lumëbardhi" river of Prizren |
| | Valvis | Slaughterhouse | City sewerage |
| | Sed Tours | Stone processor | "Lumëbardhi" river of Prizren |
| Dragash | Meka | Slaughterhouse | Plava river |
| | Rema Text | Textile producer | Plava river |
| Rahovec | M-Sillosi | Food industry | Drini i Bardh river |
| | Stone Castle | Winery | Duhllu river |
| Suhareka | New Co Ballkan | Rubber industry | Toplluha river |
| | Ben Af | Food industry | Toplluha river |

Table 5. Individual polluters according to municipalities – Prizren Region

A large number of EO-s deploy polluted water into rivers, whereas a smaller number of them deploy into ground water. The largest recipient is the "Lumëbardhi" river of Prizren with 9 individual polluters, "White Drin" river with 4, Toplluha and Plava river with 2 each, and Duhllu river with 1 etc. A total of 4 individual polluters deploy polluted water into ground water, whereas 4 others deploy them into the city sewerage by mixing them with deployments of collective polluters.


The map of the deployment sites in the region of Prizren




The map of the pollution receivers by rivers in the region of Prizren

# Prishtina Region

As a result of rough climate conditions during the month of February, we decide to pause the data gathering work in the Drini Pond and to move in the Ibri Pond, respectively in the Prishtina region until the climate conditions improve.

| Region | Municipality | Collective polluters | Individual Polluters |
|---|---|---|---|
| Prishtina | Prishtina | 12 | 7 |
| | Fushe Kosova | 12 | 2 |
| | Drenas | 14 | 1 |
| | Podujeva | 9 | 9 |
| | Shtime | 3 | 0 |
| | Lypjan | 10 | 4 |
| | Kastriot | 7 | 1 |
| | Graçanica | 8 | 1 |
| Total | | 75 | 25 |

Table 6. Polluters according to categories and municipalities – Prishtina Region

In this region, the work started with the municipality of Prishtina and the Regional Water Management Company (RWMU) "Prishtina.

## The Municipality of Prishtina

When compared to other municipalities and having in mind the size of the municipality of Prishtina, the evacuation of polluted water in habitations outside the city is poorly organized. There are only 8 habitations with private or public sewerage, three of which are partially organized.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Prishtina | City | 430 245 | Prishtevka river |
| | Bardhosh | 2 150 | Llap river |
| | Barileva | 4 200 | Llap river |
| | Besi | 907 | Llap river |
| | Hajvali | 6 000 | Graçanka river |
| | Prroni i njelmët | 1 000 | Underground water |
| | Prugovc-Leban | 800 | Llap river |
| | Shkabaj | 1 500 | Sitnica river |
| | Truda | 540 | Llap river |
| | Vranidoll | 870 | Llap river |

Table 7 - Collective polluters according to municipalities – The Municipality of Prishtina

As it is clearly shown in the table above, the most loaded river in the Municipality of Prishtina is most definitely the Prishtevka river, which is overwhelmed by polluted water coming from over 430,000 inhabitants of the capital city. The second most loaded river is Llapi with about 9450 inhabitants, Graçanka with 6000 inhabitants and Sitnica with 1500 inhabitants. Approximately 1000 inhabitants deploy polluted water into ground water.

## The Municipalities of Drenas, Podujeva and Shtime

The Municipalities of Drenas, Podujeva and Shtime are the municipalities which were completed without any difficulties as a result of easily obtaining the required data, due to excellent cooperation from municipal officials, both in terms of data for collective polluters and individual polluters.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Drenas | City | 9 500 | Drenica river |
| | Arllat | 3 199 | Drenica river |
| | Damaneku | 847 | Drenica river |
| | Gllobari | 1 628 | Drenica river |
| | Komorani 1 | 1 699 | Drenica river |
| | Komorani 2 | 1 213 | Drenica river |
| | Llapushik | 3 585 | Drenica river |
| | Nekoc | 3 230 | Drenica river |
| | New Pokleku | 900 | Drenica river |
| | Old Pokleku | 1 265 | Drenica river |
| | Shtrubullova | 1 287 | Drenica river |
| | Tersteniku 1 | 1 958 | Drenica river |

Table 8.7. Collective polluters according to municipalities – The Municipality of Drenas

All the water for the city and village sewerages of Drenas is deployed into the Drenica river. Within the municipality of Drenas, one of the EO-s with a high pollution impact is New Co Feronikeli, which deploys thermal-loaded water, process water and sanitary water and it does not posess a plan for the cleaning or pre-treatment of water.

In Podujeva, the polluter with the highest pollution potential is the oil processor and beverages producer "Inter-Company". Even though the deployed water by this company goes through a neutralization process, it is still polluted.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Podujeva | City | 43 000 | Llap river |
| | Letanc | 2 380 | Llap river |
| | Sekiraqa 1 dhe 2 | 760 | Llap river |
| Shtime | City | 12 000 | Shtimjanja river |
| | Davidovc | 648 | Shtimjanja river |

Table 9. Collective polluters according to municipalities – The Municipality of Podujeva and Shtime

The polluted water from these two municipalities flows into: Llap river for Podujeva, respectively Shtimjanja river for Shtime.

## The Municipality of Obiliq

The Municipality of Obiliq is one of the most polluted municipalities in Kosovo, not only in terms of water, but the air and the land are also polluted. The Sitnica river, besides the pollution it receives from KEK, it also loaded with the polluted water from the sewerages of about 15,500 inhabitants. In the other hand, about 6,500 inhabitants of 4 villages, deploy their polluted water into the Llap river.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Obiliq | City | 5 500 | Sitnica river |
| | Babimoci | 2 000 | Llap river |
| | Dardhishta | 1 900 | Sitnica river |
| | Millosheva, Raskova dhe Bakshi | 4 500 | Llap river |
| | Lower and Upper Mazgit | 4 600 | Sitnica river |
| | Palaj | 1 500 | Sitnica river |
| | Plemetin | 2 000 | Sitnica river |

Table 10. Collective polluters according to municipalities – The Municipality of Obiliq

## The Municipality of Lipjan and Fushe Kosova

In the municipalities of Lipjan and Fushe Kosova, we faced certain difficulties in the beginning when trying to obtain the required coordination. These difficulties came as a result of climate changes, respectively due to the floods which prevented us to access the deployment sites. However, when climate conditions improved we managed to complete our work successfully. Out of the EO-s in Fushe Kosovo, only the dairy producer "Bylmeti" is worth mentioning, but it does not have a high impact on water pollution.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Fushe Kosova | City | 55 000 | Sitnica river |
| | Big Bardhi | 4 800 | Drenica river |
| | Small Bardhi | 905 | Drenica river |
| | Grabovci | 1 500 | Drenica river |
| | Lismiri | 1 455 | Sitnica river |
| | Pomozetin | 860 | Drenica river |
| | The upper Miradi | 2 777 | Sitnica river |
| | The lower Miradi | 2 900 | Sitnica river |
| | Nakarada | 1 500 | Sitnica river |
| | Big Sllatina | 3 700 | Drenica river |

Table 11. Collective polluters according to municipalities – The Municipality of Fushe Kosova

Approximately 63,862 inhabitants of the municipality of Fushe Kosova deploy their polluted water into the Sitnica river. The remaining part of polluted water, which comes from about 11,765 inhabitants of villages in the direction of Drenas, is deployed into the Drenica river.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Lipjan | City | 12 500 | Sitnica river |
| | Babushi i Muhaxherve | 1 350 | Sazlia river |
| | Big Dobraja | 2 268 | Sitnica river |
| | Small Graca | 4 330 | Sitnica river |
| | Llugaxhi dhe Gumnasella | 2 300 | Gumnasella creek |
| | New Rufc dhe small Ribar | 1 345 | Sitnica river |
| | Old Rufc | 665 | Sitnica river |

Table 12. Collective polluters according to municipalities – The Municipality of Lipjan

The Municipality of Lipjan deploys most of its polluted water into the rivers of Sitnica, Gumnasella and Salzlia. About 21,100 inhabitants, deploy their polluted water into the Sitnica river through sewerages. The remaining part deploy in the Sazlia river (1,350 inhabitants) and the Gumnasella creek.

## The Municipality of Gracanica

The Municipality of Gracanica, just like other newly founded municipalities features a different nature of difficulties; initially there is an absence of municipal officials and then there is the lack of the required documentation due to transfer delays from the main municipalities. In this municipality, the EO with the highest pollution potential is the Kishnica mine which features a floatation and a sterie depository, which is protected by a project implemented from the UNDP.

| Municipality | Location | No. of inhabitants | Deployment site |
|---|---|---|---|
| Graçanica | City | 10 000 | Graçanka river |
| | Dobratini | 1 233 | Zhegovci creek |
| | Upper Gushterica | 600 | Janjevka river |
| | Kishnica | 500 | Graçanka river |
| | Lepija | 500 | Sitnica river |
| | Radeva | 200 | Sitnicë river |
| | Skullaneva | 360 | Sitnica river |
| | Suhadolli | 600 | Sitnica river |

Table 13. Collective polluters according to municipalities – The Municipality of Gracanica

The polluted water of Gracanica is deployed into 4 different recipients. The Gracanka river bears the highest load with about 10,500 inhabitants, then comes the Sitnica river with about 1,660 inhabitants, the Zhegovci creek with about 1,233 inhabitants and Janjevka river with about 600 inhabitants.

Images 2 and 3 – Industrial Pollution – Prishtina Region

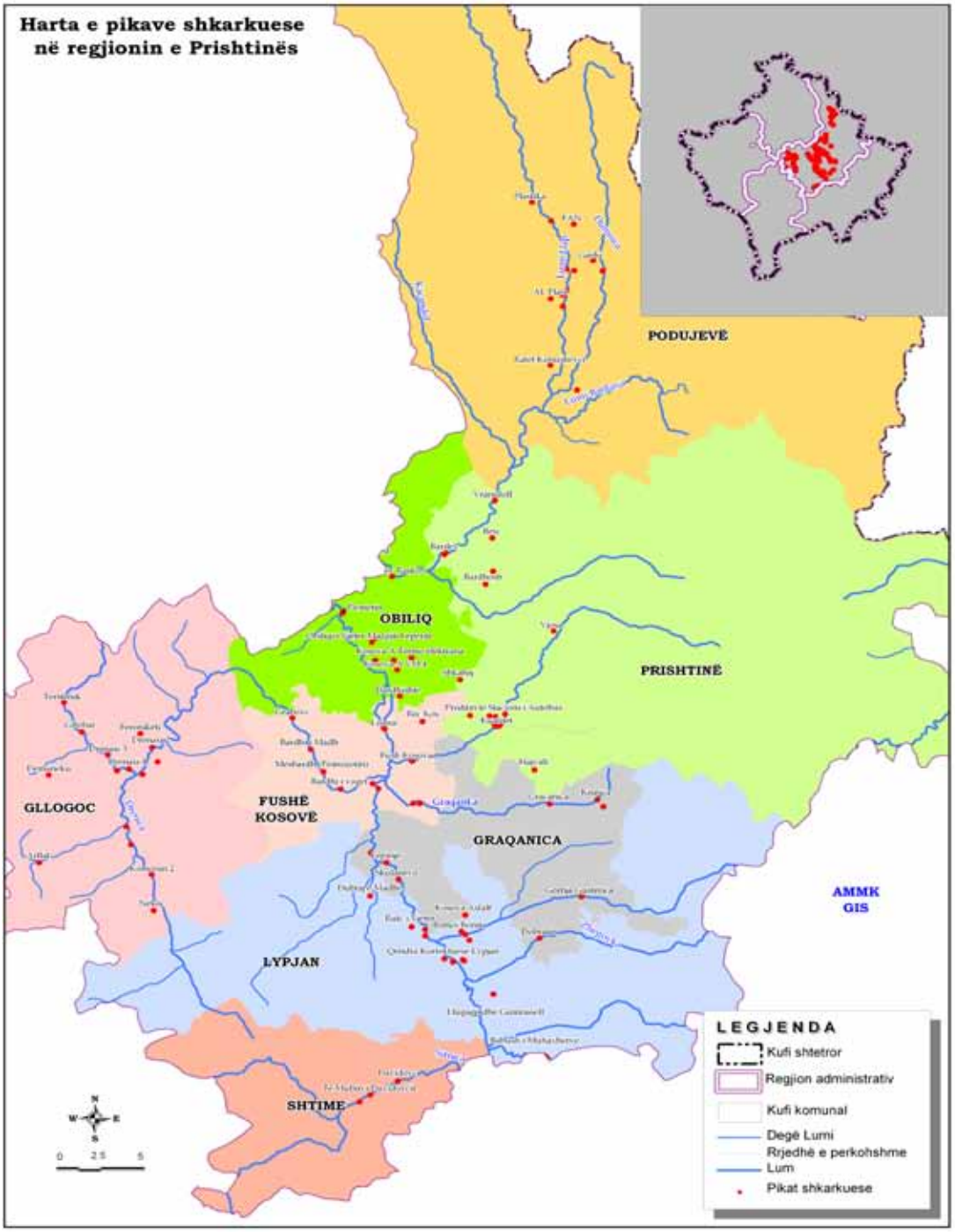
# Individual polluters

Prishtina Region, was the most loaded region with various industrial activities even in the past. KEK is located within the Prishtina Region, and KEK is currently the main polluter in Kosovo. Moreover, this region features a number of smaller polluters as well.

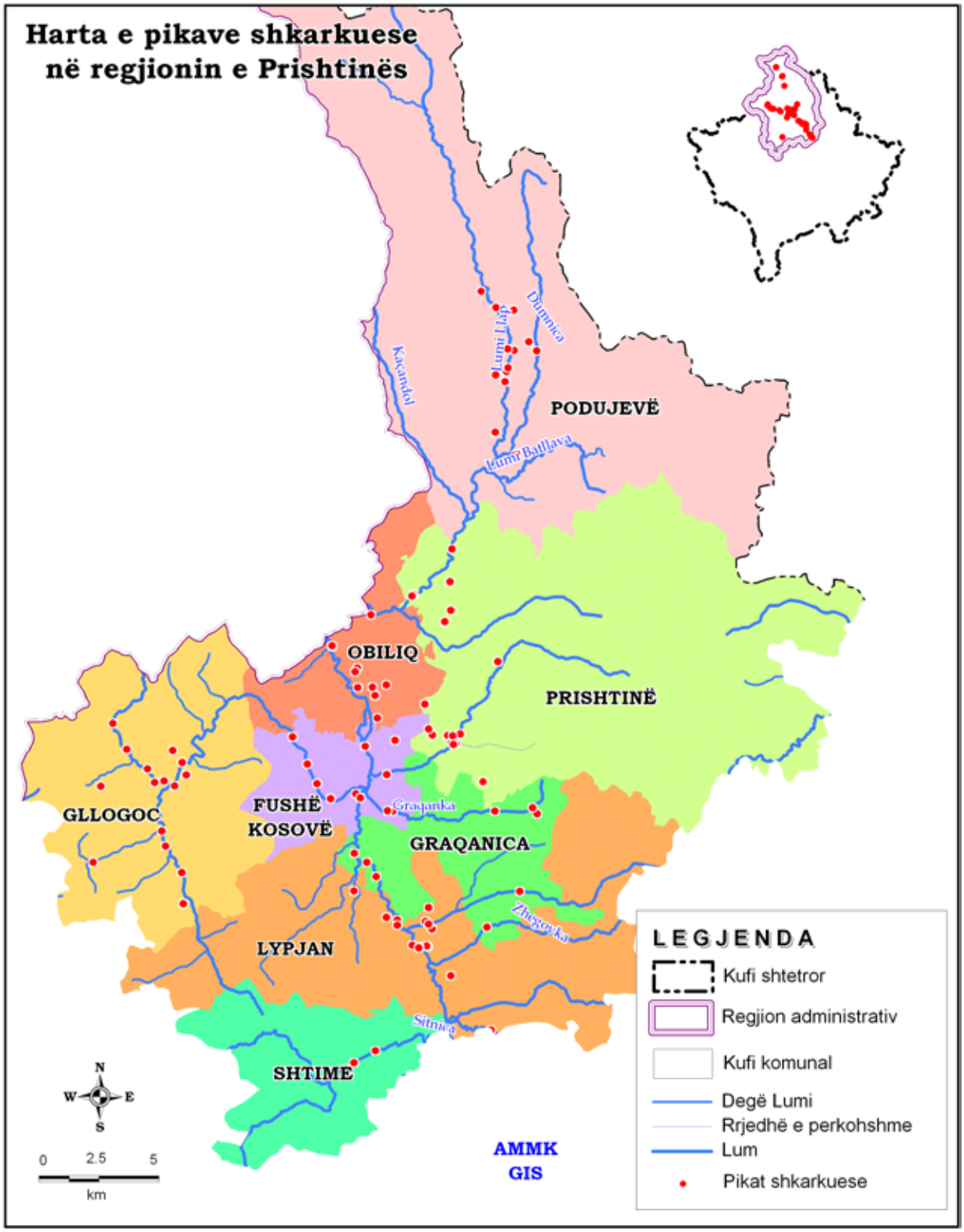
| Municipality | Name of the Pollutant | Activity | Deployment site |
|---|---|---|---|
| Prishtina | Autoparkingu | Car dumpsite/Irongomery | Prishtevka river |
| | Erona riciklim | Ironmongery | Prishtevka river |
| | Idea | Food industry | Prishtevka river |
| | Kosova Tex | Textile industry | Prishtevka river |
| | Kualiteti | Slaughterhouse | Prishtevka river |
| | Trafiku Urban | Auto Park / Machine-Shop | Underground water |
| | NTP Vjosa | Food industry | Prishtevka river |
| Drenas | New Co Feronikel | Industry / Foundry | Drenica river |
| Fushe Kosova | Bylmeti | Food industry | Sitnica river |
| | REC KOS SHPK | Ironmongery | Underground water |
| Gracanica | IMK Kishnica | Metallurgical industry | Graçanka and Marevc rivers |
| Lypjan | AL.Dushi | Chemical cleaning | Sitnica river |
| | NPP Bonus | Food industry | Sitnica river |
| | Kosova asfalt | Asphalt producer | Underground water |
| | Correctional Center | Re-education/Re-socialization | Sitnica river |
| Obiliq | KEK | Energy Industry | Sitnica river |
| Podujeva | AL Plast | Plastic industry | Llap river |
| | FAN SHPK | Iron processing | Llap river |
| | NTP Gashi | Food industry | Llap river |
| | Intercompany-Nora | Food industry | Llap river |
| | Laberion | Food industry | Llap river |
| | Plastika | Plastic industry | Llap river |
| | Rafet Konushevci | Livestock farm | Llap river |
| | Vehbia Comerc | Autparts/Irongomery | Underground water |

Table 14. Individual polluters according to municipalities – Prishtina Region

With regards to individual polluters, the Llap river is the most loaded one, where 7 polluters deploy, mainly from food industry, plastic industry and livestock farms. Second comes the Prishtevka river with 6 polluters – mainly ironmongeries and food industries. The Sitnica river is a recipient of 4 polluters, where KEK is unquestionably the primary polluter with all its activities. The Graçanka and Marec rivers are heavily polluted by the Kishnica mine, even though some investments have been made to prevent the leaks from the mine and its depositories. There are also 4 individual polluters which deploy their waste water into the ground directly, from which the water flows to the ground water.




The map of the deployment sites in the region of Prishtina




The map of the pollution receivers by rivers in the region of Prishtina

# Peja Region

While weather conditions improved, project teams continued their work in Drin River Basin, throughout Peja Region, respectively in Peja Municipality. Unlike the other regions, in Peja region all regional municipalities were visited, respectively environmental officials and public companies, that manage and operate with water-supply and sewerage, were visited and informed regarding the project and questionnaire, and afterwards the reasonable timeframe was provided to fill the questionnaire. The list of Economic Operators was provided to municipal officials for respective municipalities, with the aim of identifying potential polluters. This method did not influence acceleration of data collection. Characteristic of this region is that municipal officials have very little knowledge on Administrative Instructions and Questionnaires, and therefore some data are still missing, and moreover a long time is needed to collect them.

| Region | Municipality | Collective Polluters | Specific Polluters |
|---|---|---|---|
| Peja | Peja | 5 | 10 |
| | Gjakova | 12 | 6 |
| | Decan | 5 | 4 |
| | Junik * | 2 | 0 |
| | Klina | 8 | 0 |
| | Istog | 10 | 14 |
| Total | | 42 | 34 |

Table 15. Polluters according to categories and municipalities – Peja Region

Hence, in Peja region there are 78 polluters, 42 of them are collective polluters and the remaining 34 are specific ones. The municipality of Istog leads with the highest number of polluters – 24, followed by Gjakova with 18 polluters, Peja with 15, etc.

# Individual Polluters

## The Municipality of Peja

Unlike these municipalities, Peja Municipality has only 5 locations or villages that have canalization/sewerage for evacuation of polluted water. From EO-s, the one with the highest pollution potential, is Devolli Company (diary and beverages production company).

| Municipality | Location | Number of inhabitants | Deployment site |
|---|---|---|---|
| Peja | City | 90 000 | "Lumbardhi" river of Peja |
| | Llozhan | 650 | Binxha river |
| | Rashiq | 900 | The Canal of Behoc |
| | Vranoc | 900 | "Lumbardhi" river of Decan |

Table 16 Collective polluters by municipalities – The Municipality of Peja

The largest recipient is "Lumbardhi" river of Peja, which collects wastewater deployments of around 90,000 inhabitants from Peja, since it crosses throughout the city of Peja. Two other smaller wastewater deployments: Binxha and Canal of Behoc collect wastewater deployments of around 1550 inhabitants.

## The Municipality of Decan and Junik

The Municipality of Decan is the only municipality that doesn't have public sewerage, and this made it difficult to obtain information regarding the number and size of collective polluters. Project teams in cooperation with municipality official have identified several septic tanks and deployment sites.

| Municipality | Location | Number of inhabitants | Deployment site |
|---|---|---|---|
| Decan | City | 8 000 | Underground water |
| | Rastovica | 700 | Underground water |
| Juniku | City | 10 000 | Erenik and Trava Rivers |

Table17. Collective polluters according to municipalities- The Municipality of Decan and Junik

Another characteristic of the Municipality of Decan is that both city and village waste waters deploy in irrigate channels, and afterwards during irrigation season, the same waters are used for irrigation, and then deploy in any surface flow or by infiltration into groundwater aquifers.

Junik as a newly established municipality deploys all of its waste-waters, of around 10000 inhabitants into Erenik and Trava rivers. A specific difficulty occurs as well with newly established municipalities like Junik, where the municipal administration is still being formed and specific environmental officials are still missing. Moreover, the necessary data required for the project are missing since the documentations aren't transferred yet, from the mother municipality of Decan.

## The Municipality of Gjakova

City of Gjakova is the only place that beside the sewerage system has the evacuation system for atmospheric water, and furthermore the company that manages the sewerage, is developing the cadastral system. In this municipality there's no industry developed that can be counted as potential pollutant. Industrial zone of this municipality is very little active, and is the only municipality that has septic tank for pre-treatment of polluted waters

| Municipality | Location | Number of inhabitants | Deployment site |
|---|---|---|---|
| Gjakova | City | 91800 | Erenik river |
| | Brovina | 700 | Erenik river |
| | Janosh | 300 | Trakaniq river |
| | Osekpash | 420 | Trakaniq river |
| | Rogova | 5 000 | White Drin |
| | Smolica | 900 | Erenik river |
| | Trakaniq | 420 | Trakaniq river |

Table 18.Collective polluters according to municipalities – The municipality of Gjakova

The main recipient in the municipality of Gjakova is Erenik River, which receives waters of around 91000 inhabitants of the city and 2 villages. Erernik River is followed by White Drin which receives waste waters of around 5000 inhabitants of Rogova, and Trakaniq that receives waste waters of over 1120 inhabitants of 3 villages.

## The Municipality or Istog

In the municipality of Istog, as a result of municipal elections, a longer time was needed to collect data and identify potential polluters. The characteristic of this municipality is that consumption of the drinking water is high over 700l/inhabitant/day as a result of sufficient resources. Sufficient water resources enable fish production and as such fish ponds are the major polluters in this municipality. Prison of Dubrava is another collective pollutant, but the difference is that the prison has septic tank, which enables wastewater to deploy in land aquifer with reduced pollution effect.

| Municipality | Location | Number of inhabitants | Deployment site |
|---|---|---|---|
| Istog | City | 6 200 | River of Istog |
| | Banja Peja | 1 530 | White Drin |
| | Dreja | 350 | River of Istog |
| | Gurrakoc | 4 330 | River of Istog |
| | Staradran | 300 | Small Drin River |
| | Zallq | 200 | River of Istog |

Table 19 Collective polluters according to municipalities – The municipality of Istog

The main recipient in this municipality is the River of Istog, which receiver deployment of sewerages of around 11000 inhabitants of the city and 3 villages. Moreover, White Drin receives deployment of around 1530 inhabitants.

## The Municipality of Klina

Even though the surface of the Municipality of Klina has 5 different rivers (that is an uncommon in Kosovo), Klina is characterized with chronicle problems of water supply, including city itself.

| Municipality | Location | Number of inhabitants | Deployment site |
|---|---|---|---|
| Klina | City | 10 000 | White Drin and Klina river |
| | Dush | 227 | White Drin |
| | Gllareva | 4 012 | Underground water |
| | Gremnik | 1 490 | White Drin |
| | Qabiq | 1 030 | Klina River |

Table 20. Collective polluters according to municipalities – The municipality of Klina

White Drin is the main receiver, which collects waste water of around 11717 inhabitants, while Gllareva village deploys waste water in the nearest mountain, respectively in water bodies.

Image 4 and 5 Septic tank – Prison of Dubrava and deployment place without pre-treatment

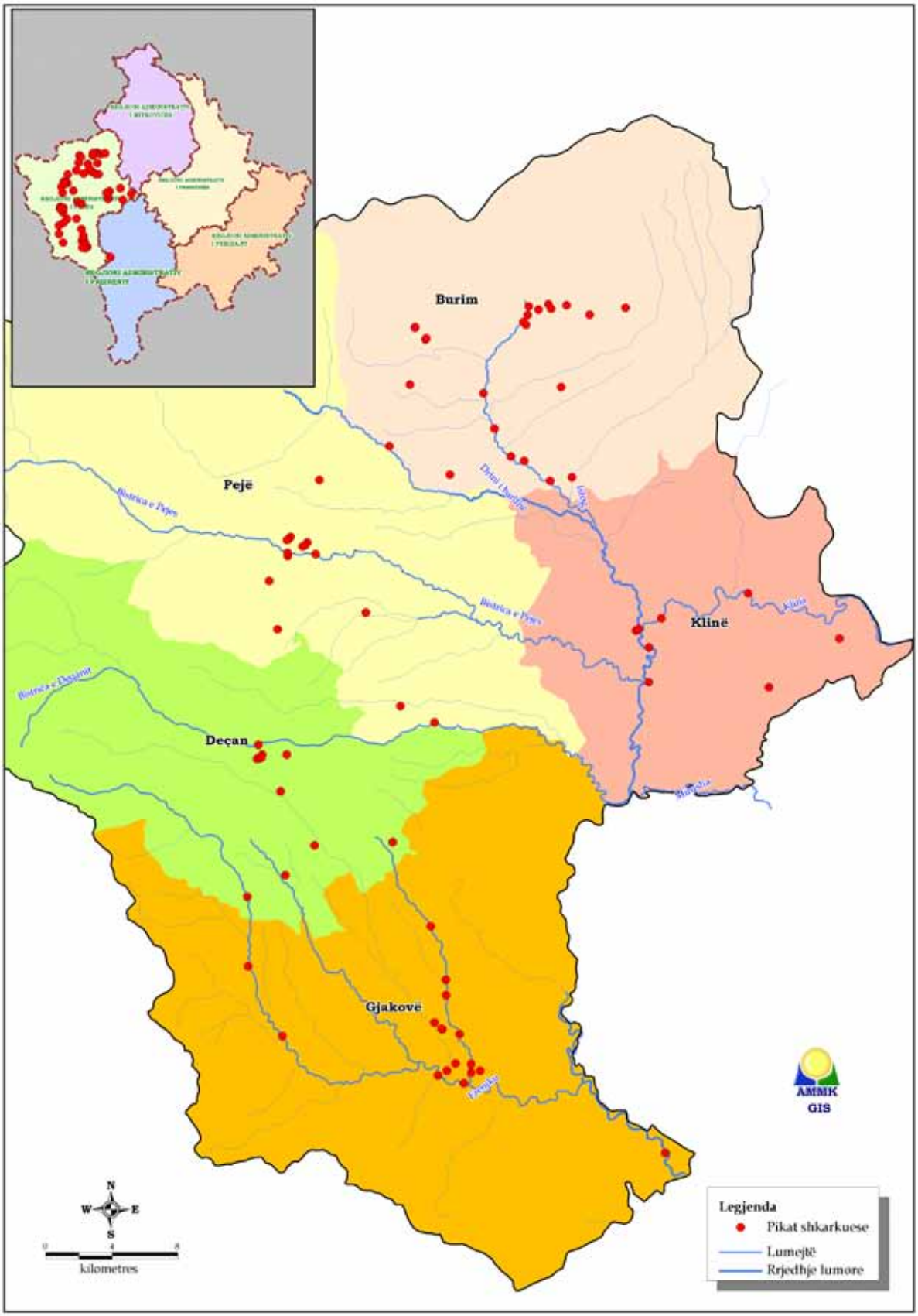
# Individual Polluters

| Municipality | Name of the Pollutant | Activities | Deployment site |
|---|---|---|---|
| Peja | Bibita | Food Industry | "Lumëbardhi" river of Peja |
| | Birra Peja | Food Industry | "Lumëbardhi" river of Peja |
| | Buquku | Butchery | "Lumëbardhi" river of Peja |
| | Devolli Company | Food Industry | "Lumëbardhi" river of Peja |
| | Euro Steel | Ironmongery & secondary materials | "Lumëbardhi" river of Peja |
| | Battery Factory | Industry- Battery production. | "Lumëbardhi" river of Peja |
| | Kulla | Industry - Oil refinery | "Lumëbardhi" river of Peja |
| | Lika Company | Industry – Asphalt production | Underground water |
| | M.M Asfallti | Industry – Asphalt production | Underground water |
| | Leotrimi | Ironmongery | Underground water |
| Deqan | Dervish Musliaj | Goat farm | Underground water |
| | Jetoni AG | Ironmongery | Underground water |
| | Stina | Ironmongery | Underground water |
| | Vllazërit Neziraj | Butchery | Underground water |
| Gjakova | Geberland | Meat Industry | Erenik river |
| | Dielli | Ironmongery | Underground water |
| | Euro United | Ironmongery | Underground water |
| | Te Ylberi | Ironmongery | Underground water |
| | Kamilla | Food industry | Erenik river |
| | Ekspress 2 | Chemical Cleaning | Erenik river |
| Istog | Blerimi | Butchery | River of Istog |
| | Burimi Bicaj | Fish Pond | River of Istog |
| | California | Fish Pond | River of Istog |
| | Delfinat FB | Fish Pond | River of Istog |
| | Getrinke- Vrella | Food Industry | Vrella River |
| | Graniti | Industry – Asphalt production | Underground water |
| | Kumbimi | Fish Pond | River of Istog |
| | Fishery | Fish Pond | River of Istog |
| | Recycling | Ironmongery | Underground water |
| | Te Burimi | Fish Pond | River of Istog |
| | Teuta MI | Butchery | Vrella River |
| | Teuta MI | Livestock Farm | Underground water |
| | Trofta | Fish Pond | River of Istog |

Table 21. Individual polluters according to municipalities – The region of Peja

Most of the individual polluters that were identified deploy their waste waters in the ground, respectively into groundwater. They include livestock farms, butcheries, ironmongeries, but as well asphalt producers. The main recipient is River of Istog with 8 polluters, "Lumbardhi" River with 7, and Erenik River with 3 polluters.


The map of the deployment sites in the region of Peja




The map of the pollution receivers by rivers in the region of Peja

# Mitrovica Region

After finishing the work in the region of Peja, activities followed in the region of Mitrovica, starting with Mitrovica Municipality, its environmental official, and with Regional Water-supply Company (KUR) "Mitrovica", from where we collected data for collective polluters, as well as individual ones.

| Region | Municipality | Collective Polluters | Individual Polluters |
|---|---|---|---|
| Mitrovica | Mitrovica | 13 | 6 |
| | Vushtria | 10 | 3 |
| | Skenderaj | 1 | 0 |
| | Leposaviq | 5 | 0 |
| | Zveqan | 3 | 0 |
| | Zubin Potok | 7 | 0 |
| Total | | 39 | 9 |

Table 22 Polluters according to categories and municipalities – The region of Mitrovica

In the region of Mitrovica 48 polluters were identified, 39 of them are collective whereas 9 of them are individual polluters. From the individual polluters we must distinguish Trepca, with all its surroundings.

## The Municipality of Mitrovica

From the municipality officials were identified data regarding deployment sites of polluted water, as well as the amount for the northern part of the city of Mitrovica. One of the water pollutants with highest potential is Trepca industrial plant, like the water which flows from the mines of Stanterg, as well as sterile depositories, and economic garden of chemical industry. Characteristic of waters that outflow from Trepca is acidity and the presence of heavy metals in the water.

| Municipality | Location | Nr.of inhabitants | Deployment site |
|---|---|---|---|
| Mitrovica | City | 84 000 | Iber river |
| | First Tunnel | 1 500 | Trepca river |
| | Trepca | 1 500 | Trepca river |
| | Zhabar | 5 400 | Iber river |
| | Suhodolli | 2 400 | Iber river |

Table23. Collective polluters according to municipalities – The Municipality of Mitrovica

The main recipient of waste water deployment is river Iber that collects waste waters of around 107800 inhabitants.

## The Municipality of Skenderaj

In the municipality of Skenderaj we have only one plant for cleaning of waste water, but which still is not functioning. There are no villages with public canalization or regulated evacuation of waste water. Locations and specific polluters are few in this municipality, because there are no identified industries.

| Municipality | Location | Nr of inhabitants | Deployment site |
|---|---|---|---|
| Skenderaj | City | 10 000 | Klina River |

Table 24. Collective polluters according to municipalities – The municipality of Skenderaj

## The Municipality of Vushtria

Evacuation of polluted water through canalization is solved properly in the municipality of Vushtria. The number of potential high individual polluters is very low; we can only mention "Llamkos" Factory. This economic operator, which we identified as potential pollutant, was not allowed to be visited from Kosovo Privatization Agency (KPA), and when we tried to visit it again, it was inactive.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Vushtrria | City | 45 000 | Sitnica river |
| | Doberlluke & Smrekovnice | 4 570 | Sitnica river |
| | Grace | 2 800 | Llap river |
| | "M. & Stanovci" River | 2 700 | Llap river |
| | Pestova | 1 570 | Sitnica river |
| | Lower Svaraqaku & Nadakovci | 1 880 | Sitnica river |
| | Shtitarica | 1 260 | Sitnica river |
| | Upper Stanovc | 1 100 | Llap river |
| | Lower Stanovc | 2 800 | Llap river |

Table 25. Collective polluters according to municipalities – The Municipality of Vushtria

The main recipient is Sitnica River, which collects waste water of around 5428 inhabitants of the city and 6 villages. Llap River is the second biggest recipient, which collects waste water of around 9400 inhabitants of 5 villages.

Image 6 and 7 Collective and Individual Deployments

## The Municipalities of Zubin Potok, Zvecan and Leposavic

Because of the present situation in the north, the activities in this part were more specific unlike other municipalities. Working team tried to collect information from this part, therefore municipality officials were contacted, who were very cooperative. However, because of the political situation and governance with these municipalities, officials were skeptic to sign Forms that come out from the Legislation of the Republic of Kosovo. Nevertheless, the officials provided all information that were asked from Forms, which were filled out from a selected expert, engaged specifically for these 3 municipalities (in the mean time the expert was a municipality official from one of these municipalities).

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Zubin Potok | City | 3 500 | Iber River |
| | Qabra | 900 | Iber River |
| | Gazivoda/Ujman | 700 | Iber River |
| | Velji Breg | 600 | Iber River |
| | Uglare | 650 | Iber River |
| | Jesha | 850 | Iber River |
| Leposaviq | City | 5 500 | Iber River |
| | Leshak | 3 200 | Iber River |
| | Soqanica | 2 800 | Iber River |
| Zveqan | City | 4 800 | Iber River |

Table 26. Collective Polluters – The Municipalities of Zubin Potok, Leposavic, and Zvecan

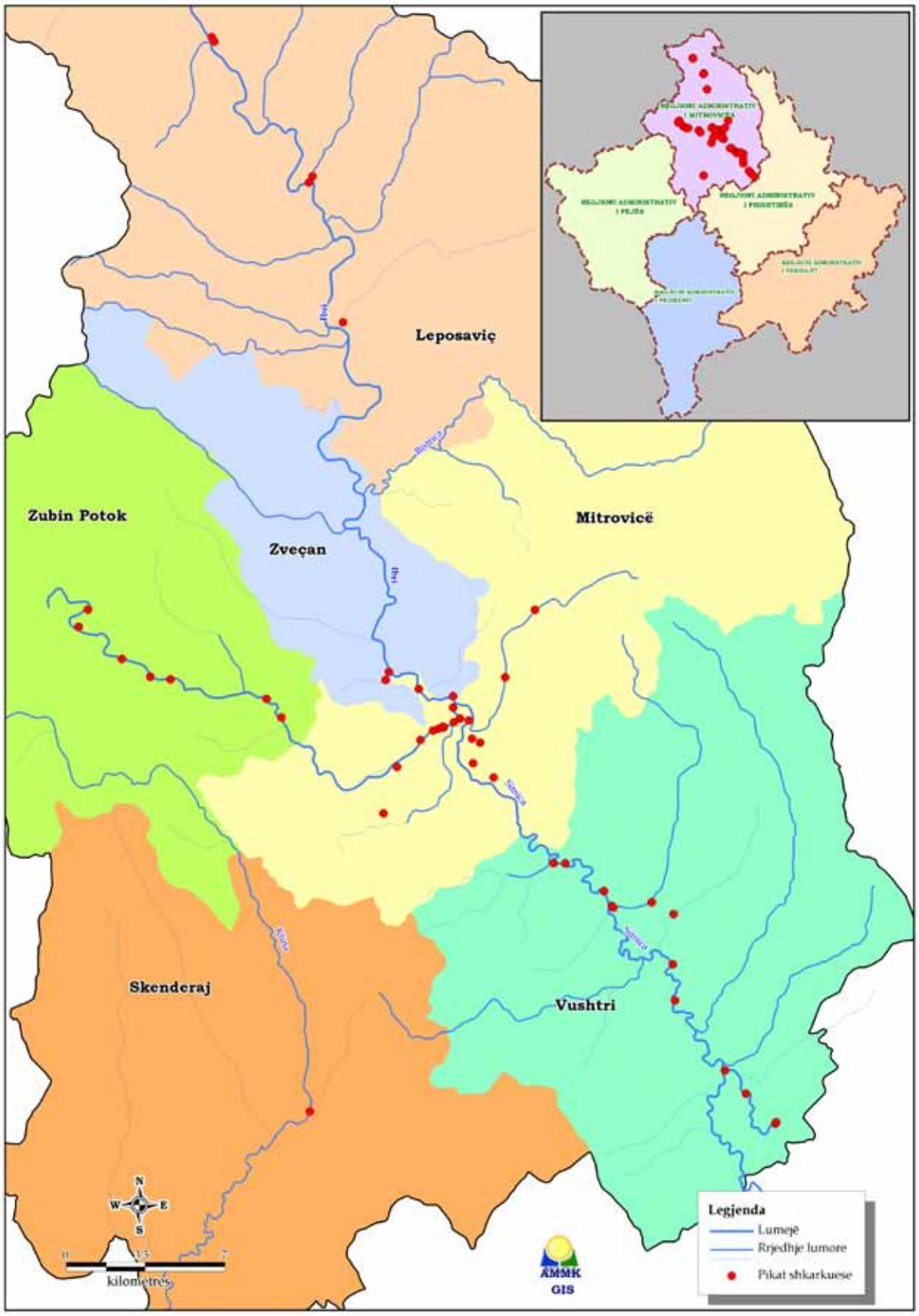
All waste water of these municipalities is deployed into the Iber River, which flows onward to Serbia. However, it is important to mention that before deployment a pre-treatment through septic tanks occurs.

| Municipality | Name of the polluters | Activity | Deployment site |
|---|---|---|---|
| Mitrovica | Burimi | Ironmongery | Underground water |
| | Dragaj & Co | Ironmongery | Underground water |
| | Gratis Commerce | Ironmongery | Underground water |
| | Metalurgu | Ironmongery | Underground water |
| | Naki | Ironmongery | Underground water |
| | Trepca | Metallurgical Industry | Iber river |
| Vushtrri | EMN | Chemical Industry | Terrstena river |
| | Eco Color | Chemical Industry | Sitnica river |
| | Apetit | Butchery | Sitnica river |

Table 27. Individual Polluters according to municipalities – The Mitrovica Region

Regarding individual polluters, some of the small Ironmongery industries deploy their waste water in the ground. Trepca industrial plant, without doubt, mostly loads the Iber River with waste water. On the other hand chemical and food industry mainly deploys waste water in Sitnica River.


The map of the deployment sites in the region of Mitrovica




The map of the pollution receivers by rivers in the region of Mitrovica

# Gjilan Region

Data collection activities for water polluters started exactly in the municipality of Gjilan, where we informed the municipality official regarding our project, its goals and objectives, as well as Administrative Directive (AD) with particular Forms. In the table below, you can see pollution data by municipality and by category, in the region of Gjilan.

| Region | Municipality | Collective Polluters | Individual Polluters |
|---|---|---|---|
| Gjilan | Gjilan | 9 | 4 |
| | Ferizaj | 8 | 6 |
| | Kamenica | 7 | 0 |
| | Vitia | 13 | 0 |
| | Kacanik | 6 | 1 |
| | Hani i Elezit | 2 | 1 |
| | Artana | 3 | 0 |
| | Ranillug | 3 | 0 |
| | Kllokot | 2 | 0 |
| | Shterpce | 1 | 0 |
| Total | | 54 | 12 |

Table 28 Number of polluters by category – The region of Gjilan

In the region of Gjilan 66 polluters were identified, 54 of them are collective polluters, and 12 of them are individual ones. Municipalities with the highest number of polluters are Ferizaj with 14 polluters, Gjilani and Vitia with 13, etc.

## The Municipality of Gjilan

Unlike other municipality official, in Gjilan the municipality official possess majority of data, regarding collective polluters, in digitalized form, which facilitated the work of project team. Officials of Public Company "Hidromorava" don't possess data of deployment sites, which operates and manages the city sewerage; however we collected the needed data through environmental inspector within municipality. Number of locations outside the city, with evacuation of collective polluted water, is relatively small compared to other municipalities. From individual polluters with potential of water pollution is the Factory of Radiators in Gjilan.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Gjilan | City | 76 900 | Mirusha river |
| | Llovca | 400 | Mirusha river |
| | Malisheva | 5 210 | Mirusha river |
| | Muhaxheret of Upper Livoqi | 2 730 | Mirusha river |
| | Muhaxhert of Poneshi | 1 380 | Mirusha river |
| | Serbian Shillova | 1 000 | Stanishor river |
| | Albanian Shillova | 740 | Stanishor river |
| | Uglar | 2 200 | Morava river |
| | Velikinca | 2 800 | Morava river |

Table 29.Collective Polluters by municipalities – The Municipality of Gjilan

The main recipient is Mirusha River, which collects deployment of around 85720 inhabitants of the city and villages, where it passes. The second biggest recipient is Morava e Binces, which collects deployment of around 5000 inhabitants of 2 villages, followed by Stanishori River which collects sewerage deployment of around 1740 inhabitants.

## The Municipalities of Ferizaj, Kacanik and Hani i Elezit

The municipalities of Ferizaj, Kacanik and Hani i Elezit are completed based on the plan and without any specific difficulty. From EO with effect in environment, respectively in water, is important to distinguish Silkapor Enterprise and Oil Factory in the Municipality of Ferizaj, and Cemetery Factory in the municipality of Hani i Elezit.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Ferizaj | City | 70 000 | Nerodime river |
| | Bablak | 400 | Matica river |
| | Balaj | 1 550 | Nerodime river |
| | Cernille | 1 350 | Sazlia river |
| | Muhovc | 730 | Sazlia river |
| | "Prelez i Muhaxherve" | 860 | Matica river |
| | "Talinovci i Muhaxherve" | 1 380 | Sazlia river |

Table 30. Collective Polluters – The municipality of Ferizaj

The main recipient is Nerodime River, which collect deployment of around 141550 inhabitants. The second biggest recipient is Sazli River, which collects deployment of waste water of around 3460 inhabitants.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Hani i Elezit | City | 2 800 | Lepenci river |
| Kaçaniku | City | 13 450 | Nerodime river |
| | Biqevc | 1 620 | Lepenci river |
| | Dubrave | 1 250 | Lepenci river |
| | Kovaqevc | 1 420 | Lepenci river |

Table 31. Collective polluers by municipalities – The municipalities of Kacanik and Hani i Elezit

The Nerodime River is the main recipient, as well in the municipality of Kacanik, which collects deployment of waste water of around 13450 inhabitants. The second biggest recipient is Lepenci River, which collects deployment of around 7000 inhabitants of the city of Hali i Elezit and villages around.

## The Municipality of Vitia

Vitia is one of the rare municipalities, which has solved the evacuation of waste water in the majority of locations through sewerage.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Vitia | City | 8 000 | Morava river |
| | Begunce | 1 400 | Morava river |
| | Upper Budriga | 1 200 | Morava river |
| | Dobresh | 1 500 | Morava river |
| | Gjylekar | 3 300 | Morava river |
| | Podgorc | 400 | Gerqarica river |
| | Pozheran | 7 000 | Morava |
| | Upper Sllatina | 530 | Gelbusha river |
| | Lower Sllatina | 1 400 | Morava river |
| | Zhitia | 1 200 | Morava river |

Table 32.Collective Polluters by municipalities – The Municipality of Vitia

The main recipient in this municipality is Marova River, which collects deployment of around 25000 inhabitants.

## The Municipality of Kamenica

The Municipality of Kamenica, as well, has almost fully covered the majority of location with public sewerage or individual sewerages of some parts of the location in rural zones.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Kamenica | City | 12 000 | Krivareka river |
| | Hodonoc | 3 000 | Hogosht river |
| | Koretini | 3 800 | Krivareka river |
| | Muqiverc | 1 300 | Hogosht river |
| | Rogoqice | 3 000 | Hogosht river |
| | Topanica | 2 200 | Krivareka river |

Table 33 Collective Polluters – The Municipality of Kamenica

The only recipient of waste water in this municipality is Krivareka River, which collects deployment of around 25000 inhabitants.

## The Municipalities of Novo Berda, Ranillug, Kllokot and Shterpce

The Municipalities of Novoberda/Artana, Ranillug, Kllokot and Shterpce are new municipalities, and they are characterized with lack of specific municipality environmental official, just like the case of Gracanica and Junik, therefore documents and data regarding polluters are missing, as a result of delays in transfer from mother municipality.

| Municipality | Location | Nr. of inhabitants | Deployment site |
|---|---|---|---|
| Kllokot | Verbovc | 900 | "Gërçarica" river |
| | Mogilla | 1 700 | "Gërçarica" river |
| Novoberda | City | 480 | Boston river |
| | Libyan | 1 260 | Closure river |
| | Koretisht & Pasjak | 2 000 | Mirusha river |
| Ranillug | City | 1 170 | Morava river |
| | Korminjan | 1 350 | Morava river |
| | Ropotove, Tomance, Pancelo | 1 400 | Ropotova river |
| Shterpce | City | 5 000 | Miloshtica river |

Table 34 Collective Polluters – The Region of Gjilan

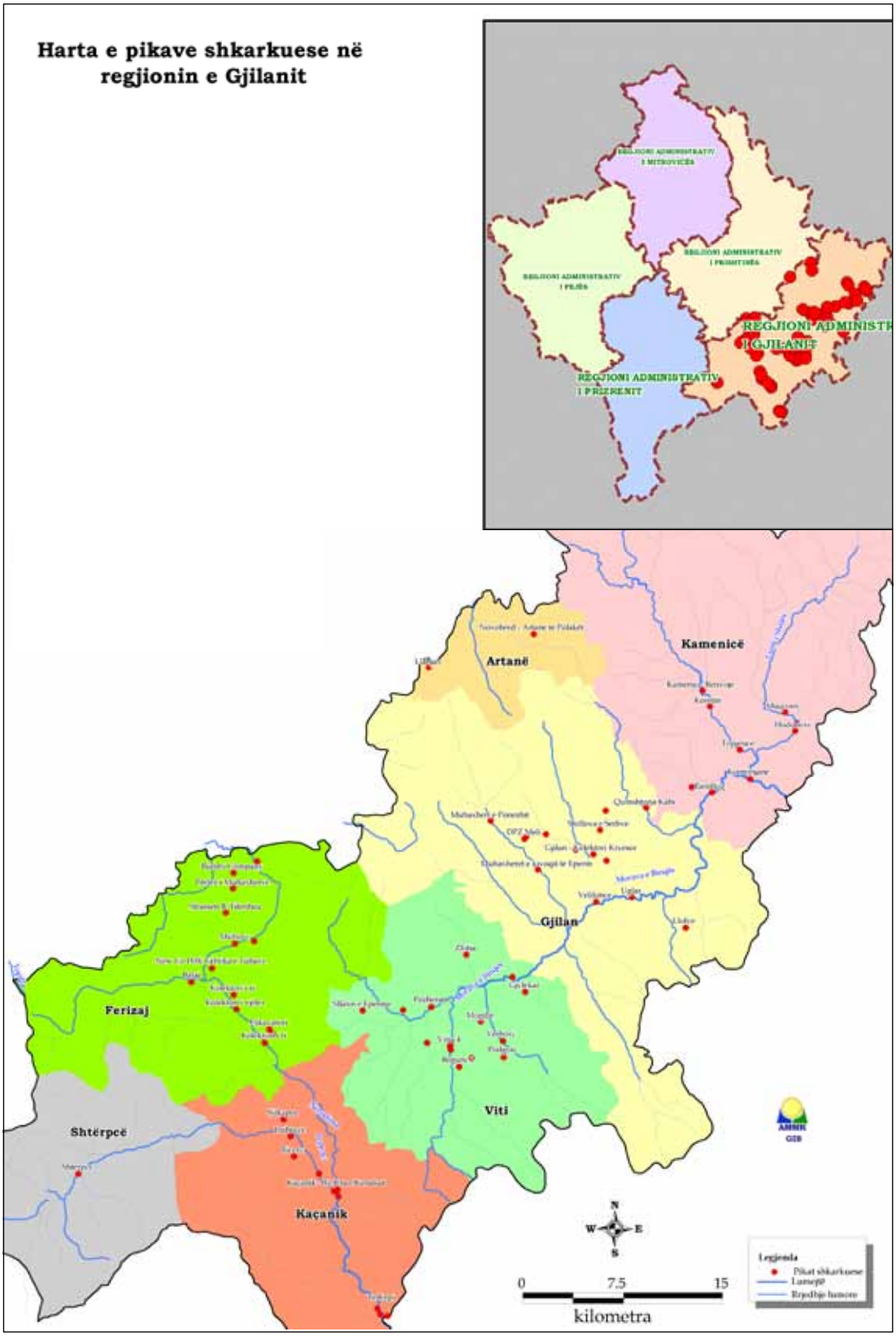
Mines of Artana, is an important pollutant that lies in the territory of the municipality of Prishtina, however environmental effects are transferred in Mareci River, and later on Krivareka River of Kamenica. Deployed waters are acidic waters that come out from mines and have high potential pollution effects.

Image 8 and 9 Deployment of Butcheries and Collective polluters

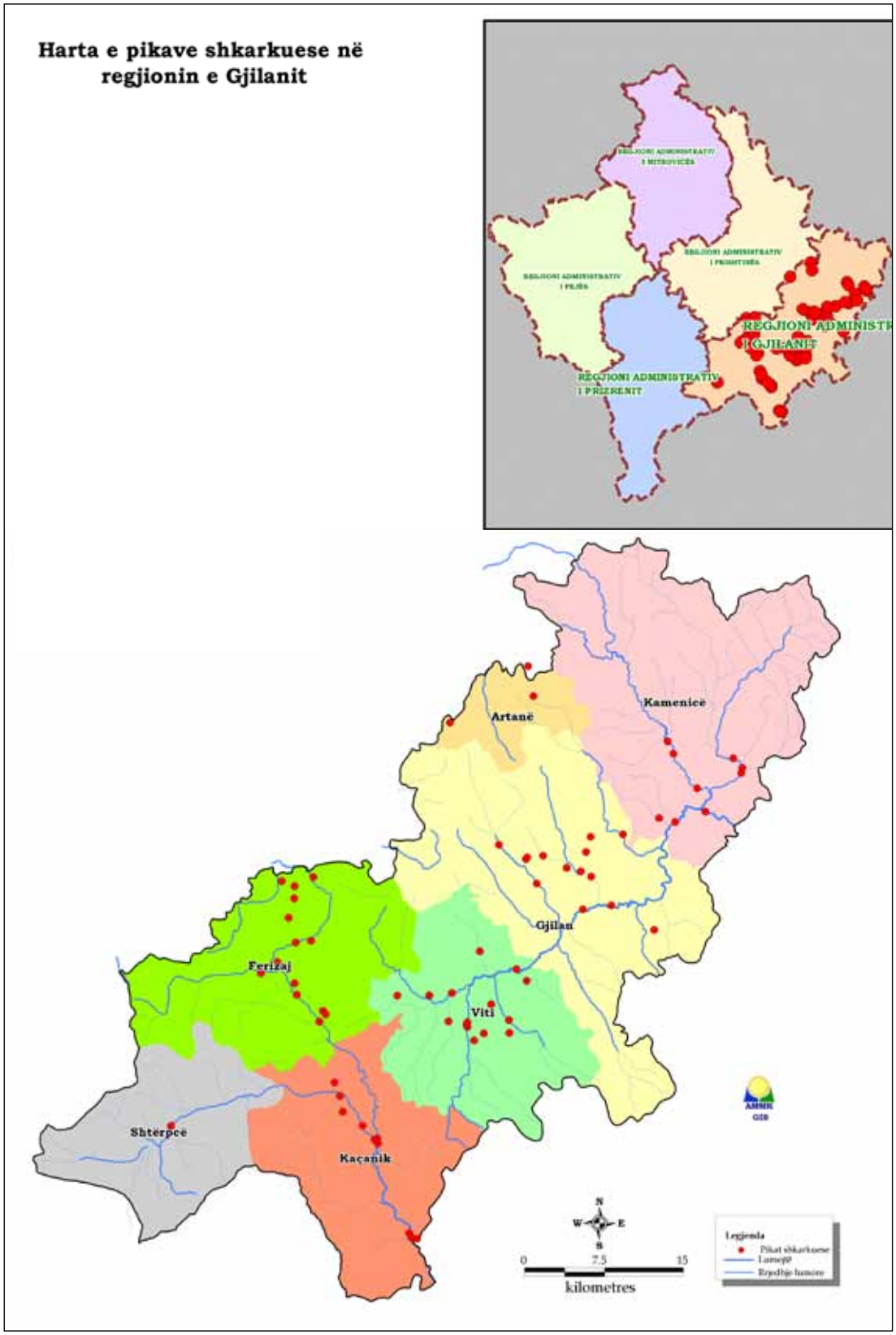
# Individual Polluters

| Municipality | Name of the pollutant | Activities | Deployment Sites |
|---|---|---|---|
| Gjilan | DPZ Meli | Ironmongery | Underground water |
| | NTP Gazi | Butchery | Mirusha river |
| | Factory of Radiators | Industry | Mirusha river |
| | Kabi - Diary Factory | Food industry | Morava river |
| Ferizaj | Burimi Company | Asphalt Producer | Underground water |
| | Eskavatori | Asphalt Producer | Underground water |
| | Lyboteni 1 | Butchery | Nerodimka river |
| | Metali | Ironmongery | Underground water |
| | New Co IMK | Metallic Industry | Nerodimka river |
| | Strassen&Tiefbau | Asphalt Producer | Underground water |
| Hani i Elezit | Sharr Cem | Cement Industry | Lepenc river |
| Kacanik | Silcapor | Construction Industry | Nerodimka river |

Table 35 Individual Polluters by categories – The Region of Gjilan




The map of the deployment sites in the region of Gjilan




The map of the pollution receivers by rivers in the region of Gjilan

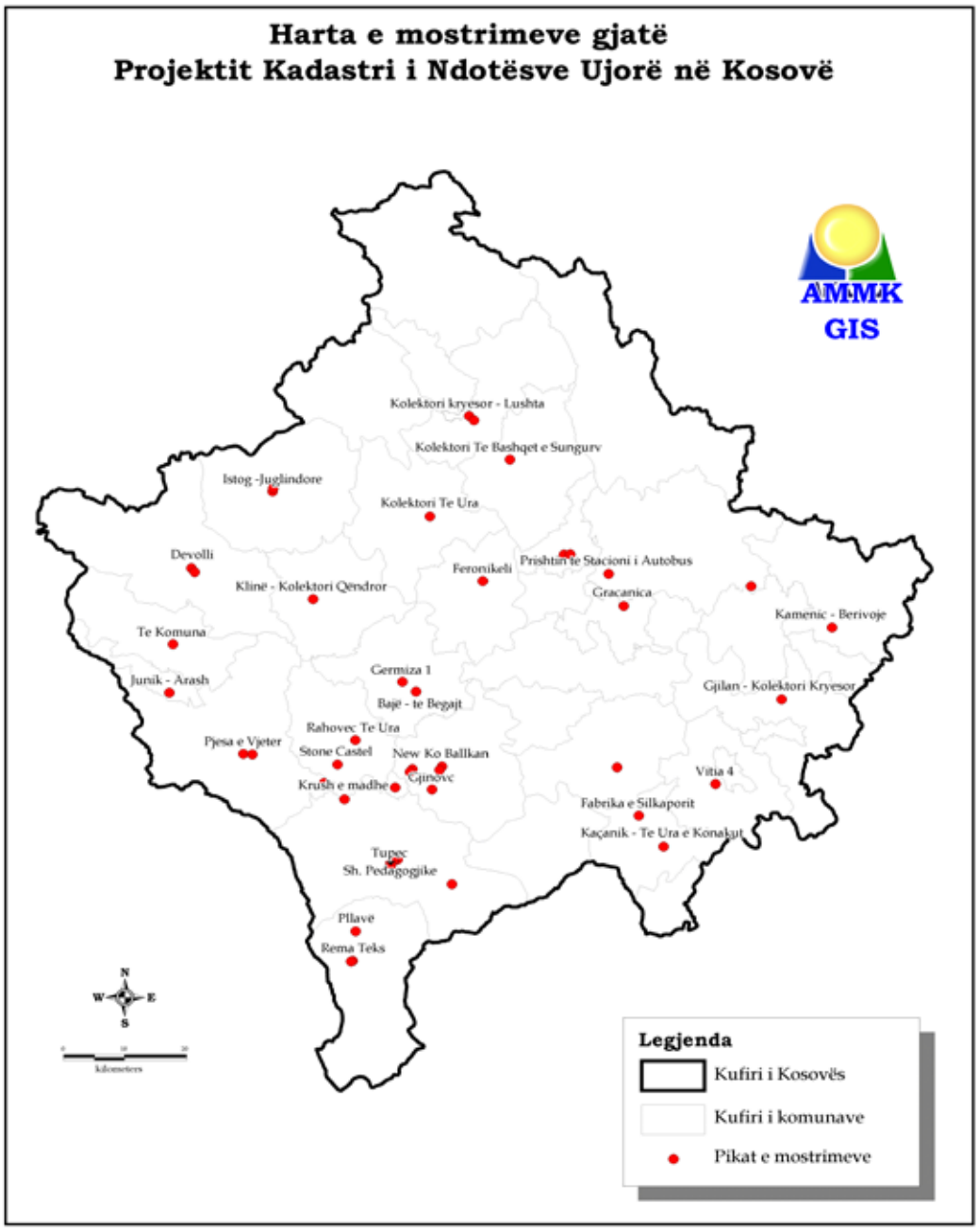
| River name | Collective polluters | Individual polluters | Total |
|---|---|---|---|
| Lumbardhi i Prizrenit | 3 | 5 | 8 |
| Drini i Bardhë | 8 | 3 | 11 |
| Toplluha | 6 | 2 | 8 |
| Plava | 3 | 2 | 5 |
| Mirusha | 2 | 0 | 2 |
| Prishtevka | 1 | 6 | 7 |
| Llapi | 15 | 7 | 22 |
| Gracanka | 3 | 1 | 4 |
| Drenica | 17 | 1 | 18 |
| Shtimjanja | 2 | 0 | 2 |
| Sitnica | 24 | 7 | 31 |
| Lumbardhi i Pejës | 1 | 7 | 8 |
| Lumbardhi i Decanit | 1 | 0 | 1 |
| Ereniku | 4 | 3 | 7 |
| Trakaniqi | 3 | 0 | 3 |
| Istogu | 4 | 8 | 12 |
| Klina | 3 | 0 | 3 |
| Ibër | 13 | 1 | 14 |
| Trepca | 2 | 0 | 2 |
| Mirusha e Gjilanit | 6 | 2 | 8 |
| Stanishor | 2 | 1 | 3 |
| Morava e Binces | 14 | 1 | 15 |
| Nerodime | 3 | 3 | 6 |
| Matica | 2 | 0 | 2 |
| Sazlia | 4 | 0 | 4 |
| Lepenc | 4 | 1 | 5 |
| Krivareka | 6 | 0 | 6 |
| Total | 156 | 61 | 217 |

Tab. 36. Rivers according to number of polluters

According to the table the follwoing rivers have been identified with the majority of the pollutants: Sitnica with 31, Llap with 22, Drenica with 18, Morava e Binces with 15, Ibri with 14, Istog with 12, etc.

# Water Samples

The component part of information of the Forms is in the mean time data for the quality of discharge water, respectively of the polluted water. Experts of REC in cooperation with experts of the Ministry of Environment and Spatial Planning, respectively lab sector experts of the Kosovo Hydro-Meteorological Institute (KHMI), did the sampling of polluted water based on the plan which was previously approved, initially in the Municipality of Prizren, to further continue in the municipalities of other regions. After completion of the registry of polluters, team of the experts drafted a special plan for getting samples, based on measurements where the discharge sites are the highest in number. Sample sites are presented in the following map:




The map of sample sites used during the project


Image 10 Collecting samples

## a) Working Methods

For defining the physical and chemical ratings of the polluted water samples the following methods were used:

- Massivity
- Electrochemistry
- Photometry
- Spectrophotometer UV

Based on the results of lab analyses of the KHMI, which came out from the samples of water from the public network of sewerages, or deployment sites of the individual polluters, in all of the regions, show that almost in all cases evaluation of pollution ratings exceed the rating allowed with AD. Results of the lab analyses show that mostly are polluted the sewerages of big city centers like Prishtina, Prizren, Peja and Mitrovica.

From the elaborated chemical results we can conclude that the amounts of COD and BOD5 have exceeded, based on the approved standards with AD, especially in the deployments sits of the big urban city centers like Prizren (industrial zone), Prishtina, Peja, Gjakova and so on, which are results of pollution from sewerage and industrial deployments. Moreover, industrial activities, no matter of their production capacity, can influence the increase of COO, together with atmospheric falls which can be mixed with the polluted water of discharged polluted waters. The main indicators for the increase of these parameters (ratings) are car-washes or car workshops which discharge organic materials.

COO represents the valuation of the oxygen that is used by some water pollutants, based on the reduction of dichromatic dipping in spe-

cific terms, which is a very important parameter for determine the quality of water.

Lab analyses of the samples in the municipalities of Mamusha, Klina, Malisheva and Skenderaj show that parameters that determine the quality of water, respectively pollution degree is under the maximum values allowed based on the standards approved with the AD. However, this doesn't mean that these municipalities are not polluted and that the situation can change anytime as a result of increase in the number of inhabitants in these urban zones.

In some cases, like the Mamusha case, the low degree of pollution is connected with the high usage of drinking water and waste of the waters (over 800l/per capita/day). As a result of high quantity of used water, the pollution degree is not very alarming, but we estimate that it is the right moment to undertake protective measurements, at least a pre-treatment of polluted water priori to their discharge into the surface water bodies.

If we refer to the results of the analyses for special polluted resources or EO-s, we can see that food industries, such as "Stone Castle" case, have a very big impact in the increase of COO and BOO5, compared to other industries

The characteristic of heavy industries, such as KEK, New co Feronikeli and Trepca, is that the values of COO and BOO5 are lower, compared to the ones in the urban waters. Water that deploy from mines of Trepca and Artana are acidic waters with very low pH.

From the chemical analyses we can see that the values of other parameter are within the standard limited values, and they don't exceed the maximum values allowed with the AD, for effluents that deploy in water bodies through the network of public sewerage, or any other evacuation form of polluted water.

The table below presents the pollution parameter values for the analyzed samples of the urban and industrial water deployments

| Types of the emission (reflected on mg/L) | Prizren -Industrial Zone | Prishtina -Bus station | Stone Castle mg/L | KEK | Feronikel | Standard values (amounts) based on AD | EU Standards |
|---|---|---|---|---|---|---|---|
| Suspended materials | 448 | 52.5 | 375 | 47 | 48 | 300 | <200 |
| Wasted salts | 572 | 247 | 217 | 329 | 270 | 150 | - |
| COD with dichromate | 740 | 148 | 465 | 63.5 | 27.6 | 100 | <500 |
| $BOD_5$ | 35.95 | 17 | 36.9 | 11.4 | 13.1 | 50 | <250 |
| N-($NH_3$) | 0.325 | 0.89 | 0.36 | 1.0 | 2.16 | 30 | <30 |
| N-($NO_2$) | 0.06 | 0.45 | 0.04 | 0.14 | 0.14 | 10 | - |
| N-($NO_3$) | 0.0 | 0.95 | 0.09 | 5.65 | 2.56 | 120 | 30 |
| P-($P_2O_5$) | 0.764 | 1.09 | 0.25 | 0.64 | 0.14 | 300 | 10 |

Lab results presented in the Table 4 compared to the standard values based on AD show that discharged waters exceed standards for parameters MS, KT and COD, whereas values of nitrates, ammonias and phosphors are lower than the standard values. Values of pollution parameters for EO-s differ based on their activities and the amount of used water.

| Location/ Parameters | Suspended Materials | Wasted salts | COO with dichromate | $BOO_5$ | N- ($NH_3$) | N- ($NO_2$) | N-($NO_3$) | P- ($p_2O_5$) |
|---|---|---|---|---|---|---|---|---|
| Industrial Zone - Prizren | ▲ | ▲ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ |
| Fruti - Prizren | ▼ | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Gypi Magjistral -Prizren | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| School of Pedagogy Prizren | ◊ | ▲ | ◊ | ◊ | ▼ | ▼ | ▼ | ▼ |
| "Tupeci"-Prizren | ◊ | ▲ | ◊ | ◊ | ▼ | ▼ | ▼ | ▼ |
| Samadraxha-Suharekë | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Studenqani-Suharekë | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| "Te Ballkani"-Suhareka (City) | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| New Co Ballkani | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Gjinoci-Suhareka | ▼ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Rahoveci | ▼ | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Stone Casle | ▲ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Big Krusha | ▲ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Mamusha | ▲ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Malisheva | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| "Banja e Malisheves" - Malisheva | ◊ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| "Te Fabrika" –Dragash | ▼ | ▼ | ▼ | ▼ | ◊ | ◊ | ◊ | ◊ |
| Rematex –Dragash | ▼ | ▼ | ▼ | ▼ | ◊ | ◊ | ◊ | ◊ |
| Pllava-Dragash | ▼ | ▼ | ▼ | ▼ | ◊ | ◊ | ◊ | ◊ |
| Peja - City | ▼ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Devolli – Peja | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Istog – City | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| "Trofta" – Istog | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Klina –City | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Gjakova -City | ▼ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Gerberland-Gjakova | ▼ | ▲ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ |
| Rogova-Gjakova | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Junik | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Decan | ▼ | ▲ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Mitrovica | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |
| Flotacioni –Tepca | ▼ | ▲ | ▼ | ▼ | ▼ | ▼ | ▼ | ▼ |

The Legend: ▲over VML, ▼under VML, ◊ no results available

# Conclusions and Recommendations

## Conclusions

Kosovo has serious problems with the amount and the quality of water. The situation in the field is very intense. If we exclude some little mechanical treatments, Kosovo doesn't have a minimal treatment of polluted water, nor from collective polluters, neither from individual ones. As the result, all waste waters deploy into the surface-waters or into the groundwater without any treatment and therefore burden the quality of water.

All the polluted waters that deploy into the recipients don't have any pre-treatment measures (excluding the Correctional Facility in Dubrava and Lypjan, even though the plant in Lypian is currently out of the function).

In Skenderaj, the plant for polluted water treatment exists, but is out of function. There are many reasons for non-functioning of the plant, such as technical construction issues, property problems, impossibility for maintaining the operation of the plant.

Waste water that deploys outside water flows mainly end in the groundwater, and as such present potential risk for water supply resources of around 40% of the population that gets supplied with the water, outside water-supply systems. Characteristics of emissions in the water are the high degree of organic and microbiological wastes, as a result of urban feaces and industrial wastes.

Only in the municipalities of Mamusha, Malisheva, Klina and Skenderaj, values of the surface parameters don't exceed the limited values, as a result of large amounts of water and small number of inhabitants, respectively lower amount of emissions in the water.

Polluted waters from industries and mines are polluted and don't have any kind of monitoring regarding their quality.

Having in mind that most of the polluted waters through their flow-lines deploy in the direction of three states: Albania, Serbia and Macedonia, it is expected that in the near future to be discussed the case of inter-border waters and their impacts.

## Legislation and Human Resources

AD for the Cadastre of Environmental Pollution Emissions, respectively water component inside, is not being implemented almost in none of the municipalities. The knowledge of municipality official, regarding AD and Forms of the Cadastre of Pollution Emission, is very limited.

The database of collective and individual polluters is missing. None of the individual polluters, respectively EO, don't have any knowledge regarding the AD and responsibilities defined with AD; including water-supply companies, that in majority of the municipalities are responsible for managing waste waters.

The exact data regarding the quantity of used water and the quantity of deployed water for all contacted individual polluters are missing. The quality of water, in most of the cases exceeds the limited amount allowed, especially in the big city urban zones (Prishina , Prizren, Peja and Mitrovica).

The municipality officials have limited possibilities to practice their role, utterly because of the treatment that the environmental sector has in the municipalities. They have lack of logistics, including vehicles they need for the field work; moreover they are in shortage of human resources, especially GIS, equipment such as GPS, camera, and computer with big capacity.

## Challenges

A chronic problem when it comes to projections in Kosovo is lack of census, which was, in the mean time, a big problem throughout drafting the Report. The data, regarding the number of inhabitants per municipality, presented in the Colum of the tables used in the Report, are approximate. The most problematic cases, for the number of inhabitants, are the big urban cities, which are faced with the huge invasion of immigrants in the last decade.

In the majority of municipalities the information regarding polluters are missing, officials face difficulties with logistics, lack of capacities, and in some cases the young municipal officials don't have the basic knowledge for the field they cover (they work in)

The new municipalities, which were created through the decentralization process, still face the lack of needed capacities and the process of transferring documents from the mother municipality is still ongoing.

The list of Economic Operators (EO-s), provided previously from the MESP is not updated and most of the operators don't exist or have changed their activities, and the contact numbers don't correspond with the existing ones. The last List of EO-s provided to us on the date 10/03/2010, should be categorized by pollution activities, since the existing ones has all the EO-s registered in the business registry list. During enrollment in the EO-s registry, business list activities that they don't exercises, or that tend to do in the future, but which in the current situation creates confusion.

Another difficulty is internal inter-sectorial communication in the municipality level, and therefore the present bureaucracy took us more time to fill the data into the Forms.

Throughout the work in the field, officials of some of the polluters hesitated providing information needed to fulfill the Forms (such as the case of Hydroregion "KUR" in Prizren) or as well there were some cases when the information were left blank. The municipalities mainly have lack of information regarding the amount of the used water and the amount of water deployment into the receivers. In the cases like this the indirect form of pre-measurements were used, starting from the average used water per capita and the use of deployment coefficient of sanitarian water or the emission ones (the calculation is explained in the methodology part of the report). It is important to mention that there are unregistered businesses, which are very big polluters, such as fattening farm or chemical cleaning capacities.

## Recommendations

### The Government of Kosovo

The Government of Kosovo is responsible for protecting the health of its citizens. The ascertainment that Kosovo doesn't have treatment for waste water, should push the government to seriously think about this multidimensional problem, which effect the health of the citizens, functioning of the environmental eco-systems, implications in the socio-economic development of the state, up to the inter-border problems that my occur in the future.

The Government of Kosovo should start with the Feasibility Studies of the plants that treat waste water, especially in the big city centers. And this would influence the mid-term investment plan and hence find the possibilities to loans for their implementation.

### The Ministry of Environment and Spatial Plan

MESP is the responsible body for drafting policies and legislation on protection of environment in general, and water in particular.

From the legislative aspect MESP should review

the AD on Cadastre of the Pollution Emissions, since the existing one has legislative gaps, and technical and content mistakes that create difficulties on the implementation, especially at the Forms part. Moreover, the AD is based on the Law on Environment of the year 2003, which is not in the power anymore.

If the new Law doesn't outlaw the AD, than the implementation of the AD on Cadastre of Pollution Emission should start in all municipalities, from all collective and individual polluters.

Whereas on the field work, the MESP with all its structural bodies (AKMM, DU, DMM), and other partners should plan the activities to continue with the identification of the new polluters, requesting even more detailed data asked in the BKU and BV Forms, and monitoring the identified polluters.

## The Municipalities

After the decentralization process, municipalities have more responsibility for the environment in their territory. It is very important to increase the number of human resources and technical capacities within the municipality, to deal with environmental issues, collective and individual polluters, the AD issues and all responsibilities defined with the AD.

Analyses of the possibilities for building the infrastructure for pre-treatment of polluted waters should be done, especially in the bigger locations, in order to decrease the pollution degree in the limited level allowed.

## The Public Companies

Public Water-Supply Companies in Kosovo usually are responsible for the sewerages as well, even though in a smaller scale. Today, they offer sewerage service for around 40% of the population in Kosovo. Hence, these companies should be identified and take part in the implementation of the AD, and other following steps for water polluters in Kosovo.

## The Polluters

EO-s, especially the one with high potential of pollution, is obliged to do a treatment (neutralization) of the water prior to deployment into the recipient. Big polluters, like KEK, even in the last years, caused excessive pollution in the surface waters, including inter-boarder problem, such as the case with phenol pollution in 2003, when the intervention of UNEP was needed to solve the problem.

Individual polluters with big pollution potential have legislative obligation to do the self-monitoring of the deployments and to send the exact outcomes to the state institutions that are responsible for monitoring (AMMK).

The dynamic monitoring of deployment of the polluters should be done from the local officials for the environment, both in the quantitative and qualitative aspects.

## Contact List of the municipality Officials that helped filling the Form

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# About REC

The Regional Environmental Centre for Central and Eastern Europe (REC) is a neutral, non-advocacy; not-for-profit organization with the mission is to assist in solving the environmental problems of the Central and Eastern European (CEE) Region. And to encourage its progress toward sustainable development. REC fulfills its mission by promoting cooperation among non-governmental organizations, governments, enterprises and other key environmental bodies, through supporting exchange of information and public participation in the decision-making for the environment.

REC was founded in 1990 by the United States, the European Commission and Hungary. Today REC legally acts based on Card signed from 29 states and European Commission, and based on international agreement signed with the government of Hungary. The REC headquarter are based in Szentendre , Hungary, and is active through state offices of the beneficiary countries: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, FYR Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia and Turkey.

The REC office in Kosovo was founded in 2000, with the mission to assist in development and re-organization of environmental civil-society in Kosovo, and also to support development and enforcement of environmental policies, during the economic development phase through which Kosovo is passing.

The REC's expertise is focused on: policy making in environmental field in the national and local levels, environmental education, biodiversity protection, water management, support of the civil society, public information and awareness raising, participation in environmental decision-making issues, etc.

The main partners of the REC are: the Ministry of Environment and Spatial Planning, the Ministry of Education, Science and Technology, the Ministry of Local Government Administration, municipal governments, local and international non-profit environmental organizations, media, etc.

The main donors that help the implementation of the REC's projects are: European Commission, SIDA, The Government of Netherlands, the Government of Norway, KFOS, etc.

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