STATE OF ENVIRONMENT HOTSPOTS FROM MINING AND INDUSTRY SECTOR IN KOSOVO

BESA VESELI[1], ILIR KRISTO[2], NEXHAT BALAJ[3]

[1]Kosovo Chamber of Commerce, Prishtina, Kosovo, PhD-candidate
[2]Agricultural University of Tirana, Albania
[3]European College Juridica- Faculty of Public Policy and Management, Prishtina, Kosovo
besaveselii@gmail.com

ABSTRACT
Contamination of water, soil, and air in many parts of the world, but also in Kosovo, is a serious environmental problem, and a permanent risk to public health. The main purpose of this study is to identify potential environmental hot-spots in Kosovo, to provide basic information about their condition, and to provide information which could be used to initiate projects for developing more detailed studies. In this study are presented separately groups hotspots in Kosovo such as: Hotspots from sanitary landfills, industry and mining sector. These areas which are considered to have a significant impact on the environment and public health are evidenced.
Environmental hot-spots were mainly created as a result of past industrial activities, caused by mining activities, unmanaged old landfills, stored chemicals, waste oils, expired pesticides, and so on. Data for preparation of the study were collected from site visits, meetings, and contacts with various governmental and non-governmental institutions, from the projects carried out in this area, as well as from public enterprises that manage these areas.
During the fieldwork in the entire territory of Kosovo, about 110 sensitive spots are evidenced, whereas, 28 areas with the potential for greater impact on the environment and threat to public health. The total surface of these hotspots is about 9.94 km^2 or 0.09% of the territory of Kosovo.

Key words: Hot spots, Kosovo, contamination, industry, environmental problem.

INTRODUCTION

The term “hotspot” is now becoming a common definition in the field of environmental protection. Environmentalists usually use the term “hot-spot” when referring to the negative change, and environmental deterioration in a particular area, or to describe the contaminated areas that remained uncontrolled or unmonitored for a short or longer period of time, and that have harmful effects on the environment and human health.
Environmental degradation through air pollution, noise, chemicals, water quality, and loss of natural areas, combined with changes in lifestyle, may greatly affect the quality of human health. Exposure to chemicals is associated with decreased function of genital organs, genital mal-formations, mental development problems, obesity, and cancer diseases (EUROPEAN ENVIRONMENT STATE, 2010).
Municipality of Mitrovica and its region has one of the highest levels of pollution in Kosovo, caused by industrial activities of Trepça mining complex. This pollution has started from the prehistoric times, but more intensively from 1927 in the mining of Stan Terg started, operated by the British company ”Mine Limited”, in 1939 lead foundry and 1967 the production of zinc.
Environmental pollution is a widespread problem that knows no national boundaries. Contamination of water, soil, and air in many parts of the world, but also in Kosovo, is a serious environmental problem, and a permanent risk to public health. Industrial

development that does not comply with environmental standards is the main source of pollution. Because of abundant natural resources, part of Kosovo's economy has been oriented on development of the mining sector. Greater exploitation of these resources has been occurred especially during the 70s and 80s. Consequently, there are inherent problems in the field of environment. Here, above all, we must emphasize the impact on the environment from industrial waste, industrial plants, tailings (mine dumps), storage of chemicals from agriculture, etc.

Mining often has a dramatic and highly visual impact on the environment. Perhaps this is why it is one of the economic activities that generate the most environmental controversy, (UNEP, 2000).

The environmental impacts of large scale mining include the destruction of vegetation, hydrological disruption, noise and air pollution and severe contamination of surface and water (COURTAGE, J.L, 1999).

European environmental policies are intended to provide an environment, in which the level of pollution does not generate harmful effects on human health. Within these attempts are also the 6th Environment Action Programme (EAP-6), the EU Environment and Health Strategy, Action Plan 2004-2010, and the Pan-European program of the WHO for Environment and Health (EUROPEAN JOURNAL OF PUBLIC HEALTH, 2009).

MATERIAL AND METHOD

In this study are presented separately groups hotspot in Kosovo such as: hotspots from sanitary landfills, industry and mining sector. Only these areas which are considered, to have a significant impact on the environment and public health are evidenced.

Data for preparation of the study were collected from site visits, meetings, and contacts with various governmental and non-governmental institutions, during the year, 2010-2011.

Kosovo is located in the central part of Balkan. Lies between 41°50'58" and 43 ° 51'42" of northern geographic latitude, and 20°01'3'' and 21°48'02" of east geographic longitude. Kosovo has an area of 10,908km^2. According to preliminary results from the preliminary census conducted by SOK in 2011, Kosovo has 1.73 million inhabitants, and the average density of 159 inhabitants per km^2.

During the fieldwork in the entire territory of Kosovo, about 110 sensitive spots are studied, whereas, 28 areas with the potential for greater impact on the environment.

Figure 1. Environmental hot-spots in Republic of Kosovo

RESULTS

Environmental hotspots according to location, activity and surface in Kosovo

In the following table are presented summary data for all potential hotspots identified. The data presented show that the majority of potential hotspots are from industrial and mining activities, some of which are still active and others that are not active, but that owns hazardous substances, or contaminated areas.

Table 1: Environmental hotspots according to location, activity, surface and potential pollution sources

Site	Activity in the past	Surface
Industrial Park in Mitrovica	Industrial landfill	115.10 ha
Mine in Golesh-Municipality of Lipjan	Exploitation and processing Of heavy met	15.13 ha
Municipal sanitary landfill in Mitrovice	Waste landfill	3.6 ha
The tires and conveyor production plant-Suhareke	Waste oils and soil contamination	17.17 ha
Slag landfill of Ferronickel Cikatove-Drenas	Landfill of industrial slag of Ferronickel	24 ha
Radioactive materials in the industrial complex Trepce - Mitrovice	Storage of radioactive materials – thorium nitrate	0.04 ha
Radioactive matters at "Tuneli i Pare", Mitrovice	Storage of radioactive materials –Strontium, Thorium and Americium	0.03 ha
Ash dump in TPP A	Industrial landfill	181.97 ha
Ash dump in TPP B	Industrial landfill and the impact areal	192.94 ha
The facility of ex Agriculture enterprise in Shiroke-Therande	Storage of pesticides and fertilizers	0.04 ha
Industrial complex of Sharr Cem, Hani i Elezit	Two landfills of asbestos materials	0.60 ha
Regional sanitary landfill Gjilan	Waste landfill	20.50 ha

Table 2 show the potential hotspots, according to the activity by which are created. The table shows that most of these hotspots are represented by mining activities, represented with landfills (26.6%), ash landfills (30.1%) and industrial landfills (27%). In total, all the identified potential hotspots in Kosovo, cover an area of 0.09% of total Kosovo territory.

Table 2. Table of all hotspots, activity, surface and percentage from total Kosovo territory

Activity	Surface in km²	Percentage from total of hotspots	Percentage from total Kosovo territory km²
Tailings	2.66	26.6	0.024
Ash dumps	3.01	30.1	0.027
Industrial landfill	2.7	27.08	0.024
Waste landfill	0.93	9.3	0.008
Radioactive materials	0.67	6.7	0.006
Total	9.97	100	0.091

Hotspots from sanitary landfills in Kosovo

Kosovo has inherited municipal waste landfills in many locations. Most of them are located without criteria and preliminary studies. Some of them despite that are closed, are not yet rehabilitated. Such locations are identified as hotspots with potential impact on the environment.

There are 6 municipal and regional landfills in the territory of Kosovo, which are considered as potential hotspots, and which are located in: Prizren, Podujeve, Obiliq, Mitrovice, Gjilan and Peja, (*Figure 2).*

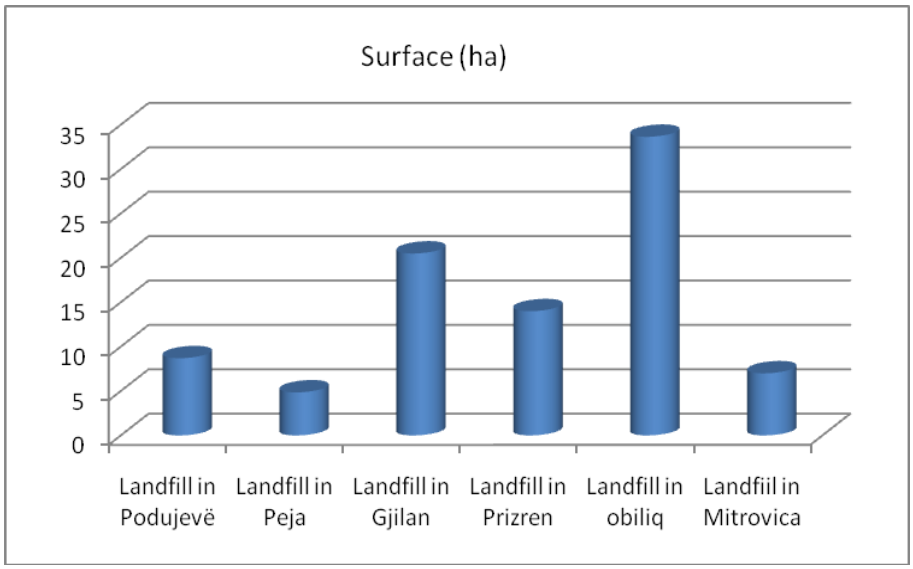

Figure 2. Potential hotspots surface (ha) from sanitary landfills in Kosovo

Hotspots from industry sector

After 1999, most of manufacturing industries were out of function. Most of these industries resulted with hazardous waste, old unused technology, demolished buildings, and unmanaged storages. All these contributed to increased environmental impact. Such locations of potential pollution from industry can be considered as hot spots, and with environmental impacts. These sites are a source of pollution of soil, water and air. Vast areas of land are contaminated by acidic water, and heavy metals, especially Lead, Zinc, Cadmium, Arsenic, Mercury etc. Among the most affected municipalities by these hotspots are: Gllogoc, Mitrovice, Suhareke, Zvecan (*Figure 3*).

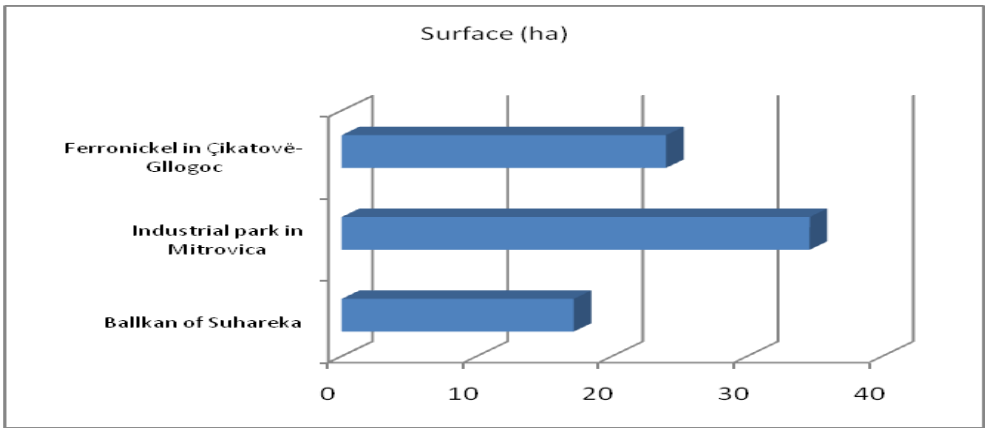

Figure 3. Potential hotspots surface (ha) from Industry sector in Kosovo

Hotspots from mining sector

Within the mining sector the following tailings (mine dumps) have been identified as potential hotspots: Hajvali, Badovc, Kishnice, Artane, Kelmend (for Stan Terg mine), materials of Trepca Industrial Park in Mitrovice, Zvecan tailings, Leposaviq tailings, and asbestos dumpin Hani i Elezit (*Table 3*).

Table 3. Potential hotspots from mining sector in Kosovo

Site	Activity	Surface
Tailings near Badovc Kishnice, Gracanice	Content of Pb, Zn, Au	2.85 ha
Mareci 1 and 2	Tailings of lead and zinc	2.38 ha
Industrial landfill in Zvecan	Dispose off of heavy metals	62.28 ha
Industrial landfill Leposaviq	Dispose of heavy metals	20.31 ha

CONCLUSIONS

During the fieldwork in the entire territory of Kosovo, about 110 sensitive spots are evidenced, whereas, 28 areas with the potential for greater impact on the environment and threat to public health. The total surface of these hotspots is about 9.94 km^2 or 0.09% of the territory of Kosovo. Most of these hotspots are represented by mining activities, represented with landfills (26.6%), ash landfills (30.1%) and industrial landfills (27%). Majority of hotspots belong to the industry and mining sectors and are contaminated with heavy metals. The entire waste management system needs to be improved and promote waste reducing, reusing and recycling. The population has little knowledge on environmental hotspots and related risks.

ACKNOWLEDGEMENTS

It is my honour to express my gratitude and thank the following:

- ✓ The Industrial Complex Trepca, Mitrovice for close cooperation during the direct measurement and sampling.
- ✓ Staff MSPE and INKOS Institute of Kosovo.

Furthermore, it is my pleasure to thank all my colleagues and friends from Albania and Kosovo for the readiness and their support they have shown in my address, in order to conclude this study.

REFERENCES

COURTAGE, J L, (1999):"Public Participation" in Mining Environmental Management.
EUROPEAN ENVIRONMENT STATE AND OUTLOOK, 2010.
MYERS, N. (1998): Threatened biotas:"hot spots" in tropical forests. The Environmentalist 8:187-208 .

REPORT-STATE OF WASTE IN KOSOVO (2008). Ministry of Environment and Spatial Planning, Kosovo.
THE EUROPEAN JOURNAL OF PUBLIC HEALTH (2009): Volume 19 Issue 1 January 2009. Oxford University Press on behalf of the European Public Health Association.
UNEP, (2000): Industry and Environment,Vol. 23 N°.4.