OVERVIEW OF THE ENIRONMENTAL POLLUTION IN THE CENTRAL AREA OF KOSOVO, THE MUNICIPALITY OF OBILIQ

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SUMMARY

Central part of Kosovo, which is the municipality of Obiliq, is one of the most polluted environment in the Republic of Kosovo. The source of environment pollution in this area are: industrial (Powerstations "Kosova A" and "Kosova B"), coal heating and drying plant, surface mining, release of nitrogen and other gases . During the electricity production in powerstations, the burning coal releases chemical gases in the form of smoke and dust through the chimneys into the atmosphere, which has caused general pollution of air, water and land degradation. The environment pollution is also caused by inner burning of coal in surface mining where as consequence of this occurrence dense fog is present, especially during the time period when humidity is high, in autumn and winter. The present fog (smog) during autumn and winter contains toxic gases.
In the municipality of Obiliq, the regional landfill from households waste material present in this area. As a result of the pollution, inhabitants of this area suffer from different illnesses such as: respiratory, cancer, cardiovascular disease, eye and lung problems, high blood pressure and asthma. However, this work will deal with the concept of pollution, air pollution, and the source of pollution, land degradation and its cause, the impact of the pollution on the inhabitants of the municipality of Obiliq, central part of Kosovo.

Key words: environment pollution, Obiliq, electricity production

1. INTRODUCTION

By pollution we understand the unwanted change of physical, chemicl or biological features of the environment components, air, water and soil, which negatively influence on people and other organisms in their life

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conditions, in their industrial production, in cultural-historical objects, etc (I. Ramadani, 2011, page 217). Environment pollution may be done by the action of harmful components in three ways: with components that biologicaly are broken down into non toxic, with components that in biosphere cannot broken down or are slowly broken down and with toxic matter. In the group of substances that can be broken down biologicaly are the urban and animal farms waste water. Their common characteristics is the rapid and entire decomposition to the simplest components like, carbon dyoxide and nitrates. The second group of the pollutants that cannot be decomposed or can be decomposed easily are: metals, plastic, detergent, phenole, etc.

In the third group of pollutants take part: heavy metals such as, mercury, cadmium, pesticides lead and other components that are used in industry and agriculture, etc. In this group we can add radioactive matter which is more and more active in the biosphere, then harmful gases of strong particles in the air which are led by smog in the cities. A part of this polluting material gets through the food chain to the human organism. Its action is often chronical and is usually manifested after a long time (I. Ramadani, 2011, page 218).

2. MATERIAL AND METHODS USED

In order to make this study possible, different throretical and practical methods were used. Methods used in this study are diverse and contemporary such as research method, observation method and direct terrain method, comparison method, cartography method, etc.

Data collection was realised through the use of broad literature on identification of main environment pollutants. Different direct onsite visits were done through personal expedition in the study area. This has helped to have a thorough sight of the polluted area and how to identify actual problems, such as, environmental pollution which the population faces with. This has led to the fact that often by onsite observation, there was official inconsistency of information or nondeclaration of main problems regarding environmental pollution.

GIS teachnology has been applied in order to present cartographically the environmental pollution problems. Realized analysis through this technology with overlaping of concrete layers has enabled the accurate destination of environment pollution.

3. AIR POLLUTION AND ITS SOURCES

The air is considered polluted when in it there are substances, which are unknown for its natural composition. The rapid development of industry, energy, communication technology and other human activities is continuously followed by the occurrence of pollution and environment degradation. (I. Ramadani, 2011, page 229). Coal as a combustible substance, began to be used in the XIII, while oil in the XX century. These substances release a quantity of polluting material (Co,Co2 etj), (I. Ramadani, 2011, page 218) while burning and causing damage to the environment.

Air pollution in Obiliq is very high; where it involves a vast number of gases like: sulphur oxide (SO), nitrogen oxide (NO), carbon dyoxide (CO2) and other organic compounds (ammonia, sulphates, hydrogen, etc) being shown in table 1 and 2.

Table 1: Air pollutants from power plants

Air pollutants from power plants	Year 1989
Compounds	Ton/year
Dust and ash particles in the air	100.000
Nitrogen oxide (NO)	18.000
Sulphur oxide (SO)	36.000
Carbon dyoxide (CO2)	7.500
Different compounds	10.000.000

Source: Ramadani, I., Ndikimi i eksploatimit sipërfaqësor të thëngjillit në mjedisin jetësor të Prishtinës,Tiranë, 1999

Table2: The degree of air pollution in February-August 2004

Pollutants	Unit	February	March	April	May	June	July	August
SO2	Migr/m	84,04	77,33	76,01	115,63	124,87	102,09	117,42
Soot	Migr/m	26,6	31,66	18,04	19,74	12,04	8,66	13,30
Air particles	Migr/m	/	/	71,52	125,93	94,42	86,81	101,76
Dust sediments	Mg/(md)	470,44	366,26	410,4	870,02	389,42	432,86	1004,38

Source: Instituti Inkos, Obiliq, 2004

Picture.1. Combustion of coal in surface mining

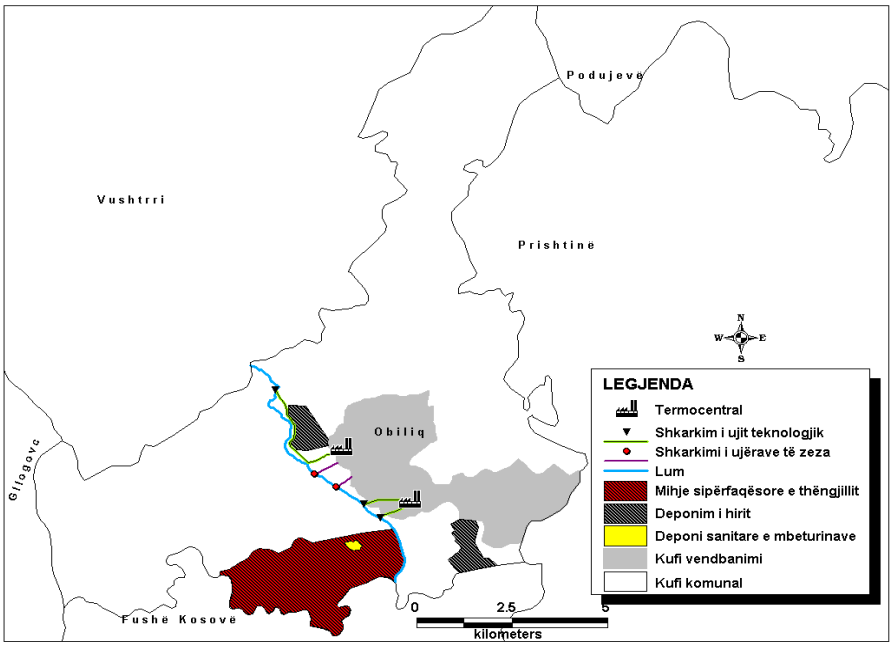
Air pollution is caused by coal combustion in surface mining (picture 1), where as consequence of this occurrence, dense fogs are present especially during the time when the air is humid, in autumn and winter (I. Ramadani, 1999)

Picture.2. Environment pollution from power plants

Pollutant is the landfill situated in Mirash (picture 3). In this landfill fire is set, which covers a vast part of the landfill.

Picture .3. Sanitary waste landfill in Obiliq

From the landfill, there is continuous smoke and gas release, harmful for the people and the environment. The sanitary landfill for the region of Prishtina, located in Mirash, Obiliq, was built in 2005 with the help of European Agency for Refonstruction. The landfill has an area of 40 ha (AKK, 2009) and was designed to make the collection of household waste material from the municipality of Prishtina, Obiliq, Lipjan, Fushe Kosovo and Gllogovc. It was also designed to have enough capacity for the waste with a capacity of total 3.500 000 m^3. Responsible for landfill management is the company for managing Kosovo landfills-KMDK, whereas responsible for collecting waste and transporting it to the landfill is the regional company "Pastrimi". The landfill of Mirash, is not managed properly and as a result it is jeopardizing th environment, water, air, soil and flora. "The company does not do its daily services like collection of garbage, waste compaction and their cover." (Municipality of Obiliq, 2013)



Map.1. Location of air, water andland pollution in Obiliq

Another problem is that in 60% of the settlements of this municipality the organized collection and displacement of waste service of does not function. Waste is thrown out in the fields, unused space, by the river banks, local and regional roads and streets and as a consequence of this action illegal landfills are created with negative impact on the environment.

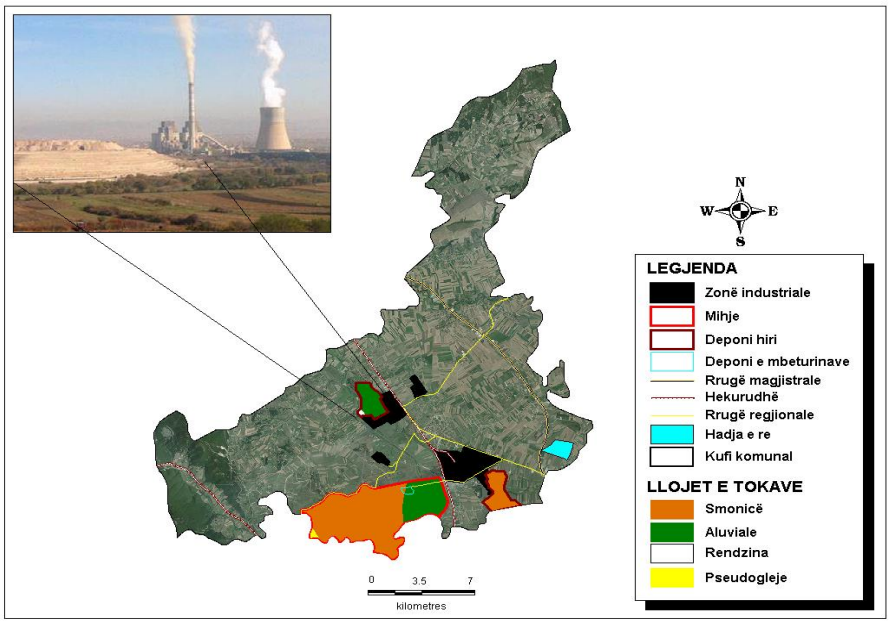
4. WATER POLLUTION AND ITS SOURCES

Regarding its origin, pollution may be categorized in: urban, industrial and agricultural pollution. In the water various pollutants may be found: household waste material, infectious agens, different agricultural fertilisers, erosion layers, radioactive subtrates, etc (I. Ramadani, 2011, page 250).
Pollution may be categorized in three ways: physical, chemical and biological pollution. Physical pollution includes differences of elementary physical characteristics for water organisms and generally for the possibility of water utility like: temperature, transparency, radioactivity, etc. Chemical pollution is based on the broad spectrum of chemical agents with which disrupt some of the elementary natural characteristics of the waters like: pH value, mineral composition, the amount of dissolved oxygen, taste, smell etc. Chemical pollution is divided in: organic and inorganic pollution. Inorganic chemical pollution means: acid pollution, heavy metal (mercury, arsenium, cadmium, mangane, chrome, etc) . Biological pollution means water pollution with bacteria, viruses, fungi and other organisms, which cause or carrier of various diseases (I. Ramadani, 2011, page 251). Water pollution in this area is enormous, especially surface waters. Technologic waters that are released after technological processes and without any special treatment, are discharged in river Sitnica and this pollution includes the following composition: sodium hydroxide, nitrogen composition (nitrates, ammonia) and phenole. For instance, "Kosovo A" power station, releases 130m^3/ of polluted water per day, whereas "Kosovo B" 750m^3/ of polluted water per day (I. Ramadani, 1999). Sitnica river is the most polluted river in Kosovo, which in the western part of the settlement river overflows from its bed and floods an area of 80ha (AKK, 2009). Regarding sewage network, the city has access to sewage network that is very old and presently does not fulfill the conditions. Eventhough some intervention were done recently, yet, problems in the network have not been avoided. All the sewage waters from the system, individual and collective, are discharged directly in Sitnica river without any prior special treatment. When sewage water and water in atmosphere are met, there is a pandemic possibility .

5. LAND DEGRADATION AND ITS CAUSES

Land (soil) is defined as a schist part of the Earth's crust, which consists of mineral particles, organic matter, water and air. Land is a nonrenewable resource and functions as an important part of peoples's life. It provides with

food production and protection of the other biomass, filtering and transformation of many matters including water, carbon and nitrogen (I. Ramadani, 2011, page 262). Land degradation of this area is mainly done by the ash which is stored in two landfills, one in Krushevc that takes an area of 100ha and while the other is situated in Plemetin that takes up an area of 84ha. (AAK, 2009). The continuous exploatation of surface lignite and its use to produce electricity, is followed by drastic difference of the configuration (morphology) of the terrain, in which a whole new landscape has been created, which is an entire degraded land in the municipality of Obiliq. Before exploatation of lignite began, this area was dominated by agrarian landscape with cultivated plants nearby Sitnica river.



Map.2. Land degradation and its forms

Based on pedological map of Kosovo and Orthophotos of 2009, we understand that in this area, land/soil has a high bonity scale. Identification of kinds of lands (map 2), that have been occupied by surface mining, ash disposal and areas under industrial area in hectares is as follows:

- Industrial area covers a total area of 287 hecatres, from that 141 hectares are aluvial soil, 131 hectares of smonica and 10 hectares rendzina.

- By surface mining in the municipality of Obiliq, 778.9 hectares have been degraded, from it 585.3 ha is smonica, 186.6 ha aluvium and 7 ha pseudogleys.
- Ash disposal from the powerplans covers an area of 184 ha where from it 98 ha is smonica, 81.66 ha aluvium and 5 ha is rendezina land.

The conflict of industry and agriculture is a process in this municipality. The expansion of surface mining is being done in the direction of west villages of this municipality, Siboc and Leshkoshiq, regardless of Hade village which is almost dislocated entirely. A new location of 83 ha in Obiliq, near the village of Shkabaj (Orlloviq) has been set to start building of a new settlement called "Hade e re". (map.2). The overall cadastral area of the municipality of Obiliq is 106 km^2. From this we find that 12% of the cadastral area of this municipality is taken and degraded by industry.

6. IMPACT AND INFLUENCE OF THE POLLUTION ON POPULATION

The citizens of this area are most in danger of diseases caused by coal burn. Many citizens that live in the area of powerstations complain about different respiratory problems, cancer, cardio-vascular diseases, eye infection, etc. According to the gathered data in the Central University Clinic of Kosovo and regional hospitals, the scale of diseases in respiratory organs in population living in the municipality of Obiliq is 30%, or half higher in comparison with other municipalities, whose average is 14.26% (Instituti i Mjekësisë së Punës dhe Mbrojtjes Radiologjike, Obiliq, 2012). In the first half of the year 2012 ther were six cases of people with cancer in this municipality. During 2012, 57.520 patients sought help in the primary health care in Obiliq. The municipality of Obiliq has 21.549 inhabitants, which means that most of the population has visited primary health care more than twice a year (Drejtoria e Shëndetësisë, Obiliq,2013).

7. CONCLUSIONS

For a clean environment, the powerplant "Kosovo A" needs to be closed down due to the fact that it is old and ongoing failure, air, soil and water pollution, which would influence directly in health improvement of the inhabitants of this area. Investment in health is not just a local but a national

problem. Serious intervention of the state in this area is more than necessary and urgent.

Regulation of Sitnica riverbed would avoid river overflow from its bed and flooding of the city in the west by the polluted water.

Removal of the regional landfill waste from the territory of this area would improve air quality. During this process it is very important to protect agricultural land of high quality by not letting construction companies build blocks of flats without planning and from the Electricity Corporation , on the other hand . To avoid completely sewerage problems, by not allowing any precipitation and wastewater to meet together in order to prevent any possible outbreak. In any space of Kosovo as in this area, there is no more need to constantly plan green spaces within the city, as well as in new areas that are planned to be built. From this research we can conclude that the hopes for a clean and functional space are too small for the residents of this area.

RECOMMENDATIONS

- The municipality should compile concrete plans to monitor the air with European standards and find suitable location for this purpose.
- To build facilities for treatment sewage before it is discharged to the river Sitnica.
- To clean waste from illegal landfills near the banks of the rivers, fields and free spaces.
- To intervene in the sewage system of all locations where it comes into surface.
- To absorb donations for recultivation of the degraded land by coal exploatation.
- To protect high bonity land from village dislocation from areas with high national interest.
- To compile plan-projects for reusing and recycling of waste.
- The government should compile projects for fire prevention in the lignite surface minings.
- To monitor technological water in the discharge points.
- To maintain water dreinage from ash dumps.
- In a rigorous way, the plan for remediation of the environmental state in the sanitary landfill of the waste until it is closed down should be implemented.
- To monitor the process of ash removal from the power landfills into the mining pits that is assisted by the World Bank.
- Power plant “Kosovo A” should close by 2017

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