Contamination of soil and water in the area of Elbasan

Alda Bicoku

E-mail:alda_bicoku@yahoo.com
Cel :0684032860 & 0664054234

ABSTRACT

The problems related to ensuring a sustainable environment in the city of Elbasan are numerous and to be appear quite complex for the Elbasan environment.The problems of Elbasan are significantly associated with land and water pollution, as well as damages to biodiversity. To be noted are polluted areas or contamination, pollution sources and areas affected by erosion and landslides. Geology, agricultural land is formed on Quaternary formations. Carbonate dominates lands. Typical and red clay soils formed on carbonate rocks in Kraste. The main source of pollution in agricultural lands in Elbasan through the years is considered to be the Metallurgical Combine, and a few other industrial agents. Erosion and landslides are another problem that frequently occurs in the lands of Portland. Land pollution is a result of uncontrolled disposal of construction waste and exercise activities, "car cemetery", which damages the landscape and pollutes the land with fuel oils and affect metal plastic waste collection. Water pollution is another issue of great concern in the area of Elbasan.With regards to qualitative classification of surface water, they fall into the category of the first and second, being considered with a good quality. Radioactivity values are within the norms and pH is neutral. While in terms of groundwater and basin these are considered vulnerable to contamination. The risk of contamination is high due to the complete lack of the coverage screaning aquifer. There is a particular risk in industrial discharges and wastewater pollutant infiltration in the field of urban waste. Contamination of surface of waters influenced by the solid parts sourced unpaved roads and buildings. IH monitoring shows that contamination values are higher in the direction of the flow of Shkumbini, fleeing the city, which shows the impact on the quality of urban and industrial wastewater discharges.

Keywords: *land, water, pollution, Metallurgical Combine, urban waste.*

INTRODUCTION

Soil pollution mainly is a result of penetration of harmful pesticides and insecticides, which on one hand serve whatever their main purpose is, but on the other hand bring about deterioration in the soil quality, thus making it contaminated and unfit for use later. Insecticides and pesticides are not to be blamed alone for soil pollution, but there are many other leading causes of soil pollution too. Soil pollution is a result of many activities and experiments done by mankind which end up contaminating the soil. Industrial wastes such as harmful gases and chemicals, agricultural pesticides, fertilizers and insecticides are the most common causes of soil pollution.


Acid rains, when fumes released from industries get mixed with rains. Fuel leakages from automobiles, that get washed away due to rain and seep into the nearby soil. Soil erosion is another serious concern in Albania. Although the country's mountainous topography and weather patterns are natural causes of erosion, human activity (e.g., dredging of rivers for construction materials, woodcutting, overgrazing) is accelerating the problem and producing severe consequences. Poor soil decreases agricultural productivity and encourages the expansion of agriculture into unsuitable habitat. River dynamics are altered with negative impacts on water quality and flow regime. Essential infrastructure, such as bridges and roadways, are undermined or subject to more frequent landslides. Pedological point of view and fertility: all valley lands surrounding the city of Elbasan are considered baking land - land of the first category to the fourth, and as such, the construction has to be allowed only by a decision of the CRTA. Elbasan enters second group sensitivity to erosion with a value erosion 37 ton / h / year. Landslides have recently affected the damage to the houses in the villages near the town. In the area of Elbasan complex there are two important basins: Quaternary alluvial gravel aquifer complex and carbonate aquifer complex. With the growth of the means of transport has also increased the pollution that comes from them.


The circulation of about 10,000 vehicles creates a deep concern. Vehicles also issue small quantities of carcinogenic toxins such as benzene and Transport Studies aldehide.The Institute (IST) has recently prepared a study on traffic and transportation and By-PASS-in the city of Elbasan, where one of the products will be the proposal for a new traffic scheme. Water resources are abundant in Albania. Nevertheless, the country's waters face significant threats. Industrial pollution sources include makers of cement, leather, ceramics, textiles, as well as mines, smelters, oil and gas producers, and wood processing facilities. With the decline in industrial output during recent years, communal waste has become an increasing source of water quality concern. Compound alluvial gravel has large reserves of water with food from the river Shkumbin and precipitation, as well as meets and exceeds all the needs of the area for drinking water and technology.The area of little Krasta exists the risk of pollution from residential homes and ways of removing wastewater septic tanks. Industry is an important factor of water pollution through uncontrolled discharge of product lines for food industry: Flour mills, bread and beer, various other drinks.; Production lines of furniture and woodworking, (aluminum powders are classified as hazardous waste), services, production of sponges etc.. Underground water pollution risk may constitute a public cemetery existence in Shkumbini lips. The cemetery is flooded several times by the flow of the river, which is favored by the absence of trees along its bed (terraces). Urban solid waste are also an environmental problem, especially in the field of waste disposal solid urban edge Shkumbin. There have been great attempts to solve this problem, but so far there has been no result.

According to ARM, Elbasan, it is precisely industrial activities and wastewater discharges, those that cause most of the pollution of surface waters and groundwater. Areas contaminated by wastewater discharges is the Shkumbini segment that runs parallel to the southern part of the city where the flow of untreated sewage to Portland.In 1999, in the framework of the program on Urban Waste Management Organization in 6 cities of Albania (LIFE 591 000 ECU),on the building a project was prepared a sanitary landfill for urban waste as for the changes that need to occur in the system of management waste in order to landfill sanitary work regularly and the entire waste management system to improve.Currently projected area for the construction of sanitary landfill is surrounded more and more by buildings, making it difficult to start the implementation of the project. There are also ideas for a sanitary landfill in Paper.

MATERIAL AND METHOD

The material was used by the Regional Environmental Elbasan. It determined the parameters of gases by using analytical methods, and laboratory analysis received from the Regional Environment Directorate in Elbasan. The materials were taken from the Environment Agency and Forestry Tirane.The analysis results were collected by the Department of Public Health in Elbasan.

RESULTS

Albania's urban water supply systems are plagued by problems. It is estimated, for example, that 50 % of Tirana's water is lost in the city's supply network. Rampant construction, urban migration, and illegal connections are exacerbating the system's problems, particularly in the city's suburbs. In addition, infiltration from parallel sewer lines causes periodic cross contamination of the supply. Revenues are collected for only an estimated 30-40 % of the water

consumed in Albania. Unless measures are taken to improve the system's financial base, the country's water supply infrastructure seems destined to experience further declines.

There are only three official drinking water plants in the country (two in Tirana, and one in Durres). In 1997, drinking water quality standards were updated to match World Health Organization and EU norms. Monitoring is conducted for some fifteen physical and chemical parameters. Pesticides, heavy metals, persistent organic pollutants and hydrocarbons are not monitored systematically.

The monitoring of agricultural land has been carried out on heavy metals content was evaluated as negative for the case of Chrome and Nickel. While Chromium values fall with the removal of the source, Nickel values are still high and close to the city, this is mainly due to transport ore or waste through water and wind. According to information received from REA, Elbasan, road traffic is responsible for about 30-60% of NO2 emissions, 40-90% carbon monoxide, 35-95% of lead emissions, less than 10% of emissions particles and less than 5% of sulfur dioxide emissions.

Construction waste are also a concern.

The eastern part of the basin (Labinot-Field) has a very good indicator of the quality of drinking water and recommended to be used for supplying the population. El-1 Zone Krasta regards water before discharge area of the city collector that corresponds to the segment of the river before they enter the city. From the environmental point of view belongs to a clean area and represents the reference station for river stations of Shkumbin.Two other El-2 Bridge of Toplias and El-3 Bridge of Paper unexpected from the environmental point of view belongs to a contaminated area where there are discharged of urban wastewater collector of the city of Elbasan and unexpected stream flows of Kushte.

Physico-chemical indicators

Based on average annual monitoring results in the following table are made of water quality classification river Shkumbin for each parameter.

Stations	Class O_2	Class NBO_5	Class pH	Class NH_4	Class NO_2	Class NO_3	Class PO_4	Class total
El 1:Shkumbin Entry of the city	I	II	I	II	I	I	I	I
El 2:Shkumbin Toplias	I	II	I	II	I	I	II	I
El 3:Shkumbin Paper	I	III	I	III	I	I	II	I

River waters of Shkumbin are classified of high quality class, very good condition, the content of dissolved oxygen, nitrate, total phosphorus and pH of the three stations of monitoring.The content of ammonia and organic substances expressed by BOD5, presented at levels of the quality of H in two monitoring stations and express a good condition Shkumbin river waters, with the exception of the third station. at this station the content of organic matter and ammonia, as well as indicators directly related to urban liquid discharges classify raw water quality of the river the third (III). This is confirmed by the results of bacteriological pollution analysis where bacteriological pollution indicators in this segment are presented in the highest value.

Bacteriological indicators

Average microbiological analysis results, compared with the level of mandatory European Union Directive on bathing waters, express in terms bacteriological water situation.

Stations	Colif . Faeces MNP/100Ml		Classification	Strep. Faeces		Classification
	Norms	Result		Norms	Result	
EL 1:Kraste	2×10^3	1.3×10^4	Outside rate	100	2×10^3	Outside rate
El 2:Toplias		4.7×10^5	Outside rate		9.5×10^3	Outside rate
El 3:Paper		5.1×10^4	Outside rate		1.3×10^4	Outside rate

In the three monitoring stations the river Shkumbin content bacteriological indicators turns out that the rate set by the Directive for bathing waters, sometimes even higher and pose a high risk health if used for bathing.

Case is pending. Increasing the content of suspended substances mainly affect rainfall which lead to an increase of inorganic nature in their rivers.The content of waters of the Shkumbin River has resulted in minimum values of 8.8-12mg / l and maximum values of 200-699mg /l.

Saliniteti results in levels of 0.089-0.1g/kg.In Shkumbini river waters ranging in temperature from 11-220C values and consistent with seasonal changes.

The Shkumbini River waters are good quality, class I-II, for all indicators except monitor the content of ammonia and organic matter in the third station as a result of urban discharges.

Numerous Shkumbin river flows and ability self cleaning waters favor a low impact urban discharges them in the quality of its waters.

CONCLUSIONS

We think that in the western part of the basin there should be carried out continuous monitoring because there is a risk of pollution from industrial emissions. For other quantities of water, it is recommended the intensification of exploitation in Mengele and colder areas, but not in the area of small Krasta because in this area the potency of layer is small and limited food by the river. The lack of an efficient system for the collection and disposal of waste poses a concerned problem.The lack landfills poses a problem which should be taken into account by the new regulatory plan. In this regard, the regulatory plan should intervene through the proposal of a new traffic scheme, where important elements will be: traffic and its loads, horizontal and vertical signs, promotion of public transport and prepare for this transport scheme, the scheme the new road network. Interventions are needed in the embankment of the river Zaranike (also afforestation), and the lower bed to stream Manazderes being that during high flows these two streams can cause damage, especially in the first case undermines informal residential areas. Recommended utilization of water resources in Mengele and refrigerator but not in Little Krasta due to greater possibilities of pollution. Major interventions must be made in the wastewater treatment system and in the field of waste in order to avoid infiltration pollutants from these two sources.

There is a decrease of industrial pollutants in groundwater infiltration. City Cemetery should be moved from the current location while the Shkumbini terraces should be filled with forests thus avoiding phenomena such as erosion and flooding.

REFERENCES

The Regional Environmental office of Elbasan. (2012)

Post-Conflict Environmental Assessment-Albania,Chapter 2 - Environmental Context

https:/soil and water pollution