

Degradation of land in the territory of the municipality of Lipjan

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Formation and development of soil and land began since the geological history of creation of earth core under the impact of climate, rocks, flora and fauna, flowing waters, while the human beings later became a soil modification factor.

Soil is the superficial raked layer of earth core, which has changed and continues to change under the influence of biological and atmospheric factors, and is different from the other parts (rocky areas) with fertility as its attribute¹.

The composition of soil is the following: more than 45% is made of minerals, while the remaining part is a mix of air 25%, water 25%, and 5% organic matter of plants and remains of live beings.

Under the influence of natural factors (erosion, flooding, land slides, earthquakes, etc.) and social factors (inadequate use of natural resources, unplanned construction, illicit landfills, waste water discharge without treatment, fires, etc.), the soil is subject to destruction, pollution and occupation of rather fertile soil, which would otherwise be used for development and cultivation of flora and fauna.

In this manner, fertile and productive areas are reduced, namely land is degraded. Land erosion in the territory of the Municipality of Lipjan, as in many other places, is an acute problem, when considering the fact that the formation of a thin layer of productive soil requires a dozen times more time than its destruction. Inadequate use of land by humans has increased erosion and degradation of large fertile areas.

¹ Dr. Mustaf Dauti, Paedology and Basics of Geology, Faculty of Agriculture, pg. 7 (Pedologjia me Bazat e Gjeologjisë).

The increased erosive phenomenon also occurs due to uncontrolled forest cutting, which has taken a rapid pace due to the poor social and economic condition generally in Kosovo, including the territory of the Municipality of Lipjan.

The Municipality of Lipjan has a total of 70 settlements, with around 77.500 residents. In any settlement, including Lipjan city, there is no district heating, and therefore the population mainly uses wood and coal for heating. Large demand for firewood on one hand, and high unemployment rates on the other, have brought to a large degradation of forests, increased erosion and flooding, reduction of ground water reserves, and a lower production of oxygen and increased production of other gases.

The minimization decrease of land erosion would minimize the above mentioned impacts and would increase the quality of agricultural production. Special care must be given to arable land areas, especially the slopes. To reduce erosion of soil, much is to be done in reducing the surface flows of precipitation waters. Efficient measures may include tillage upstream the slope, multi-year crops, alternate planting, dike formation, etc. Nowadays, developing countries, especially those in transition, are facing with a high rate of land degradation. This degradation is rather intensive, especially when demand for productive areas is increasingly higher, especially in terms of intensive agriculture, which requires large areas for using modern tools, irrigation, etc.

After the war in Kosovo, Development of settlements, industrial facilities, roads, sports objects, parking sites, etc., is a rather frequent phenomenon, occurring at a great intensity and in contradiction to criteria of fertile land protection and preservation, which has brought to a large loss of agricultural land. The transition stage, which is taking rather too long, has pushed a large number of population to migration from rural areas towards urban sites. The large number of rural settlements in the Municipality of Lipjan, and the poor infrastructure in the postwar period, and employment possibilities and concentration of businesses along urban centres, have caused large rural-to-urban migrations, while they usually occupy fertile agricultural land. Therefore, uncontrolled and unplanned development is contributing to the loss of fertile land, which can be compensated in no other way.



The influence of major roads Prishtina-Prizren and Prishtina-Skopje, and the impact of the proximity of the capital Prishtina, has attracted a large number of investors in constructing various service and manufacture facilities in the most fertile lands, which would otherwise provide high agricultural production rates. In the postwar decade, fertile land areas have been transformed from agricultural land of mainly II bonity class, of type Smonica and alluvium, to hundreds of hectares of construction land, as a result of construction of various commercial facilities (manufacture, trade, services, sports, etc.).

In terms of land degradation, the condition is rather concerning, whereby due to the poor social and economic condition and the pressure of job-seeking population, municipal authorities' policies in Lipjan have allowed development of large facilities in places they want to operate their businesses, in a race to attract investors and businesses, without observing agricultural land preservation criteria, and even in providing tax and fee exemptions.

Therefore, many facilities, both service and manufacture, such as construction material factories, or even chicken farms, would be best suited in other areas, which are less used, or at least not used for agriculture. This gift given to us by nature, the fertile land in plain areas, and rocks in hilly and mountainous areas, is being changed by humans with its activities, by carrying rocks – solid materials from hills, and filling in fertile plains up to two meters only for construction.

In geography, this loss of land is known also as a permanent disruption of land from their primary use in agriculture. Meanwhile, temporary loss may occur when lands after a non-agricultural use, such as sports stadiums, depositing areas or parking lots, are later reclaimed to agricultural land.

There are also other factors conditioning the loss of soil fertility, such as:

Various deposits,

Compaction (compression) of land: any type of traffic contributes to land compaction or compression. Also, tillage or ploughing is a physical process, which if undertaken irrationally may cause undesirable processes in soil. If the plough is too deep, it may destroy the soil structure, reduce filtration capacities and exposes the soil to processes of erosion, water and wind.

Soil levelling: it often occurs that in levelling soil, soil layers or horizons are destroyed.

Flooding: floods wash humus matters in soil and compress soil structures. Flooding is rather frequent, especially in early springs, along the Sitnica River and in periods of large intensity of precipitation collected by its branches.

Pic 1 Sitnica river flooding

Burns or fires have a great influence on the loss of land fertility, loss of flora and fauna. The impact of erosion is much more expressed in inclining areas, and further emissions of chemical matters in fires, etc., which ultimately cause the devastation of such a patch of land. In the post-war years, several hundreds of hectares of forests have been burned, and only in the Gadime area, around 150 ha of pine-inhabited land were burned to devastation, and only reclamation may regenerate such areas. Hundreds of hectares of forests burned can only naturally regenerate after many years. Many other damages have been recorded, such as loss of wood mass, impoverishment of flora and fauna, erosion activity, environmental pollution, etc.

Lacking sewage and water supply infrastructure, waste waters and industrial waste waters are generally discharged onto riverbeds without any preliminary treatment, which makes the Sitnica River one of the most polluted rivers in Kosovo.

From a total of 70 settlements of the Municipality, 53 do not have access to sewage lines, while 46 settlements do not have access to water supply systems. Water pollution has a direct impact on pollution of soil.

One of the most obvious cases of soil degradation may be seen some 15 km south-east to Lipjan, in the area between villages Babush-Gadime and Cërrnillë, which was earlier used for coal mining – lignite, at a depth of 28 meters, in a

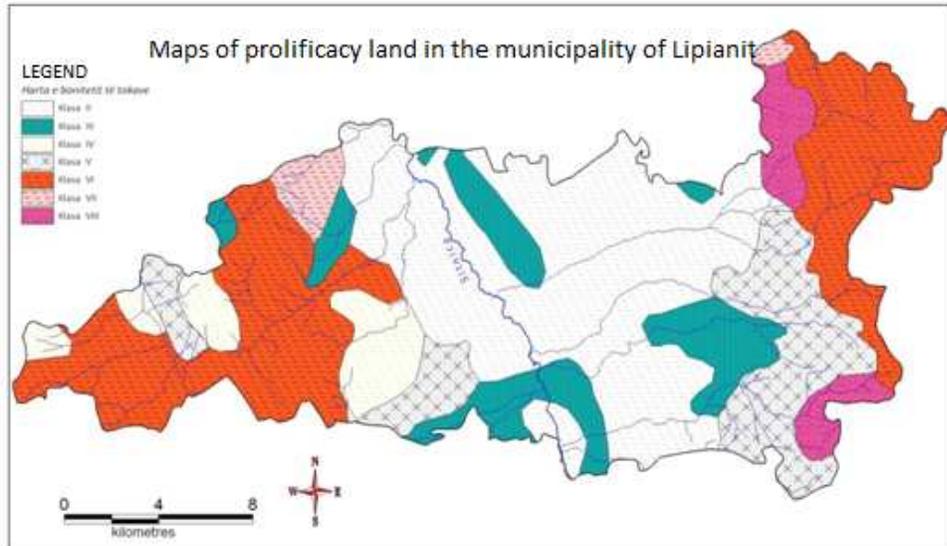
total surface area of 10.30 ha, in the coal mine “Babushi i Muhaxhirëve”², which is not operational anymore, but the channels or shallow corridors of the coal mine have remained, which often is subject to collapses and the soil layer in this area is fully devastated, with funnel-form holes which are dead and filled with water. This area is not being used as a waste landfill, which only contributes further to the environmental hazard. This degraded area can be cultivated with saplings of pine, and even be fenced, to provide for the formation of a rather good ecosystem, rich in flora and fauna, for a beautiful area to be in.

Foto 2. Degradation of lands after depletion of coal mine of Babush, and higher in the hills, one can see the exploitation of lime stone in Gadime.



The Municipality of Lipjan does not have a landfill meeting conditions and criteria for waste collection. Lacking such facility for waste collection, and lack of new landfills observing EU requirements, the Municipality of Lipjan has to deal with a rather big issue, where solid materials of a wide range, and in many cases even oils (lubricants) are discharged and tossed all over the place, and especially in riverbeds and other water streams, thereby casting serious pollution on soil, ground and surface waters, and the environment in general. According to an environmental official in the Municipality of Lipjan, around 32 unpermitted landfills and deposit sites have been created, making account of around 12680m³ of various waste types.

² Emin Lekiqi, Director of Solid Material Separation Facility (2000-2006), (former Lignite Mine Babush i Muhaxhirëve)



Source: Mapping Kosovo land classes, Basis of Hydro-Economics in Kosovo, Hydro-Economic Institute "Jerosllav Ćerni" Belgrade, 1981. processed by the author.

This pollution is only contributed further by a large number of car washes, car service companies (a total of 40), petrol stations (a total of 26), scrap metal deposits, etc. The number of environmentally hazardous companies in the territory of the Municipality of Lipjan are around 9, mainly producing asphalt, detergents, varnishes and paint, etc.

The users of lime stone, quartz schist, etc., cover almost the whole territory of the Municipality, from Shisharka in the Far East, and up to Shala in the west. The number of these operations is a total of 10, covering a surface area of 50ha covered in fulvous and reddish soil, compact-layered fulvous soils, meadow and diluvia lands of class VI, VII and VIII. East to the Lower Gadime village, there are three private sand and gravel extraction companies covering a surface area of 15.29ha and around 47% of used area, in Sillovi, there are two gravel processing facilities, one static and one mobile, covering a surface area of 9ha, which are now in the early stages of use, in Akllap – a privately owned area of 6ha, in Kizhnicë, Qylagë -"Kërçev" there is a user of quartz schist in an area of 2.024ha, a user of lime stone in "Pojata" south-east of Krojmira village in an area of 3.3ha, in Magure village – a user of lime stone in an area of 8ha, and several points of activity in Akllap and Terbufcë in an area of 3ha, all these using natural materials as backfill for low and high construction.

According to applicable regulations, these users are bound to present and implement a plan for reclaiming, cultivating and landscaping used areas immediately after the depletion of areas they use.

Also, the quartz sand processing factory between villages of Sllovi and Smailushë uses a surface area of 9.83ha of soil of class IV and V, of type Smonica, eroded soil, brownish, harrowed soil on reddish sediments. Science and technology development, beyond positive sides, has had its toll on soil pollution, such as:

- Heavy metals (Cd, Cu, Pb, Zn, As etc.),
- Hazardous organic matters (oils, tar, carbohydrates, dioxin, etc.),
- Pesticides, herbicides and insecticides),
- Nutrition matters (nitrates and phosphorites),
- Artificial radio-nucleides

Irrational and irresponsible use of land conditions the decrease of productivity and ultimately results in degradation, devastation and destruction of land.

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