

# THE PROBLEMS OF LAND DEGRADATION IN ALBANIA

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## Abstract

In this article are treated the land degradation's problems. At the beginning of the article are given the causes and factors that have promoted and developed the erosive-denuding processes, where are mentioned; the geological construction, the typical Mediterranean climate, the poverty of vegetation cover, typical mountainous landscape and anthropogenic factors. It is indicated the methodology used in the treatment of the article. Further, it is analyzed the current situation of degraded surfaces in Albania, which is expressed in numbers, according to different periods. The erosion's intensity indicators are also reflected graphically. At the end of this article are provided general conclusions and recommendations for anti-erosion measures to protect the land from erosion processes.

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**Keywords:** Degradation, erosion, anti-erosion measures, geological constructions, Mediterranean climate

## Introduction

Degraded terrains caused by intensive erosion and numerous slope processes, have large expansion in Albania, (17%) of the entire area this is associated with optimal natural conditions for intensive development of erosive-denuding processes As natural factors will be mentioned; territory construction from soft rocks, lack of vegetation, Mediterranean climate conditions. Among the factors and conditions that stimulate degradation we will emphasize: the extraordinary damage of the natural vegetation cover. According to data during the period 1990-2002, as a consequence of logging, there are disappeared (70 000 ha) of forests (The institute of earth, 1999). To this area will be added (280 000 ha) of deforestation made during the last three to four decades. Both of these represent a unique case, with not only economical consequences, but also they have broken the morph dynamic

balance, which is associated with the intensification of erosive-degrading processes.

According to specialists data, around (21%) of the forests in Albania are at an advanced degree of degradation. With serious consequences on activation of erosion is also the abandonment of open lands years ago, at the heights of mountains. Obviously their opening, deforestation and bushes were a very bad move with significant effects on the environment. Likewise, the abandonment of these lands is once again a bad move. Intense erosion, conditioned by the misuse of land, is rapidly destroying them. The cases, when on these lands has come to the surface the fundamental rock, are not rare. These sectors are rapidly transforming into focal erosion that are continuously expanding. The area covered by these lands is about (140 000 ha) (International convention of desertification, 1998) (approximately 20% of the arable area of the country), so that's why it has to be replanted with appropriate plants.

The phenomenon of land degradation in Albania is also favoured by the prevalence of hilly and mountainous terrain, where (70%) of its area has huge inclination where within deforestation and gravity irrigation, are considered as the most powerful promoters of land erosion. (Lirëza, 2011)

## **Material and Methods**

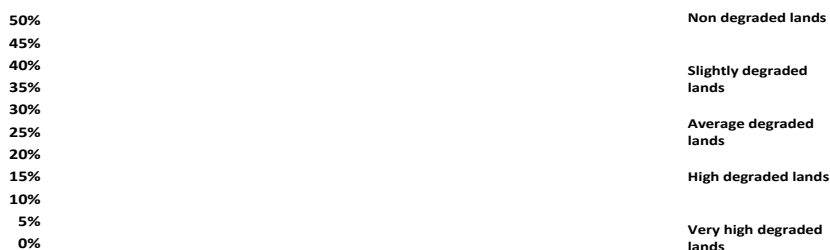
The basic methodology of treating this article has been the one of direct observations in the field, observing from near the main catchment basins of Albania's rivers. The intensity of erosion of the main river basins is calculated according to the formula: **( $T_o = 2.93936 \cdot \text{Log } D + 1.13430$ )**. An important place is occupied by the collection and use of statistical data of domestic and foreign authors, which show increasing rates of degraded terrains in Albania. It is widely used the method of comparing degraded areas in different time periods, highlighting the degradation rates.

## **Results**

Albania is among the Mediterranean countries noted for high values of the erosion intensity. The data indicate (Institute of earth, 1999) that every year in Albania are eroded (54 million tons) of rigid material, or (20 tons / ha / year), while the average corrosion layer reaches (2-3 mm) per year, therefore, within a year is eroded that layer, that takes (350 to 420 years) to be formed (Leka, 1996). These data are concerning, because they show the major danger that threatens human being from erosion and degradation.

According to indicators of erosion intensity in Albania (Qiriazi, 1998) it results in; territories not degraded or without erosion include about 48 % of the country; territories with small amounts of degradation ( erosion intensity up to (300 ton/km<sup>2</sup>/year) include (16 %) of its area; territories with

average degradation ( 300-1200 ton/km<sup>2</sup>/year ) occupy (12 %); territories with high levels of degradation (erosion intensity from (1200 to 6000 tons / km<sup>2</sup>/year) include (14 %) of its area; and territories with very high degradation to desertification ( 6000 to 18 000 ton/km<sup>2</sup>/year) occupy (10 %) of the total geographical area (Qiriazi, 1992). These values are presented in the chart below.



**Chart 1.** The erosion intensity in Albania

By the submission of this data, territories with high degradation or decertified occupy a very high percentage. Among the most typical areas are: Krrabës Hills, watershed of Tomorricas's river, highland of Dangëlli, the brook watershed of Zaranika etc., to whom the degraded territories occupy almost half of their surface. From direct observations in the field we recognize that these areas tend to grow with high speed (Xinxo, 2001).

Albania is included in those places that have a little area of agricultural land per capita, about (0.2 ha / capita), so we express with no hesitation that erosion remains a potential risk to the degradation of agricultural land. Concern increases from the last values where about (140 000 ha) of new land opened before 1990, are now completely abandoned (Qilimi, 1994). The main cause of this abandonment remains the poverty in soil fertility. Thus the absence of the owners, over grazing, the circulation of water flowing, are aligning these lands straight to complete degradation, especially in those areas where the rural exodus is great.

From the published data, (20%) of lands in Albania is inclined to erosion processes, where the average value of erosion is over (50 tonnes / ha / year), but there are plenty of territories where these values are too high. Among them we distinguish: upper sections of Tomorrica's (Qiriazi, 1998) river basins (Skrapar), Preza's basins (Tirana), the Zaranika's basins

(Elbasan), Rrapuni's basins (Librazhd) etc., where erosion values are calculated over (100 tons / ha / year). In these territories, but also in other locations such as the Highlands of Puka, Mirdita, Dangëlli, in the hills of Mallakstra, Sulova etc, surface erosion reaches up to (7 mm per year). The results of this process have led to the reduction of the arable area. So in 1982 the arable surface was (714 000 ha), while in 2001 it was (699 000 ha). Bowing to land degradation processes, is impoverishing them from oligomineral elements, humus and other nutrient materials. And every year these territories lose; (1.2 million) tons of humus, (10 000 tons) nitrates salts, (60 0000 tons) phosphate salts, (16,000 tons) potassium salts (Qiriazi, 1988).

By evaluating these statistics, ant erosive measures have been taken. So over the years 1950 -1990 were made (200 000 ha) new forestation, (The Institute of Earth, 1999) mainly in residential areas, but the forest were conducted properly, not in all of those areas (**Photo 1**).



**Photo 1.** Degraded surface in the upper watershed of the Tomorrica River.

During the transition period new forestry were disrupted completely, and consequently this was associated with rapid progression of erosive - denuding processes. To slow down these processes, anti-erosion measures should be taken, such as: Full termination of opening new lands in the hillsides and slopes of mountains. Continuous change of the structure of agricultural crops, giving priority to fodder crops in order to increase the specific weight of the rise of stock-breeding. The problem of land privatization should be solved, in order to increase the interest of the owner to protect it from degradation process. Should be improved the technology for the arable lands and the cultivation of those crops that would improve its structure.

## **Conclusion and Recommendations**

Given the above, we emphasize that Albania has major problems of land degradation. This is due to the favourable litho logic, climatic, topographic and anthropogenic conditions. The agricultural land surface is decreasing, so this is a matter of great concern for the present and future generation. In order to limit this process, we recommend providing continuous detailed studies to determine areas with high desertification, with interest for agricultural use and the ones where to intervene quickly.

From the other side, it is necessary to define scientific criteria of grazing and reforest a, which should resume as soon as possible. Furthermore we should mention that anti-erosion measures as reforestation, mountain disposition etc. must start in the upper watersheds.

On this basis should be determined the politics of governing, usage and good management of the lands. Referring to direct observations, it is indentified degraded surface of earth that is decreased more than it is anticipated. According to the erosion intensity map, the surfaces of land known as “decreased degradation”, result to be from (6000-18000 ton/km<sup>2</sup>/year), in Albania territory.

So, the government should take legislative reforms, especially in privatization of agricultural land in order to increase the attention of farmers for anti erosive measures.

The local government and environmental movements should encourage the planting of crops that responded to the type, possibility and ability of the land in particularly and slopes in general, to protect the land from erosion.

In these conditions, officials and authorities should provide to the public, guidance in seeking access to information, in facilitating participation in decision-making and in seeking access to justice in environmental matters.

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