

Influence of the Relief Subdivision to the Development of Soil Erosion (The Example of the Gedebey District)



RASN Aliyev ZH* and Mamedov ZM

Institute for soil science and Agrochemistry of the Azerbaijan National Academy of Sciences

Submission: May 01, 2018; Published: May 23, 2018

*Corresponding author: RASN Aliyev ZH, Institute for soil science and Agrochemistry of the Azerbaijan National Academy of Science, Email: zakirakademik@mail.ru

Annotation

Sophisticated natural-geographic and agroclimatic conditions regions of the Republic, long and anthropogenic effects on the natural objects have led to the emergence and widespread erosion. currently, 43.32% of the land Republic affected by erosion. In the Republic developed all kinds of erosion, particularly irrigation water and wind. At the present stage of development of agriculture, widely implemented land reform. Ubiquitous privatized land, where at this point erosion control is a precondition for improving soil fertility, crop yields, requiring reference to global studies improve their fertility

Keywords: Depth; Topography; Slope Basis; Terraces; Erosion

Introduction

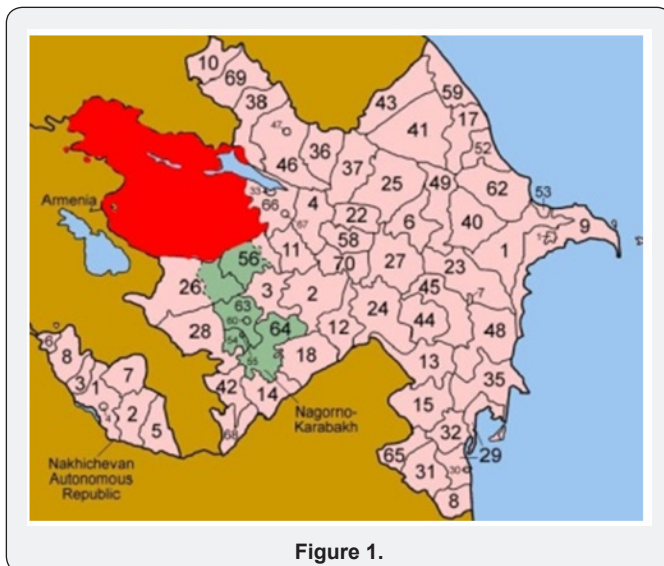


Figure 1.

The territory of the Republic of Azerbaijan is 86.6 thousand sq. km (12%-forests, 1.6-water pool, 52.3%-land suitable for agriculture, 34.1% other lands), it is located in the Eastern part of the South Caucasus, on the shore of the Caspian Sea. The Azerbaijani Republic is bordered on the South by Iran (756 km) and Turkey (13 km), in the North of Russia (390 km), in Northwest with Georgia (480 km), on the West by Armenia. On its territory it takes 44-th place in the world and the most populous-42-(e) the total number of rivers here is 8400. 1630.8 ha, t (e)36.0%.

From suitable forrural farming lands occupy seeding the Earth, from which 1102.0 thous. ha, orsame 67.6% irrigated [1-6]. The Azerbaijan Republic can be divided into 9 geographical types for the nature, type and intensity of erosion processes: In some smaller parts of the country such as the Slavyanka, Kalbajar and other plateaus, the occurrence of erosion of the soils and the occurrence of individual birds in the area, such as erosion from the Georgian border to the south-east, south and north the slopes cover the foothills, the middle and the mountainous slopes, and the large number of lakes in the Lankaran zone and the average level of soil surface are observed in the foothills and middle mountain ranges. Along with other factors in obtaining the current situation, the strong north-western winds blowing in the foothills of the western part of the Lesser Caucasus, create the conditions for the spread of wind erosion. As it is well-known from the nature of the country, surface, linear, wind and grass, irrigation erosion are widespread in the territory of our republic and the lands are subjected to various erosion processes [3,4].

In Azerbaijan, occupy large areas of summer pastures, forest, priselski pastures, where vegetation performs a huge role in protecting slopes from flushing and washout. Meanwhile on the summer pastures, forests and pastures to settlements pastures for under the influence of anthropogenic factors widespread erosion. Work to combat erosion and mudflows in mountainous areas are of great economic importance. Erosion control should focus on the prevention and elimination of causes, because it is easier to prevent erosion, than to deal with its consequences.

Measures to combat soil erosion should be integrated, mixed organizational-economic, agro-technical, reclamation, hydraulic techniques as well as techniques improve the fertility of eroded soils.

The Object and Method Research

The Depth of Local Bases of Erosion

One of the most important factors contributing to the intensity of display of erosion processes is the depth of local bases of erosion that is celebrated in his writings [2,5] to determine ways to improve soil fertility in modern agriculture, You must give a scientific analysis of the specific properties of each soil to be able to accurately determine characteristics of soils in different regions. You cannot effectively use the land and get a harvest with crops. Due to the fact that the soil is used for a long time under those or other plants (often on the same plant), their agrochemical composition and other properties to deteriorate.

You can develop and improve the management of lost soil fertility, considering them only in agriculture. The study was also dedicated to the study of this issue.

Object and Method of Research

The study was conducted in the eroded and moderately blurry kinds of degraded Brown soil, propagating vertically in the area Gedebej and being the principal Foundation of mountain farms on the South-Eastern slopes of the Lesser Caucasus. Soil samples were taken from their genetic backgrounds and analyzed in laboratory conditions where erosion was not destroyed for

the study of the effects of erosion on land fertility and medium destroyed Shanks in natural (blank) areas. The degree of soil erosion is determined on a scale with Sobolev and Alekperov [1]. Describing the role of a relief of the erosion processes in the scientists [CA Alekperov, BH Aliyev and others] wrote: “the terrain is the knell of erosion processes and at the same time itself changes under the influence of these processes [2,5,6]. The authors pointed out that under the same conditions with increasing depths of local bases of erosion in 4 times the rate of runoff increases in 2 times, and its destructive power about 4 times. The deeper local bases of erosion, the harder the surface water flows collapses, flowing watershed in ravines and rivers. This is due to the fact that the depth of local bases of erosion is mainly determined by the rate of runoff, which contributes to leachate may run off and erosion of soils. Analysis of studies mapping the depths of local erosion of the bases for the South-Eastern part of the Lesser Caucasus, us in a topographic basis, was composed of the same map at a scale of 1:50000 [5,7]. As local bases are taken: river erosion-Kuruçay, Kozluchaj, Chajlag, Kendelenhaj, KichikAkara, with their streams, valleys and gullies, as well as scale was adopted as follows: 50; 50-100; 100-150; 150-200; 200-250; 250-300; 300-400; 400-500; more than 500 meters [8]. From the compiled map shows that in the southeastern part of minor Caucasus depth of erosion varies from 50 to 500 m, and sometimes more [2,4]. Area of plots with a depth of 50 m erosion of 3677.5 hectares or 5.20%, 50-200 m-27702.5 ha or 39.19%, 200-400 m-3 27564.5 ha or 39.00% and over 400 m-11742.5 ha or 16.61% of the total land area (Table 1).

Table 1: The Distribution Area in Depth Local Bases of Erosion.

No.	The Depth of Local Bases of Erosion, m	Area Highlights		Group of Gradations, m	Area Groups	
		in ha	in%		in ha	in%
1	0-50	3677.5	5.20	0-50	3677.5	5.20
2	50-100	8362.5	11.83			
3	100-150	8980.0	12.70	50-200	27702.5	39.19
4	150-200	10360.0	14.66			
5	200-250	9702.5	13.73			
6	250-300	8494.5	12.02	200-400	27564.5	39.00
7	300-400	9367.5	13.25			
8	400-500	7440.0	10.52	400	11742.5	16.61
9	500	4302.5	6.09			
	Total:	70687.0	100		70687.0	100

Studies have shown that where there is a depth of local bases, erosion occurs more intensively. As noted by SS Sobolev [9] “the deeper local bases erosion, i.e. the higher is the watershed above the River, there’s more destructive streams flowing from these watersheds in ravines and rivers. Weighted average depth of

local bases erosion research facility is 240 m, i.e. the territory itself is potentially jerozionnoopasnoj. Inclination of the surface. An important factor influencing the manifestation and the development of erosion processes is the slope of the SS Sobolev noted that water erosion causes soil increases as the steepness

of the slopes, and at the same time reducing the slope from 110 up to 40 the number of smytoj soil reduced from 36 m³/ha up to 5 m³/ha [9]. KA Alekperov and BH Aliyev indicate that the fallen with a slope of 80 number of smytoj soil is 65 m³/ha, but when it reaches 150 slope 183 m³/ha [1,5] According to XM Mustafaev slope 100 flush the soil with 1 ha was 220-240 t/ha, while downgrades 170 achieves 320-410 t/ha [8].

In view of the foregoing, we deemed it appropriate to make a on the topographic map based on slope surface of the South-

Eastern part of the Lesser Caucasus Mountains in the 1:50000 scale. If this had been taken following graduation slopes: 30; 3-5; 5-7; 7-10; 10-15; 15-20; 20-25; 25-30; 30-45 and over 450 (Table 2). In doing so, it turned out that the investigated area slope varies from 30 to 450, and sometimes more. Considerable variety of steepness of slopes affects the intensity of erosion processes. Calculations show that slopes slope less than 50, where the erosion manifests itself very poorly, occupy only 6565.0 hectares or 9.29% of total land area [3,7].

Table 2: Distribution of slope surface.

No.	Inclination in Degrees	Area Highlights		Group Graduation, Degrees	Area Groups	
		in ha	in%		in ha	in%
1	0-3	2412,5	3,41	0-5	6565,0	9,28
2	3-5	4152,5	5,87			
3	5-7	5180,0	7,32			
4	7-10	3907,5	5,53	5-15	17227,5	24,37
5	10-15	8140,0	11,52			
6	15-20	12415,0	17,56			
7	20-25	11942,5	16,90	15-30	36457,5	51,58
8	25-30	12100,0	17,12			
9	30-45	7835,0	11,09			
10	> 45	2602,0	3,68	> 30	10437,5	14,77
	Total:	70687,0	100		70687,0	100

Slopes slope from 5 to 150 make up 17227.5 hectares or 24.37% of the whole territory and erosion is dangerous. Slopes steepness of 15-300 make up quite a large area of 36457.5 hectares or 51.58% and low mountainous, mountain and Alpine areas. Here erosion processes are evident everywhere. Slopes steepness of 300 constitute 10437.0 hectares or 14.77% of the total area and are found in mountain and highland areas. Such sites are considered the most susceptible soils because erosion is dangerous, and there are also exits of rocks and rock outcrops [2,3,5].

Weighted average slope surface is 200, which in turn already defines threat of intensive development of erosion. The role of exposure in the development of erosion.

In the manifestation and intensity of erosive process of Exposition is crucial.

Observations show that the mountain-meadow, gornolesnoj and mountain-farming territory areas, slopes of South, Southeast and Southwest exposure most heavily affected by erosion. In mountain areas have significant agro-climatic differences due to difficult terrain. For the southern slopes are known to have the biggest and annual amplitude of temperature, accelerating the

process of weathering of soils and weakening their resistance to erosion. Especially in summer, when the southern slopes are heavily. As a result of the combined effect of all these factors, erosive processes develop very intensively, the soil becomes shallow, skeletal, and the plant loses its desirable stronger than on the northern slopes, causing in turn even more intensive development of surface runoff and soil flushing. It is due to the fact that in mountainous snow deposits, snowmelt, the degree of soil moisture, density of standing vegetation etc. depend on the exposure. According to the AA Ibragimov [1976], flush the soil with 1 hectares on the flank of the Northern exposure was 75.6 m³ and on the slope of the southern exposure 134.6 m³ [7]. In view of the above, the US has been formulated on the basis of the topographical map of the exposition in the scale 1:50000, emitting the following exposures: North; North-East; North West; East; South; southeast; South West and Western. As can be seen from Table 2 data slopes North Exposition 5410.0 hectares or 7.65% of the total land area, while the North group is 30440.0 hectares or 43.05%. It should be noted that the erosion processes on those groups developed on those sites where work is conducted lesomeliorativnye violated overgrazing to settlements pastures for summer pastures and pastures, as well as not executed agrotechnical measures in the agricultural zone.

[5,7] Relatively large area occupied by slopes of South, Southeast and Southwest exposure.

Southern Exposure slopes area is 5445.0 hectares, or 7.70%, while the Southern Group occupies 34362.0 HA or 48.65% of total land area. On these slopes in connection with great dryness and underdevelopment of vegetation soils heavily affected by leachate may run off. A small area occupied by the eastern slopes Exposition 2570.0 hectares or 3.63% of the total area and, mainly, flush the soil in these areas is evident in the weak and moderate. Western Slopes Exposition 3315.0 hectares or 4.68% of the total area here flush soils developed in weak degree [3,6]

References

1. Alekperov K (1961) a-erosion of the Azerbaijan SSR and the fight against it. Baku.
2. Alekperov K (1965) a-main features of soil erosion in Lerik region and measures to combat it. Ed EN Azeri SSR, Baku.
3. Aliyev BH, Aliyev ZH, Aliyev (2000) 8452 erosion Problems in Azerbaijan and Russian ways of its solution. IZD voZia CPI Naji, Baku.
4. Zakir Aliev (2005) Question To protect soil in Azerbaijan republic husbandries. Journal of water and land development, the Institute for Land Reclamation and Environmental Engineering in Agriculture, Polish academy of Sciences 09: 116-121
5. Aliyev BGA, Musayev, AA Ibrahimov (2003) Mountain zone of the Republic of Azerbaijan are dangerous and eroded soil erosion agriculture ways to increase efficiency.
6. Aliev ZH (1990) Aerospace monitoring of the dynamics of soil: Aerospace methods in soil science and its use in agriculture. M Science p. 55-60.
7. AA Ibragimov Study of the influence of erosion processes on particular soils the South-Eastern part of the Lesser Caucasus.
8. SS Sobolev (1948) development of erosion processes in the European part of the USSR and an control.



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DOI: [10.19080/IJESNR.2018.11.555808](https://doi.org/10.19080/IJESNR.2018.11.555808)

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