

ACTUAL ECOLOGICAL SITUATIONS IN THE TERRITORY OF MOUNTAIN REGIONS AND BIODIVERSITY PROBLEMS (THE CASE OF GEORGIA)

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Abstract: The complicated social-economic and political situation has brought about an abrupt deterioration of the natural environment in Georgia for the last decades. At present, 4.5 million ha of the territory of Georgia is under the threat of dangerous elemental processes. As a result of activation of the exogenous processes, stipulated by the same factors, 5% of arable lands are withdrawn yearly from agricultural turnover, and 50% is affected by erosion. Under the impact of anthropogenic factors, about 100-130 t/ha of fertile soil layer of arable lands is annually washed-out in Eastern Georgia and about 150-160 t/ha in Western Georgia. The total number of mudflow basins in Georgia exceeds 2.7 thousand. The peculiarity of mountain relief and climate has stipulated not only the presence of various landscapes, but also a high level of biodiversity within the organic world of Georgia. A successful solution of the problem of balanced development and the conservation of biodiversity depends on two main factors - influence of elemental-destructive processes and anthropogenic impact, which are directly bound with each other.

Keywords: ecologic; climate; seismic activity; floods; glaciers; landslides; mudflows; biodiversity; sustainable development; Georgia.

1. CHANGE OF CLIMATE

Climate warming all over the planet, as it is ambiguously estimated both by criminologists and scientists of allied scientific disciplines, is characterized by the unevenness of its spatial-provisional dynamics. The best example to this is the territory of Georgia, western part and highlands of which have a trend towards warming, weakened by the influence of the Black Sea. The situation is quite different in Eastern Georgia, within which a constant rise of air temperatures is registered, on an average of 0.006° C per annum, and a reduction of rainfall during the summer (12-15%) [28].

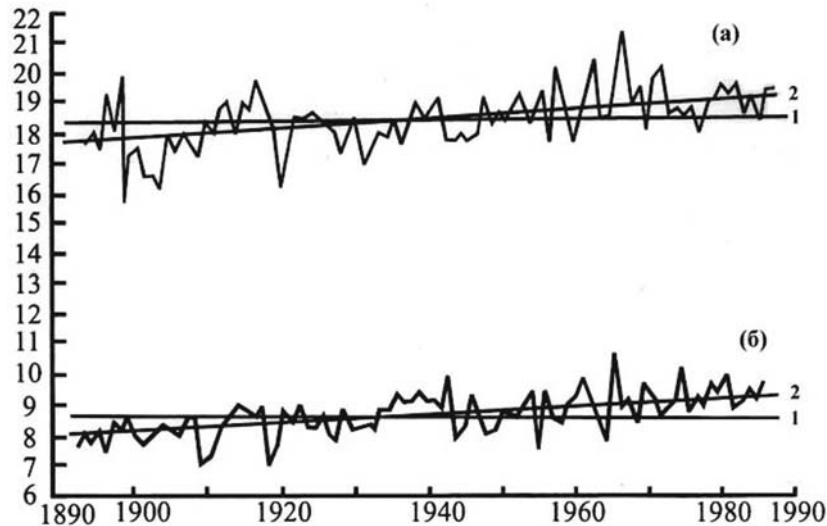


Fig. 1: Change of mean minimum (a) and maximum air temperatures in the city of Tbilisi for the last 100 years. 1- norm, 2- trend [14]

In our opinion, the change of climate in Eastern Georgia and desertification processes caused by these changes are largely of anthropogenic nature.

2. SEISMIC ACTIVITY

The territory of Georgia, on the whole, is situated in a magnitude of 7, and its mountain regions in an 8-9-magnitude zone. Herewith, the area of discharge is timed to neotectonic upstanding blocks. The energy of stress release comes to about 80 bars ($8 \cdot 10^6 \text{ din/cm}^2$) [13,32]. An earthquake in the Racha-Imereti region on the 29.04.1991, covered the territory at the joint of the east block of Okriba-Khreiti tectonic zone and the Gagra-Javakheti eastern segment. The epicenter was a tectonic block situated on the south slope of the Racha ridge, an area of about 7,8 thousand km^2 . On the whole, more than 700 populated areas happened to be in the earthquake zone.[4,9,13] More than thousand inhabitants of this region perished and suffered damages. About 100 thousand inhabitants were deprived of their dwelling houses. A powerful stone avalanche, formed as a result of earthquake, completely destroyed the village of Khakhieti (Sachkhere region). The general material damage was estimated