

Niko Beruchashvili's Legacy in Cartography and GIS Science

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Past the XX century last decade celebrated boom GIS. Each year the perfect occurs and develops Geographical Information (GIS) systems, are organized for many international conferences, published articles and monographs enormous votes. Many project was implemented in the Tbilisi State University, Department of Cartography Geoinformatics, prof. N. Beruchashvili headed. In the work will be discussed prof. Niko Beruchashvili contribution in Cartography and Gis science, for different geofomation packages. He been **founder Geoinformatics in Tbilisi State University** (1987). From 1982 N.Beruchashvili is the holder of the chair of Cartography (from 1991 chair of Cartography and geoinformation), at the same University.

GIS development in Georgia divided by 3 stages and has a 30 year history. Intensive stationary, semistationary, expedition and airborne visual studies of the Caucasus resulted in the **Landscape Map of the Caucasus (scale 1:1,000,000)** prepared under Beruchashvili's leadership and published in Tbilisi in 1979. The map was accompanied by a four-level classification of landscapes (class – type – subtype – genus).

BASE GIS OF CAUCASUS (1:500 000), LANDSCAPES GIS. The Landscape map of the Caucasus is a powerful geoinformation system, with the vast databank. This bank includes not only the data on physical and geographical characteristics of the landscape, but also numerous meteorological (200 meteorological stations), hydrological (120 river basins), the landscape and geophysical and other data. What is especially important for us that the aforesaid bank includes landscape and ethologic data and, in particular, middle and long term data on dynamics of stacks and their characteristics. GIS of the Landscape map of the Caucasus is described in details in the monograph "The Caucasus: Landscapes, Models and Experiments" published in 1995 and in collective monographs "Biological and Landscape Diversity of Georgia" (2000), "The Caucasus Environmental Outlook" (2002).

Creation **Landscapes of spatio-temporal models** happens cartographic and GIS methods. List of computer experiments carried out In the first part of the simulated individual years and the changes that occurred in these years, so there is verification of the model, in the second part of the experiments are related to climate change, such as warming or cooling climate increase or decrease of precipitation. The third part examines the changes related to the structure of the landscape on the General model of the Caucasus landscapes are divided into three parts – deforestation, reforestation.

In 1996 he was released to Paris (prof. Jean Rradvani co-authored) "**Atlas geopolitique informatique du Caucase**". The second edition - Paris, "Langues'o" 1998 year, May, the third edition - Paris, 2010, fourth edition - Tbilisi, 2011. A distinctive feature of the Atlas geopolitique informatique du Caucase is the presence of a powerful database-level administrative regions of the Caucasus. Total in the Caucasus is allocated 390 administrative districts and each district are more than 100 options relating to the demographic situation, the national composition, socio-economic indicators, data on territorial conflicts and problems, and more, up to electoral data. Just a one-time cross-section in the Bank's database to 100,000 units of information. . These data allow us to build a number of interesting and detailed maps of the Caucasus.

In 1999 – 2006 - **Landscape-Ecological Carcass Concept.** For the purpose of landscape-ecological development of forest it is necessary to study landscape-ecological carcass of a given territory. Landscape-ecological carcass of a certain territory represents a network of landscapes (landscape basis), which is influenced by basic geodynamic and ecological parameters, geographical barriers and ecotones. The carcass represents a network of landscapes, on which are reflected basic geodynamic and ecological indicators, geographical barriers and ecotones, which are relevant for forest management and forest-usage measures. Based on the carcass we defined sustainability of landscapes and drew corresponding map. The map contains indication of territories of active geodynamic processes and landscapes of high biodiversity, which require special forest-usage regime; also disbalanced territories, which are in need of restoration. Geoinformational system allows us to promptly and accurately define all parameters, which are connected with landscape ecological carcass of the region. To the above carcass we can link forest development maps and airspace photos. This shall promote accuracy of definition of valuation areas, improve planning of forest management measures and promote sustained development of region forestry. Apart from that Geoinformational system shall allow accurate definition and measurement of areas, occupied by different sites, calculate total, average and other statistical parameters.

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