

LARGE-SCALE GEOMORPHOLOGICAL MAPPING OF  
DEPRESSED TERRITORIES AND THEIR PRACTI-  
CAL IMPORTANCE (ON THE PATTERN OF KÜR-  
ARAZ DEPRESSION)

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ABSTRACT

The article deals with large-scale geomorphological mapping of depressed territories on the pattern of Kur-Araz depression and its importance in choice of routes and areas for building the irrigation canals, roads and other objects.

Almost all depressed territories, on the face of it seeming simple and monotonous surface, consist of various types and forms of relief, have complex geomorphological structure. Not taking them into account in development of these territories brings a great damage to national economy and excessive material expenses.

The Kür-Araz depression, like such formation, is situated between the mountain systems of the Major and Minor Caucasus, tectonically answers the eastern more extended part of the Kür depression. Its surface has been mainly formed by alluvial and marine deposits of upper pliocene and anthropogene, lithologically expressed mainly by single beds in western and peripheral parts of depression and sandy clay formations in the eastern part.

In the territory of depression where prevails the arid subtropic climate the irrigation and other water-econo-

mic arrangements gain paramount importance.

In early investigations the depression was considered as monotonous structure of the geomorphological region. Special geomorphological investigations carried out since 1959 N.Sh. Shirinov it is determined that the Kür-Araz depression includes the complicated complex range of genetic types and forms of relief. As it was marked by V.R. Volobuyev, N.Sh. Shirinov, M.A. Museyibov a close naturally determined relation is distinctly observed the geomorphological construction and other elements of natural complex in the territory of this depression, which conditions a great economic importance to be studied the nature of relief.

Within the Kür-Araz depression the irrigation has been still carried out in the I millennium B.C., which the remains of acient irrigation systems indicate above said. The most intensive learning of depression was begun after the building of Mingechevir reservoir and large irrigation systems, allowing to develop hundred thousand ha of fertile lands. But in projecting and carrying out the irrigation and meliorative arrangements it was not completely taken into account the peculiarities of nature of the Kür-Araz depression, specific interconnections and interrelations between the separate components of environment and possible after-effects the disturbance of natural balance.

As a result the considerable part of the territory of depression was subjected to salinization and flooding, which caused to become a considerable area of lands useless state, decreasing the crop capacity of the agricultural crops. Therefore, it is necessary to take into account the peculiarities of relief structure and other

factors in using the flow, ways of control of water losses, flooding and salinization of soils, determination the construction of irrigation net and technique of watering. Such indications of relief as slopes, lithological and morphological peculiarities, degree and character of vertical and horizontal dismemberment must be also taken into account in this process.

A general scheme the reconstruction of irrigation systems and collectors, melioration of soils has been compiled for washing the salinized soils and improvement of irrigation systems and collectors. In connection with this we have carried out a geomorphological survey and compiled large scale (1:50 000 and 1:25 000) geomorphological maps of the Kür-Araz depression which are successfully applied in national economy. While mapping an especial attention was given to genetic and morphotectonic types of plains of various generations, which have been conditioned by the hydrogeological conditions of lowland, regime of ground waters and their dynamics. The following large morphogenetic types of plains have been distinguished according to the genetic principle within the limits of depression: alluvial, alluvial-flood-plain, alluvial-proluvial, alluvial-lake, alluvial-bog, alluvial-delta, proluvial-deluvial, lake-lagoon, lagoon-salt, marine, marine-lagoon-delta and oth. (Fig. as an example). The more small generation of plains has been distinguished on the basis of surface slope, morphological, morphographic peculiarities of their construction and degree of dissection. Distinguished genetic types of plain are depicted with definite colours and their various tones in the map. Taking into account of appointment of map the erosion and accumulative forms of relief have been mapped with



Fig. Fragments of geomorphological map of the Kür-Araz depression

**Types of relief:** Accumulative plains: a) Alluvial: 1. Flat, ridged, small basin, dissected; 2. Flat, old, weak dissected; 3. Flat, weak rolling, undissected; b) Alluvial - flood-plain: 4. Weak inclined, ridged, dissected; c) Marine: 5. Inclined dissected. **Forms of relief:** Water-erosion: 6. Ravines; 7. Ledges; 8. Ancient river bed; 9. Old lowerings; a) Filled with waters; b) Dead waters. Water-accumulative; 10. River bedside ridges; 11. Alluvial cones formed at the places of breaks of river bed; 12. Flat lowering. Others: 13. Ancient coastal lines (Newcaspien); 14. Direction of flow; 15. Relative depth of flat lowerings; 16. Width in nu-

erator, relative altitude of river bedside ridges in denominator; 17. Direction and value of surface slope.

great detail indicating their morphometric parameters (width, depth, relative altitude), knowledge of which is necessary in determination the volume of land works, choice the types of irrigation nets and collectors, and as well the ways of right applying of mechanization in agriculture. Compiled geomorphological maps reflecting in detail the morphogenetic peculiarities of relief give possibility to carry out a special geomorphological division into districts. The latter permits to give many-sided assessment to relief with showing its those peculiarities which determine or exert influence on natural territorial distribution of soil and vegetation, change of soil moisture, depth the level location of ground waters, degree the salinization and flooding of soils, microclimatic conditions.

The compiled maps may be successfully used in choice of routes and building of railway and highway lines, pipelines. The analysis of distribution density, configuration and morphometric data the forms of relief allows to distinguish the buried uplifts, perspective for searching in them the oilfields. These maps are also used by geologists in compiling of hydrogeological, geological and engineering-geological maps.