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THE PECULIARITIES OF THE REGULATION OF THE FUNCTIONING PROCESSES OF ANTHROPOGENIC LANDSCAPES OF THE AZERBAIJAN

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In various natural landscapes of Azerbaijan creating of systematic regulation of the agro-irrigational, cultivated-plantational and dry-farming-agricultural landscapes has a tremendous significance. Many questions of the appropriateness of the formation, functioning, regulation of the anthropogenic landscapes in various regions of Azerbaijan have already been practically learned. It mainly concerns to the irrigational regions of the republic, where in most areas land-reclamation situation is unfavorable, without which it is impossible a rational planning of the formation of various anthropogenic landscapes.

The functioning of the anthropogenic landscapes is long and very complicated process covering great complex of concerted measures, the same time land-reclamation, engineering, agro-technics, forestry, ecology, sanitary-hygienics and others.

As a result of the hymus analysis, mechanical composition, water-physical and chemical, property of different soils, and as well as the subsoil and the river waters of Kur-Araz, Samur-Davachy, Lankaran, Gusar-sloping plains established main tendencies of the formation and development of the agroirrigational, dry-farming-agricultural, selitab-cultivated landscapes and their connection with surroundings practically, unchanged landscapes. With this purpose we compiled some large-scaled landscape maps with the purpose of anthropogenic loads, where singled out 132 variations of the different levels of course. When singling out separate units of landscapes we took into consideration some complex ecological conditions in particular a granularmetric compositions and the phylrational ability of soils, the level and the degree of mineralization of subsoil waters, capacity of agro-irrigational pumps, artificial separation of the surface, character of the cultivated crops. The little units singled out by us allow us precisely

estimate the ecological condition of the particular territories, and as well as gives us a chance to determine natural potential of the anthropogenizing geosystem of a separate regions of Azerbaijan.

The qualitative and the quantitative data of various landscapes division thoroughly attract not only the ecological differentiations of territories, but the economical possibility of particular PTK, i.e. functioning of the landscapes without which in the whole it is impossible to rationally organize and specialize the farmer economy, carrying out the land-reclamation measures, planning of particular areas, determining of the amount of used mineral and organic fertilizers, choosing of the cultivated crops etc. As a result of field or laboratory researches it was established that for creating of the ecologically steady landscapes in a highly developing regions of Azerbaijan it is necessary to establish anthropogenic load, i.e. the degree of the anthropogeny of the particular regions and as well as the separate morphologo-typological units of the natural landscapes. Establishment of the coefficient of the anthropogenity of (K₃) natural landscapes has a great significance for defining the positive and negative consequences of the defining of changings happened to in PTK.

The researches show that the anthropogenization (K_a) of separate kinds, subkinds and the species of Kur-Araz landscapes of the lowlands and the other plains of Azerbaijan in connection with the developing of new territories is always increasing.

In the irrigating oases and in the seliteb landscape areas of the south-west and the south-eastern parts of the Mughan plains of the north and the north-western parts of Shirvan plains K_a is going up to the 0,86-0,91. But the average index of K_a on separate types of landscapes never goes higher than 0,80. In central parts of Mughan and Mil and the

eastern part of Shirvan plain in coastal zones of the Caspian Sea K_a makes not more than 0,01-0,10. In general K_a in more than 50% of species of landscapes of Kur-Araz lowlands, Gusar slope plains, Lankaran plain rises up to 0,80, but approximately in 20% is below than 0,10 (Gobustan, South-Eastern Shirvan, Ajjinhur-Jeyranchel).

In the strongly-anthropogenized complexes some stable and rich agro-landscapes are usually forming and functioning. In Garapagh, Mil, Mughan and the Shirvan plains dry-desert, bearded, cereals, ephemeral, mortley grass complexes under the influence of irrigation and phytomelioration get some hydromorphic signs.

In the old-irrigational areas of conic and in inter-conic decreases the rivers of Turyanchay, Geychay, Girdmanchay, Tartarchay, Khachinchay, Garachay instead of the light-chestnut, grey-lands, grey-land-meadow and the other soils some cultivated-hydromorphic soils are functioning. In agro-landscapes together with the single-species of agrosenoses grow secondary negophile and the holophite association, but clover is occurring everywhere.

At the irrigated massifs, mostly in non-sewage lowerings and the hollows, where the mirror of subsoil waters are near the surface (more than 1,5 m.) and have a weak outflow, noticeable remoistening, saltering, saltgathering occurs, this in the end of all increases the hydromorphization of the agro-landscape, but on the naturally drained areas, mostly on foot-hill slopes of plains, where the soil has a high filtrating ability are forming stable agro-landscapes with a powerful agro-irrigational horizons.

On the areas of Kur-Araz plains the land-improvement conditions sharply changes from west to east: intensifying the irrigating of landscapes on the semi-desert landscapes of the Shirvan plains, in this very direction the coefficient of the anthropogenization is

decreasing from 0,53-0,65 to 0,17-0,33, but in Mugham-Salyan massifs from 0,77-0,86 to 0,01-0,03.

Cutting down of the Tugay forests brings to worsening of soil draining, and appearing of the secondary brushwoods of reed mace, rush, tamarisk and the others. On the deserted areas of pre-Kur stripe from Karpikand up to the town of Shirvan as a result of the changing of radiation balance and the direction of soilforming processes could be formed wormwood, elm and ephemeral complexes. For future preservation of the relative balance in the structure of pre-Kur Tugay forests it is necessary to decrease the anthropogenic loads to the particular PTK and increase forest-rehabilitating and forestguiding measures of course.

Allround analysis of modern irrigated landscapes of Azerbaijan shows that in unstable intrazone, meadow-swamp, wood-shrub complexes, and as well as on a semi-desert and dry-step less-productive pastures and the ploughed-fields within the contemporary economic usage can be noticed decreasing the natural potentials and worsening the PTK structures, manifested in the formation of numerous small-contour modifications of landscapes of the anthropogenic origin. That is why the anthropogenic transformations of the local kinds have to be promoted to the creation of the optimum control of the natural-economic systems.

The analysis of landscape land-reclamation conditions of the irrigated regions of the Kur-Araz lowlands shows that the land-reclamation conditions here are extremely unfavourable and stipulated rather large areas of the saline soils of the heavy mechanical structure with a low filtrated properties. To the anthropogenic factors worsening land-reclaimating situation concerns some dissatisfied status of the irrigation sets, displanned irrigation areas, excessive extent of none-revetting canals etc.

As a result of the analysis of some experimental data the condition of heat and moisture-providing, the character of surface flowing, chemical composition of underground waters, lithological composition, filtrating property and salinization of the soil, mineralization and the depth of bedding of the subsoil waters, peculiarity of the economic usage some large-scale maps of optimisationing of the Kur-Araz landscape lowlands were compiled.

There were given some recommendations on the preventing of undesirable hydro-reclamation measures, phyto-reclamation, protecting of valuable complexes, and increasing of efficiency of the agrolandscape usage etc.

On the irrigated regions of Azerbaijan, mostly on the Kur-Araz lowlands stable agro-physical properties of soil and a high fertility can be met in the areas under the perennial plantations, mostly orchards. It can be plained by the marked accumulations with some organic substances in them, by some powerful development of miomass. Especially in most foothills inclined deserts, in naturally drained areas where the soil has a rather high filtrating ability peculiar agro-irrigating horizon is formed. The thickness of this horizon is determined not only by the natural-economic conditions, but by the remoteness of the irrigation of course. The research shows that on the basic agro-landscapes of Mughan, Mil, Shirvan and the Garabagh deserts the most favourable conditions in the formation and development of the ecologically stable agro-complexes created non-saline soils (the level of subsoil waters 1,5 mm) within the content of water-tight macro-agregates (more than 0,255 mm) about 60-80%, micro-agregates (less than 0,25mm) about 30-40% within the moisture-holding capacity (from maximum molecular to the field) about 1,0-1,5gr/sm³. In irrigated conditions with the aim of bettering and regulating of agrophysical properties of the soil and as well as increasing of efficiency of melioration of the saline and brachish soil of the heavy mechanical composition it is necessary to increase water-proof of the soil, ability of the collection and preserving of soil moisture by means of cultivating saline areas during their physical maturity and washing of saline areas, crease the system of field-protecting forestry zones and use soil-plaughing, to regulate applying of mineral and the chemical fertilizers, widely distributing of anti-erosive measures and chemical melioration directed against the work with the process of salinization of soil.

At present, the less productivity of the semi-desertous, dry-desert, xero-phytic-shrub of pasture can not meet the requirements of modern distant cattle-breeding. In connection with sharp drop of productivity of valuable fodder crops and growth of the

amount of weed and the poisonous vegetation on winter pastures of Shirvan, Mughan, Mil plains, Ajinohur-Jeyranchel low-hills appear urgent necessity of creating of complex meliorating measures (harrowing, sowing of valuable fodder plants, exterminating of weed and poisonous crops, cleaning of stones etc.).

On a seriously salined pastures of Shirvan, Mughan, Mil plains, and as well as on south-east of Shirvan the productivity of grassland is about 1,2 c/ha and less. By creating the drainage systems and carrying out the washing of 20-25000 c/ha seriously salined pastures it is probably needed to increase productivity in 2-3 times. At the expense of the improvement of the swamped areas in Mughan, Salyan, Shirvan and Mil plains it is necessary to expand the territory of the existing low meadow and the meadow pastures up to 35-40 thousand ha, but the productivity in future can grow for 10-15c/ha and more. It would of course be advisably to expand cattle-breeding economy, mainly, horned-cattle. Within the Kur-Araz lowlands by the degree of the anthropogose of particular territories there were distributed separate categories of landscapes, which accurately differ from each other by functioning and the modern amount of economic load.

The poorly untapped categories of landscapes.

Within the Kur long-maned plains, falls and western central Mughan, northern and eastern parts of South-Eastern Shirvan at the cones of great river drifts and in the interconic falls of the Shirvan plains etc. (Budagov, Garibov, 1980). This category of landscapes is about 10% of all the territories of the lowlands. At present, they are developing at a natural regime and weakly ruled out by a man. In most cases anthropogenic influence performs here some episodic character (cutting woods, shrubs, posturing of a cattle and etc.). Within this category on the degree of violation can be distinguished some group and the variation.

Irregularly used naturally-anthropogenic categories of landscapes - cover weak indented, strong indented, washed away, degraded, wormwood, wormwood ephemeral, kengiz, differently-grass-ephemeral, and the other pastures of Mughan, Mil, Shirvan

and Garabagh plains (Garibov, 1986). They cover more than 30% of all the territories of the lowlands. These complexes preserve their natural structure rather well. Anthropogenic influences are considerably less and they might be limited by an irregular posture usage. In connection with the development of the distant cattle in most cases some anthropogenic influence bears the seasonal character. In winter and spring periods these complexes receive maximum anthropogenic loads, but in summer periods anthropogenic influences (cattle posture) are approximately stopped.

To the intensively used (transformed) landscapes - belong to dry-farming land of agricultural, agro-irrigational cultivated-plantational and the other complexes. They widely expanded along the river of Kur, Araz, Akusha, Geychay, Turyanchay, Tartar and the others as well as along the huge canals of (Upper-Shirvan, Upper-Garabagh, Azizbayov, Central Mughan and the others). In the irrigated conditions landscapes mostly depend on the degree of the artificial moistening. Just, this factor is determining main tendencies of the evaluation of oasis landscapes.

For recent 25 years the territory of the intensively used landscapes of Kur-Araz lowlands has increased in 2.5 times, the territory irregularly of used landscapes was considerably diminished. Thanks to the favorable conditions and rich soils these categories long ago developed new lands, which bring to the strong anthropogenic-natural dry-desert, semi-desert and low-meadow swampy landscapes. The coefficient of the anthropogenicity (K_a) of separate kinds of landscapes is about 0,8-0,9 (Garibov, 1986).

The regularly used agrolandscapes from the moment of their formation change into the functioning system and are under the regular influences of a man. Annual ploughing up, rooting out, irrigation, putting in the organic and the mineral fertilizers hay-mowing of the agricultural plants and the others renovate the artificial phytocenoses, bring a powerful agro-irrigational horizon (0,5-1,5m), and as well as a number of undesirable processes, as the irrigational erosion, secondary salinity and swamping (Garibov, Ismayilova, 2007).

In an unfavorable land-reclamating

conditions of the Kur-Araz lowlands under the influences of the drainage, washing, irrigation, and as well as the road-communicational, town-planning works within the intensively used agro-landscapes some secondary naturally-anthropogenic landscapes are formed. On morphologo-typological symbols it reminds some primary dominant landscapes, existing here up to the opening (secondary swamping, meadow swamping, saline land and etc.). In irrigated oases of Shirvan, Mughan and Mil plains the areas of their distribution never exceed 30-50 ha and are continually under the control of a man. In connection with carrying out some land-reclamation measures they often change their own areas. In drained (mostly open) areas these complexes most completely disappeared.

In a high-anthropogenized (K_a , 0, 80) dry-desert, arid-rare-wood, forestry-shrub, semi-desert landscapes of foot-hills, low-lying, low-mountainous regions of Azerbaijan under the influence of irrigation, ploughing up, and the phyto-land-reclaiming various variations of agrotechnogenic provenance are formed. The development of natural elements of landscapes more or less continue only in a narrow pre-canal and the pre-river stripes. Here on a wavy, hilly-ridge, strongly-dismembered plains of the chestnut, greyland, meadow, greyland-meadow, grey-brown and other soils accept hydro-morphic signs and some powerful agro-irrigational horizons are formed.

It was defined that changing of regime and the character of subsoil waters in adjacent agro-landscapes of Mil, Mughan and the Shirvan plains increases the transformation of natural landscapes. On the ancient irrigational parts of cones of carryings out and the intercone lowerings the rivers of Turyanchay, the Geychay, the Girdmanchay, Tartar, Aghsuh, Kendelenchay and the others artificial moistening of soil strengthening the hydromorphization of landscapes. On the places of greysoil, greysoil-meadows, light-brownish, greysoil-brown and other soils is formed cultural-hydromorphic soils together with the single-type agro-coenosis are developing the secondary weed plants consisting of negophile and the halophile association of course.

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