ANALYSIS OF ECOLOGICAL SITUATION AND METHODS OF ITS ASSESSMENT

Anvar Rasulov
Tashkent State Pedagogical University
Scientific Researcher, Ph.D
Tashkent, Uzbekistan

Abstract
In this article, the interpretation of the concept of the ecological situation in small areas and the recognized methods of its assessment are analyzed based on the researches of scientists who have been working in this field of research until today.

Keywords: Ecological situation, assessment, monitoring, method, oasis, geosystem, analysis.
The aggravation of the ecological situation in irrigated lands on a global scale requires the development of scientific bases for the moderation of anthropogenic load, effective use of natural resources, taking into account the individual characteristics of geosystems. To optimize the ecological situation in irrigated lands, the application of advanced technologies for the use of land and water resources, the quantitative assessment of anthropogenic load on geosystems, the prevention of soil degradation, the improvement of water quality, the improvement of monitoring of natural processes, and the development of forecasts for the improvement of the ecological situation are important issues.
In the years of independence, large-scale measures have been implemented and achieved in the field of effective use of land and water resources of irrigated lands, improvement of land reclamation, prevention of soil salinization and increase of productivity, reduction of pesticide use, use of organic fertilizers instead of mineral fertilizers, etc. It is worth noting that in order to further increase the effectiveness of improving the ecological situation in the irrigated lands, especially in the densely populated Zarafshan oases, the study of oases as a whole paragenetic system, taking into account the individual characteristics of geosystems, the study of human influence as a territorial-structural system using the "anthropogenic load" methodological approach, and cartographic and it is necessary to use mathematical modeling. About this, in the Strategy of Actions for the further development of the Republic of Uzbekistan in 2017-2021, "ensuring that people live in an ecologically safe environment" and "preventing environmental problems that harm the environment, population health and gene pool" are defined as special priorities.
The assessment of the geoecological situation in the territories is a complex issue, and there is still no consensus on it. The number of steps in the assessment of the severity of the environmental situation and the criteria for their separation are different in different authors.

Even the level of tension with the same name (for example, "sharp", "tang", etc.) differs in content. Below we consider several works related to geoecological assessment.
In the "Ecological map of the Republic of Uzbekistan" published under the scientific guidance of A.A.Rafikov (1997), the following ecological situation levels are given: 1) satisfactory; 2) moderately satisfactory; 3) average; 4) sharp; 5) tang. Each of them is based on the following qualitative and quantitative criteria: regions with different levels of air pollution, changes in the quality of surface and underground water, soil contamination with pesticides, soil salinity, soil erosion, deflation process, vegetation cover productivity, trees and shrubs. cutting, the state of vertebrates, public health, etc. Landscapes are taken as the basis of the ecological map.
Geoecological conditions were evaluated by components in the "Geoecological Map of the Republic of Uzbekistan" published in 1999 by the "State Committee of Geology and Mineral Resources" of the Republic of Uzbekistan. The map shows four levels of soil pollution by color: 1) no pollution; 2) weakly polluted; 3) moderately polluted; 4) heavily polluted. These levels are based on a gross index of pollutants.
In "Atlas of land resources of the Republic of Uzbekistan" (2001) "Ecological regionalization" card is attached. Districts and regions are taken as regions. All administrative regions of the republic are divided into the following regions: 0 – satisfactory (acceptable); I is sharp; II in emergency; III is fatal. The following were taken as the main criteria for evaluating the ecological condition: surface water pollution index (SII), atmospheric pollution index (AII), soil pollution with pesticides (in the amount of pesticides applied to 1 hectare of land), compliance of drinking water with the state standard, soil salinity, total population morbidity and others.
Of course, it is easy to collect various statistics related to the environmental situation by administrative division. However, local ecological situations are related to natural geosystems (landscapes). Therefore, it would be more accurate if the geo-ecological situation was evaluated by natural areas.
"Ecological Atlas of Russia" (2002) consists of 128 pages and 6 chapters. The atlas begins with a landscape map and ecological capacity maps of landscapes and their brief comments. The natural environment, medical-ecological, ecological-geographical situations were analyzed and ecological situations were evaluated. In the last 6th chapter of the atlas, the ecological status is given through the demo-ecological status card, and according to the population density, the regions are divided into four categories: 1) good, 2) satisfactory; 3) unsatisfactory; 4) heavy. Landscapes are divided into three groups according to their eco-geographic status: 1) satisfactory; 2) tang; 3) too tight. Qualitative rather than quantitative indicators were used in the division of these.
In assessing the geoecological situation, B.V. Vinogradov (1998) is based on how much percent of the ecosystem area has been destroyed by anthropogenic influence and uses a four-

step assessment: 1) moderately - if up to 5% of the ecosystem area is destroyed; 2) risk - dangerous 5-19%; 3) strong - dangerous 20-50%; 4) fatal - more than 50%.

Table 1. Classification of changes in landscapes
(for Nadim-Pur in the Taz river range, A.P. Kamyshev, 2000)

№	The rate of change of landscapes	Level of landscape degradation
1	Full	≥ 80%
2	Strong	80-50%
3	A lot	50-30%
4	Weak	30-10%
5	Almost unchanged	< 10%

A.P. Kamyshev (2000) proposes to calculate the change of landscapes in Western Siberia under the influence of human activities with the coefficient of landscape change. It is determined by the ratio of the changed area (F1) to the total area (F2), i.e $K\frac{F_1}{F_2}$ (1). Based on the obtained results, the categories of landscape change are calculated based on the criteria in Table 1.

From the table, if the initial natural state of the landscape changes more than 80%, it is called completely changed, if it changes from 80% to 50%, it is strongly changed, and finally, if the changes are less than 10%, it is called almost unchanged.

A.P. Kamyshev's (2000) account and conclusion on geoecological pollution of landscapes is also of some interest. Chemical pollution of landscapes was calculated by the following formula.

$$X = \frac{\sum_{i=1}^{n} mZi}{S}$$

m is the area of type i in the region; Z – i type landscape pollution; S - the total area of the contaminated area; X is the average quantitative indicator of pollution.

According to the obtained results, the level of chemical pollution of landscapes is defined in the following indicators (Table 1.2).

When evaluating geoecological conditions, based on qualitative and quantitative indicators, REM, percentage, scoring methods are used.

Table 1.2. Chemical pollution of landscapes
(For Nadim-Pur in the Taz River range, A.P. Kamyshev, 2000)

№	Level of landscape pollution	Average amount of pollution FR (Fixed rate)
1	Full	x ≥ 2 РЭМ
2	Strong	2 FR > x ≥ 1,5 FR
3	A lot	1,5 FR > x ≥ 1,2 FR
4	Weak	1,2 FR > x ≥ 1,0 FR
5	Almost unchanged	x < FR

The analysis of works on the assessment of the geoecological situation showed that most experts have similarities in their opinions regarding the last levels of the assessment scale, i.e. "catastrophic", "dangerous". Opinions differ about the remaining stages.

The worsening ecological situation in any area is related to the direct or indirect effects of human economic activity. Due to the direct effect, qualitative changes occur in the components of nature. For example, changes in water quality, soil salinization, etc. Indirect effect leads to the acceleration of one or another natural processes in geosystems. In geosystems located next to each other or far from each other in the river basin, due to anthropogenic influence, the movement of substances accelerates, and substances move from top to bottom along the river basin and begin to accumulate in the river delta. Such a situation is happening in the large river basins of Central Asia, including the Zarafshan River.

Summary. Oases are geosystems that are rapidly changing under the influence of human economic activities and their ecological conditions are becoming more severe, and it was justified that the contribution of geographical sciences, which research nature as a whole system and rely on complex geographical methods, is great in their optimization and management.

Variations of the ecological situation in oasis geosystems by region and over time were analyzed. A medium-scale landscape map of the Middle and Lower Zarafshan Basin was created and it was found that the ecological situation is directly related to the landscapes.

References

1. Protasov V.F. Ecology, health and environmental protection in Russia. -M.: Finance and statistics, 2001. -672 p.
2. Rafiqov A.A. Geoecological problems. - T .: Teacher, 1997–111 p.
3. Nigmatov A., etc. Sustainable development and its systemic indicators. Monograph. –T., 2015. - 119 p.
4. Nigmatov Theory of natural geography and geoecology. Monograph.– T .: Navruz, 2018. – 220 p.
5. Rasulov A. History and analysis of "sustainable development" or "sustainable development" // TDPU scientific information. –T., 2018. – 4 (17). B. 20-26.
6. Rasulov A. Indicators of sustainable development and problems of their practical application // Information of the Geographical Society of Uzbekistan. Volume 49 - Tashkent, 2017. - p. 12-15.
7. Rasulov A.B. On the role of environmental indicators in the sustainable development of regions // Geography in XXI acp: problems, development, prospects. Materials of the Republican scientific-practical conference. - Samarkand, 2017, -p.19-22.