

ECOLOGO-ECONOMIC ESSENCE OF PASTURES

Narbaev Sharafatdin Kengeshovich, Senior Researcher, doctoral candidate,
Tashkent Institute of Irrigation and Agricultural Mechanization Engineers,
Tashkent, Republic of Uzbekistan

narbaev_sh@mail.ru

ORCID ID orcid.org/0000-0002-4017-0755



<http://dx.doi.org/10.26739/2521-3253-2017-6-6-2>

Pastures include soil and natural vegetation, are a component of the natural complex and constitute a pasture, landscape, ecosystem and these positions have an environmental nature. As a result of their involvement in economic turnover, they play the role of natural resources and take the economic substance. It is discovered that the features of pastures as a natural component of the complex, and as a natural resource to be used in animal husbandry, and their development is subject to the laws of nature and society. It is proved that for sustainable pasture, use is a necessary condition

for the reform of the environmental and economic (land) relations, including the selection and creation of the most effective forms of management in a complex environmental situation desert and semi desert areas of pasture.

Keywords. Land management, pasture, ecological, economic essence, the reform of relations, forms of management.

Introduction. Pastures are a valuable agricultural land, the source of natural food for animals, much of the area define the important role of this type of land in the agricultural sector of the economy. Pastures are both natural components (soil, natural vegetation), and the principal means of production in agriculture, which determines their environmental and economic entity.

Pastures, including soil and natural vegetation, are a component of the natural complex and constitute a pasture landscape ecosystem. For their sustainable development by the cycle of matter and energy are characterized. Pasture landscapes like forests, are powerful sources of creation of biomass in the form of natural herbs. Natural herbs are used by wild animals, and fossils of dried herbs enter the soil where microbes decompose soil and animals to produce nutrients (humus), used by the new natural grass. Thus, the development of pastures as a natural component of the complex is subject to the natural law of the landscape balance.

Methodology. The use of pastures for grazing is the involvement of their biomass (natural grass) into the economy. Because of this natural component - natural grass - takes the essence of the natural resource and economic substance. From the standpoint of the economic essence of the sustainable pasture, use of grazing is subject to the economic laws in the field of land use.

Pastures, as well as other agricultural land in agriculture are the main means of production, but they have their own specific features, which include the following.

Firstly, the pasture as agricultural land is more complicated concept than other types of land. Thus, if arable land or plough land under perennial

plants include only one natural component - soil, then simultaneously two pastures - natural soil and vegetation.

Secondly, pasture, as natural landscape ecosystem, less transformed at their economic use in contrast arable land. Therefore, the reproduction of their productivity is relatively less complicated process.

Thirdly, the very soil of pastures in the economic turnover person is not involved and is not treated as the production of crops, it performs the function of the natural environment, which is created by biomass - development (growing) of natural herbs, resulting in natural herbs are a product of nature.

Fourth, the use of pastures is carried out in space and time through the grazing of farm animals in the entire territory of the lands with alternating grazing land for the season or godagoda without harvesting, transportation and harvesting natural grass crop (except for mowing).

Fifthly, when using pastures natural grass is involved in economic turnover (as animal feed) and it received entity natural resource.

Sixth, the reproduction of the natural grass (biomass yield natural fodder grasses) are particularly dependent on the presence of precipitation, the soil fertility and seed dispersal process naturally, it is not regulated (or partially regulated) by man.

Seventh, in the scientific literature and grazing practice it is widespread notion that the natural herbs as a natural resource have no value, and the food eaten by the animals is free. However, this opinion shall be deemed insufficiently correct. Natural herbs are a product of nature only to their involvement in economic turnover, and, taking the essence and purpose of a natural resource, the cost of purchase. Furthermore, the grazing uses two types of resource - land (pastures), and plant food. The cost of natural forage grasses determined costs for irrigation of pastures, making them suitable for use, the organization of the territory (land management) phytomelioration degraded areas in order to restore the productivity of pastures and rangeland conservation of landscape ecosystems for land use payments (land tax or rent for the land). Consequently, the grazing pasture vegetation as a natural

resource has a price that must be considered when calculating the cost of livestock production. Thus, in animal confinement, feed costs in the production costs are 50-70% for grazing; this figure requires a special investigation.

Eighth, the unregulated use of pastures degrades not only soil, but as a result, it degrades natural grass, in addition, in the result pastures productivity is decreased.

Pastures of the Republic are located in three climatic zones with varying topography, and the amount of precipitation: Desert and semi-desert (about 18 million hectares or 85%), piedmont (about 2 million hectares or 10%) and mountain (about 1 million hectares or 5%). Irrational use of pastures leads to their degradation, deteriorating quality state of soil and then plant cover. Currently, they are degraded in a different degree from 20 to 30%, and in some areas and more [1]. We believe that the main causes of land degradation in the country are:

- The lack of clear environmental and economic policies in the pastureland;
- Global climate change, more frequent droughts;
- Weak enforcement of land laws in the area of pastureland.

Grazing land management is a complex concept, as it includes concepts such as natural components (soil and natural grass), natural resources (natural forage grasses), watering of pastures, land management, livestock farming (cattle grazing), the reproduction of productive land, evaluation of rangeland. Grazing is an important sector of agriculture and is based on free ranging livestock (in contrast to the stabling). Grazing livestock products are much cheaper compared to livestock production in the irrigated zone.

However, the continuously increasing anthropogenic load on pastures in recent years, causing their degradation, an average of 1.5% per annum [2]. In turn, the degradation is continuously increasing economic losses due to the reduction of production costs and an increase in the fight against the degradation of pastures (reproduction of their productivity) (Figure 1). In

accordance with Figure 1. Are the following steps (phases) in the use of degraded pastures can be distinguished.

1) $\sigma\% = 0$, the economic effect of the use of pastures maximum, the highest level of ecological condition of pastures and the environment, the cost to fight the degradation is not required;

2) $\sigma\% < \sigma_{add}\%$, the economic effect of the use of pastures is reduced due to the growth of the degree of degradation, income (D) is reduced, and the necessary costs of the fight against degradation (rear) increase is observed inequality $D > rear$, the environmental condition of the land and environmental quality

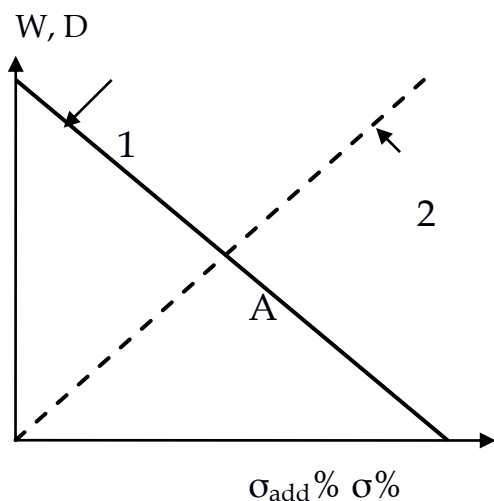


Fig.1. Income ratio of the use of pastures and costs to fight their degradation (1st line - income 2nd - costs).

conductive medium deteriorates; 3) $\sigma\% = \sigma_{dop}\%$, at point "A" the economic effect of pasture use is necessary expenditure to combat their degradation efficiency pasture land is 0, $A = rear$, pasture use becomes useless income completely sent to combat degradation pastures, the ecological condition of pastures and environment deteriorates to a greater extent.

4) $\sigma\% > \sigma_{add}\%$, the economic effect of the use of pastures is reduced and approaches zero, the income does not cover the necessary costs of the fight against the degradation of pastures, $D < C_{app}$ or $D = 0$, the continued use of pasture accelerates their degradation and almost leads to a complete halt their use due to the zero productivity, pasture ecology and the environment is at its maximum negative state, there is a need to raise funds to fight the degradation of the other sectors of the economy.

In case of not taking timely effective measures to combat land degradation it will progress at an accelerated pace, as the real area of grazing due to reduced degradation and population increases or even remains the same. Theoretically, in such cases the situation could spiral out of control and the completely agricultural sector will not be capable, the maximum fall rural incomes worsen the maximum quality of the environment in the pasture region, will increase the incidence and migration.

Let us consider the constituent elements of the main reasons for pasture degradation in the country and the nature of their impact on the ecological and economic condition of the land. Lack of clear environmental policies in grazing land, pastures are not considered as a landscape ecosystem, in practice their use is not applied ecological and economic planning, in recent years (25-30 years) were not carried out reclamation activities to restore their productivity, reproductive cycle using them constantly remained unclosed. By anthropogenic load were added reasons for the degradation of the natural character of pasture - a redistribution of precipitation throughout the seasons due to global climate change, more frequent droughts, exacerbated the impact of the environmental crisis in the Aral Sea region.

The main space of economic policy in grazing land are increasing anthropogenic pressure on pastures, uncontrolled livestock grazing, pasture infrastructure degradation, few effective forms of management, lack of investment in the pasture land, the lack of reclamation of degraded lands, unauthorized felling of shrubs and dwarf shrubs in the pastures by the local population. Growth anthropogenic load on pasture occurs due to increase in livestock, grazing on the same land areas or even at their some reduction (Table).

It must be borne in mind that dekhkan farms pastures in law are only provided for temporary use conditions in the forestry and land reserves.

Much of Dekhkan cattle graze on pastures and uncontrolled free, thereby occurs over grazing. In addition, in connection with a partial violation of pasture irrigation systems in arid and semi-arid zone of large areas of land are not used on these arrays. As a result, the cattle is

concentrated in the watery part of the pasture, which also greatly contributes to overgrazing and degradation of land. And finally, the strengthening of the load on the pastures by the absence of control over the limitation of the number of cattle, grazing

Table

The state of livestock in the country Small Horned Cattle (SHC)

num be r nn	Indicators	equation regression	Livestock, mln. Heads			
			2016	growth for the year	2020 forecas t	experi mental error Nosta
1	2	3	4	5	6	7
1.	The total number of Nob =	$V_0 = 9,67 + 0,80 T$	19,12 100%	0.80	22.483 100%	+ 0.138
2.	Livestock in dekhkan farms Nd =	$V_q = 6,70 + 0,79 T$	15.99 83.6%	+ 0.79	19.340 86.0%	+ 0.195
3.	Livestock on farms NF =	$V_p = 0,46 + 0,09 T$	1.41 7.4%	0.09	X *	X *
4.	Livestock in shirkats Nsh =	$Br = 2,52 - 0,078 T$	1.72 9.0%	- 0.078	X *	X *

* Since 2017 shirkats have been reorganized into farms.

On the respective areas of pasture, and the lack of pasture. Shirkats with weak economic base did not provide upkeep of irrigation systems has led to the cessation of pasture reclamation and restoration of their productivity, production costs were covered by the implementation of livestock, livestock which shirkats decreased by 3-5 times. The lack of alternative energy sources has led to the mass felling of the local population of tree and shrub plantings for economic needs, which intensified offensive shifting sands and pasture degradation. These and a number of other factors have led to an increase of anthropogenic pressure on grazing and increased degradation of pastures increased.

Global change mainly felt in desert and semi-desert grassland zone, where the number of days with temperatures above 40° increased 2-fold and

concentration of small ruminants here amounts to 85%. More frequent droughts. According to data of the Research Institute of Karakul Sheep Breeding and Desert Ecology of 10 years, the number of dry years is 2-3, the same weak productivity of natural herbs that have a significant impact on the economy of livestock farms.

The land legislation of the Republic must be supplemented by the Law "On pastures", regulating land relations in the pasture land; Dehkan farms have no right of permanent or long-term lease pastures for private livestock as a result of which they often violate the rights of other entities through the unauthorized use of their pasture; there is no clear monitoring of pasture use all economic entities are not always taken effective measures for violation of land legislation.

Results. Above-mentioned and a number of other factors have led to an increase of anthropogenic pressure on pastures; strengthen their degradation, decrease of revenues of economic agents and the local population. Requirements to improve the ecological condition of pastures as a landscape ecosystem and increase the economic efficiency of use of land determined the need to reform the environmental and economic relations in the pastureland in order to ensure its sustainable development. In this regard, we believe that the basic conceptual directions of development of the Republic of pastureland are:

- reform of environmental relations, including the translation of the grazing land on a new environmental policy, the transition from the protection of individual natural objects - to the protection of natural territorial complexes in general, the transition from the elimination of the consequences of pasture degradation - to prevent the causes for this error. The "Agenda for a sustainable development for the period till 2030", the objective 15, paragraph 3 [5] states that in 2030 "... to restore degraded lands and soils, including land affected by desertification, droughts and floods," to achieve neutral balance of land degradation. This provision is fully valid also for pasture area of the republic;

- economic reform (land) relations in order to select and create the best forms of managing in difficult environmental conditions, ensuring investment in pasture land, regulated grazing, improving the efficiency of business entities, income growth and well-being of the local population.

Conclusions. Thus, Rangeland is also a component of the natural complex and Natural Resources, has environmental and economic nature, their development is subject to the laws of nature and society. Grassland component as natural and agricultural ground has its own characteristics, due to their complexity as a land, the nature of their use, at transformation landscape ecosystems in their practical use, fodder plants value and others.

It is inappropriate to allow the progressive trends of pasture degradation, as in this case the cost of their restoration can be much higher income from their use, which can lead to dropping out of the turnover of the whole sector of the rural economy.

The main conceptual directions of sustainable pasture use are ecological and economic reform (land) relations, among which the most important is the selection and creation of the most effective forms of management in a complex environmental situation desert and semi desert areas of pasture.

References

1. National report on the state of the environment and use of natural resources in the Republic of Uzbekistan (2008-2011). Tashkent, State Committee for Ecology and Environmental Protection, 2013.- 260 p.
2. The Fifth National Report of the Republic of Uzbekistan on the conservation of biological diversity. UNDP, GEF, State Committee of Uzbekistan for Nature Protection. Tashkent, 2015. - 62 p.
3. Chertovitskiy A.S., Narbaev Sh.K. Assessment of the economic impact of pasture degradation. Agriculture of Uzbekistan. 2014. №11, 34-35 p.
4. Decree of the President of the Republic of Uzbekistan "On additional measures to deepen economic reforms in the livestock" for the number PP-2841 on March 16, 2017.
5. Conversion of our world in the field of sustainable development for the period till 2030 agenda. UN General Assembly Resolution. September 25, 2015.
6. Recommendations on the creation of dekhkan pasture land associations in Uzbekistan. Chertovitskiy A.S., Narbaev Sh.K. Hafizov I.I. Ministry of Agriculture and Water Resources of the Republic of Uzbekistan, Republican Association of livestock producers, TIIM, Tashkent, 2016. 16 p.
7. Law of the Republic of Uzbekistan "On Dehkan farm". 1998, as amended.