

Model of Forestry Land Use of Uzbekistan

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Annotation: the existing model of forestry land use, economic entity and its role in the development of forestry are analysed in the article. In addition, it is recommended to more efficient land use model for the future development of the forest industry.

Keywords: forest, forestry, land use, forestry enterprises, model, ecological, economic, efficiency, lands, self-financing.

Uzbekistan Forests are nature conservation: climate-regulating, soil protection, water regulation, recreation, economic and aesthetic. Industrial use of forests in the country is no forests, forests - 7.6% [2]. The use of forestry land is ecological, to a lesser extent the socio-economic nature. Forests are subordinate to the Main Forestry Admin-

istration (SFA MAWR) - 92.0%, the State Committee - 0.9%, the Tashkent Regional khokimiyat - 5,1%, other departments - 2.0% [2].

Forestry Land use is an integral part of the Uzbek land use and 21,7% of its territory (9,7 million ha.), lands covered by forest - 3,2 million hectares, land structure is presented in Table 1. In forestry, 195 business entities, including, 93 forest objects, 8000 homestead land plots. Land use in the last decade has changed considerably: area increased to 3,37 times from 2,86 million hectares in 1991 to 9,7 million hectares in 2015. In 1992, at the expense of land reserve category in 1995, 1997 and 2009 - at the expense of the category of agricultural lands (degraded pastures - table-1)

Table-1

Dynamics of land area of SFF and land structure, thous. Ha *

№	Indicators	Years					
		1990	1995	2000	2005	2010	2015
1.	Lands SFF, including	2507.5	7374.2	8073.2	8543.2	9629.6	9752.3
2.	covered by forest	1410.0	1254.7	1373.1	2697.0	2939.7	3153.8
3.	arable	7.5	12.4	14.2	13.3	10.9	10.8
4.	perennials	9.5 / 8.4	9.8 / 8.8	9.3 / 8.3	9.2 / 7.7	9.1 / 7.3	8.9 / 7.1
5.	pastures	1040.5	2605.9	3325.9	2615.1	3110.6	2981.6
6.	haymaking	1.9	2.0	2.4	1.4	1.3	1.4
7.	Shrubs	no data	No data	83.2	83.3	83.4	83.5
8.	Other unused agricultural lands	no data	No data	3659.4	3503.5	3469.9	3508.9

* Source: Land Fund of the Republic of Uzbekistan

In the table-2 which are presented the main types of forestry activities in 2015. Total efficiency of the existing model of forestry land-use of the republic consisted of 40,64 billion sums and per 1 ha of GDF - 4,19 thousand sums. It includes components:

environmental protection - 37,2%, the income from the collection of forest products - 5,2%, services - 15,2%, the income of agricultural production - 28,2%, production of consumer goods - 14,1%. Methods of valuation on efficiency of environmental protec-

tion of forests (E e.p) is not currently available, making it difficult to estimate. For approximate calculations we have used the principle of assessment, based on "cost recovery": a society according to and carries certain costs of environmental measures (a forestation, combating moving sands, etc.)

to improve the quality of the environment, in this context, the annual costs accepted for the increase of the quality of a minimum payment for the increment of the quality of environment, i.e. for the environmental, ecological efficiency.

Table-2

The main types of forestry activities in 2015 *

No	Activities	Area, hectare	products	value, billion. sums
1.	Environmental activities:			
	plantation of saplings and seedlings	28246.3	-	9.42 **
	natural regeneration	15 258.5	-	5.09 ***
	nurseries	66	-	-
	Mechanical protection of the sands	660	-	0.66
	Harvesting the seeds of trees, shrubs	-	176.4	-
2.	Collection and sale of medicinal herbs, t	-	-	2, 10
3.	Agriculture, including:			
	- Temporary use of the public forestry enterprises pastures for grazing (for tickets)	391200	-	3.79
	- Agricultural production	-	-	4.63
	- Cultivation and sale of seedlings and seedlings, thous. pcs	-	50498	3.04
4.	Public services - recreation, tourism, sports and hunting and others.	-	-	6.19
5.	Production of consumer goods for the population, including wood	-	-	5.72

* Source: according to GDF MAWR of Uzbekistan.

** The cost of production of environmental protection measures.

*** Contingent expenses for reforestation.

Budget financing of the forest sector in 2015 amounted to 32,57 billion sums and income from self-supporting activities – 25,46 billion sums. All proceeds from the self-supporting activities directed to the development of the industry, the total value of the financing it amounted to 58,03 billion sums, including the budget – 56,1%, self-financing – 43,9%. In 2014 these figures were consisted of respectively 64,6% and 35,4%, increase in the share of self-financing – 8,5%.

Actualization of problems. Despite some success of its natural resources are not used effectively enough in the development of forestry. Not a high rate of a forestation,

poor material and technical base of timber enterprises, inefficient, labour-intensive and costly methods of forestation, not a high enough percentage of survival of saplings and seedlings, large areas of degraded lands and forests [2]. Especially, insignificant efficiency of land use, characterized by low yields of crops. Of the total area of grassland used only about 10%. In floristries long time is not conducted an inventory of land, forest management projects are not updated, there is no land management enterprises. Sent degraded pastures in GDF continued to be used without proper reclamation. The main land use problems are:

- the absence of a clear national forestry policy development of forestry and its land use;

- ineffective planning of land use on sectors of industry, insufficient proportion of agricultural production in the presence of large areas of farmland;

- weak material and technical base of timber enterprises;

- insufficient financing of the industry;

- poor implementation in the sector of market principles, the lack of private

Land use and forest management, long-term lease of lands of forestry enterprises;

- a moratorium on payments for land leads to poor use and their degradation;

- the lack of reliability of the state registration of land in forestry enterprises;

- not the forest tourism development in forestry;

- insufficient scope and effectiveness of recreational services;

- it needs to improve the socio-economic conditions of workers in the industry.

Gap Analysis of Forestry and Land Use it actualizes the problem of development of the National Forest Policy and Industry Development Programme in the future, the transition to a new model of sustainable land use on the basis of reforming economic, forest and land relations, integrated land management.

Research Methodology. Forestry addition to land, covered by forest and intended for forestation, and include agricultural lands. Its system is a material and abstract, includes two subsystems of the 2nd order, four subsystems of the 3rd order (Figure 1). System control (model) includes a state

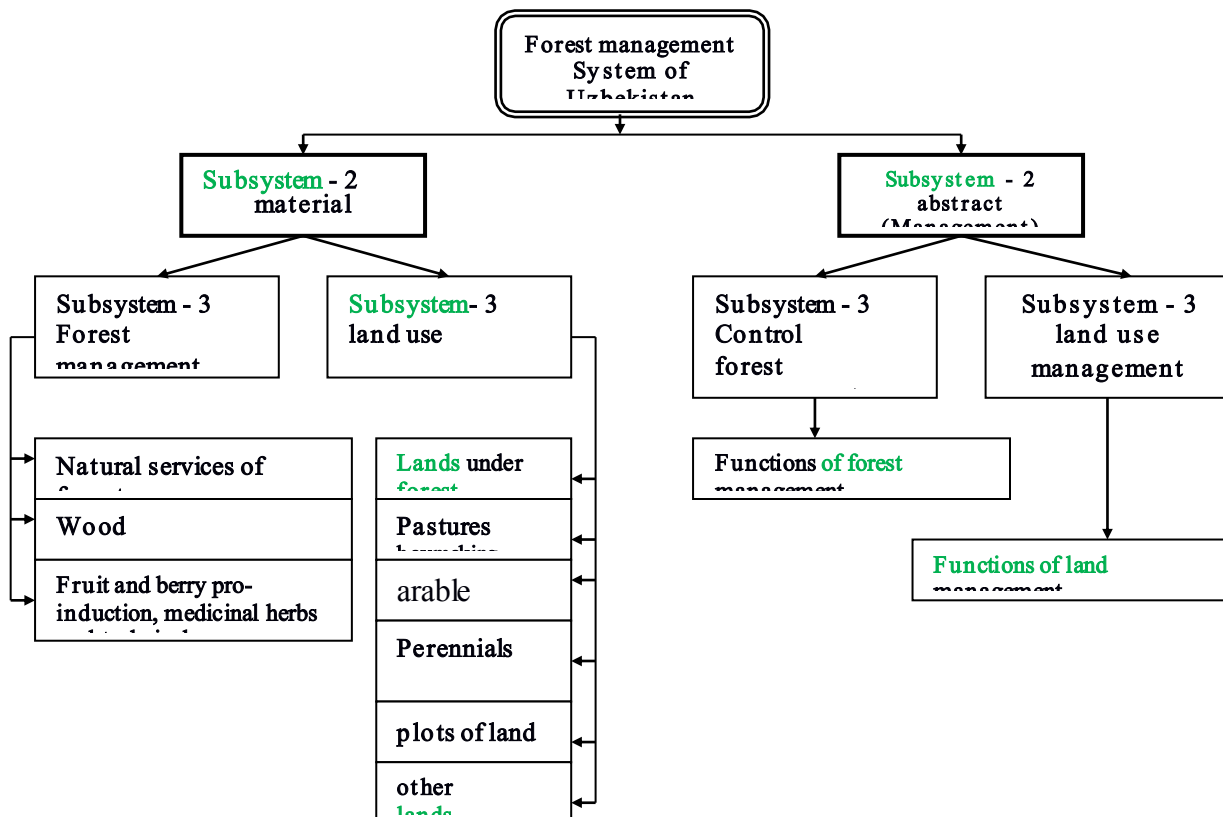


Fig. 1. Forest management system in Uzbekistan

regulation of economic, land and forestry relations and administrative impact [4]. Regulation is performed to change the parameters and the transition from the existing model to a new model, with a different structure of lands, more intensive maintenance of plantations and the use of agricultural lands, increasing the efficiency of secondary activities and the share of self-financing of the forestry sector. Administration supports the operation of the new model by saving adopted its qualitative and quantitative parameters.

Creating sustainable land use SFA is associated with more efficient use of land resources in order to maximize income while maintaining the same opportunities for future generations, which implies expanded reproduction of land productivity. In the forests, as protected environmental areas, there are no special environmental restrictions on land use, in addition to compliance with the requirements of generally accepted [1]. Sustainable land management model must ensure the most efficient use of land resources,

with the full increase in the efficiency of the environmental role of forests as well as the maximum possible increase in the share of self-financing forest sector. Its effectiveness can be represented as follows:

$$Eu.z. = E1s E2s \\ + + + E3s E4s E5s + = \max,$$

where E1s - efficiency plantations sector (environmental);

E2s - efficiency sector collection and harvest of forest products;

E3s - efficiency of agricultural production

E4s - the effectiveness of recreation, tourism, sports and hunting, etc. ;

E5s - efficiency of production of consumer goods for the population.

Thus, land forestry model for the future can be represented conventionally in the form of five separate sectors, each of which has its intended use of the land (Figure 2).

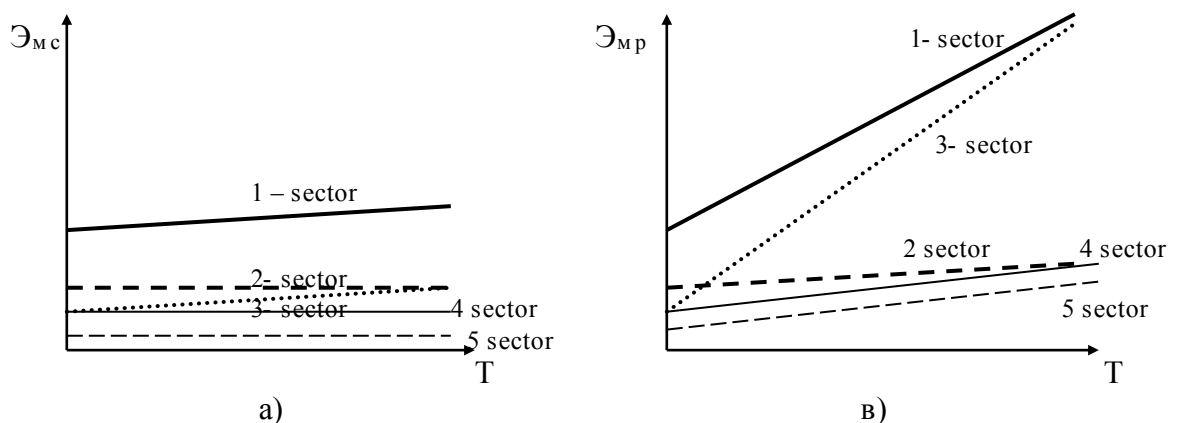


Fig. 2. Effects of existing (a) and suggested (a) Model of Forestry Land use of the Republic

Increased growth efficiency of environmental role of forests (land-use sector-1) achieved plantations productivity increase with the use of new technologies (including the use of aircraft method seeding, increase the level of mechanization of work), devel-

opment of the private land and forest management, bringing to tree planting population on a contractual basis, providing public land in long lease for the production of planted forests, attracting private investment, increase employment of the local

population. This requires a significant improvement in the logistical and financial support of forestry enterprises. Need the perfect mechanism to stimulate evidence-based erosion control systems, protection and shelter belts, agro forestry plantations and soil conservation measures to combat shifting sands and soil erosion.

A significant increase in the efficiency of the 2nd sector (collection of forest products) is clearly not realistic, since in the same forest areas about the volume of production of blanks will be approximately the same (range 10% -15% of the average). A further increase of this production can be achieved only through the cultivation of medicinal herbs, walnuts and pistachios on farmland. In accordance with the decision of the Government only in 2016 it was provided to expand the plantation of medicinal herbs at 2 times [3].

Improving the efficiency of the sector-3 land achieved through improved use of available agricultural land and further development of new lands. No special environmental restrictions on the land use in forestry allow expansion of agricultural landscapes in the long term. Taking allowable ratio of the areas of natural and agricultural landscapes as a 0,6: 0,4, the maximum area of agricultural landscapes in the forest land use will be 3,66 million hectares. After expulsion from the pastures (3,0 mln. Ha) allowed additional arable lands were 0,66 mln. ha. It defines the ratio of the development of forestry and agricultural production in the industry in the future. If in the process of inventory of lands will be set real area of potential development of new lands in the range of 5-10%, which is 33-66 thousand ha, this sector has great potential for development of the industry. The SFE in the floodplain of the rivers Amu Darya and Sir Darya, with sufficient water resources, there are opportunities to conduct irrigated agriculture.

To improve the efficiency of use and preventing the degradation of a large area of pasture grazing needs adjustment, the reproduction of their productivity. It is required forest management and land management of forestry enterprises, the inventory of pastures and their watering, introduction of pasture, crop yield assessment of grasses and forage capacity of pastures, improvement of the payment system for grazing and hay-making, enhanced recovery of land productivity. In the SFA it is necessary to establish a unit to manage the use of agricultural lands.

It is necessary to significantly increase the effectiveness of sector-4 - provision of public recreation, tourism, sports and hunting and other types of paid services. Implementation of these measures will significantly increase the profitability of the industry.

Also actually increase the production of consumer goods for the population in the forestry sector (Sector 5), based on local raw materials, which will also increase the share of self-financing industry.

Results. Budget financing of the forest sector in 2015 amounted to 32,57 billion sums and income from self-supporting activities – 25,46 billion sums. All proceeds from the self-supporting activities directed to the development of the industry, the total value of the financing it amounted to 58,03 billion sums, including the budget – 56,1%, self-financing – 43,9%. In 2014 these figures consisted of respectively 64,6% and 35,4%, increase in the share of self-financing – 8,5%. Further development of the forest industry, a significant increase of its gross income (2-3 times and more) is possible due to the transition to a model of sustainable land use, due to the existing large potential in the sector of land resources. Needed applicable organization of industry area, land inventory, establish the quantity and quality of opportunities for the use of land in the long term, improve the efficiency of utiliza-

tion of existing agricultural lands and the possible development of new lands. There is scope to increase the area in the long term use of pastures to 2-3 million hectares against 0,391 at present, and the area of arable lands - to 40-80 thousand hectares against 8,5 hectares at present.

Sustainable forestry land use provides a solution to two major problems of perspective development of the industry:

- a significant increase of its profitability (2-3 times and more) due to a significant development of the 2nd, 3rd and 4th land-use sectors and a sharp increase in the share of self-financing of industry;

- a sharp increase in the rate of a forestation and forest cover of the country due to the significant increase in funding for these measures from the funds received from the self-supporting activity of timber enterprises in the 2nd, 3rd and 4th land-use sectors.

Conclusions. Further development of the forest industry, a significant increase of its gross income (2-3 times and more) is possible due to the transition to a model of sustainable land use, due to the existing large potential in the sector of land resources.

Increase in environmental and economic performance of the recommended land use models provided by increasing the intensity of agricultural land use and forestation.

There is scope to increase the area in the long term use of pastures to 1,5-2 million hectares against 0,391 million hectares at present, and the area of arable lands - up to 33-66 thousand hectares against 7,9 hectares at present.

Sustainable forestry land use, ensuring the realization of the potential opportunities of land resources of industry, practically allow the industry in the long term to translate fully to the self-supporting relationship.

The current industry moratorium on payments for the land use (about 1 billion sums) leads to misallocation, mismanagement of their use and degradation. It should be part of the funds obtained from the land use, directed to the reproduction their quality. It cannot be restore a natural component-"a forest" at the expense deterioration of the quality of "other land". The land can reasonably act donor for the other components of the natural complex, but not at the expense of their own quality.

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