

ISSUES OF EFFECTIVE MANAGEMENT OF LAND RESOURCES

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Introduction

The issue of land resource management in Uzbekistan is one of the important factors of the country's economic development, and the development of effective solutions to this issue is of great importance. Land resources are limited, and their rational and sustainable use is of great importance for the development of agriculture, industry, and construction. At the same time, the existence of problems in land resource management limits the possibilities for their effective use.

Land degradation and erosion. A large portion of agricultural land is subject to salinization and erosion, which reduces productivity and threatens food security;

Technological deficiency. The use of modern technologies (GIS, satellite data) for effective land resource management has not been sufficiently implemented;

Administrative barriers and corruption in land allocation. Due to the lack of transparency and bureaucracy in the process of land allocation, it is difficult to achieve effective management;

Lack of legislation and control system. Laws regulating the use of land resources are not fully implemented, which leads to the illegal appropriation of land resources.

Our government is taking a special approach to preventing these problems and developing the sector, in particular, a number of tasks have been set in accordance with the Development Strategy of New Uzbekistan for 2022-2026 regarding the effective use of land resources.

Due to the above negative circumstances, insufficient attention has been paid to the study of land resources as a management issue in research conducted to date. Therefore, **In Uzbekistan, the mechanism for managing land resources** identify existing problems, determine the factors affecting them and **Improving land resource management mechanisms in Uzbekistan** is one of the important issues today.

Analysis

Land is a limited resource as a means of production and a territorial space for the placement of productive forces and social objects. Therefore, the supply of land is practically a constant (invariable) value. This implies that the supply of land is inelastic relative to the demand for it. Based on its intended use in various sectors of the economy and human activities, land is classified into the following eight main categories (Figure 1).

According to the analysis, 53.59% of the land fund of our country is agricultural land, and 9.38% of it, or 4,214.3 thousand hectares, is irrigated land. The largest part of the land fund (26.78%) is forest and 13.69% is open land.

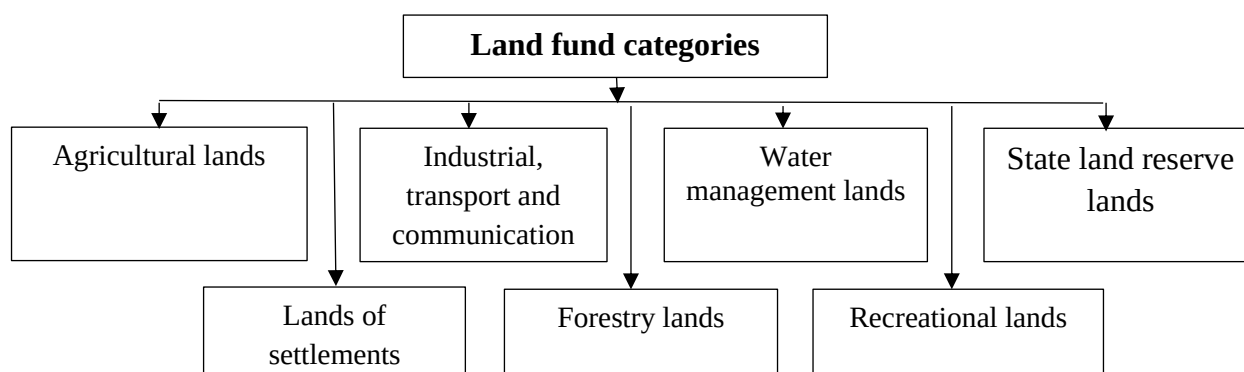


Figure 1. Classification of lands by categories¹

A large part of this category of land is used as a territorial base for the location of construction projects intended for production. This situation creates the need to manage land resources in settlements, cities, urban-type settlements and villages in conjunction with the management of real estate objects located in them.

In our opinion, the agricultural sector is determined by the emergence and expansion of market-adapted forms of land management, such as farmer and peasant farms, as well as the development of land leasing. It is advisable that the processes of redistribution of both agricultural and non-agricultural lands be conditioned by a high level of management that contributes to the economy of land resources and the increase in the efficiency of their use by providing them to efficient land management entities.

The visualization of the model shows how elastic the water resource consumption ΔEP and the gross product ΔGDP (GDP by region) can be to a certain extent (expansive and recessive linkage) or decoupled (strong, weak, recessive decoupling — strong, weak). Or negatively decoupled (strong, weak, recessive negative decoupling — strong, weak, recessive negative decoupling).

For global and regional assessments, it is recommended to use the values of various variables of the generalization formula, i.e., the value added by sectors and the levels of water use, the increase or decrease in the level of water consumption, etc. There are eight logical options for placing variables in the distribution system. In this case, the rates of change in the volume of water consumption in the regions ER (ΔER), mln. m³ and GDP (ΔGDP) can be combined, separated or negatively separated. The increase in the volume of water consumption as a result of economic growth is expressed in percent and is calculated based on the elasticity of GDP to a percentage change in GDP over a certain period of time. The elasticity coefficient "e" is calculated based on the following formula (1.1.):

$$e = \% \Delta ER / \% \Delta YIM \quad (1.1.)$$

Here;

e – elasticity coefficient;

ER – Growth rates of water use in economic sectors, %;

YIM – Growth rates of gross domestic (regional) product, in percent;

The longer the time period studied, the more reliable the results.²In this study, it is appropriate to determine the long-term period 2010-2021 and the short-term period 2015-2021 to study the use of water resources and their impact on regional development. This allows for a comparison of the impact of water resource use on economic growth in the long and short term.

A $\pm 20\%$ variation in the elasticity coefficient around 1;0 is considered a link, which leads to the emergence of a causal relationship. Elasticity values between 0.8 and 1.2 are introduced as critical values.

The rates of change of variables can be positive, expressed as an expanding link, or negative, expressed as a recessive link. The main critical criteria for the assessment are reflected in Table 1.

Table 1
Criteria for assessing the efficiency of water resource use (according to the Tapio Decoupling Diamond model)³

Separation status		Elastic Value (e)	ΔER	ΔYIM
Negative divorce	expensive negative decoupling	$e > 1.2$	> 0	> 0
	weak negative decoupling	$0 < e < 0.8$	< 0	< 0
	strong negative decoupling	$e < 0$	> 0	< 0
Decoupling	recessive decoupling	$e > 1.2$	< 0	< 0
	weak decoupling	$0 < e < 0.8$	> 0	> 0
	strong decoupling	$e < 0$	< 0	> 0
Coupling	expansive coupling	$0.8 < e < 1.2$	> 0	> 0
	Recessive coupling	$0.8 < e < 1.2$	< 0	< 0

For this model, data on the level of use of territorial water resources and GRP of the Republic of Uzbekistan for all regions for 2010-2022 are used and placed on the appropriate coordinate axis and trends are studied.

²Tapio, P. (2005) 'Towards a theory of decoupling: degrees of decoupling in the EU and the case of road traffic in Finland between 1970 and 2001', *Transport Policy*, vol. 35, pp. 137-151.

³Jiang R., Zhou Y., Li R. Moving to a low-carbon economy in China: Decoupling and decomposition analysis of emissions and economy from a sector perspective // *Sustainability*. – 2018. – T. 10. – No. 4. – S. 978.

The distribution of the annual amount of water withdrawn in the Republic of Uzbekistan in 2021 did not take into account territorial aspects. In particular, 12.4 percent of the total amount of water withdrawn in 2021 (43,661.6 million m³) fell to the Republic of Karakalpakstan, 10.9 percent to the Tashkent region, and 10.5 percent to the Kashkadarya region. However, there is no proportional distribution corresponding to irrigated land in agriculture. For example, while the amount of water withdrawn in the valley regions was 19.1 percent of the total republican amount in 2021, 17.3 percent of irrigated land is the share of these regions. However, 27.5 percent of total agricultural products are grown in the valley regions, which are considered to be Andijan, Fergana, and Namangan regions. The highest levels of water consumption per hectare are in Bukhara (12.6 thousand m³/ha), Syrdarya (12.2 thousand m³/ha) and Khorezm (12.6 m³/ha) regions.

The results of the assessment of water use intensity in 2010-2021 based on the Decoupling Diamond model are presented in Table 2. The results obtained indicate that in all regions the growth rates of GRP are greater than 0 and the average growth of GDP in the republic in 2010-2021 was 6.11 percent. The volume of water use has a high growth rate, including the average growth of water use in the republic of 1.71 percent. The highest growth was observed in the Republic of Karakalpakstan, Jizzakh, Kashkadarya and Khorezm regions. In general, in all regions the average growth of Δ GRP (GRP) is greater than 0 and the growth of water use volumes Δ EP is also greater than 0. Accordingly, all regions, except for Samarkand region, are located in the area corresponding to the “weak decoupling” of the coordinate axis, which is consistent with the criteria of the Decoupling Diamond model. Samarkand region is located as an area corresponding to the critical criterion of “weak negative decoupling”.

Table 2

Results of the assessment of the effectiveness of water use management in 2010-2021⁴

Tr	Name of the regions	2010-2021.			2010-2021.		
		Δ ER, %	Δ YHM, %	e	Growth, %	Elasticity	Evaluation
	Total by republic:	1.71	6.11	0.28	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
1	Republic of Karakalpakstan	5.89	7.98	0.74	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
2	Andijan	1.50	6.05	0.25	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
3	Bukhara	0.98	6.68	0.15	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
4	Jizzakh	3.01	7.29	0.41	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
5	Kashkadarya	2.89	4.69	0.62	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation

⁴Compiled by the author

6	Navoi	1.12	4.94	0.23	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
7	Namangan	1.72	7.26	0.24	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
8	Samarkand	5.14	6.25	0.82	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e > 1.2$	weak negative separation
9	Surkhandarya	1.49	6.53	0.23	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
10	Syrdarya	0.24	5.64	0.04	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
11	Tashkent	0.52	5.60	0.09	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
12	Fergana	0.16	6.14	0.03	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation
13	Khorezm	4.13	6.30	0.66	$\Delta_{YIM(YHM)} > 0; \Delta_{EP} > 0;$	$e = 0.0 - 0.8$	weak separation

According to the “weak decoupling” criterion in Table 2, both GDP and water consumption tend to increase, but GDP growth is faster than water consumption. This means that the normative level of water consumption in all regions is growing in line with regional development. This situation indicates that water consumption in Uzbekistan is developing normatively, based on the results of observations for 2010-2021. This situation should also be considered as a result of the reforms implemented by the Government of the Republic of Uzbekistan.

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