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Theoretical and Practical Issues of Water Cadastre Management

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Keywords: *The main purpose of the state water cadastre, the necessary information about the state authorities, legal entities and individuals about the water regime, quality and directions of water resources, as well as water users.*

ABSTRACT

In this article, the theoretical issues of water cadastre management, the existence of water consumption and water facilities since the establishment of the first statehood, the state water cadastre, the water objects that make up the state water fund, the regime, quality and use of water resources, as well as information about water users It is stated about the information that is arranged in a certain way, which is constantly filled and clarified if necessary.

The analysis of the scientific literature on the field shows that in the Zoroastrian holy book "Avesta" written in the 11th century BC, Water is considered sacred together with Earth, Air, and Fire, and any person who pollutes them is punished. By building dams, dams, canals, bridges, the tribes not only conducted trade with each other, but also tried to develop agriculture. It can be seen in historical sources that water consumption and water facilities have existed since the establishment of the first statehood . This was mainly recorded to tax them [1].

The state water cadastre is information about water bodies, water resources regime, quality and use of water resources that make up the state water fund, as well as information about water users, which is organized in a certain way, constantly replenished and clarified when necessary. is a collection of data.

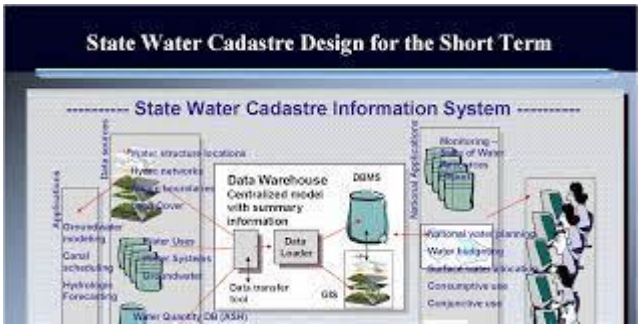
The state water cadastre can be understood as a water passport because it contains information about water resources and water users. Its object is surface and underground water objects and resources. The state water cadastre is a comprehensive study and assessment of the use of water resources in terms of quantity and quality indicators, registration of the right to use water and the use of water for economic purposes. The main purpose of the state water cadastre is to provide

state authorities, legal entities and individuals with the necessary information about water bodies and water resources, water regime, quality and directions of its use, as well as water users. tash kari, its components are registration of water objects and water users, accounting of water quantity and quality, assessment of water resources and their use.

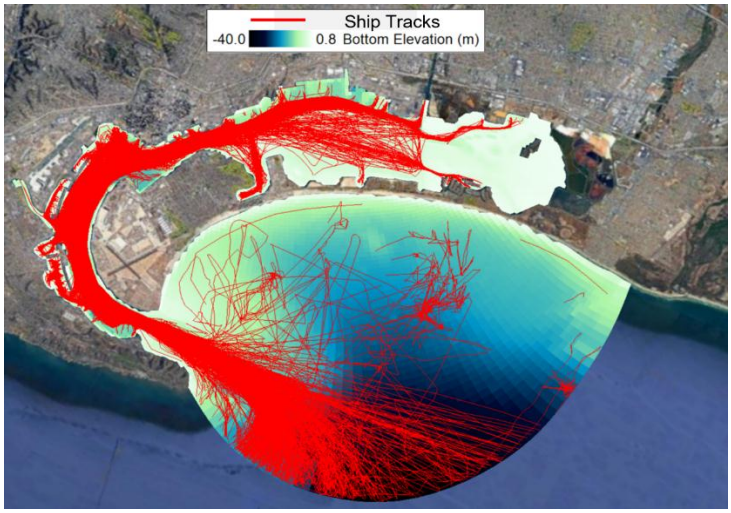
In most cases, the concept of cadastre is directly related to the concepts of "real estate" and "cadastral survey". The latter requires photographing the boundaries of real estate plots. Cadastre is the result of long historical development. Analyzing its past allows predicting the future . As a result of the creation of states, the land and water cadastre began to serve as the main source of income and object of taxation. Therefore, at a certain stage of the development of the society, there was a need to consider and evaluate water cadastral objects [5] .

The first registration of water bodies began in the era of slavery. For example, in Egypt in the 4th century BC , water objects were assessed and registered . At the same time, water bodies began to be registered in ancient Rome. Tables on special bronze plaques include the size, quality, and income of water bodies and structures built on them.

The first hydrological posts in the territory of Turkestan were established in 1868 on the Chirchik and Norin rivers in Syrdarya and Amudarya, and the water cadastre has been improved over the years [1] .



Today, the State Water Cadastre is implemented by three ministries: the State Committee for Geology and Mineral Resources of Uzbekistan, the Ministry of Water Management, and the Hydrometeorological Service. The State Committee on Geology and Mineral Resources keeps the groundwater account, while the Ministry of Water Management provides information on the use of surface water. We will carry out their comparative analysis. There are more than 40 large rivers in Uzbekistan. For example, there are 57 rivers in Tashkent region, 12 in Kashkadarya, and 16 in Surkhandarya. We effectively use international cooperation in maintaining water cadastre. Because many of our rivers are transboundary and we directly exchange information with neighboring countries [5].



As of January 1, 2022, the land of the water fund is a total of 833.7 thousand hectares or 1.86% of the total land area. Table 1 shows the distribution of water fund lands by the Republic of Karakalpakstan, Tashkent city and regions as a result of research.

Table 1. Distribution of water fund lands *

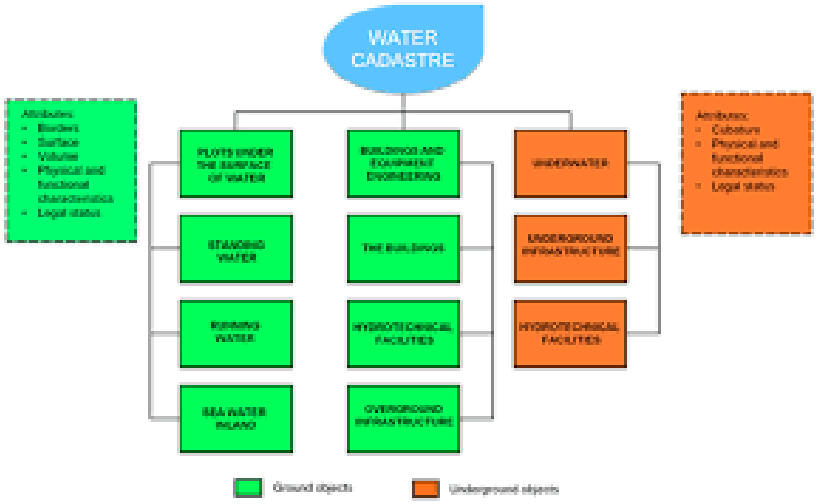
(in thousands)

№	Republic, cities and regions name	Total land area	Cultivated lands	Perennial trees				Wasteland, hayfield and pasture land	Total agricultural land	Homestead lands	Woodlands	Other places
				total	including:							
					gardens	vineyards	traps					
1	Republic of Karakalpakstan	57.4						0.1	0.1		0.9	56.4
2	Andijan	18, 8	0, 3	0, 2	0, 2				0, 5	0.1	0.1	18, 1
3	Bukhara	66, 3										66, 3
4	Jizzakh	310, 3						1, 9	1.9		0.1	308, 3
5	Kashkadarya	3 6.2	0, 2					0.7	0, 9			35,3 _
6	Navoi	183, 4						6, 6	6, 6			176, 8
7	Namangan	22	0.3	0, 3	0.1		0, 2		0, 6	0.1	0, 4	20, 9
8	Samarkand	27	0.4	0.2		0.1	0.1	0.6	1.2	0, 1	0.3	25.4
9	Surkhandarya	2 4	0.1						0.1	0.1	0, 1	23.7
10	Sirdarya	26 , 9	0.2						0.2		0.1	26, 6
11	Tashkent	16, 3										16, 3
12	Ferghana	20 , 6	0.3	0, 1	0.1				0, 4		0, 1	20.1
13	Khorezm	23, 4	0, 7	0.1	0.1				0, 8	0.1	0.1	22.4
14	Tashkent city	1, 1										1, 1
	TOTAL:	83 3 , 7	2, 5	0, 9	0, 5	0, 1	0, 3	9.9	13.3	0.5	2, 2	817, 7

***(Compiled by the author based on the information of the State Statistics Committee of the Republic of Uzbekistan and the cadastral agency).**

Areas occupied by water bodies, rivers, lakes, reservoirs and other water management structures, as well as allocated along the banks of water bodies and other water bodies, assigned to enterprises, institutions and organizations for the needs of water management in the region The lands given in the order belong to the category of water fund lands. Land allocated for the needs of water management in the region occupied by water bodies , rivers, lakes, reservoirs, hydrotechnical and other water management facilities, as well as along the banks of water bodies and other water bodies. belongs to the category of fund lands.

More than 100 reservoirs of various sizes have been built in the Aral Sea basin for the purpose of rational use of river waters, that is, to collect water in winter and use it for irrigation in summer. 55 of them are located in the Republic of Uzbekistan. Reservoirs are of great help in improving water supply for irrigation.



Scientific research on water cadastre management in Uzbekistan SAAvezboyev, ASchertovskiy, GATolipov, ATAbdurazzokov, ASAltiyev, QRRakhmonov, ARBobojonov, MIRozmetov, RATorayev, MMBozorov, AASamborsky, DOJurakulov, Sh.K.Narboyev, I.Ikhlosov, FRKhamidov, ANInamov , conducted by JOLapasov and other local scientists.

Sh.B. Akmalov [2; As a result of scientific research carried out by [8] , a database and map on the analysis of water needs of agricultural crops in the assessment of water consumption of irrigation systems based on MODIS satellite images created.

RIOteniyazov [3; p. 21] In his research, changes in the level of seawater were studied on the basis of aerial photographs and geoinformation technologies.

JXDjumanov [4; p. 18] and with the help of geoinformation technologies, he studied the state of underground water and applied geoinformation - mathematical models to the solution of hydrogeological problems.

G. Ye. Omarova [5; p. 14] in his research, using a database, taking into account the conditions of water scarcity, by creating regionalized thematic maps, the analysis of water supply to irrigated lands and the required water demand for the cultivation of agricultural crops He highlighted the predictions and perspectives of wealth.

recent years, many negative anthropogenic changes are taking place on the Earth under human influence. It is important to identify these changes in time and determine preventive measures. Because the size and level of changes are volatile, they require rapid and high-precision learning, science-based conclusions, and the development of useful interventions [5; p. 116-127.] .

It will not be enough to study only one component of nature and make decisions accordingly. Because various effects in nature are expressed in all its components. For example, changes in water levels not only affect underwater flora, but also indirectly affect vegetation and animal life. Therefore, the main challenge of the environment is to study these changes on a large scale and in detail. It requires a lot of resources and a long time. This problem was partially solved in the world at the beginning of the 20th century with the emergence of MOO. Because this field provided opportunities for large-scale detailed research in nature

To date, as a result of the informatization of society and the increase in production in the state, many students entered in the cadastre in the past centuries have changed. The issue of water cadastre is very important for Uzbekistan.

As a result of the research, it was possible to implement the "Geoinnovation smart water cadastre" module of water cadastre management based on interactive state services through GAT technologies by the Ministry of Water Management, Hydrometeorological Service Center, Cadastre Agency and to integrate relevant water cadastre data into the geoportal.

Conclusion: As a result, in order to provide high-quality services to the population by the competent bodies for surface water, underground water and water use, this module is used for data processing, quick service, delivery to users, information exchange with state organizations, water open use of cadastral data and provides modern services through the interfaces of the information collection center.

Controlling the effective use of water resources in the world, regulating reliable information about water users, conducting rapid monitoring, creating an automated water cadastre on the quality and quantity indicators of water resources are important issues in the use of geographic information systems (GIS) and technologies . is one. In this regard, it is of particular importance to conduct rapid monitoring of water bodies, water regime, quality and water use using geographic information systems (GIS). The main problem in using GAT models in the management and use of water resources is their low accuracy, the models are built on the basis of low-resolution satellite images, and old analysis methods are used.

The state water cadastre is a systematized database based on the volume and types of use of water resources. Water cadastre is one of the important issues of collecting information on hydrological characteristics of surface water, underground water and water users and creating a unified automated database on cadastral indicators.

Because in recent years, the drying up of water bodies due to climate change, especially the Arol tragedy, has led to a change in the attitude towards water in the country. Climate change is definitely having a negative impact on our activities. Because water resources are decreasing every year.

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