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## IMPROVING TAXES FOR THE USE OF WATER RESOURCES

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## **IMPROVING TAXES FOR THE USE OF WATER RESOURCES**

The article critically examines the economic nature and characteristics of the tax on the use of water resources, its importance in budget revenues, the dynamics of regions and industries, the current situation. Moreover, the drawbacks of the current device of taxation on the use of water resources are revealed with its factors, as well as the author's view. Finally, the conclusions and reasonable solutions and recommendations on the topic are presented with relevant points.

**Key words:** Tax, water resources, water consumption tax.

### **SUV RESURLARIDAN FOYDALANGANLIK UCHUN SOLIQQA TORTISHNI TAKOMILLASHTIRISH**

Maqolada suv resurslaridan foydalanganlik uchun soliqning iqtisodiy mohiyati va xususiyatlari, uning byudjet daromadlaridagi ahamiyati, mintaqalar va tarmoqlar dinamikasi, hamda mavjud vaziyat tanqidiy o'rganilgan. Bundan tashqari, suv resurslaridan foydalanishda amaldagi soliqqa tortish mexanizmining kamchiliklari uning omillari, shuningdek muallifning fikri bilan ochib berilgan. Va nihoyat, muammolar bo'yicha xulosalar va yechimlar va tavsiyalar tegishli ma'lumotlar bilan keltirilgan.

Tayanch so'zlar: Soliq, suv resurslari, suv resurslaridan foydalanganlik uchun soliq.

#### **Introduction**

The main task of taxes is the formation of state budget revenues, that is fiscal. However, taxes also perform a number of other functions. One of the most important of these is to regulate and encourage a certain degree of efficient and rational use of natural resources. The tax on the use of water resources has been introduced for this purpose, and although it has fiscal significance, it is not as high as other taxes.

Today, the lack of water resources especially clean drinking water is becoming a global problem in many countries around the world. In particular, the growing water scarcity from year to year due to global climate change, population growth and increasing demand for water may be one of the main limiting factors for the future development of the country. In such circumstances, the economical use of available water resources should be considered a priority.

Based on these tasks, it is important to systematically regulate and to strengthen the economic mechanism concerning the use of water resources in Uzbekistan. In this regard, it is important to increase the tax efficiency for the use of water resources.

Although a number of changes have been made in the tax mechanism for the use of water resources as a result of the adoption of the concept of improving the tax policy of the Republic of Uzbekistan, in practice, this tax concept does not fully meet its objectives. Therefore, it is important to critically study the tax on the use of

existing water resources, identify existing problems and develop recommendations for their solution.

### **Analysis of the relevant literature**

Issues of improving the tax or water tax for the use of water resources are reflected in the scientific research of foreign and national experts. In this regard, a number of foreign experts, in particular, N. Kilimani et al. (2015) investigated the impact of water tax on ecology and dividends. Their research shows that tax policies aimed at protecting the environment are beneficial to the economy in other ways. However, the impact of environmental taxes on the economic development of countries has not been sufficiently studied. In the context of developing countries, the impact of water tax on income and dividends has been studied, and it is emphasized that businesses should do more harm to the environment in order to make more profit, so the fiscal level in these taxes should also prevail.

Also, some studies recommend a gradual transition to rational use of water, the introduction of progressive payments for water use.

Baumol and Oates (1971) proposed that it is possible to achieve the desired environmental improvement at minimum cost to society through environmental taxation. These days this proposal is main argument to justify environmental taxes (Ekins and Speck, 2011).

There are various approaches to the taxation of water. According to the double dividend theory (Pearce 1991, Repetto et al. 1992), both the environment (first dividend) and the economy (second dividend) will be in better shape than before the water tax reform. The positive effects of lowering other taxes could even outweigh the negative effects of a rise in water taxes (Goulder et al., 1997). Letsoalo et al. (2007) introduced the theory of triple dividend of water tax and found that water consumption charges in South Africa reduced water use, increased economic growth, and provided a more equal income distribution.

However, investigations of Lena Høglund (1999) represent that water consumption tax in Sweden can increase revenue considerably but the reduction of water consumption would be only 1%. Changbo Qin et al. (2012), Maria Berrittella et al. (2008) imply that imposing water taxes can redistribute sectoral water use toward higher water-use efficiency sectors and lead to shifts in production, consumption, value added, and trade patterns.

Another important finding is that water taxes imposed on the agricultural sector drive most of the effects. In order to mitigate the adverse impact of water taxes, the government should subsidize water-saving irrigation technology and decrease other taxes for impacted households (Letsoalo 2007). Moreover, according to Dinar & Yaron, 1992, a rise in water price by a tax, would lead to the adoption of improved irrigation technology.

However, the drawbacks of water tax are that it decreases total output, total export, GDP, and household welfare (Changbo Qin et al. (2012)). Needless to say, that the efficiency of environmentally related tax revenues depends on the initial level of GDP per capita. Introducing environmentally related taxes in countries with a low level of initial GDP per capita will damage the economic growth rate, while these

taxes could promote the economic growth rate when the initial level of GDP per capita is high (Hassan M. et al. (2020)).

There are several studies about price policies implementation in the water sector (e.g. Dinar & Subramanian, 1998; Jones, 1998; Ahmad, 2000; Rogers et al., 2002), economic value of water, the costs of its provision and the price of its use (Rogers et al., 1998; Ward & Michelsen, 2002; Young, 2005) as well as optimal price of water (Hoglund, 1999, Janmaat, 2005). According to Hoglund, increasing average price of water would be more effective rather than increasing marginal price of water. Optimal tax plan for an irrigation system should involve different tax rates at different sites throughout the system. (Janmaat, 2005). Berrittella et al. (2008) consider that a tax on the final consumption of water rather than on the use of water in production would be less effective in reducing water use, but would be less costly; while the distributional and trade effects are very different.

Russian economist M. Baldaeva (2007) studies the relationship in the field of organization of paid water use on a paid basis and considers the obligation of water use fees for all water users as one of the basic principles. The existence of a privilege for some payers places an additional burden on others. Exemption from payment does not encourage efficient and rational use of water resources.

The dissertation of D. Kurbanov (2017), an economist who has conducted research on taxes and taxation in our country, explores the mechanism of calculation and collection of taxes for the use of water resources in Uzbekistan. In the research work of A. Musagaliyev (2019) certain aspects of the tax for the use of water resources were studied. But the tax on the use of water resources is one of the topics that is relatively little studied by domestic and foreign scientists.

### **Analysis and results**

The future of Uzbekistan's water industry is determined by such important factors as the country's efforts in the field of water resources management, the level of water resources and international cooperation in the use of transboundary rivers. In this regard, climate change is another factor affecting future water supply and water security.

The level of water supply is declining due to declining flow and groundwater in major rivers. This requires the economical and rational use of water resources by all sectors, especially agriculture, population and industry, in order to meet the water needs of all sectors of the economy and the environment in the future. The application of integrated management principles from water resources implies the interaction of water users upstream and downstream, as well as the need to find mutually acceptable solutions to meet the demand for water supply among competing water users.

The main opportunities for water conservation are in the field of irrigated agriculture, which accounts for up to 90% of water consumption in the country. There is a huge potential to increase the efficiency of water supply to farmers, as well as to increase the efficiency of water use at the agricultural level. The existing infrastructure is out of order and requires modernization, with significant costs of operation and maintenance, including significant electricity costs when using pumping stations that pump water for irrigation.

Water resources of Uzbekistan - the Aral Sea basin is part of the water flow. The main sources of water resources in Uzbekistan are the surface currents of the Amudarya and Syrdarya rivers and their tributaries. The average annual flow of all rivers in the Aral Sea reservoir is 116.2 km<sup>3</sup> per year, of which 67.4% in the Amudarya reservoir (78.3 km<sup>3</sup> / year) and 32.6% in the Syrdarya reservoir (37.9 km<sup>3</sup> / year). formed. The total groundwater reserves in the Aral Sea reservoir are 31.17 billion m<sup>3</sup>, of which 14.7 billion m<sup>3</sup> are in the Amudarya reservoir and 16.4 billion m<sup>3</sup> in the Syrdarya reservoir.

The average long-term water intake limit for Uzbekistan is 64 km<sup>3</sup>. In the 1980s, the republic's annual water consumption was equal to this value.

In recent years, the average annual volume of water resources used by Uzbekistan is 51-53 km<sup>3</sup>, which indicates a significant reduction in total water abstraction (20%). This is due to the fact that river water is declining under the influence of climate change, as well as due to problems with transboundary water use.

Transboundary rivers account for an average of 80% (approximately 41 km<sup>3</sup> / year) of the total water resources consumed by Uzbekistan and are formed on the territory of neighboring countries.

The estimated natural resource potential of fresh and low-salt groundwater is 27.6 km<sup>3</sup> / year (75.6 million m<sup>3</sup> / day), but they are extremely unevenly distributed throughout the country. The lack of a scientifically based system for the management and use of groundwater resources, the illegal construction of water intake facilities, and the rapid and uncontrolled use of groundwater over the last 40-50 years have led to a reduction in their reserves.

The needs of water consumers are met through the use of surface water (50.9 km<sup>3</sup> / year), operational reserves of groundwater (0.5 km<sup>3</sup> / year), as well as the reuse of collector-drainage water (1.6 km<sup>3</sup> / year).

The quality of the river water is generally considered good. At the same time, there are certain concerns about the increase in pollution due to the dumping of agricultural chemicals, untreated wastewater from settlements and industrial enterprises, as well as the pollution of rivers as a result of upstream mining waste. At the same time, the quality of water in rivers, streams and other water sources remains stable due to the implementation of certain measures to prevent the ingress of pollutants and waste into the sources. In particular, in recent years, in accordance with government decisions, 9 water treatment facilities in the utilities sector alone have been reconstructed, construction of new ones and modernization of existing ones are underway.

The total irrigated area of Uzbekistan is 4.3 million hectares, while agriculture is the largest consumer of water resources, accounting for an average of 90-91 percent of the water it uses. Agriculture is one of the leading sectors of the Uzbek economy. Half of the country's population lives in rural areas. In 2019, the contribution of the agricultural sector to the GDP of Uzbekistan amounted to about 28%.

In terms of water consumption, the second place is occupied by utilities (4.5% of total water use). There are 119 cities, 1064 urban-type settlements and 11,088 rural settlements in the country. 69 cities (58%), 335 urban-type settlements and 2902

settlements are provided with groundwater resources. The remaining settlements are supplied by other sources of water supply (surface water, unapproved water resources, wells, culverts, etc.).

Industry (its share in GDP in 2019 - 30%) accounts for about 1.4% of water consumption, fisheries - 1.2%, thermal energy - 0.5%, other sectors of the economy - 1.0%.

In recent years, the industrial and energy sectors are actively developing, and water consumption in them is constantly growing. At the same time, in accordance with the Law of the Republic of Uzbekistan "On Water and Water Use", the industrial demand for water is a priority and is fully (unlimited) covered. It is estimated that total water consumption for industrial needs (including energy) will increase from 2 km<sup>3</sup> per year to 3.5 km<sup>3</sup> by 2030.

Taxes for the use of water resources are important in ensuring the efficient and rational use of water resources. It should be noted that in the practice of developed countries, the tax on the use of water resources is effectively used as an important economic mechanism to ensure the efficient and rational use of water resources.

While the introduction of a tax on the use of water resources is of fiscal importance, it is an economic mechanism that ensures the efficient and rational use of water resources.

The introduction of an optimal system of taxation of water use is determined, firstly, by the need for efficient and rational use of water resources, and secondly, by the need to finance public spending to improve the quality of water resources.

The general nature of the tax for the use of water resources derives directly from the economic nature of taxes. The economic essence of taxes is reflected in the financial relations between the state and legal entities and individuals in the formation of state budget revenues. In a market economy, taxes are the main means of attracting financial resources to the state budget, state regulation of economic activities of legal entities and individuals. Taxes are involved in the redistribution of gross domestic product and national income. Their source is national income, which is derived from the newly created value in the process of attracting the factors of production, i.e. natural resources, labor and capital to production. Taxes are collected by the state, become its property and are used by the state in the performance of its functions. The tax system of Uzbekistan is more focused on the taxation of labor and capital, rather than on natural resources, i.e. state budget revenues are formed mainly at their expense.

The possession and use of natural resources in society, that is, the right of ownership belongs to the state, in the process of which a bilateral relationship is formed.

First, while the whole society gives the state the right to own natural resources, the state increases its income by exercising its right to own natural resources, i.e. collects payments from economic entities for their use of natural resources. Such payments are interpreted in the name of royalties, which are treated as payments to the owner for the right to use natural resources.

Second, just as the state receives income from capital or labor, it must also collect taxes for the use of natural resources by economic entities in the production

process. In this process, the state manifests itself both as the owner of natural resources and as a tax collector.

If we look at the essence of the tax for the use of water resources, then the features of resource taxes are fully reflected. This tax is set in proportion to the use of water by economic entities, and the amount of tax is determined on the basis of the volume of water used and the tax rate. “The effectiveness of the tax on the use of water resources is determined by its rate, if other conditions are equal. The level of this tax rate is mainly influenced by the surface or underground sources of water resources and the categories of taxpayers of this tax ”(Kurbanov D.R., 2017).

The tax liabilities of economic entities for the use of water resources are absolutely dependent on the level of water use of the taxpayer, regardless of their turnover or profit. It is known that the object of tax for the use of water resources is the volume of water used by taxpayers. Therefore, the obligations of economic entities on this tax are formed in accordance with the characteristics of water use in their activities.

Although the tax on the use of water resources is subject to fiscal and incentive functions, the analysis shows that this tax has not adequately fulfilled both of them in the past period.

The share of this tax in state budget revenues has averaged 0.3% over the past decade, with the lowest share in budget parameters. From this point of view, it is much less than the amount of public funding for improving the quality of water resources.

It is known that as a result of the adoption of the concept of improving the tax policy of the Republic of Uzbekistan there is a sharp shift in the system of taxation created an economic mechanism for natural resources and property. Until now, the fact that most water users do not pay taxes on the use of water resources shows that the taxation of a very small part of the total water used in the country can not affect the efficient and rational use of water resources. Therefore, a critical analysis of the tax mechanism for the use of water resources, the study of the impact of taxes on the efficiency of water use of economic entities remains relevant.

In this regard, we analyze the dynamics of tax formation for the use of water resources in the regions of the country.

**Table 1**  
**Tax revenues for the use of water resources dynamics of formation by regions, in%**

Regions	In 2015	In 2016	In 2017	In 2018	In 2019	Changes in 2019 compared to 2015
<b>The Republic of Karakalpakstan</b>	5,9	3,9	3,9	2,0	0,4	-5,5
<b>Andijan region</b>	0,4	0,5	0,6	1,3	1,4	1,0
<b>Bukhara region</b>	0,8	0,7	0,9	1,5	1,5	0,6
<b>Jizzakh region</b>	0,3	0,8	0,7	1,2	1,7	1,4

<b>Kashkadarya region</b>	11,0	11,0	12,9	8,0	6,5	-4,5
<b>Navoi region</b>	12,5	13,9	14,3	15,4	16,9	4,4
<b>Namangan region</b>	1,3	1,4	1,7	1,7	2,5	1,2
<b>Samarkand region</b>	0,8	0,8	1,1	1,4	2,0	1,2
<b>Surkhandarya region</b>	0,4	0,4	0,5	1,2	1,3	0,9
<b>Syrdarya region</b>	21,8	25,1	19,1	0,5	0,4	-21,4
<b>Tashkent region</b>	31,9	29,4	29,4	39,0	42,8	10,9
<b>Fergana region</b>	4,2	2,9	4,8	7,8	7,6	3,5
<b>Khorezm region</b>	1,3	1,0	1,2	2,5	2,0	0,7
<b>Tashkent city</b>	7,6	8,2	8,9	16,5	13,1	5,6
<b>TOTAL OF THE REPUBLIC</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>-</b>

Calculated by the author on the basis of data from the State Tax Committee of the Republic of Uzbekistan.

The analysis shows that in the last five years, the dynamics of the formation of the tax on the use of water resources by regions has not changed dramatically in some regions, while in some regions the opposite can be seen. In particular, the share of Syrdarya region decreased by 21.4%, the Republic of Karakalpakstan - by 5.5%, Kashkadarya region - by 4.5%, while the share of all other regions increased. The sharpest growth was observed in Tashkent region (10.9%), Tashkent city (5.6%) and Navoi region (4.4%).

The most important conclusion from the analysis of tax revenues for the use of water resources by regions is that tax revenues are largely related to the industrialization of the regions and the location of large industrial enterprises in the region. In the analyzed years, the highest average share was in Tashkent region (34.5%), Navoi region (14.6%), Tashkent city (10.9), Kashkadarya region (9.9%). In all other regions (except Syrdarya region) its share was slightly lower. While the share of Syrdarya region averaged 13.4%, in 2018 and 2019 it decreased sharply, reaching 0.5 and 0.4%, respectively.

This situation requires an analysis of the formation of taxes on the use of water resources by industry.

Taxes for the use of water resources are paid by taxpayers based on the volume of water resources used and the established tax rate. Until now, tax rates were set by the decree of the President of the Republic of Uzbekistan, but from 2020 they were approved by the Law of the Republic of Uzbekistan "On the State Budget of the Republic of Uzbekistan for 2020."

In tax practice, tax rates for the use of water resources are divided into several groups according to the nature of water use of water-using industries. They are today categorized into the following areas, namely:

- enterprises in all sectors of the economy (except for the following), farms, individuals who use water resources in the course of business activities.
- industrial enterprises.
- enterprises specializing in vehicle washing.
- power stations.
- utility companies.
- enterprises producing alcoholic beverages and non-alcoholic beverages other than beer and wine.

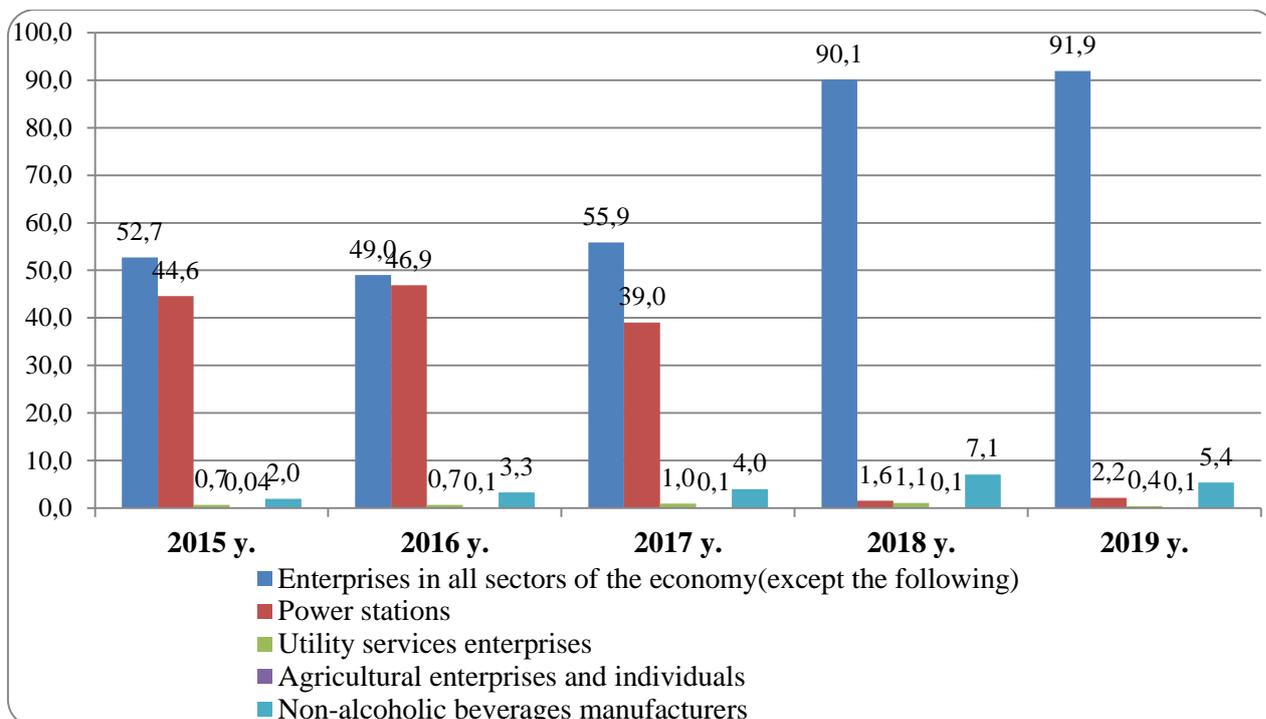
Tax rates for the use of water resources are also differentiated according to the sources of water use of economic entities (surface and underground sources).

The proven groundwater reserves in our country amount to 16.8 million cubic meters. It should be noted that water supply to the population is carried out at the expense of groundwater and surface water. At the same time, groundwater is one of the reliable sources of drinking water supply due to its natural protection.

Today, about 50 percent of the clean drinking water supplied to the population comes from groundwater reserves. At present, there are 97 groundwater deposits and 19 protected natural areas in the country, where groundwater is formed. Although the reserve is large, it is unevenly distributed in the regions of our country. In some areas, groundwater reserves are abundant, and underground deposits are plentiful. Water is scarce in desert and land areas. As a result, more than 30 percent of the population is not well provided with quality drinking water.

Typically, the tax rates for groundwater sources are higher than the rates set for surface resources. For example, in 2020, the rate for surface resources for type 1, i.e. enterprises in all sectors of the economy, etc., is 140 soums per 1 cubic meter of water, while for underground sources it is 170 soums, which is 20 percent more expensive.

In terms of industries, the highest rate in 2020 is set at 21,900 for the water used by enterprises producing alcoholic and non-alcoholic beverages in addition to beer and wine to produce these products. The minimum rate is set for power plants, i.e. 70 soums for surface sources and 90 soums for underground sources.



**Figure 1. Tax for the use of water resources revenue generation by industry (in percent)** Calculated by the author on the basis of data from the State Tax Committee of the Republic of Uzbekistan.

Hence, the stratification of tax rates by sectors is clearly reflected in tax revenues. The formation of the tax on the use of water resources in the country by industry is shown in Figure 1.

The analysis shows that the highest share of tax revenues for the use of water resources falls on the share of enterprises in all sectors of the economy. The share of enterprises in this sector increased from 52.7% to 91.9% in 2015-2019. The share of non-alcoholic beverage enterprises increased from 2.0% in 2015 to 5.4% in 2019.

The share of power plants decreased sharply from 44.6% in 2015, 46.9% in 2016, and 39.0% in 2017, to 1.6% and 2.2% in 2018-2019, respectively. The sharp decline in the share of power plants in tax revenues for the use of water resources is directly related to the Resolution of the President of the Republic of Uzbekistan dated September 4, 2017 No PP-3253 "On priority measures of state support of basic sectors of the economy in the currency market." In accordance with this decision, from October 1, 2017, for the purpose of taxation of thermal power plants and centers of JSC "Uzbekenergo" the volume of water from surface and underground sources of water resources will be reduced by the amount equal to the volume of returned water. According to it, the volume of water refilled by thermal power plants and thermal power plants from October 1, 2017 is reduced from the tax base in the calculation of the tax for the use of water resources. This change has led to a sharp decline in the share of power plants in tax revenues for the use of water resources. This is because water taken once by thermal power plants and thermal power plants is reused many times over.

The analysis of the current mechanism of taxation for the use of water resources shows that the mechanism of efficient and rational use of water resources in the country largely depends on the volume of taxable water resources and tax rates. There

are a number of problems in the mechanism of both elements mentioned in the tax practice, which does not allow to solve the tasks set by the tax for the use of water resources.

The state program for the implementation of the Action Strategy for the five priority areas of development of the Republic of Uzbekistan for 2017-2021 in the "Year of Science, Enlightenment and Digital Economy" provides for a review of the mechanism for calculating resource taxes based on best international practice. It provides for the following:

- Procedure for determining the normative value of land based on the category and score of agricultural land;
- development of market mechanisms for taxation of used water resources;
- keeping records of used water volumes, including the introduction of modern information and communication technologies in the industry;
- Development of modern methods for determining the volume of water consumption when using water resources without the installation of meters.

It is noteworthy that in reviewing the mechanism for calculating resource taxes on the basis of best international practice, the main focus is on the taxation of water resources.

### **Conclusions and suggestions**

The analysis shows that the current mechanism of taxation for the use of water resources does not adequately fulfill the tasks assigned to it. The effectiveness of this tax largely depends on the object of taxation and tax rates.

The old, outdated methods of accounting for the volume of water used by businesses, the control of which is carried out by the tax authorities. When taxpayers submit their tax returns, the tax authorities will be able to monitor whether the tax has been paid on time or not. However, today it is not possible to achieve tax efficiency due to the use of water resources through these methods. Therefore, through the introduction of modern information and communication technologies in the industry, automation of water management processes, water control and accounting systems, to obtain information on the daily volume of water used by taxpayers, to take measures to keep full records of the tax object through systematic monitoring necessary. This cannot be achieved only by the activities of the state tax service.

The main tasks to be addressed in this regard are the development of a system of real-time control and accounting of water use in water management facilities and the establishment of restrictions on the use of water resources by businesses without meters. This should be achieved in a short time through the cooperation of interested government agencies, the creation of an online system for determining the volume of water used.

The next task is to further expand the use of modern water-saving irrigation technologies and increase the efficiency of water use, the formation of a system of state support and incentives for agricultural producers who have introduced water-saving methods and technologies.

Most importantly, the current tax rates for the use of water resources do not provide sufficient incentives for businesses to use water resources efficiently and rationally. This is due to the relatively low tax rates. Therefore, it is expedient to gradually increase tax rates for the use of water resources to finance the costs of improving the quality of water resources, to cover the costs of water supply.

We believe that the widespread introduction of modern information and communication technologies in the use and taxation of water resources and the introduction of a system to support and encourage the use of modern water-saving technologies will serve the rational and efficient use of existing water resources.

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16. O‘zbekiston Respublikasi Prezidentining 2020 yil 2 martda “2017-2021 yillarda O‘zbekiston Respublikasini rivojlantirishning beshta ustuvor yo‘nalishi bo‘yicha harakatlar strategiyasini “Ilm, ma’rifat va raqamli iqtisodiyotni rivojlantirish yili»da amalga oshirishga oid davlat dasturi to‘g‘risida”gi PF-5953-son Farmoni (<https://www.lex.uz>).