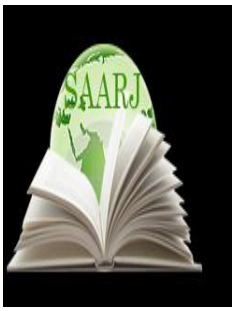

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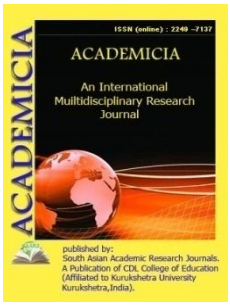

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SUSTAINABLE MANAGEMENT AND EFFICIENT USE OF WATER RESOURCES IN THE CONDITIONS OF ECONOMIC MODERNIZATION

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ABSTRACT

This article presents the problems in water resources management and offers and recommendations for overcoming them, and the acuteness of the problem of water resources in Central Asia is aimed at preventing the crisis associated with the growing shortage of water in the countries of the region. Ensuring sustainable management and efficient use of water resources in the context of modernization of the economy is becoming one of the key issues in the sustainable economic development of all regions and countries in the world.

KEYWORDS: *Water resources management, Water resources quantity management, Water resources quality management, Water resources management in the broadest sense, Water resources management in the narrowest sense.*

INTRODUCTION

Ensuring sustainable management and efficient use of water resources in the context of modernization of the economy is becoming one of the key issues in the sustainable economic development of all regions and countries in the world.

This issue is especially relevant in the context of new economic, social, political and environmental realities in the Central Asian region, where water resources are limited, the economy and population are growing rapidly, and the effects of climate change are increasingly

felt. Improving the efficiency of the use of limited water resources while ensuring the sustainability of both economic and environmental requirements is a pressing issue of our time;

Introduction of the principles of integrated water resources management in the Concept of Water Resources Development of the Republic of Uzbekistan for 2020-2030, guaranteed water supply to the population, sustainable water supply to the economy, improving water quality and maintaining the ecological balance; The development of interstate relations on the use of trans boundary water resources, the development and promotion of mutually acceptable mechanisms for joint management of water resources and programs for the efficient use of water, ensuring a balance between the interests of Central Asian countries were highlighted as priorities.

The main direction of increasing the efficiency of water use is the sustainable management of water resources and water demand, the reduction of inefficient water consumption by the participants of the water sector, i.e. sectors of the economy.

The second direction in this regard is to eliminate large water losses at all stages of water use. Today, the situation of water loss occurs in the systems of all participants of the water management complex. The need for water resources management is determined by the following circumstances:

- Limited and uneven distribution of available water resources;
- Sharp increase in demand for water;
- Variability of the amount of water resources over time, depending on the conditions and sources of their formation, and the magnitude of the amplitude of change;
- Increased pollution of water resources under the influence of natural and anthropogenic factors;
- Negative impact of water bodies on nature and economic objects (floods, floods, etc).

MATERIALS AND METHODS

Comparative and comparative analysis, complex assessment methods were used in the study of the problem.

RESULT AND DISCUSSION

Under the concept of water resources management, redistribution of water resources by time and region, ensuring environmental sustainability taking into account the requirements of environmental sustainability and optimally meeting the water resources requirements of the economy, where water resources are needed, in the required quantity and quality timely delivery is understood.

In short, water management can be interpreted as the process of natural distribution of water resources in time and space, as well as the process of adapting the regime of quality indicators to the needs of consumers.

Often we come across the simple notion that water resources management is about delivering water to the right point at the right time and in the right amount.

However, given the current trends in the world due to natural and anthropogenic, external and internal factors in the formation of water resources and their demand, water management is a more complex process today.

Thus, "water resources management" - must meet the needs of nature and society for the required quality and quantity of water on a regular basis, for all time periods (operational, annual, perennial and long-term). In other words, water resources management is about ensuring a constant balance between water resources and water demand.

Economic, political, social and environmental requirements for water in sustainable water management, prior declarations in management and strict management procedures play a major role in expansion.

In general, all water management efforts should be coordinated at the national level and at the basin level within all hydrographic units.

A similar system exists in Spain (since 1926), France, the Netherlands, and a number of other developed countries around the world. Such a system has existed since 1926 in the Zarafshan River basin in Central Asia. However, in the recent past, this system was changed and eventually transformed into an administrative-territorial system. In recent years, the countries of the region have been gradually moving to the hydrographic basin principle, and the Resolution of the Cabinet of Ministers of Uzbekistan dated July 21, 2003 No. 320 "On improving the organization of water management" was approved.

According to this decision, 10 irrigation system basin departments and one central dispatch center have been established in the country.

Millions of consumers use water resources for their various needs at the same time. In the use of various beneficial properties and properties of water, there are conflicts not only between the ecological needs of human society for economic and environmental sustainability, but also between the interests of individual consumers and even countries.

Conflicts can occur in terms of quantity, quality or mode of water (time and duration of availability of water in the required quantity and in the required quality indicators).

History has witnessed many such contradictions. The need for water varies depending on the population density and the amount of costs required obtaining this water. The need for water is different from the demand for water. The demand for water is fixed and does not change and does not depend on the available quantity and price of water. For example, the amount of water required for plants is usually directly related to the amount of water needed for the plants to survive.

Water needs can vary depending on a number of socio-economic factors, such as the prevailing legal system, institutional constraints, customs and traditions, religion, economic and financial preferences in any country. Climate is another factor that affects the need for water. For example, arid zones require more water than zones with high humidity. Finally, water quality also affects the need for water. Water containing large amounts of salt is not used for domestic or agricultural purposes.

Characteristics such as soil density, structure, water permeability, fertility, mineralization, drainage, and topography also affect the amount of water required for irrigation purposes. Water resources have a direct impact on economic development and environmental sustainability.

Three factors help to ensure that the amount of water available is sufficient to meet the future needs that will be available to it. These are that water use can be improved by reducing its losses, secondly, the redistribution of water and finally the creation and opening of new water projects, new water sources should contribute to the fair distribution of water and economic development.

The purpose of water resources management is to achieve a constant balance of available water resources and the requirements of society, nature in terms of volume, quality and time.

Water resources management - includes a wide range of political, legal, socio-economic, technical, technological and other functions related to ensuring the distribution of water in a broad sense, ie the concepts of water authority (management, decision-making) and water resources management (in the narrow sense) takes

It is at the stage of water power management that the active democratic participation of various participants in the water management complex is ensured and the stability of the decisions taken is ensured.

In the second stage, ie at the stage of water resources management (in the narrow sense), the decisions made will be implemented. Thus, water resources management (in the broadest sense) consists of two stages, namely, the process that includes water authority (first stage) and water resources management (in the narrow sense - the second stage).

Water resources management is an activity that includes the planning and implementation of technical, technological, financial and organizational measures aimed at the distribution of water resources in a narrow sense and the maintenance of the working condition of water management systems. It is also seen as a synonym for the word ‘exploitation’.

Water resources management is carried out in two directions:

• Water resources management;

• Water quality management.

When managing the amount of water resources, it is necessary to take into account the average size of the circle and dimensions set by consumers, as well as to study the characteristics of each consumer, based on the need to conduct this or that event.

When managing the quality of water resources, it is necessary to rely on consumer requirements. In practice, different consumers set established requirements for water quality that must be met.

There are simple and complex forms of water resources management. Simple management means management in which water resources are delivered to the consumer without redistribution over time by water facilities and technical means in terms of quality and quantity, or use special beneficial properties and characteristics of the water body along the way.

Simple quality management of water resources is a management in which water, before consumption, is cooled, decontaminated for sedimentation, suspended particles and floating substances, and then delivered to the consumer through various facilities.

Underlying the concept of sophisticated management lays the management that requires the preparation of water resources before they are delivered to the consumer. With the help of facilities (reservoirs, underground tanks) water resources are redistributed over time and delivered to the consumer by various facilities and technical means (canals, trays, etc.) only after the regime of changes in water quantity and quality is subordinated to the water consumption schedule.

In the complex management of water quality, complex measures are taken, such as special methods of improving water quality: removal of excess salt and gases from water; water softening, demineralization, fluoridation, manganese extraction, silicic acid extraction; addition of certain salts (fluorine, etc.) to water in order to improve the organoleptic properties of water or to increase the trace elements in it.

Water resources, including surface water - can and should be managed by building reservoirs and canals, diverting flow to other areas and other methods, as well as groundwater - using groundwater tanks. There is also a great deal of experience in the management of atmospheric precipitation in world practice.

The severity of the water resource problem in Central Asia is aimed at preventing the crisis associated with the growing water scarcity by the countries of the region.

Fair and sustainable water use management requires a strategic approach. Water is a common resource in Central Asia. Irrigation infrastructure in the irrigation, hydropower, water supply and sanitation sectors will change depending on specific policies in the areas of institutional, financial and management systems of water use.

Unappreciated water resources are often uncertainly distributed, inefficiently managed, and lost. An unjustified program of capital investment and irrational management of the sector can lead to disproportionate use of scarce resources.

One-sided views on water resources at the national and sectoral levels and the growing scarcity of water resources are increasingly complex challenges today. In particular, social and political disputes are a problem that poses economic challenges for countries located in different parts of the river basins. All Central Asian states have common water management problems, including:

• Lack of legal and managerial norms, as well as institutions that are economical, socially oriented and have a sustainable approach to environmental protection and are able to manage water resources sustainably;

• Insufficient participation of real participants of water use in the process and responsibility of water resources management;

• Deterioration of the water system, low operational efficiency, rapid increase in infrastructure and water distribution costs due to the fact that a large part of the infrastructure has reached its economic and spiritual obsolescence;

• Cases of disproportionate management of water resources leading to losses and water shortages;

• Interstate and intersect oral conflicts in the lower and upper reaches of rivers;

• Uncertainties in water resources data (meteorology, groundwater reserves, hydrological forecasting).

CONCLUSION

In order to address the above problems, the concept of development of water resources of the Republic of Uzbekistan for 2020-2030 has been developed in our country.

This concept envisages sustainable water supply of the population and all sectors of the economy in the Republic of Uzbekistan in 2020-2030, improvement of reclamation of irrigated lands, widespread introduction of market principles and mechanisms and digital technologies in water management, ensuring reliable operation of water facilities and land and water resources. The following main tasks have been identified in order to increase:

Improving the system of forecasting, accounting and database formation of water resources and ensuring transparency;

- Modernization and development of water facilities (except for drinking and sewage systems), automation of management of large water facilities on the basis of digital technologies, widespread introduction of modern technologies that save electricity and other resources, attract foreign investment and targeted and ensure efficient use;
- Ensuring the safety and reliable operation of reservoirs, flood reservoirs and other water facilities;
- Improvement of water resources management system, introduction of “Smart Water” and similar digital technologies in water use and water consumption accounting;
- Further expansion and encouragement by the state of the introduction of water-saving irrigation technologies in the cultivation of agricultural crops, attraction of foreign investments and grants in this area;
- Improving the reclamation and sustainability of irrigated lands, helping to increase soil fertility, reducing soil salinity and applying effective technologies to prevent it;
- Introduction of the principles of market economy in water management, including the system of gradual reimbursement of part of the cost of water supply by water consumers, timely and quality repair of water facilities, the introduction of digital technologies and effective management;
- Introduction of public-private partnership and outsourcing in water management, allocation of separate water facilities for use by farmers, clusters and other organizations, and directing the saved funds to the modernization of water facilities and remuneration and incentives for staff;
- Introduction of the principles of integrated water resources management, guaranteed water supply to the population, sustainable supply of water to the economy, improving water quality and maintaining the ecological balance of the environment;
- Development of interstate relations on the use of transboundary water resources, development and promotion of mutually acceptable mechanisms for joint management of

water resources and programs for the efficient use of water, ensuring a balance between the interests of Central Asian countries;

- Training of qualified personnel for the water sector, improvement of the system of staff training, development of cooperation between education, science and industry, as well as the introduction of scientific achievements and know-how into production;

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