FORMATION OF THE MARKET OF WATER RESOURCES AS A PROCESS OF ACCUMULATION OF CAPITAL IN THE REGIONS OF UKRAINE ON THE WAY TO SUSTAINABLE DEVELOPMENT

Svitlana FEDULOVA[1]
Ukrainian State University of Chemical Technology, Ukraine

Abstract. The *subject* of study in this paper is the scientific basis of capitalization of water resources of the regions of Ukraine with a view to accumulating the capital in the regions of Ukraine and their balanced development. The problems of water management complex are conditioned, first of all, by dramatic changes of the institutional environment in the country, weakening of the system of public administration, and considerable reduction of the volume of financing of water-related activities. Critical wear of capital assets of water industry is the cause of negative consequences in the domain of water supply, and the resulting damage to the economy and population in this regard is far greater than the amount of money needed for its prevention. *Methodology*. We used in our study the traditional and special methods, including: historical and logical method, abstraction and analogy and system analysis methods. *Results*. This paper states that the problems of development of water management complex of Ukraine can be solved by taking systemic measures aimed at capitalization of water resources, corporatization of water sector management, and institutionalization of the market methods of management. The process of water resources capitalization will give an opportunity to transform the production factor into capital on the basis of harmonization of interests of business entities in order to ensure the sustainable development of the national territorial formations. It should be noted that it is necessary to form the cost of water resources. Study of the cost of water resources determines that today it is not possible to determine this cost in Ukraine, since the market of water resources does not actually exist, and this fact significantly restrains the development of water management complex in the economy. *Practical implications*. Therefore, in the current economic situation in Ukraine the necessary condition of achieving the objectives of sustainable development is the promotion of processes of the natural resources' capitalization. The basis of inclusion of the natural potential into economic turnover should become the adequate assessment of water resources which may convert them in the form of financial capital. It is offered to introduce in the economic turnover the system of assessment of water resources based on the differential rent which can provide the capitalization of water resources on demand of sustainable and balanced development of the regions in the conditions of integration changes. The current state of water use is characterized by inadequate mechanism of water resources' management. In order to increase the level of capitalization of water resources in Ukraine it is necessary to create the mechanism of environmentally sustainable water use based on the renewed institutional environment which would promote the recovery of water resources in the form of the most productive capital. This approach will allow determining the real value and prices of water resources, enhancing their capitalization, eliminating mismanagement syndrome and free-of-charge principle for the resources from the economic turnover, and promoting development of the natural infrastructure. *Value/originality*. Despite the existence of studies of the problems concerning the recovery of the natural and water resources, development of the regional social and economic systems, conducted by Ukrainian and foreign researchers, the issue of capitalization of water resources in the system of development of the regional socio-economic systems today remains a subject of scientific discussions.

Key words: socially oriented market economy, balanced development of the regions, capitalization of water resources, cost of water resources, market of water resources, differential rent

JEL Classification: P11, P25, Q56, Q57, Q58, G18

Corresponding author:
[1] Department of Industry's Economy and Production's Organization, Ukrainian State University of Chemical Technology.
E-mail: sveta_fedulova@ukr.net

1. Introduction

The paper offers for consideration the problems of water management complex of Ukraine, namely, formation of the market of water resources and implementation of the mechanism of capitalization of water resources of Ukraine; their effect on the social and economic development of the regions and regional systems for ensuring sustainable development of the regions of Ukraine. The subject of study in this paper is the scientific basis of capitalization of water resources of the regions of Ukraine with a view to accumulating the capital in the regions of Ukraine and their balanced development. We used in our study the traditional and special methods, including: historical and logical method, abstraction and analogy and system analysis methods. Despite the existence of studies of the problems concerning the recovery of the natural and water resources, development of the regional social and economic systems, conducted by Ukrainian and foreign researchers, the issue of capitalization of water resources in the system of development of the regional socio-economic systems today remains a subject of scientific discussions. Conditions of implementation of sustainable development of the Ukrainian territories demand from the scientists of Ukraine the development of a mechanism of water resources market functioning in order to capitalize these resources and to provide further preservation and recovery of water resources in Ukraine.

2. Problems of development of water management complex of Ukraine

Problems of the water utilization system are conditioned, first of all, by the dramatic changes in the institutional environment in our country, weakening of the government control system, and considerable reduction of the amount of financing of water management activities. Critical depreciation of the fixed assets in water industry has adverse effect on the water supply domain, and the resulting damage to the economy and population in this regard is far greater than the amount of money needed for its prevention.

In the course of development of the General concept of integrated use and protection of water resources of the USSR and Soviet republics, large water management system were built, and now it is very difficult to manage them.

In order to form socially oriented market economy based on resource-saving nature management, it is necessary to develop state-of-the-art institutional arrangement for ecologically balanced water use which would successfully combine the formal institutes (laws, regulations, etc.) and informal ones (social customs, values and so on).

The basic institute which needs major transformations is the system of water sector management representing a symbiosis of the regional water engineering facilities and water supply organizations which have passive influence on the economic proportions and ecological compatibility of water use (Khvesik, 2013).

This system requires improvement by creation of the management structure providing for proper conditions of natural reproduction of water bodies, provision of the citizens and branches of economy with water of good quality and in sufficient volumes.

Apart from depreciation of the fixed assets in water industry, there is a problem of high energy intensity of water supply system which complicates the process of water industry management considerably. Systems of water supply of the industrial enterprises and public utility companies relate to the most energy-intensive ones. Among the constituent parts influencing the formation of water cost, the most substantial share usually falls on the expenses for consumed electric power. Considerable rise in the cost of power resources for the systems of water and sewage utilities over recent years resulted in the increase of water cost and growth of water tariffs for various categories of consumers. In these conditions, the issue of energy saving in water supply systems becomes increasingly important. Specific consumption of electric power for production and supply of water in Ukraine, whereas featuring recently the downward trend, is still significantly higher compared with similar indices in the European countries (Khomutetska, Syzonenko, 2014).

At present time, quality of water resources of Ukraine which are used in various branches of the Ukrainian economy fails to meet the requirements of the current standards. The cause of the above is the fact that a great amount of wastewaters is discharged every year in the river basins, in particular, from 10,5 (in 2000) to 7,8 bln. m^3 (in 2010), including contaminated wastewaters – 3,9 and 1,7 bln. m^3, accordingly (Khvesik, 2013).

Implementation of principles of the integrated management and management of the river basins in Ukraine updates the searching for ways of the improvement of organizational mechanisms of the State water resources' management according to the European requirements. These are the major principles of the EU Water Framework Directive which are taken as a basis in the governmental legislative and regulatory acts in Ukraine with regard to development of the water management activities. Determination of the basin principles and integrated management principles can be found in the Law of Ukraine as of 24.05.2012 No. 4836-VI On Approval of the National Program for Water Management and Environmental Rehabilitation of the Dnipro River Basin for the period till 2021. Today this program is the principal State act in the domain of water resources' management. In the territory of Ukraine there are 9 areas of the river basins: 1 – areas of the river basins of the Vistula (Zakhidny Buh and the San), 2 – of the Danube, 3 – of the Dniester, 4 – of the Pivdenny Buh, 5 – of the Dnipro, 6 – of the Don, 7 – of the Prychornomorye river basins, 8 – of the Pryazovye river basins, 9 – of the Crimea river basins.

The Law also sets a task of "improving the system of the State water resources' management"; however, no ways and mechanisms of such improvement are cleared up.

It should be noted that the draft Law of Ukraine On Making Amendments to Water Code of Ukraine regulates the major issues such as determination of the basin principle of management, implements the hydrographic and hydroeconomic zoning of the territory of Ukraine in order to develop the plans for river basin management; the concept of "River Basin Management Plan" is introduced.

Therefore, it may be concluded from the above that in the system of water industry and water resources' management it is necessary to follow the path of decentralization of the system of water use management and diversification of individual functions for the gradual transformation of the administrative-command model of water sector management into mobile segment of the national economy.

Iit is believed that water industry development problems in Ukraine can be solved by taking systemic measures for capitalization of water resources, corporatization of water management, and institutionalization of the market methods of management. The process of water resources' capitalization would give an opportunity to transform the factor of production into capital on the basis of harmonizing the interests of business entities in order to ensure sustainable development of the national territorial subdivisions.

Ecological and economic evaluation of the maximum permissible load on water ecosystems of Ukraine shows the volume of water to be reduced in the water utilization system in order to create the favorable conditions for restoring the water resources (table 1).

Water intensity of the Ukrainian production comprises on average 0,3 m3 per one hryvnia of the finished product which exceeds the similar index in the developed European countries considerably. The volume of water loss during transportation is estimated at 2.0 km3 per year. This being the case, more than one third of water supplied to the irrigation systems is lost because of the low technical level and obsolescence of waterworks. Besides, there are considerable water losses in water supply networks which are used for covering drinking and domestic needs of the population (Khvesik, 2015).

Water intensity of the gross national product is

3–5 times higher compared with that in the major economies of the Europe, which is the evidence of unsustainable water utilization and low efficiency of operation of the available production equipment. Today the volumes of water use in the river basins almost reached their upper limit; as a result, there is a contradiction between water demand and possibilities to satisfy it both by quantity and quality (Khvesik, 2013).

Industrial production and agriculture are highly concentrated in Ukraine. Because of intensive use of the natural resources for decades, it has become one of the most dangerous countries in terms of the environmental impact. The current ecological situation in Ukraine is characterized as a deep ecological and economic crisis, which is conditioned by the laws governing the administrative-command economy of the former USSR. For example, disparities in the distribution of productive forces which existed for a long time led to the fact that the Ukrainian territory in terms of technogenic impact on the natural environment 4-5 times exceeded the similar index in the developed countries (Shmandiy, 2004).

3. Capitalization of water resources and their cost

When we return to the issue of capitalization of water resources, we should note the necessity to form the cost of water resources. Study of the cost of water resources determines that today it is not possible to determine this cost in Ukraine, since the market of water resources does not actually exist, and this fact significantly restrains the development of water management complex in the economy. Absence of the market of water resources is also proved by statistics of industrial products sold by the main lines of activities in Ukraine in year 2015 (table 2).

Table 1
Ecological and economic evaluation of the maximum permissible load on water ecosystems of Ukraine (Yarotska, 2006)

River basins	Actual load on water resource potential of the river basins, mln. m3 (sum of volumes of the irrevocable water consumption and contaminated wastewater)			Environmentally sound load on water resource potential of the river basins, mln. m^3 (10 % volume of water of the river flow per year)	Difference between actual and environmentally sound load on water resource potential of the river basins, mln. m^3
	Irrevocable water consumption	Discharge of contaminated wastewater	Total		
Dnipro	3758	1862	5620	3500	-2120
Dniester	400	77	477	660	183
Siverskyi Donets	769	315	1084	210	-874
Pivdenny Buh	153	30	183	140	-43
Danube (incl. Tisa and Pruth)	356	51	407	530	123
Zakhidny Buh	-103,3	173,4	70	40	-30
Crimea and Priazovye rivers	-162	502	340	196	-144
Total	3209	3445	6654	5590	-1064

Table 2 shows that the share of sold industrial products related to water supply, sewerage, waste disposal systems, makes only 1.2% of all products sold, indicating the absence of water resources' market.

Ukraine possesses the considerable amount of water resources, however non-rational use and inefficient management thereof give no opportunity to create own markets of resources and to enter the international markets. In 2014, 8.71 bln. m^3 of water [9] were consumed in Ukraine for the needs of water supply of citizens and branches of economy, of which 68% in the basin of the Dnipro river, about 11% – of the Siverskyi Donets, 4% – of the Dniester, 3% – of the Pivdenny Buh and 7% – of the Danube. The largest water consumers in the regions are Dnipropetrovsk, Donetsk, Zaporizhzhya, Kyiv, Kherson regions, accounting for 63.26 % of total volume of water consumption (fig. 1).

This figure clearly indicates that large markets of water resources can be potentially formed in Dnipropetrovsk, Donetsk, Zaporizhzhya, Kyiv and Kherson regions, and it would give considerable effect from taking systemic measures towards capitalization of water resources.

Year by year, increase of revenues to the State and local budgets at the expense of dues for special water use is observed. The dynamics shows that for ten years (from 2002 till 2012) the incomes of budgets from water use have grown by 1100,2 mln. hryvnias only. These figures support the fact that management of water resources is not effective at this time. To change this situation, the central and local authorities should focus on solving three key problems: establishment of transparent terms of lease, provision for proper observance of special water use conditions and, most importantly, securing of strict control over the rational water use. In connection with the severe shortage of water in many countries it is considered that water may become "the future coal", and it is expected that the models for assessment and trading with regard to both water consumption and water contamination, will be formalized in the coming days (Lutsiv, 2014).

4. Problems of water use in Dnipropetrovsk region

Let's consider the problems of water use by the example of the Dnipropetrovsk region of Ukraine and the Dnipro basin. One of the main ways of preserving and improving the fertile soils is the reclamation of land in all its forms. The area of the Dnipro basin within Ukraine makes 292,700 km2, that is, almost 48.5% of the area of Ukrainian territory. In the structure of hydrographic network of the Dnipro river within the limits of Ukraine there are 15381 minor rivers (of 67.2 thous. km total length), 40 medium-

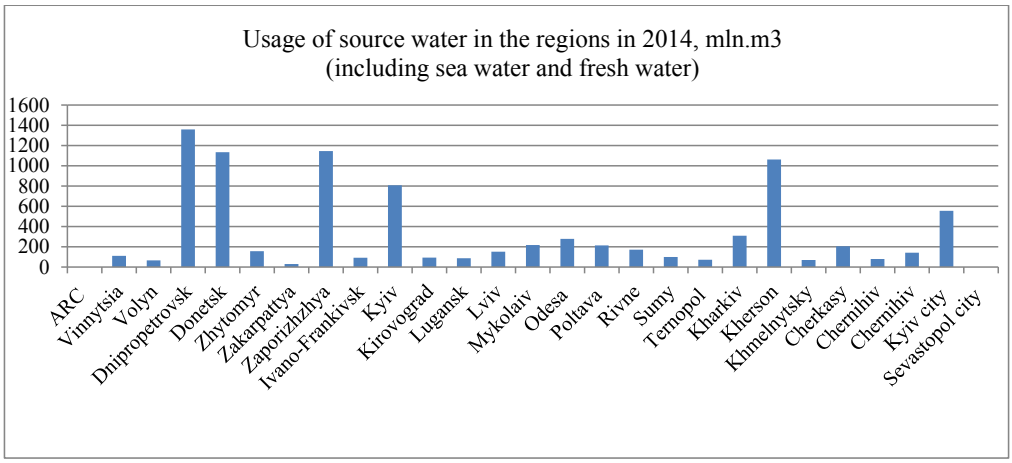

Fig. 1. Use of fresh water in the regions in 2014, mln.m3 (Zhuk, 2015)

Table 2

Volume of industrial products sold by the main lines of activities in January – November 2015 (Zhuk, 2016)

Indicator	Volume of industrial products (goods, services) sold, VAT and excise tax excluded	
	UAH mln.	% of all products sold
Industry (B+C+D+E according to Ukrainian Industry Classification System – KVED-2010)	1351374.7	100
1. Mining and processing industry	1084756.0	80.3
Mining industry	165214.4	12.2
Processing industry	919541.6	68.1
2. Supply of electric power, gas, steam, and conditioned air	251009.2	18.5
3. Water supply, sewerage, waste disposal systems	15609.5	1.2

size rivers (9.3 thous. km) and three large rivers (the Dnipro, Pripyat and Desna rivers) of about 2 thous. km). Average density of the river network is 0.23 km/km^2.

Among the Dnipro tributaries, the Pripyat river is the most important; its water content at the mouth (place of inflow into the Dnipro) is almost equal to the Dnipro water content. In the Ukrainian part of the Pripyat basin there are 11 medium-size rivers, of which the Horyn with Sluch and the Styr river are the largest.

The Desna river is the second (after Pripyat), by water content, tributary of the Dnipro river. In the Ukrainian part of the Desna basin there are 4 medium-size rivers, with the Seym and Snov being the largest ones.

In the medium and lower parts of the Dnipro basin there are also 22 medium-size rivers, of which the Ros, the Sula with Uday, the Psel with Khorol, the Vorskla, the Oril, the Samara with Vovcha and the Inhulets are the largest.

Dnipropetrovsk region is situated in the area of insufficient moistening. Summer rains, mainly, are showers by their nature, so they are not largely useful. It creates unfavorable conditions of soil water supply in the vegetation period.

Therefore, in order to provide high and stable harvests, the region demands the arrangement of irrigated agriculture. Reclamation works, including irrigation, in the Katerynoslav province (the former name of Dnipropetrovsk region) started at the close of the XIX century after the catastrophic crop failure in the southern part of Russia.

From its source to mouth, the Dnipro flows through the territory of three countries: Russia, Belarus and Ukraine. The river and its tributaries on some areas serve as the natural border between the countries. They are also watering 12 densely populated regions, 1 – in Russia (Smolensk region), 3 – in Belarus (Minsk, Mogilev, Gomel regions), 8 – in Ukraine (Chernihiv, Kyiv, Cherkasy, Kirovograd, Poltava, Dnipropetrovsk, Zaporizhzhya and Kherson regions). The most of large European river basins are also located within several countries. Accordingly, cross-border cooperation is required for analysis of the river basin and management thereof.

Of the Dnipro bed located in the territory of Ukraine, the area of 100 km (Degodyuk, 2006) only is preserved in its natural condition. The other areas are regulated by the cascade of water reservoirs: Kyiv, Kaniv, Kremenchuk, Dniprodzerzhinsk, Dniprovsky, Kakhovka reservoirs with 6,979 km^2 total area of water surface and total volume of 43.8 km^3 of water, making accordingly 94.7 and 90.8% of total amount of all large waters reservoirs of Ukraine (Degodyuk, 2006).

Over decades, enterprises in the Dnipro basin were building up the use of water without taking into account the economic and environmental consequences for Ukraine, as it was emphasized by environmental specialists (Yatsyk, 2002). Many industrial production facilities are located in the river basin; among them the plants of "dirty" industries (metallurgical, chemical, coal mining industries) prevail. There are also the large power-generating facilities and massifs of irrigated lands, from which a considerable amount of agricultural chemicals (fertilizers, pesticides) is washed out (Khilchevskyi, 1996).

As a consequence, the river is on the verge of hydroecological crisis, because self-repairing ability of the Dnieper river and many rivers of the basin cannot ensure the repairing of ecological imbalance, as stated by environmental specialists (Yatsyk, 2002).

Contamination of water and water intake landscapes by a large amount of chemicals, with the most of them not characteristic to living organisms, resulted in changing of the natural chemical type of water in many rivers of the basin and greatly complicated obtaining of high-quality drinking water at treatment plants (Yatsyk, 2002). Because of human economic activities, heavy contamination of ground waters continues.

About 1000 filtering reservoirs are located in the Dnipro basin, with 80% of them concentrated in its southern part. Total volume of highly mineralized waters collected in reservoirs reaches 1 km^3, and 77% fall on Dnipropetrovsk region (1997).

So, there are large centers of contaminated ground waters formed in the Dnipro basin, in particular, in the regions of:

1. Dnipropetrovsk – Dniprodzerzhinsk – by wastewaters of chemical and metallurgical productions;
2. Novomoskovsk – Pavlograd – by mine waters and wastes of animal production units;
3. Kryvyi Rih – by mine waters and wastewaters of metallurgical plants;
4. Zhytomyr – Rivne – by wastewaters of enterprises of chemical and light industries, as well as household wastewaters.

Because of the Chernobyl disaster, large territory of Ukraine, including the part of the Dnipro basin and all water reservoirs of the cascade (Yatsyk, 2002), was contaminated by radionuclides, predominantly by cesium-137, strontium-90 and plutonium-239 (240).

The most important is the fact of release from the reactor of the 4-th block of Chernobyl NPP of about 2000 Ci of isotopes of plutonium-239 (240) with half-life period of 24 110 years (Bondarenko, 2002). The most of plutonium is located in the mud of the Kyiv reservoir (about 60 million tons) and in soil of the surrounding area (Bondarenko, 2002).

Water reservoirs of the Dnipro cascade represent a peculiar kind of accumulators of radioactive contamination. Radionuclides are mainly located in the mud, tissues of plants and shellfish, which are the concentrators of cesium and strontium (Yatsyk, 2002).

Although in 1994 the 100 times' decrease in concentration of isotopes in the reservoirs was recorded, compared to 1986, but it is still exceeds the level preceding the accident 35 times (1997). The Chernobyl accident almost destroyed the Pripyat river and its entire basin of 122,000 km^2, which is currently suitable only for preserved areas.

Situation in the Dnipro basin is complicated by high level of development of erosion processes and river banks' wearing away. For the last 25 years, total humus content in soil decreased by 10% (1997). Products of erosion, entering the water, fill it with mud and contaminate with organic compounds and mineral fertilizers, in particular, nitrogen and phosphorus.

5. Findings

Industrial enterprises of the Dnipropetrovsk region use large amounts of water. Water is consumed for production, domestic, drinking, and firefighting needs. Among the largest production consumers there are metallurgical, oil-processing, chemical plants, thermal power plants which use water for cooling, enterprises of paper industry and mining industry, where considerable amounts of water are used for washing of raw materials and products (Airapetyan, 2010).

High volumes of water consumption in the industry require specific attention to the issues of water saving and rational use, elimination of water losses with runoffs and in the coolers of return water. For recirculating water systems of industrial enterprises it is important to distinguish the return water consumption for the needs of products' manufacturing and consumption of "fresh water" taken from the water source to replenish water reserve consumed in production. For increasing the efficiency of the system of water management at the industrial enterprises and protection of the environment, it is necessary to aim for reduction of fresh water consumption and decrease of wastewater volumes discharged into water bodies.

Concerning industrial needs, the largest amounts of water are used for cooling of process equipment, steam, liquid and gaseous products, condensers of steam turbines, blast and open-hearth furnaces, with the use of once-through and recirculating water supply systems.

In order to create sustainable systems of water use, the industrial enterprises implement water-less or low-water technologies and systems with multiply rational use of water. For economic and environmental reasons, and in the events of limited water supply from the natural sources, it is recommended to construct recirculating systems of technical water supply at the industrial enterprises. Such recirculating systems of technical water supply allow using water several times. Recirculating water systems is a great advance in the field of protection of water bodies from contamination, since they allow to reduce the intake of fresh water considerably and to decrease the amount of waste waters discharged into water bodies.

Creation of closed water supply systems at the industrial enterprises is not an easy task. Complex chemical composition of wastewaters, variety of chemicals contained therein, make the development of universal effluent-free technology pattern impossible. So, one may talk only of general principles of development and designing of such systems (Airapetyan, 2010).

6. Conclusions

Today water is a resource no longer available; water industry is huge in volume global market, which can be compared with oil-and-gas and power generation sector. The recent years have witnessed the active formation of Exchange-Traded Funds (ETF), steadily investing in water industry. Portfolios of management companies concentrate the shares of utility companies – suppliers of drinking water, manufacturers of water equipment, and companies engaged in water treatment, as well as the other infrastructure companies supplying the industrial and agricultural enterprises with water.

Therefore, in the modern economic environment in Ukraine the necessary condition for achieving the objectives of sustainable development is the promotion of processes of capitalization of the natural resources. Capitalization, as a process of accumulation of capital through transformation of added value into it, was analyzed by K. Marks far back in the past. With the transition of Ukrainian economy to market relations, the interest to this process is growing considerably. The basis for inclusion of the nature potential into economic turnover should be adequate assessment of water resources, capable of transforming them into the form of financial capital. The current state of water use is characterized by inadequate mechanism of water resources' management which leads to mechanic appropriation of the rent and, as a consequence, to the decline of industry and depletion of water bodies (Lutsiv, 2014). In order to increase the level of capitalization of water resources in Ukraine it is necessary to create the mechanism of environmentally sustainable water use based on the renewed institutional environment which would promote the recovery of water resources in the form of the most productive capital. This approach will allow determining the real value and prices of water resources, enhancing their capitalization, eliminating mismanagement syndrome and free-of-charge principle for the resources from the economic turnover, and promoting development of the natural infrastructure.

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Светлана ФЕДУЛОВА

ФОРМИРОВАНИЕ РЫНКА ВОДНЫХ РЕСУРСОВ КАК ПРОЦЕСС НАКОПЛЕНИЯ КАПИТАЛА РЕГИОНОВ УКРАИНЫ НА ПУТИ К СБАЛАНСИРОВАННОМУ РАЗВИТИЮ

Аннотация. *Предметом* исследования статьи являются научные основы капитализации водных ресурсов регионов Украины с целью накопления капитала регионов Украины и их устойчивого развития. Проблемы водохозяйственного комплекса обусловлены, в первую очередь, кардинальными изменениями институциональных условий в государстве, ослаблением системы государственного управления, многократным уменьшением объемов финансирования водохозяйственных мероприятий. *Методика*. При осуществлении исследования использовались традиционные и специальные методы, среди которых: историко-логический, абстракции и аналогии и методы системного анализа. *Результаты*. В данной статье определено, что проблемы развития водохозяйственного комплекса Украины можно решить путем осуществления системных мер по капитализации водных ресурсов, корпоратизации управления водным хозяйством и институционализации рыночных методов управления. Процесс капитализации водных ресурсов позволит преобразовать фактор производства в капитал на основе гармонизации интересов субъектов хозяйствования с целью обеспечения устойчивого развития национальных территориальных образований. Нужно отметить, что необходимо сформировать стоимость водных ресурсов. Исследование стоимости водных ресурсов показывает, что сегодня в Украине невозможно определить такую стоимость, так как не существует рынка водных ресурсов, что существенно тормозит развитие водохозяйственного комплекса экономики. *Практическое значение*. Поэтому в современных условиях хозяйствования в Украине необходимым условием достижения целей устойчивого развития является активизация процессов капитализации природных ресурсов. Основанием для включения природного потенциала в хозяйственный оборот должна стать адекватная оценка водных ресурсов, которая сможет превратить их в форму финансового капитала. Предлагается внедрение в хозяйственный оборот системы оценки водных ресурсов на основе дифференциальной ренты, что сможет привести к капитализации водных ресурсов в соответствии с требованием устойчивого и сбалансированного развития регионов в условиях интеграционных изменений. Для повышения уровня капитализации водных ресурсов в Украине необходимо создать механизм екологозбалансованого водопользования на основе обновленной

институциональной среды, которая будет способствовать восстановлению водных ресурсов в форме самого производительного капитала. Такой подход позволит определить реальную стоимость и цены на водные ресурсы, позволит усилить капитализацию, устранить из экономического оборота синдром бесхозяйственности и бесплатности ресурсов, способствовать развитию природной инфраструктуры. *Значение/оригинальность*. Несмотря на существование исследований проблем воспроизводства природных и водных ресурсов, проблем развития региональных социально - экономических систем украинских и зарубежных ученых, проблема капитализации водных ресурсов в условиях развития региональных социально - экономических систем и сегодня является предметом научных дискуссий.