

# **FORMATION OF URBAN LAND USE WITHIN WATER CONSERVATION ZONES, PROTECTED SHORELINE BELTS AND SHORELINES IN THE CITY**

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## ***Abstract.***

*Ukraine is at the next stage of completing land reform. Despite that, along with the adoption of independence, the country still remains having many unresolved and controversial land, environmental, water, and urban development issues that require additional government intervention. Incompleteness of land reform, in particularly some of the main issues, one of which is the formation of land use within the water protection zones and coastal protection zones of cities, creates a negative ecological environment, likewise, social tension in vital activity of population, especially for urban land use. Despite legislative prohibition, the construction continues within the water protection zones, as well as coastal protection zones of cities. In addition, restrictions on the use of land and other natural resources located in this territory are also not formed. That is, their spatial placement has a huge impact not only on environmental, land and water boundaries, but also on economic, social and legal (rights guarantee).*

*As a result of the research, data from the public cadastral map of the State Service of Ukraine for geodesy, cartography and cadaster, and an extract from the*

*planning restrictions scheme of the General Plan of Kyiv were used. The information base for the study was the legislative and regulatory acts of Ukraine regarding the regulation of land, water and nature management, scientific works of worldwide and domestic scientists, material data of scientific and practical conferences.*

*As a result, the authors established formation features of land use within the water protection zones, as well as coastlines in Kiev. The essence of land use within such areas consists in the fact, that it as an ecosystem, combines several lands of different purpose and functional use. In addition, urban land use within water protection zones, as well as protected coastal zones and coastlines, aside from environmental, legal, social, land relations, includes economic and water relations, appears to be an important aspects of the effective regulation of such land use. Due to that, the choice was made to study formation features of urban land use within water protection zones and coastal protection and coastlines – in order to ensure thorough land management and legal regulation of urban land use within the zones (strips) to increase the efficiency of its capitalization and greening.*

**Keywords:** *urban land use, water bodies, water protection zones, coastal protection strips, coastlines, land ownership.*

**Actuality.** Despite the growing interest in the problem formation of urban land use within water protection zones, coastal protection and coastlines, there is lack of common understanding of its essence so far, in particular at the legislative level. In addition, during the market land relations issues of effective organization (formation) land use within water protection zones, coastal protection and coastal strips of cities is becoming emerging.

Domestic scientists were dealing with current issue, who proposed the concept of formation of water protection restrictions in land use. Also during the formation, some [2] aspects of establishing coastal protection strips of small rivers and streams in settlements were revealed and proposed [3] streamlining of coastal development territories within urban settlements. Issues of formation of urban land use of

protected water zones, coastal protection strips more often draw the attention of a wide range of scientists [4-6]. Because of existing conditions of high anthropogenic load of urban areas, it is required to search for optimal interaction and balanced relationships between people, society and nature to ensure rational use of natural resources of territorial ecosystems, in order to protect environment and its purposeful restoration.

**The purpose of the study** was to substantiate the theoretical basis of and use formation of water protection zones and coastlines as one of the components of the life of the population of cities and the country in general.

**Materials and methods of research.** The theoretical basis of this study, constituted modern provisions and principles of ecology and economics of the earth nature management, numerous domestic scientific works related to the essence of the tasks that are solved in the article.

The information base of the study was legislative and regulatory legal acts of Ukraine of regulation of land, water and nature use. Likewise, an extract from the scheme of planning limitations of the General Plan of Kyiv and data from the public cadastral map of the State Service of Ukraine for geodesy, mapping and cadaster were used in the study.

**Research results and discussion.** It should be noted that using the land in water management unites sometimes dozens of private land plots (shares), land plots of shared use, reclamation and other complexes. This shows that the concept of land use and water bodies located on such land should be considered more broadly than the concept of land.

Thus, in modern domestic research, you can find land use meaning “the process of human (society) use of the integrated potential of the territory. This includes all resources in the relevant area of geospace and being an integral part of social territorial complex of the regional level and leads to complication of its structure, which finds its manifestation in the process of regulation of land relations” [7].

In this case, more often land use is defined by three aspects [8]:

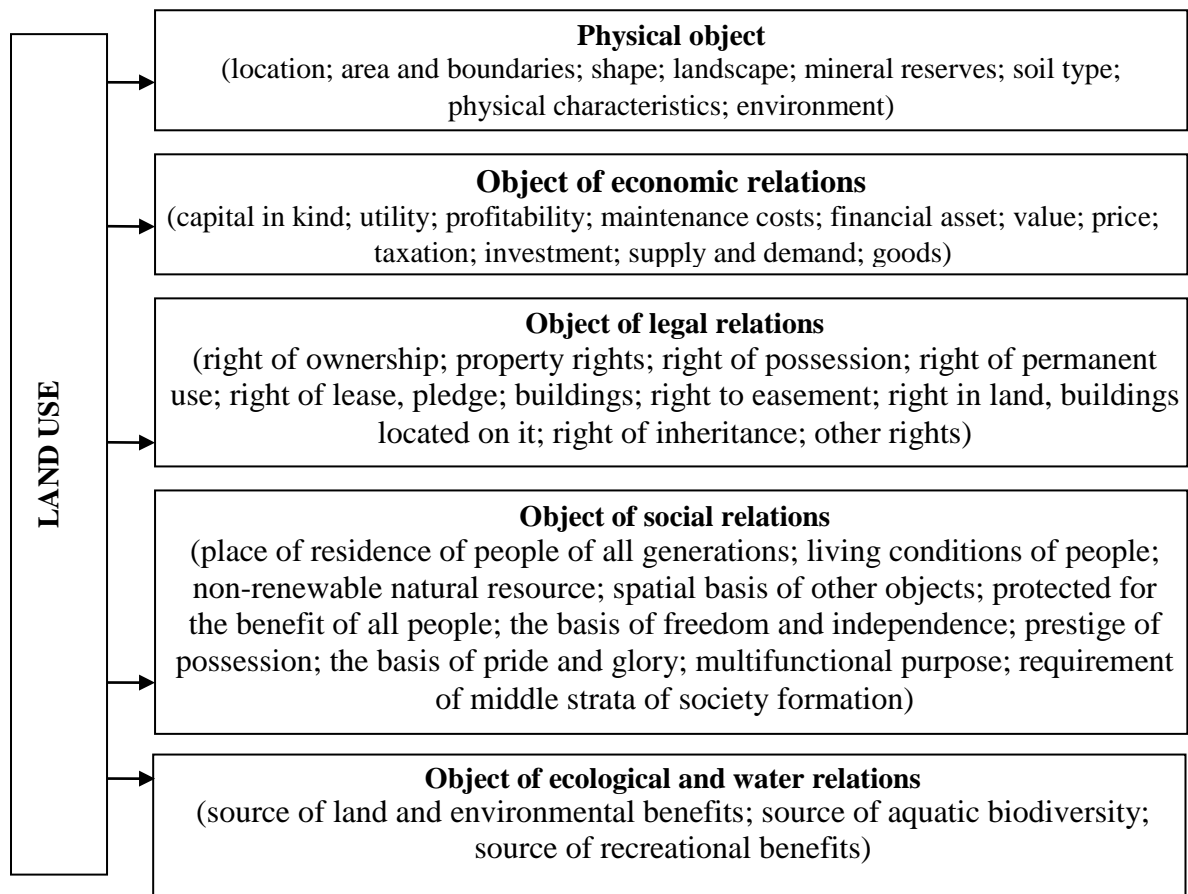
- 1) as land use in the manner prescribed by law (land area);
- 2) as part of a single land fund provided by the state or acquired in property or lease by an individual user for economic or other purposes, limited in area;
- 3) as an object of law, an object of economic, environmental, urban planning, agricultural and other land relations, for what the land user issued a document certifying the right for land with certain boundaries, area, composition of land, property and, if necessary, geodetic coordinates of boundary signs defined in kind.

The essence of land use is often considered in the context of the physical object, economic, legal and social relations [8]. We believe that it is can be supplemented by environmental and water aspects.

Thus, Figure 1 shows the characteristics of land use as physical object, economic, legal, social relations, environmental and water relations in addition. Accordingly, the concept of land use is expedient to consider in natural as an ecosystem and physical, legal, economic, environmental and water and other aspects of land relations.

The formation of land use and its functioning has numerous features where land is a territorially limited resource. Another reason is that there is competition for land use in a developed economic society, and the landowner has several options its registration on various property rights [8; 9].

Therefore, it should be noted that land relations and water management activities have their economic and spatial relationship with land use and water bodies that are within it. The set of water bodies within the territory of Ukraine forms the lands of the water fund of the country. In turn, the water fund is a cumulative, integrated object of water and land relations. It is in connection with the use and protection of water bodies that economic, ecological, social, water and legal land relations are formed.



*Figure 1. Characteristics of land use as a physical object of economic, legal, social, environmental and water land relations*

Source: supplemented using the source [8].

It should be noted that in most cases, such land use as a set of land plots with water bodies is recognized in Ukrainian law as inalienable (“non-commercial”) state property.

Thus, according to Article 6 “Ownership of water (water bodies)” of Water Code of Ukraine, water (water bodies) are the exclusive property of Ukrainian people and being provided only for use. The Ukrainian people have the right to ownership water (water bodies) through the Verkhovna Rada of Ukraine, the Verkhovna Rada Of the Autonomous Republic of Crimea and local councils. Certain powers regarding water (water bodies) may be provided accordingly to the executive authorities and the Council of Ministers of the Autonomous Republic of Crimea [10].

However, in the Article 59 “Right to water fund land” of the Land Code Ukraine it is determined that the lands of the water fund may be in the state, communal and private property. Citizens and legal entities can obtain ownership of closed natural reservoirs free of charge (total area up to 3 hectares) by decision of executive authorities or local governments. Owners may in the prescribed manner create fishery, anti-erosion and other artificial reservoirs on their land plots. Lands of the water fund by the decision of the executive bodies authorities or local governments are provided on a permanent basis use [11]:

a) state water management organizations for water care objects, coastal protection strips, diversion strips, coastal lanes of waterways, hydraulic structures, as well as management aquaculture, etc.;

b) state-owned enterprises for placement and care of state-owned enterprises port infrastructure facilities;

c) state fisheries enterprises, institutions and organizations for aquaculture.

Executive authorities or local governments from the lands of the water fund may lease to citizens and legal entities land plots of coastal protection strips, drainage strips and coastal strips of waterways, lakes, reservoirs, and others reservoirs, swamps and islands for haymaking, fishery needs (including fish farming (aquaculture), cultural and recreational, recreational, sports and tourism purposes, conducting research, care, location and maintenance of port infrastructure facilities and hydraulic structures, etc., as well as artificially created land plots for construction and operation of port infrastructure facilities and other facilities water transport . Use of land water fund for fishing is being carried out with the agreement of their owners or with the consent of land users [11].

Thus, by recognizing of surface water bodies as land use, we should consider their bonds with adjacent land plots. Because, the mode of land use in reservoirs depends on their impact to such an extent that it sometimes affects the peculiarities of land relations.

Obviously, such questions also require economical understanding in order to adequately address them in the domestic economic, land relations and legislation.

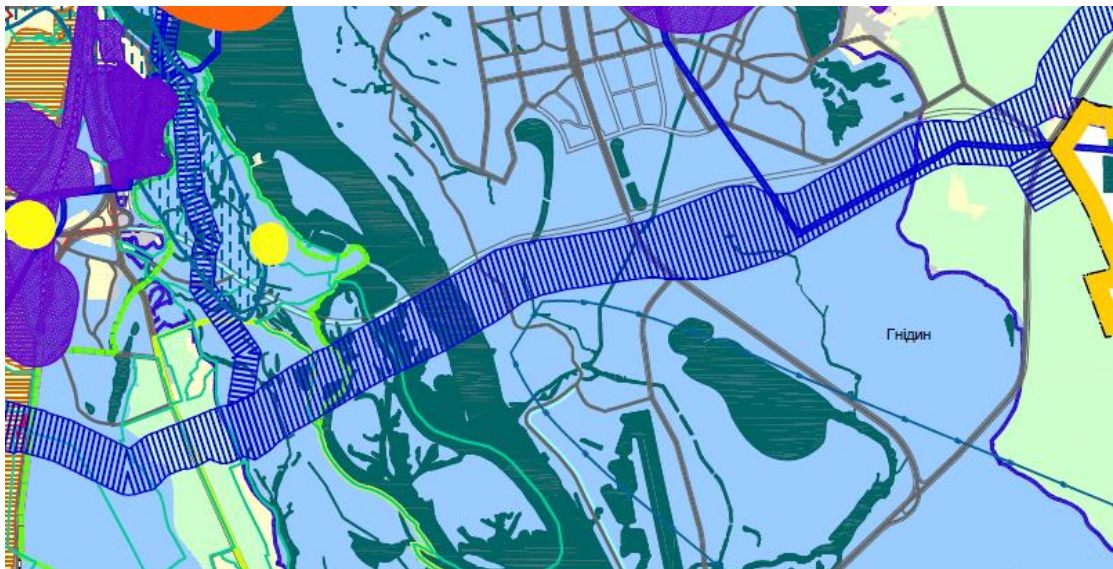
Another additional feature of a water body is its public availability.

Ukrainian legislation to some extent admits public access to water bodies, except in strictly established cases, due to the nature of water use. Thus, in Article 5 “Water bodies of the national and of local significance” of the Water Code of Ukraine legal regime of water bodies is established as if these objects are known to everyone and questions about their allocation on the ground, while in the planning materials and other official documents does not exist at all. But in reality it is not always clear which tract of the river and shore as a “public” coastline is required to be referred to water bodies and use for them rules of Article 10 of the Water Code of Ukraine [10].

It can only be expected that if the water body and its shoreline (or part of them) are not allocated by the authorized bodies in a special way use, by the method of exclusion it is in general use. In practice sometimes the state establishes special use of the water area and its shore by the time there is a dispute between entities, which use it already.

For instance, in Kyiv, the scheme of restrictive planning of the General Plan determines only the approximate boundaries of water protection zones (Fig. 2). Decision of Kyiv City Council from 08.10.2009 № 365/2434 “About approval projects of coastal protection strips of water bodies of Kyiv” in 2016 is being cancelled. It is taken into account that the coastal water protection strip of water facilities, in particular in the Dnieper area, is 100 m from the water's edge and being limited building regime until the land management does not approves project about installation of such coastal protection strips. Such new project of land management has not been developed yet.

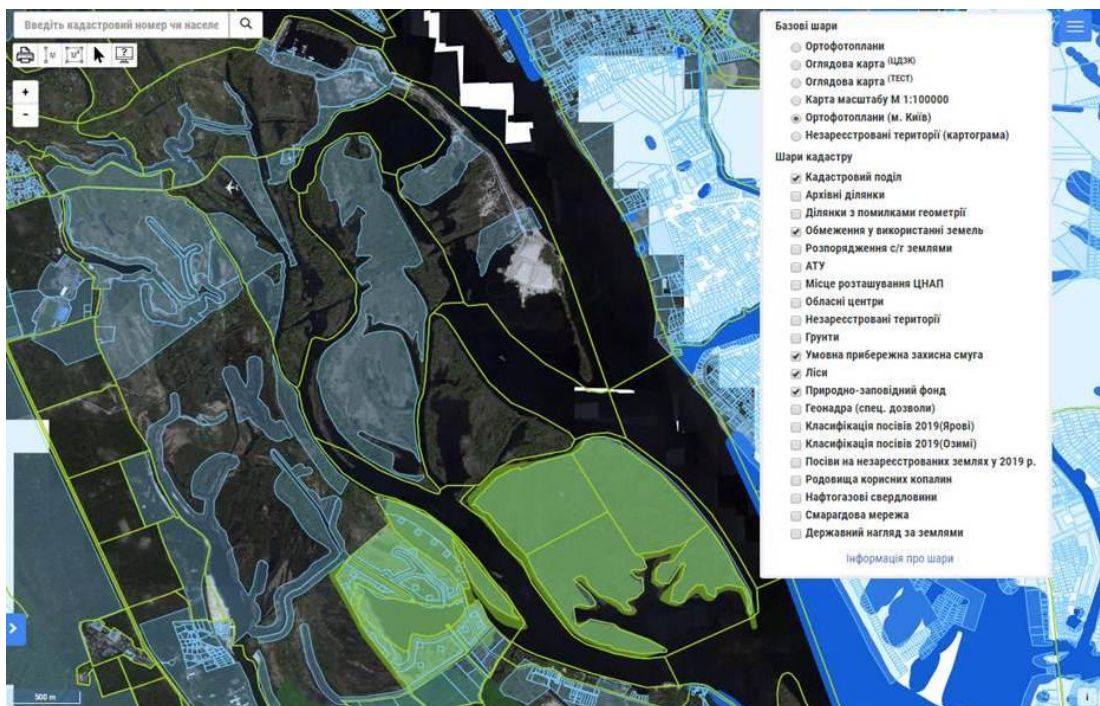
As can be seen on Figure 2, the boundaries of water protection zones are shown only in some cases, and the boundaries of coastal protection zones are not indicated at all.



 - water protection zones

Figure 2. Extract from the scheme of planning restrictions of the General plan of Kyiv

According to the public cadastral map of the State Geocadastrе of Ukraine in Kyiv, only the conditional boundaries of the coastal protection strips of small rivers have been identified (Fig. 3).





Symbols:  - coastal protection strips;  - protected areas

Figure 3. Extract from the public cadastral map of the State Geocadastrе of Ukraine in Kyiv (orthophotoplan)

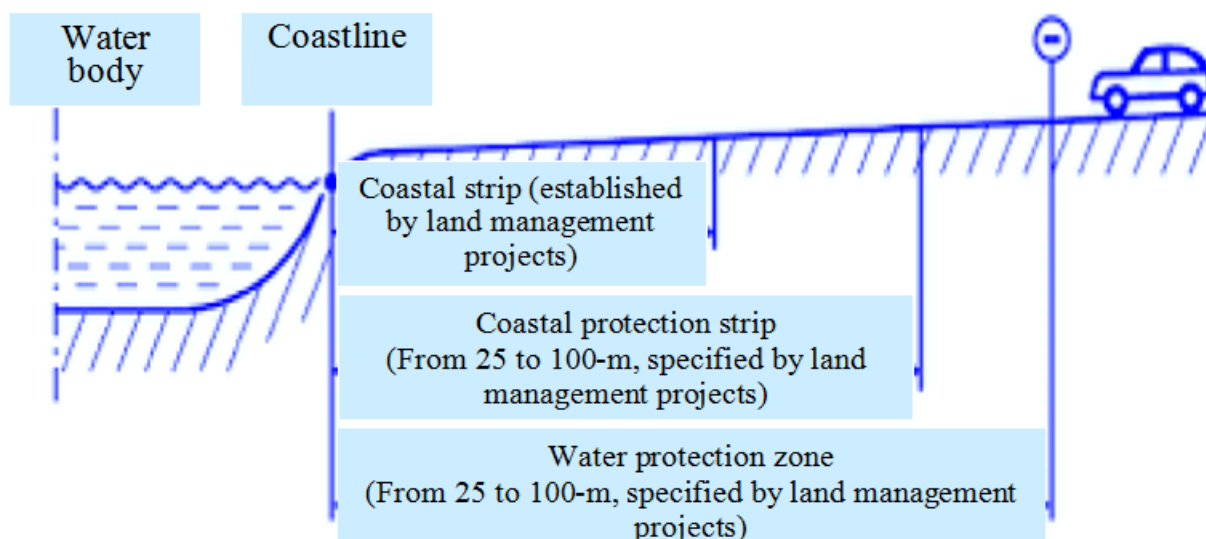


At the same time, construction within the virtual boundaries of coastal protection strips continues despite the legislative prohibition. Restrictions in use of land and other natural resources are also not formed.

Therefore, it is necessary to take into account in the legislative definition of land ownership law – a feature of the use of a water body and land use of the coastal protection strip. This requires mandatory signs, namely: the concentration of water and water-covered land in different time (for example, during flooding) within a coastline that changes with time and affects the size of the coastline.

Spatial location of the water protection zone, coastal protection and coastline is shown in Figure 4.

It should also be emphasized that in fact for most water bodies the coastline is not allocated in kind. This is especially important for the city land use, where urbanization of land is significant. However, it is necessary to protect the water body even without these clarifications, because the connection between water thickness, bottom and shore is determined not by law but by the ecosystem water management land use. The law should only follow ecology. Important is that the unity of water and earth around the water surface is taken into account in the Land and Water Codes of Ukraine very poorly.



*Figure 4. Spatial location of the water protection zone, coastal protection and coastal strip within the city land use*

However, in order to ensure the economic and legal unity of water and land, it is not necessary to legally increase the land component in the construction of a water body as a subject of property rights. In any case, all the land around the water body cannot be included in the water fund lands. After all, the use of land, water and other natural resources within the ecosystem of land use of both large and small water bodies must be coordinated, not allowing damage to nature and not forgetting about the capitalization of land use, especially urban and the right of people to rest by the water and so on.

Therefore, such a mutual agreement requires a transformation of institutions of water and land legislation. Namely, it is first of all the provision of another status of coastal protection strips, taking into account the boundaries of coastal strips, which is necessarily the land use of the state and communal water fund ownership (these land plots are prohibited to be privatized). For coastal protection strips and water protection zones set adjustable mode land use, so these land plots are owned in a way it can provide their effective capitalization. Established environmental regimes for land use are designed to preserve the ecological condition of land, forest and other vegetation on them. And also, self-purification of waters in which participate various elements of the water system, including the bottom and shores, thus reducing anthropogenic load in every way.

Today the land use regime within water protection zones and coastal water bodies and islands are governed by regulations of Articles 87, 88 and 89 of the Water Code of Ukraine [10]. However, defined land use regime is more typical for lands outside settlements. In particular, according to Article 88 of the Water Code of Ukraine lands of coastal protection zones are in state and communal ownership and may be made available for use only for the purposes specified in the Code [10]. Within the existing settlements coastal protection strip is established taking into account town-planning documentation, using individual land management projects. Coastal protection strips are installed along the shores and around reservoirs along the water's edge (in the limit period) with a certain width, which is indicated in the

code. However, the position of the water's edge (in our case coastlines) is not constant, it depends on the fluctuations of the water level, which is determined by, for example, floods, tides, human activities, etc. Width of coastal protection strip (which includes the coastal strip) is established depending on the defined water cut (shoreline). Which is not actually defined in kind, and therefore the boundary of the coastal strip may fluctuate in space.

In addition, at the same time the legislator determined that within the locality beach areas for unimpeded and free use are allocated and arranged by local executive bodies and local self-government bodies. At the same time, the regime of limited economic activity provided for coastal protection strips on the islands, which is also controversial and needs separated research. In accordance with the requirements of Article 60 of Land Code of Ukraine boundaries of the established beach areas must be specified in the documentation of land management, cadastral plans of land plots, as well as in urban planning documentation [11].

Thus, defined in the process of land management land use regimes should help competent authorities to formulate correctly spatial location of the shoreline and strip, coastal protection strip, water protection zone. Also, conditions for determining the intended purpose of land plots and functional use of lands within them and others natural resources, as well as issuing decisions to businesses connected to water use.

That is why, in our opinion, the essence of water management land use can be seen as the effectiveness of the organization of the relevant types of social life in complex, which are carried out on a specific territory, with the involvement in different scales of land and water resources and on appropriate rights and also, with different functional content in the process of economic, environmental, water, and others relations of rights of subjects of preservation, restoration and use of land and water resources (Fig. 5).

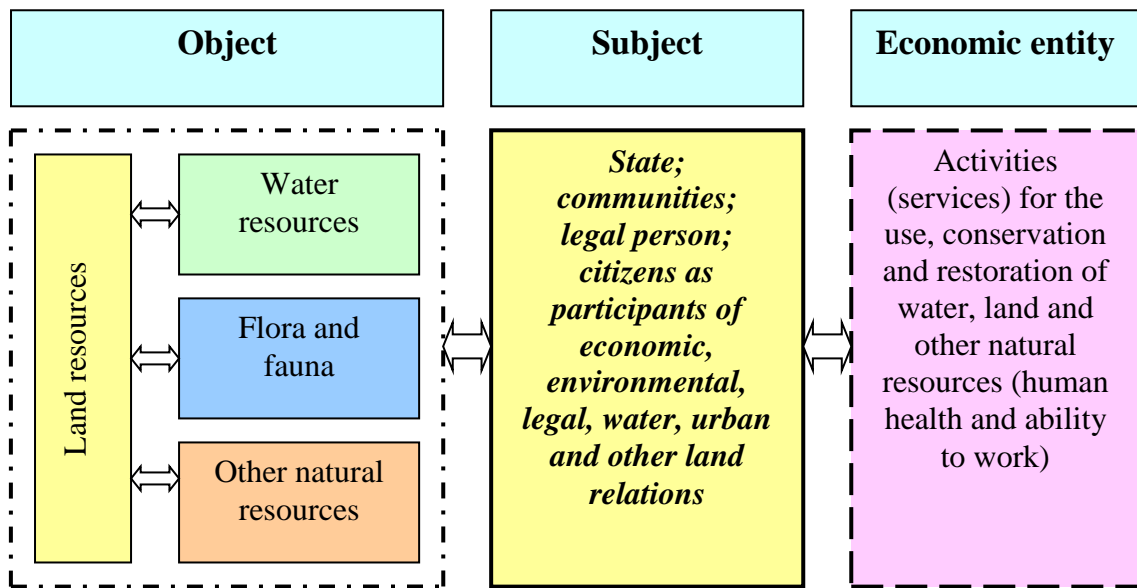


Figure 5. Logical and semantic model of the essence of urban land use within water protection zones, coastal protection and coastlines

Accordingly, when we use urban land use within water protection zones, coastal protection and coastal strips, we mean – a territorial complex of optimal relationships of land, water, organisms and atmosphere through the composition and structure of the functional use of land, also, the system of organization and methods of use of land and water resources on various property rights as an object of law, an object of economic, environmental and water, and other land relations of a certain part of the single land fund of Ukraine.

**Conclusion and prospects for further research.** In order to implement an effective policy, taking into account environmental safety of vital functions of the population, it is necessary to realize that environmentally protective land use regime within water protection zones, coastal protection and coastlines can be provided for any form of ownership of land. However, the process of effective capitalization of land use within such zones (strips) can occur only in the presence of private investments within private ownership of land and other natural resources. However, this approach to the formation of land use within the water protection zones, coastal protection and coastal strips of cities is possible only when it is being provided by legal regulation of the status of such zones (strips) as a component of the ecosystem

land use with various forms of land ownership and other natural resources. At the same time, land plots and other not separated from them natural resources within coastal protection zones, except coastal, can be provided in private ownership with the provision of appropriate environmental regime of land use, which will increase efficiency of its capitalization.

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## **ФОРМУВАННЯ МІСЬКОГО ЗЕМЛЕКОРИСТУВАННЯ В МЕЖАХ ВОДООХОРОННИХ ЗОН, ПРИБЕРЕЖНИХ ЗАХИСНИХ ТА БЕРЕГОВИХ СМУГ**

*Анотація.* Україна стоїть на черговому етапі завершення земельної реформи. Попри це, з прийняттям незалежності в країні ще досі залишається безліч невирішених та дискусійних земельних, екологічних, водних, містобудівних питань, які потребують додаткового втручання з боку держави. Не завершеність земельної реформи, а саме деяких її важливих питань, одним із яких є формування землекористування в межах водоохоронних зон та прибережних захисних смуг міст створює негативне екологічне середовище. А також соціальну напругу життєдіяльності населення, особливо для міського землекористування. Оскільки, той факт, що забудова у межах водоохоронних зон, прибережних захисних смугах міст продовжується, не зважаючи на законодавчу заборону. Крім того, обмеження у використанні земель та інших природних ресурсів, що перебувають на цій території, також не сформовані. Тобто, просторове їх розміщення має величезний вплив не тільки на екологічні, земельні та водні відносини, а й загалом на економічні, соціальні та правові (гарантування прав).

В результаті дослідження було використано дані із публічної кадастрової карти Державної служби України з питань геодезії, картографування та кадастру та витяг із схеми планувальних обмежень Генерального плану м. Київ. Інформаційною базою

дослідження стали законодавчі та нормативно-правові акти України щодо регулювання земле-, водо- та природокористування, наукові праці світових і вітчизняних учених, матеріали науково-практичних конференцій.

В результаті авторами було встановлено особливість формування землекористування в межах водоохоронних зон та прибережних захисних та берегових смуг міста Києва. Суть землекористування в межах таких зон (смуг) полягає у тому, що воно як екосистема об'єднує декілька земельних ділянок різного цільового призначення та функціонального використання. Крім того, міське землекористування в межах водоохоронних зон, прибережних захисних та берегових смуг, крім екологічних, правових, соціальних, земельних відносин включає і економічні й водні відносини, що є немало важливим аспектом при ефективному регулюванні такого землекористування. Саме зазначеним обумовлений вибір дослідити особливості формування міського землекористування в межах водоохоронних зон та прибережних захисних і берегових смуг. Для того, щоб забезпечити через землевпорядно-правове врегулювання міського землекористування в межах зон (смуг) для підвищення ефективності його капіталізації та екологізації.

**Ключові слова:** міське землекористування, водні об'єкти, водоохоронні зони, прибережні захисні смуги, берегові смуги, власність на землю.

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## **ФОРМИРОВАНИЕ ГОРОДСКОГО ЗЕМЛЕПОЛЬЗОВАНИЯ В ПРЕДЕЛАХ ВОДООХРАННЫХ ЗОН, ПРИБРЕЖНЫХ ЗАЩИТНЫХ И БЕРЕГОВЫХ ПОЛОС**

**Аннотация.** Украина стоит на очередном этапе завершения земельной реформы. Несмотря на это, с принятием независимости в стране до сих пор остается множество нерешенных и дискуссионных земельных, экологических, водных, градостроительных вопросов, требующих дополнительного вмешательства со стороны государства. Не завершенность земельной реформы, а именно некоторых ее важных вопросов, одним из которых является формирование землепользования в пределах водоохранных зон и прибрежных защитных полос городов создает негативное экологическое среду. А также социальное напряжение жизнедеятельности населения, особенно для городского землепользования. Поскольку, тот факт, что застройка в пределах водоохранных зон, прибрежных защитных полосах городов продолжается, несмотря на законодательный запрет. Кроме того, ограничения в использовании земель и других природных ресурсов,

*находящихся на этой территории, также не сформированы. То есть, пространственное их размещение имеет огромное влияние не только на экологические, земельные и водные отношения, но и вообще на экономические, социальные и правовые (обеспечение прав).*

*В результате исследования были использованы данные с публичной кадастровой карты Государственной службы Украины по вопросам геодезии, картографирования и кадастра и выдержка из схемы планировочных ограничений Генерального плана г. Киев. Информационной базой исследования стали законодательные и нормативно-правовые акты Украины относительно регулирования земле-, водо- и природопользования, научные труды мировых и отечественных ученых, материалы научно-практических конференций.*

*В результате авторами было установлено особенность формирования землепользования в пределах водоохранных зон и прибрежных защитных и береговых полос города Киева. Суть землепользования в пределах таких зон (полос) заключается в том, что оно как экосистема объединяет несколько земельных участков различного целевого назначения и функционального использования. Кроме того, городское землепользование в пределах водоохранных зон, прибрежных защитных и береговых полос, кроме экологических, правовых, социальных, земельных отношений включает и экономические и водные отношения, есть немало важным аспектом при эффективном регулировании такого землепользования. Именно поэтому обусловлен выбор, исследовать особенности формирования городского землепользования в пределах водоохранных зон и прибрежных защитных та береговых полос. Для того чтобы обеспечить через землеустроительно-правовое регулирование городского землепользования в пределах зон (полос) для повышения эффективности его капитализации и экологизации.*

**Ключевые слова:** *городское землепользование, водные объекты, водоохранные зоны, прибрежные защитные полосы, береговые полосы, собственность на землю.*