

**State Organization “Institute of Market and Economic&Ecological
Researches of the National Academy of Sciences of Ukraine”**

**Summary of scientific novelty for the research
“Natural asset management based on blue growth”**

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The following scientific results have been obtained:

Originally developed:

– *patterns in the field of natural asset management* within the framework of the transition to a sustainable blue economy at the administrative-territorial and territorial-industry levels have been revealed, which are mediated by endogenous factors of the formation and use of natural assets and exogenous factors of blue growth policy and take into account the multi-level integration of activities regarding natural assets, innovative nature-oriented solutions regarding local natural assets, ensuring permanent renewability / regeneration of natural assets of coastal territories, and the effectiveness of managing the blue-green infrastructure of the coastal urban ecosystem;

– *an expanded classification of natural assets of marine/coastal areas* has been developed, based on criteria such as: relationship with the classical hierarchy of natural resources (primarily with renewable resources, such as an aquifer or coastline); components of natural capital: natural resource and ecosystem assets; “sensitivity” to management influence as management objects: a continuum from natural assets to blue-green infrastructure; relevance to making management decisions in the field of blue growth: green, blue and blue-green infrastructure, the objects of which are also proposed to be classified according to the following criteria: multi-faceted formation and poly-functionality of use, territorial specificity and localization, the presence of investment value, etc.;

– *methodological approaches to integrating the natural component* into the asset management system in the context of the transition to a sustainable blue economy have been substantiated, based on the conceptual provisions of resilient development, stakeholder theory and game-theoretic approaches, and are the basis for decision-making in accordance with financial planning and other functions of managing natural assets and providing services based on them at the level of territorial communities; within the framework of such processes as: inventorying natural assets, determining the unique characteristics of natural assets compared to gray infrastructure assets, supporting local authorities, and supporting management decisions at three levels: general organizational, consumer and technical; the matrix of “natural asset-based service goals / natural asset management strategy” has been developed for making relevant management decisions on an multi-criteria basis;

– *a draft concept of a national program for natural asset management* in Ukraine has been developed, which is proposed to be implemented at mutually

agreed levels of local self-government, regional and state authorities, in order to create sustainable institutional conditions for the formation and implementation of local authorities' capabilities to manage the natural assets of territorial communities, as well as to strengthen the processes of assessing environmental damage caused by the Russian war. In line with the provisions of the Strategy of State Environmental Policy of Ukraine for the period up to 2030, the Strategy for the Formation and Implementation of State Policy in the Field of Climate Change for the period up to 2035 and the Ecological Treaty for Ukraine, the concept includes such tasks as: determining the state of natural assets, their integration into municipal infrastructure and service provision processes, life cycle management and taking into account the risk and criticality of natural assets, as well as a financial strategy for managing natural assets;

Improved:

– *a conceptual and categorical apparatus of natural asset management* on the principles of blue growth, namely: natural assets as an active part of natural capital, as a result of which involvement in economic activity results in benefits, both from their direct use and from the provision of ecosystem services, taking into account relevant environmental, legal and social factors, – in a broad sense; and as an object of management within the framework of blue growth, namely blue-green infrastructure as a network of natural and semi-natural territories of a seaside city, managed for a wide range of ecosystem services, – in a narrow sense; management of natural assets / blue-green infrastructure, urban ecosystem, etc.;

– *theoretical and methodological provisions on the management of blue-green infrastructure* as a natural asset of coastal cities based on an institutional approach as a set of principles, methods, criteria, means, forms and tools to ensure effective interaction of elements of the urban environment and the processes occurring in it; based on a process approach as a set of organizational and economic, legal, environmental and technical measures aimed at planning, development, functioning and monitoring of natural and semi-natural elements of the urban environment in coastal regions in order to ensure blue growth, adaptation to climate change, preservation of ecosystem services and improvement of the quality of life of the population. In particular, at the territorial and sectoral level, the following has been substantiated: the concept of an organizational and economic mechanism for managing natural and healing assets; a methodological approach to a comprehensive assessment of damage caused to city parks as a result of the Russian war against Ukraine;

– *a methodological approach to the formalized integration of natural assets* into the asset management system in accordance with ISO 55000, ISO 55001 and ISO 55002 standards, within the framework of ensuring relevant management decisions at the level of territorial communities and/or organizations, as well as developed recommendations for the step-by-step integration of natural assets into the asset management system at the level of territorial communities in the context of the transition to a sustainable blue economy, taking into account such infrastructure challenges as managing coastal resilience, river floods, stormwater and extreme heat;

– *approaches to the formation of a monitoring system* for blue-green infrastructure of the urban ecosystem as a preventive tool in its management system based on modern technical and technological support and integration of current criteria and methods of environmental monitoring, which provides a comprehensive approach to the development of urban coastal areas; as well as its content regarding regulation, organizational coordination, financing, training of specialists and continuous improvement of methods, international experience, in particular standards and methods for assessing the state of green infrastructure based on key indicators and their ecological, economic and social value, development of standardized procedures for collecting and processing data. The approaches to determining the criteria and algorithm for verifying blue-green, namely water management infrastructure facilities on the basis of economic and ecological efficiency and taking into account the results of the relevant legislative basis for conducting an environmental audit and verification have been substantiated;

– *strategic directions of green infrastructure management* as a natural asset of coastal cities and territories on the principles of blue growth, which consist in: forming an institutional environment, as well as a system for assessing, recording and monitoring the functioning and development of its facilities; introducing environmental technologies in urban planning and construction; organizing relevant educational activities and training events; supporting initiatives of the local community and public organizations aimed at the creation and development of blue-green infrastructure. It has been proposed to integrate these directions into four types of blue growth strategies, in accordance with the content of relevant projects of the working groups of the National Council for the Reconstruction of Ukraine: from the creation of coordination centers for blue growth and management of natural assets to experimentation and phased implementation of pilot blue growth projects using natural assets;

Have been further developed:

– *principles of natural asset management within blue growth*, namely: integration and nature-based solutions, resilience and invariance, autonomy and modularity, innovation and continuity, cyclicity and continuity, prevention and proactivity, unconditional partnership and inclusiveness, responsibility and openness, taking into account the relevant content of classical principles of environmental management, in particular in relation to sustainable development processes defined on the basis of an ecological approach, as well as the principles of a sustainable ocean, national coastal policy and financing of a sustainable blue economy; as well as interrelated economic, environmental, social and legal institutional factors under which natural resources are considered assets. The priority task of institutional support for the management of natural assets in the field of blue growth is the implementation of relevant international legal norms, in particular within the framework of the EU Marine Strategy Framework Directive, the EU Blue Growth Communiqué, the Marine Strategy of Ukraine, as well as the UNEP Sustainable Blue Economy Finance Initiative;

– *methodological approaches to accounting and assessing blue-green*

infrastructure facilities in coastal areas, which, unlike the existing ones, provide for the introduction of quantitative and qualitative accounting in order to reflect them in inventory lists, registers and passports, as well as cost indicators in the balance sheet, regardless of the type of activity of the balance sheet holder and the form of ownership of blue-green infrastructure facilities, which will allow for increased control over the fulfillment of obligations and rational use of municipal funds for the maintenance of these facilities; and their assessment within the framework of making relevant decisions, which, unlike the existing ones, are based on an understanding of the growing role of the environmental factor in the context of blue growth, the need and reliability of data for assessing natural assets / blue-green infrastructure, using methods for assessing ecosystem services provided on the basis of natural assets, in particular market price, opportunity costs, avoided losses and identified or declared benefits;

– *theoretical and methodological provisions on the management of natural assets* of the nature reserve fund of the coastal territory, which, based on a comparison of the planning function within the management of natural assets of the territorial community and the management of the NRF object, and the results of the analysis of the state and features of the management of the territories and objects of the NRF of the Ukrainian Black Sea region, include priority areas for making relevant decisions, in particular regarding the creation of a single state management body and the elimination of defects in the procedure for creating and reserving territories and objects of the NRF; principles that, unlike the existing ones, highlight, along with the priority of preserving biodiversity and the relationships between various components of the ecosystem and cultural heritage, also taking into account the needs of regional socio-economic development; as well as methodological provisions on diagnosing the effectiveness of the functioning of NRF objects according to three groups of indicators of environmental protection and socio-economic activity;

– *a comprehensive approach to determining priorities* for the development of economic and environmental relationships within the framework of natural asset management and initiating blue growth in post-war Ukraine, namely: joining powerful international financial instruments to provide projects for the restoration of marine ecosystems of the Ukrainian Black Sea region; stimulating investments in the biodiversity of marine ecosystems; implementing measures for coastal resilience based on nature-based solutions; creating conditions for sustainable management through improved marine spatial planning; developing an asset management strategy – as a systematic business process for making strategic and operational decisions regarding municipal assets throughout their life cycle, rather than simply servicing assets; intensifying consideration of the role of natural assets, such as forest areas, aquifers, streams, wetlands and coastal zones, as equivalent to the role of engineering assets, such as roads and storm sewers, in terms of providing the population with necessary public services;

– *a functional approach to determining priorities for managing the blue-green infrastructure* of coastal territories in the following areas of economic and ecological relations: creating a sustainable, multifunctional urban environment;

forming the microclimate of the urban environment and its aesthetics; land use planning, landscape planning; adapting to climate changes and features; forming recreational areas and water reserves; forming a comprehensive system of energy supply, water supply and waste disposal; maintaining the sustainability of ecosystems and ecosystem services; sustainable management of water resources, in particular in terms of providing centralized water supply and wastewater services by supplementing the traditional technological process with the stage of implementing wastewater reclamation as the ability to obtain secondary components for their further recycling, in particular in the energy and other sectors of the blue economy.

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