



EUROPEAN CONFERENCE

Conference Proceedings



**I International Science Conference
«Modern methods for the development
of science»**

January 09 – 11, 2023

Haifa, Israel

MODERN METHODS FOR THE DEVELOPMENT OF SCIENCE

Abstracts of I International Scientific and Practical Conference

Haifa, Israel

(January 09 – 11, 2023)

UDC 01.1

ISBN – 978-9-40365-673-1

The I International Scientific and Practical Conference «Modern methods for the development of science», January 09 – 11, Haifa, Israel. 388 p.

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The recommended citation for this publication is: Zaiets S., Melnyk M. Production and prospects of oil flax cultivation in Ukraine. Abstracts of I International Scientific and Practical Conference. Haifa, Israel. Pp. 15-18.

URL: <https://eu-conf.com/ua/events/modern-methods-for-the-development-of-science/>

ECO-DESIGN AND SUSTAINABLE DEVELOPMENT IN THE CONTEXT OF ENVIRONMENTAL SECURITY CITIES IN CONNECTION WITH THE DEVELOPMENT TERRITORIES, AS WELL POST-WAR RECONSTRUCTION

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In most Ukrainian cities, a negative ecological situation has developed due to the action of urbanization factors, including man-made loads, emissions of harmful substances, air, water, and soil pollution, and accumulation of industrial and household waste. Ecocide on a global scale has been taking place since the beginning of Russia's full-scale treacherous invasion of Ukraine. Mass destruction of flora and fauna, poisoning water resources, and other actions that caused an ecological disaster were recorded in the temporarily occupied territories, as well as those already liberated. Therefore, the strengthening of environmental security, along with economic growth and social consensus, is the most important task in ensuring sustainable development and one of several priorities for state regional policy in Ukraine for the next 35 years.

The following occurs in the Encyclopaedia Modern Ukraine: "ecological security demonstrates the level of protection important vital interests a person, as well as society, collective security, the environment, and the state against real or potential threats caused by anthropogenic, natural, and other factors." The system of environmental security includes set legal, economic, technical, humanitarian and medical measures aimed at maintaining the balance between ecosystems and anthropogenic and natural loads, developing mechanisms for the improvement and prevention of environmental degradation, and taking care of people's health.

The modern trend of greening not only covers the issue of ensuring the daily life of a person but also has a significant impact on the development policy construction, energy industries and enterprises. This issue is especially acute in the context of the post-war reconstruction of Ukraine. In social networks, Ukrainians periodically discuss the prospects of the post-war reconstruction settlements. Having analysed several posts, it is possible to conclude that in society, in addition to the determination to restore the infrastructure of cities and villages, there is a clear desire to make it even

better than it was before the great war. A successful solution for the recovery of the country will be the integration of set measures in design, construction and operation, which reduces or eliminates the negative and can create a positive impact on our climate and environment, by the best practices of the world.

The trend of recent years shows that the share of the world's urban population is constantly growing, which leads to the destruction ecosystems and a decrease in the quality of life in cities, especially large ones [1,2]. The main goals and tasks of the formation new cities should be decided by ecologists, climatologists, architects, and engineers. It is worth noting that most of the existing cities have existed for hundreds of years, so it is necessary to integrate new elements of the development paradigm into the existing infrastructure to improve the standard living. These key elements should take into account not only the social and economic development of the city but also the ecological development the city, improving the ecological status the city system [3, 4].

The new paradigm of social development, called "*sustainable development*", was based on the results of causes analysis degradation surrounding the natural environment on the scale biosphere and the search for ways to overcome threats to the environment and human health. Sustainable development is defined as a form of interaction between society and nature, which ensures the survival of humanity and the preservation of the environment, current generations provide their life needs, without depriving future generations of the opportunity to also meet their own needs.

The method of our work is to determine ways to implement the principles and goals of "sustainable development" in the context of eco-design at the levels of urban planning, design of individual buildings, enterprises, and industrial-urban agglomerations.

As already mentioned above, sustainable design or sustainable development is one of the directions of the global environmental movement, its task includes protecting and restoring the environment. The priority direction for solving environmental problems using the "*Sustainability*" approach is the idea of organic integration of man-made technological products into the environment, and the ecological approach into the culture of the project [5-7].

For a visual understanding of the term "Sustainability", Fig. 1 demonstrates the ability of the "planetary-social-economic" system to interact acceptably.



Figure 1. Visualization of the term "Sustainability"

Recently, various project activities have received dynamic development. As a result of this process, most design paradigms were revised. In particular, the regulatory approach to design and ergonomics has undergone serious changes. They converge in the areas of design theory and methodology. Thanks in part to conformity assessment programs and green building codes (BREEAM, LEED, Edge, Greenship, Green Building Index, Green Key Global, GreenSL, GRESB, HQE, ICP)

As a new paradigm that promotes economic development while reducing environmental degradation and conserving natural resources, eco-design provides an opportunity to rethink our model of economic development. The traditional paradigm of efficiency is giving way to a broader definition of social progress where efficiency, equity and environmental sustainability are closely interrelated.

It is possible to identify six different types of opportunities for sustainable design of the city and industrial-urban agglomerations, Fig. 2 [8].

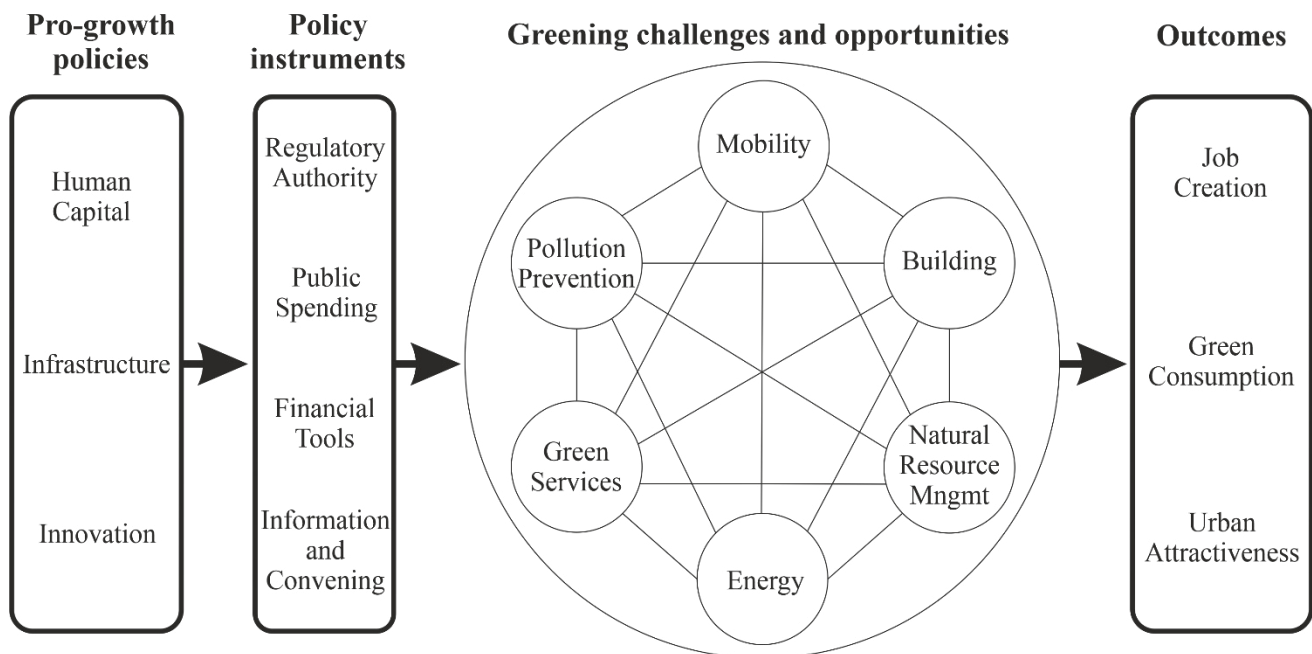


Figure 2. Framework for urban green growth and eco-design

Each group may have one or more different topical issues (eg, solid waste, air or water quality) with their unique challenges and opportunities, but which have some fundamental similarities and can therefore be logically classified under a group heading. For each, it is planned to discuss the public policies that could be applied to address the problem and the potential economic effects that could arise from the greening of these sectors, although more in-depth analysis is needed to better quantify such effects.

Where possible, evidence of economic benefits from climate change adaptation measures (e.g., loss avoidance), as well functional adaptation, will also be provided [8, 9, 10].

Having studied the relevant statements of the President, representatives of the Government of Ukraine, as well as the positions of international partners, it is possible to conclude that the main requirement: the reconstruction of Ukraine is not a return to the pre-war state, but a full-fledged development and integration into the European

Community, based on sustainable development and with taking into account the European Green Course, which is also a guarantee of the fulfilment of the Copenhagen criteria for joining the EU.

Therefore, the implementation main principles of eco-design, sustainable development, as well green building codes in the context environmental safety of cities are gaining a wider scale.

Within Ukraine, efforts to expand the concept of eco-design "sustainability design" in cities will require significant investments in many sectors, such as modernization and improvement of energy efficiency of the existing building stock and equipment, development of new infrastructure systems, in particular in the energy and transport sectors, innovative research and development in new "green" technologies.

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