



Investment codes of the protected areas: A new look at benefits

Tetyana Nikolaychuk

University of Konstanz, Zukunftskolleg (Germany)
Institute of Market and Economic & Ecological Research
of the National Academy of Sciences of Ukraine,
Department of Economic Regulation and Management (Ukraine)
mazzi071988@gmail.com, ORCID: 0000-0001-6268-7723

Abstract: The aim of this paper is to examine the role of the protected areas (PAs) as investment codes, and their position in the investment landscape of the region as well as in the context of a balanced and eco-oriented post-war market. The authors conducted a quantitative literature review to investigate the market and investment flows, and they used a comparative method to identify the main vectors for renovating the post-war eco-oriented market, attracting investment flows and adapting these tools to the Ukrainian economy. The study reveals that investment coding can be a digital tool for attracting potential investors to cooperate by providing access to important information such as economic, ecological, and statistical data. The introduction of investment coding can increase the amount of investments in the field of protected areas, allowing for faster turnover and more efficient use, and enabling national and foreign investors to enter a renewed eco-oriented area of the national economy, increase profits, and diversify risks. The paper suggests a bilateral business system for the PAs, consisting of both traditional and digital business models. The authors argue that private legal investment tools can stimulate the development of new vectors of entrepreneurial activity, including inclusive eco-business. Overall, this paper highlights the potential benefits of investment coding and private legal investment tools for the development of protected areas and eco-business in the region, and offers insights for policymakers and investors looking to promote sustainable economic growth.

Keywords: protected areas, renovation economy, investment code, post-war period, local communities, investment puzzle of a region.

JEL Classification: Q28, Q29, Q38, Q39.

1. Introduction

The growth of the Nature Reserve Fund was influenced by the post-Soviet background for many years. The protected areas of Ukraine were considered as the conservation ones without taking into account their economic and ecological potential. As a result of the Russian military invasion, many objects of civil and industrial infrastructure have been destroyed, which has negatively affected the entire national market.

At the same time, the protected areas of Ukraine have sufficient resource potential (Environmental protection, 1991) which can become a vector of economic and ecological development of the regions (local communities). The attractiveness of the Nature Reserve Fund investment in the post-war period is primarily related to its resource potential. Destruction of the logistic links and infrastructure facilities is not decisive for the assessment of investment attractiveness of the protected areas. Simultaneously, the presence of protected objects and territories in the region significantly increases the investment attractiveness of both the entire region and territorial communities.

The nonexistence of organizational, legal, economic, and ecological tools to establish a comprehensive economic framework after the war hinders the progress and execution of novel partnerships across all industries.

The post-war transformation will require significant investment flows that cannot be provided by the state. During the cooperation between public authorities and entrepreneurs it is necessary to take into account the specifics of a given economic activity and the area of its implementation.

Nowadays due to the use of ecologically oriented methods of management on the protected territories an economic activity, that will contribute to the economic and ecological development of the region, the formation of constant investment flows, supporting the balance between state authorities, local communities and representatives of the private sector of economics, can be conducted.

The economic and environmental development of nature management in Ukraine is crucial, especially in the aftermath of disasters such as wars. The Nature Reserve Fund of Ukraine plays an important role in protecting and preserving the natural resources of the region, but it can also contribute to the economic and ecological needs of the local communities and regions. By restoring the protected natural areas, that have been adversely affected by the war, it is possible to overcome the traumas and losses of the war while promoting sustainable economic growth and environmental well-being. New regulatory mecha-

nisms that take into account the economic and material nature of nature management are necessary to achieve this goal.

The ‘chess’ modeling scenario of an economic activity and economic growth as socially responsible business can be a useful tool in developing the economic and environmental potential of the Nature Reserve Fund of Ukraine. By incorporating formal and informal elements into the decision-making process, entrepreneurs can balance economic and environmental considerations while also taking into account the unique characteristics of the region. This can lead to more sustainable and socially responsible business practices that are beneficial both for local communities and the natural environment. Additionally, this approach can help to reduce transaction costs and foster loyalty behavior among stakeholders that can further enhance the economic and environmental outcomes of nature management in Ukraine (Nikolaychuk, 2022b).

According to Bernard W. Coetzee (2017) while the protected areas are the key component of the global conservation strategy, the quantitative demonstrations of their positive ecological performance, that mean the extent to which they conserve the biodiversity features they were designated for, are broadly lacking.

The link between wildlife trends and national development shows that the social and economic conditions supporting the PAs are critical for the successful maintenance of their wildlife populations (Barnes et al., 2016).

So, the Nature Reserve Fund of Ukraine (The Nature Reserve Fund of Ukraine, 1992) is not only a regional nature protection center, which ensures the ecological well-being and health of the population, but such a territory should also be developed in symbiosis with the economic and ecological needs of local communities (The Voluntary Association of Territorial Communities, 2015) and regions in the post-war period.

However, these areas could help to overcome the traumas and losses of the war, e.g.:

- a mobile application can serve as a useful tool for tourists and entrepreneurs to access information about the resource potential of the protected area and the region;
- cybernetic planning can help to model the economic and ecological growth of the protected areas in a way that maximizes their potential for recreation, holidays, tourism, and other activities (Nikolaychuk, 2019);
- effective cooperation tools for businesses and financial institutions can be an important way to expand environmental financing and loans, making it easier for eco-entrepreneurs to invest in the protected areas; platforms for eco-

-innovative projects can help entrepreneurs to develop sustainable and innovative business models that promote environmental protection and economic growth (start-ups, e.g. a ‘chess business model’ or cybernetic planning);

- environmental development as ‘experience economy’ activities for Ukrainian soldiers, policemen and other categories that can not only promote ecological well-being but also provide new and engaging experiences for these groups; overall, these ideas have the potential to contribute to the sustainable development of the protected areas and regions in Ukraine.

The formation of a communication basis (creation of a mobile application containing all information about the resource potential of the protected area and region, existing business vectors, etc.) such as:

- modeling of the economic and ecological growth of the protected areas as a comfortable environment for recreation, holidays, tourism, etc. in the post-war period, for example cybernetic planning (Nikolaychuk, 2019);
- introduction of effective cooperation tools for businesses and financial institutions that will expand the environmental financing or loans (cooperation of banks and credit unions) for such entrepreneurs;
- creation of platforms for the eco-innovative projects (start-ups), e.g. a ‘chess business model’ or cybernetic planning;
- environmental development as ‘experience economy’ activities for Ukrainian soldiers, policemen, and other categories.

However, the Commercial Code of Ukraine (2003) does not provide for the processes of collaboration with eco-entrepreneurs as independent business entities.

In turn, depending on the method of a business activity on the PAs, it is proposed to have it zoned to (Nikolaychuk, 2022a):

- economic and ecological business activities, i.e. ecologically oriented economic activities (provision of eco-system services, production of ecologically clean goods and products, implementation of an economic activity on the PAs, provision of services); entities engaged in direct environmentally oriented business activities were attributed to the main entrepreneurs;
- eco-oriented financial activities, i.e. economic entities do not participate in the provision of ecosystem services or production of eco-goods/products, but they provide permanent, temporary or one-time financial or other economic or organizational support (depending on contract terms); sub-economic entities that implement economic and environmental entrepreneurship (e.g. environmental vouching, protected lending, or franchising agreements); in turn, such entities are entrepreneurs-donors (Nikolaychuk & Khumarova, 2019).

The aim of the study is to find out the essence and the role of the PAs in the system of sustainable and balanced nature-neutral businesses and their place in the post-war Ukrainian financial and market infrastructures, as well as to offer a theoretical approach to the formation of the PAs as market-related subjects. It is proved, that the economic and environmental development of the PAs requires non-state financial and investment flows of constant nature through the cooperation with representatives of economy's private sector (Nikolaychuk, 2021). Private legal investment tools will provide for the development new vectors of entrepreneurial activities, including inclusive business activities and digital twins.

In order to achieve it, the following research questions were posed:

- Could the PAs be considered as a socio-economic criterion of a local community's sustainable growth?
- Do the PAs have enough capacity to be regarded as investment codes of the region (local community)?
- Does every region (local community) have its own investment puzzle according to the geographical, socio-economic and environmental issues and the number of local investment codes?

Several scientific methods and approaches were utilized to examine the research objective.

The theoretical and methodological foundations of this study are rooted in the extensive research conducted by both foreign and Ukrainian scholars in the fields of comprehensive and sustainable development of the protected areas (PAs). By utilizing the perspective of local communities as the basis for the methodological analysis of the PAs' development issues, this study considers the socioeconomic, environmental, and legislative characteristics of different regions that have a significant impact on the formation of financial capacity.

The search and problem methodology was applied to identify and acknowledge the issues associated with the comprehensive development of the PAs in the post-war period, that will be addressed in the future by selecting the best option. Additionally, several theoretical methods were utilized, including the systematization, comparison, the summary of empirical results, and generalization of theoretical findings. A quantitative literature review (meta-analysis) was conducted to explore the market without inter-study differences.

Systematization was employed to investigate the measures of economic viability for nature-neutral businesses. The comparative method was used to identify the primary cooperation distinctions between business representatives

and financial organizations in Europe and the potential to adapt these instruments to the Ukrainian market.

The paper is structured as follows: in Section 2, the literature review in the study area has been described. Section 3 presents the results of the meta-analysis and disservice as a negative phenomenon of uncontrolled business activity. Section 4 offers a summary and a discussion of the results, while Section 5 explores possible wider implications of the findings.

2. Literature review

According to Emili Talen (2021) the form-based Codes (FBCs) are the most popular example of this revised coding approach, and they are especially popular in the U.S.

David Cruise Malloy and David A. Fennell (1998) present a framework of the ethical code that was developed by the application of the ethical theory and locus of analysis (LOA) constructs. Six categories emerged from the data and were juxtaposed with the ethics-LOA theoretical framework.

Jonathan E. Schroeder (2009) admits that a lot of brand producers and products are orientated to consumer response and services to understand the creation of brand value. However, the focus on cultural processes that affect contemporary brands, including the historical context, ethical concerns, and representational conventions is often missing. A brand culture perspective reveals how branding has opened up to include interdisciplinary research that both complements and complicates the economic and managerial analysis of branding.

A. Warszawski, J. Gluck & D. Segal (1996) present a methodology for the economic evaluation of design codes. They claim that an optimal design level of a product, a component, a system, or a facility is determined as the one that involves the highest net life-cycle benefit, i.e. which means it incurs fewer costs to society.

Sheila Dow (2016) admits that a lot of economists cannot agree on some abstract standards of ethics. It is argued that the implementation of such standards would founder on the different views on the nature of economic knowledge, stemming partly from different views of the subject matter. These differences color what may be identified as competence that may be of personal rather than social interest, or that may be identified as the consequences of economic advice.

Robert A. Enker and Gregory M. Morrison (2020) suggest that the building of energy codes provides a potentially transformative intervention in the property market, and their effectiveness is clouded by problems with enforcement and stakeholders' behaviour in service.

In the 2019 study, Daria E. Ertner and Olga B. Ulyanova (2019) argue that metaphors play a crucial role in various economic discourses by creating a metaphorical field that includes both culture-specific and universally shared cognitive blends. Across different languages, certain metaphors such as ‘economy is a road’, ‘economy is an animal’, ‘economy is a disease’, ‘economy is food’, and ‘economy is a mechanism’ are commonly used. However, the scholars suggest that the English language employs unique and culturally determined metaphors such as ‘economy is fire’ and ‘economy is a storm’. Thus, metaphorical codes in a given language help to interpret and understand the risks, opportunities, and uncertainties of systematically different economies through multicultural discourse.

Monika Hajdas, Joanna Radomska, and Susana Silva (2020) explore the potential relationships between cultural brand narratives and the changing meaning of retirement along with brand associations. Through their conceptual study, the authors suggest a theoretical model where brand narratives based on cultural codes of retirement act as independent variables, brand associations serve as dependent variables, and consumers’ age moderates the relationship.

Meanwhile, Helmut Jürgensen and Stavros Konstantinidis (2013) analyze codes as formal languages with unique combinatorial and structural properties which are utilized in information processing or transmission. They suggest that codes have multiple purposes in this context. Grigory Tenengolts (1984) discusses common errors that can occur in digital communication systems, such as bursts of insertions or deletions. According to the author, these errors are typical in such systems.

Huei-Jan Shyr and Shyr-Shen Yu (1990) suggest that a solid code should only contain primitive words. On the other hand, Petar Maymounkov (2002) argues in his 2002 paper that rateless codes are more appropriate than fixed-rate codes in most situations where erasure codes are considered a solution. Furthermore, he suggests that rateless codes have new areas of application where they cannot be replaced by fixed-rate codes.

Olivier de Sardan and Jean-Pierre (1999) use the term ‘moral economy’, insisting on as subtle as possible restitution of the value systems and cultural codes which permit a justification of corruption by those who practise it. According to Philip F. McKean (1989), the data presented, which supports the hypothesis that tourism, may in fact strengthen the process of conserving, reforming, and recreating certain traditions.

Douglass C. North (2005) admits that the institutions and the way they evolve shape economic performance. The institutions affect economic performance by determining (together with the technology employed) the cost of transacting and producing. They are composed of formal rules, informal con-

straints and their enforcement characteristics; while formal rules can be changed overnight by the polity, informal constraints change very slowly.

3. Methodology

What does the region’s investment code represent? It is considered as a number of symbols designed to convey information to potential investors. Each investor, from a different part of the world, has access to all data that provides a complete and prompt review and will determine the positive (pros) and negative sides (disservices) of each protected area (see Figure 1).

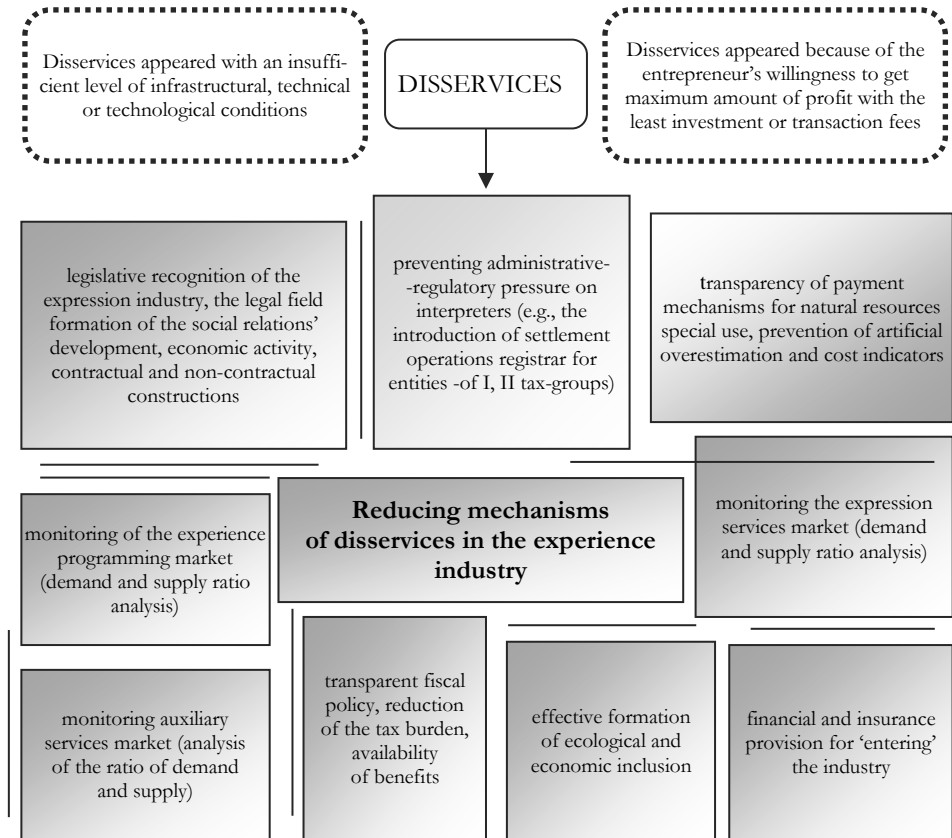


Figure 1. Disservices of the experience industry

Source: Own study.

The ‘investment puzzle’ is not only a set of investment codes, but it is also the amount of funds needed to achieve the goals for each code separately. A potential investor has the opportunity to value the level of financial and investment opportunities, calculate transaction costs and profits (without concluding a cooperation agreement or intentions, or involving other specialists to do financial or other expertise), as well as to choose between several protected areas (Additional Measures for the Development of Nature Reserves in Ukraine, 2009) of Ukraine within one region or in several regions of the country (Figure 2).

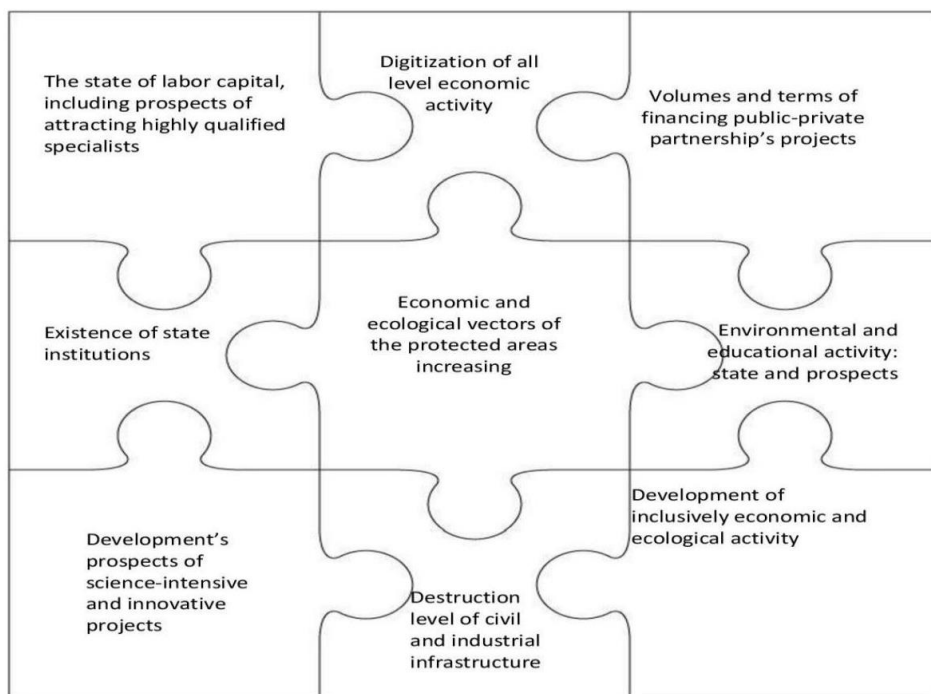


Figure 2. Investment puzzle as an investment tool

Source: Own study.

The region's economy as a set of codes, which is a part of the growing program aimed at the comprehensive economic and ecological development can be imagined. It has the following algorithm:

$$\begin{aligned}
 I_{re} = & (I_{lc} + K_{pzf} + I_{ksusp} + I_{kin} + I_{kinf} + I_{Kinkl}) + \\
 & + (I_{ktg} + I_{kpzf} + I_{kinf} + I_{kin} + I_{kinf} + I_{Kinkl}) + \dots \\
 & (I_{ktg} + I_{kpzf} + I_{ksusp} + I_{kin} + I_{kinf} + I_{Kinkl})
 \end{aligned} \quad (1)$$

where:

- I regional (re) – the investment code of the region or its part;
- I local community (lc) – the investment code of the local community consists of information about the needs and potential; this code has a symbolic or figure capacity for quick reading by potential investors;
- I protected area (pa) – the protected area’s investment code, i.e. data about the existing financial and organizational needs and development prospects;
- I social level (sl) – the public investment code, i.e. priority programs of social development, which are relevant for the existing period of time and meet the needs of today;
- I institutional level (INL) – refers to the investment system’s institutional framework, including legislative changes that align with the transformative processes of the economy and society, as well as integration with the values of the EU community;
- I informational level (il) – the informational investment code consisting of the data reflecting internal transformations at all levels of society’s development;
- I inclusion level (incl) – the investment code of the inclusion level, i.e. indicators of the growth of socio-economic-ecological inclusion projects or different levels, taking into account the existing geopolitical and economic-financial transformations.

The relevant codes should not be exhaustive as each region may have its own number of investment codes, which will reflect its essence and future development’s potential, which together will form the investment code of the entire state (see Figure 3).

For example, potential investors will be able to evaluate several protected areas in Odesa, Mykolaiv and Zaporizhzhia regions, taking into account the conditions of regional development before the hostilities and the level of destruction (Figure 4). Each region will have its own investment puzzle consisting of investment codes of the protected areas and other indicators.

The investment code of the region represents a comprehensive calculation of all spheres of region’s national economy, as well as the prospects of the most socio-economic and ecological potential. It has been conditionally suggested to form an investment puzzle as 100% or 1 (see Figure 5).

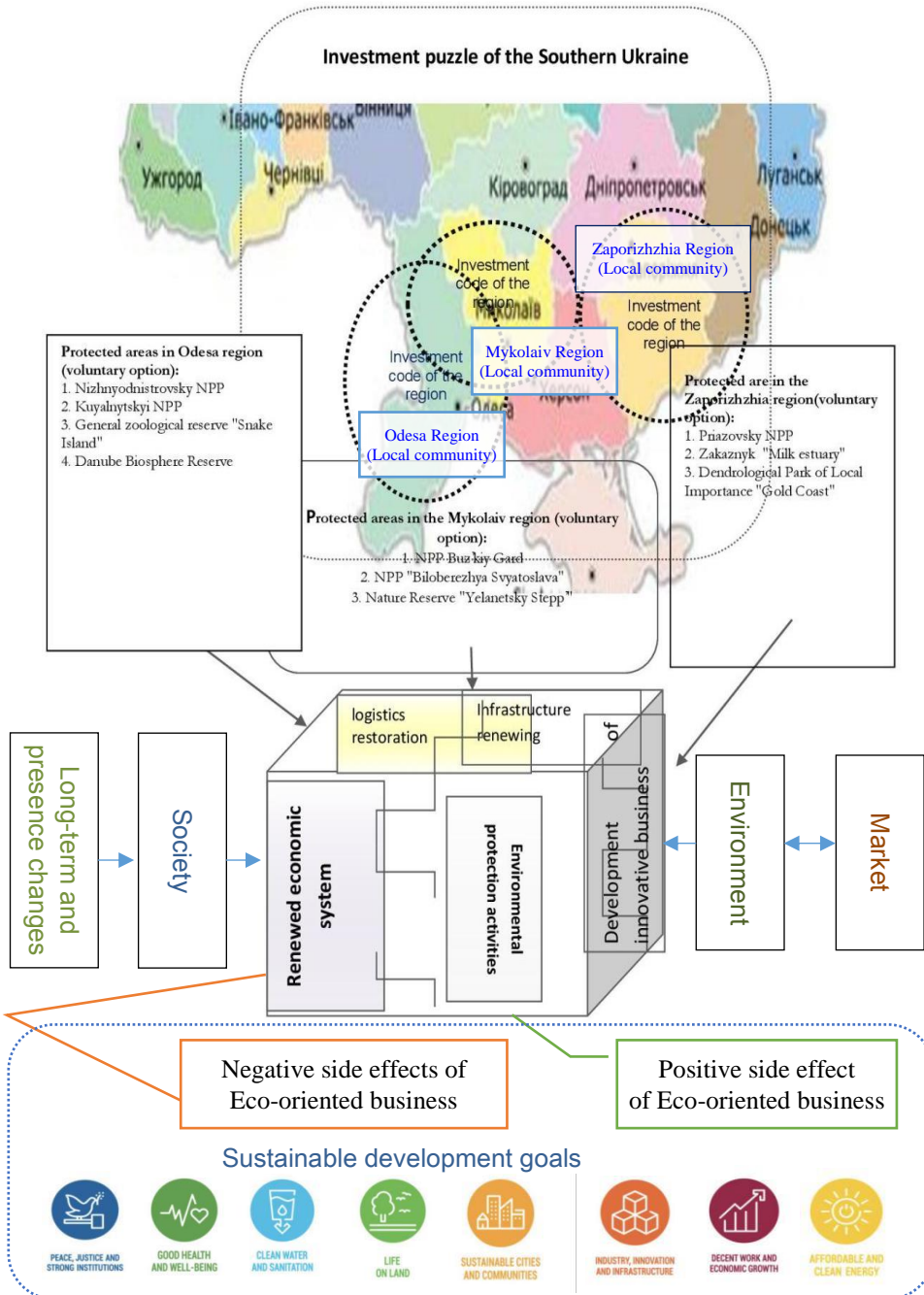


Figure 3. Investment puzzle of the region as the amount of investment codes
 Source: Own study.



Figure 4. Tuzly Lagoons National Nature Park, Odesa Region, Ukraine 2022, May-June vs 2021

Source: (www 1).

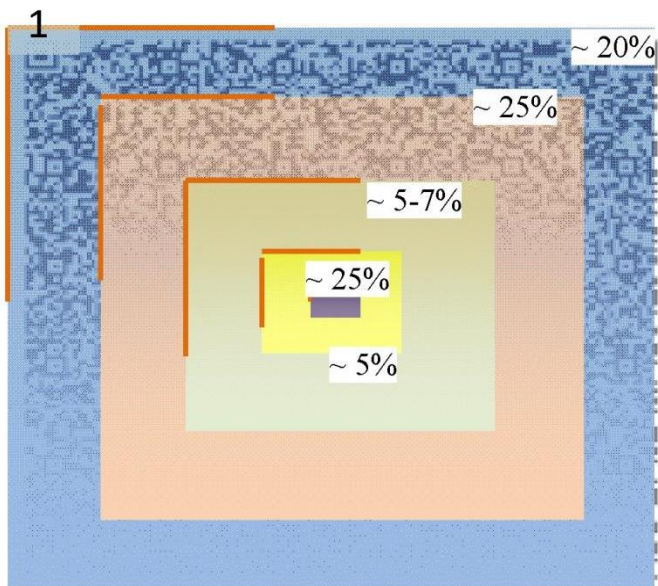


Figure 5. The coding of an investment puzzle

Source: Own study.

The protected areas can be valuable assets for the post-war development of local communities as they often contain natural resources, biodiversity, and cultural heritage that can attract investment and tourism. By developing these areas in a sustainable and responsible manner, it is possible to create economic growth opportunities while preserving the ecological and cultural values of the region. It is also important to consider the geopolitical context of the region, especially in the post-war period as this can have a significant impact on the development of the protected areas. By promoting stability and cooperation among neighboring communities and countries, it is possible to create a favorable environment for investment and sustainable development, for instance:

- environmental protection ~ 20%;
- support of the business, e.g. environmentally-oriented one and start-ups ~ 25%;
- promotion of the region and local goods, services ~ 5-7%;
- support of innovative and science-intensive activities ~ 5%;
- a new market and logistics architecture restoration and formation of (including participation in the restoration of infrastructure facilities) ~ 25%.

However, a potential investor is interested in the distribution of funds in appropriate directions that ensure comprehensive growth of the protected area, local community or region. The investment puzzle is not a robo-advisor, it is a data code that will be used by a potential investor. On the other hand, a potential investor ensures the comprehensive regeneration of the protected area, the local community or region (Figure 6).

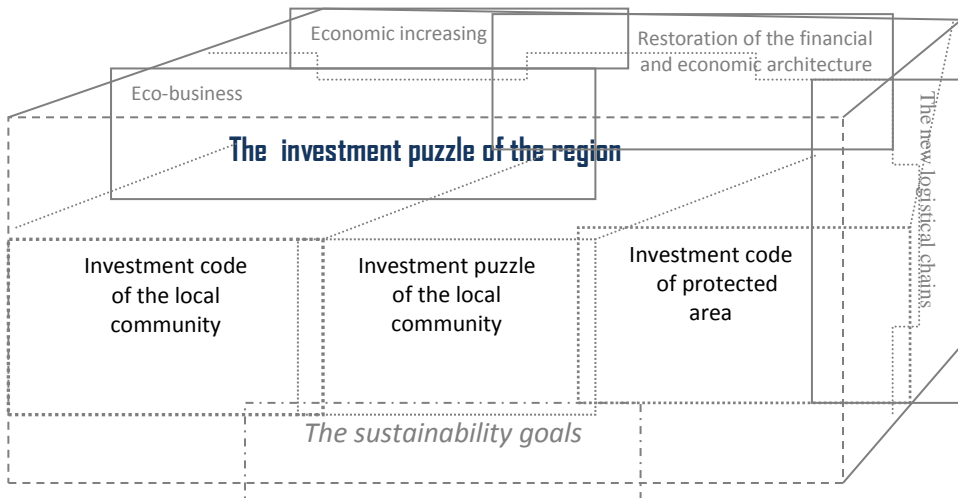


Figure 6. The investment puzzle: what is it?

Source: Own study.

4. Findings

From the traditional point of view a code can be considered as a system of signs for storing information (Wikipedia, 2022). According to this meaning, an investment code for each Nature Reserve Fund on the territory of Ukraine can be formed. The investment code of the protected area will represent information containing the main economic and ecological indicators of the protected area, as well as its connections with the territorial community (see Table 1).

The investment code will be a digital tool for attracting potential investors to cooperate, taking into account the background issues which provide prompt access to the data, economic-ecological, statistical and other information.

Table 1. Main elements of an investment code of the protected area

Digitization of all records and information pertaining to the protected area is permitted, provided that such records do not contain state or official secrets as defined in the 'State Secrets law of 1994' (State Secrets, 1994)
Information about the legal status, economic and geographical position of the protected area (type, location, main business and other activities, road map)
Information about the number of staff units of the administration of the protected area, a list of departments, information about vacant positions, requirements for candidates, conditions of the competition, etc.
Information on the number of discovered and stopped violations of environmental legislation, the register of violators, e.g. natural persons, legal entities (brought to administrative, civil or criminal liability by court decision)
Data about the regional infrastructural development (development of ecological and economic inclusion, location of social and infrastructural facilities/centers, level of population migration in the region)
Information on the ecological and economic development of the protected areas, including a number and type of entrepreneurial activities taking place within or adjacent to such areas can be provided. This information should comply with the 'Approval of National Classifiers, Changes to the State Classifier and Cancellation of State Classifiers' (2005). Additionally, information on business activities indirectly related to the protected areas, such as products made from environmentally-friendly materials or concession/franchise agreements, can be disclosed, in accordance with the 'Civil Code of Ukraine' (Civil Code of Ukraine, 2003). Such information may also include details about proprietary brand names, logos or trademarks that can be used for business purposes
Information about the taxation system of an economic activity carried out in the relevant territory (additional state preferences, tax reduction, tax holidays, etc.) (Tax Code of Ukraine, 2010)
Information about the mechanisms for obtaining state or public and private support for an economic activity (e.g. cooperation with banks and credit institutions to obtain preferential 'secured lending')
Information about classification of business entities operating in the protected or adjacent territories (number of main, donor or inclusion – entities)
Information about the number of public and private partnership programs and their types
Information about the number of ecological and economic inclusion programs, vectors of economic activity in the social and environmental field
The e-offices, which can be used as document management software. The use of e-offices can help streamline workflows and improve productivity in many types of organizations, from small businesses to large corporations

Table 1 cont.

Information about services and goods provided in the protected areas or adjacent territories with the possibility of direct ordering or booking
Information about planned entertainment, educational and informational, cultural, ethnic events that will take place on these territories (festivals, fairs, conferences) during the calendar year
An e-platform for exchanging information between citizens (offers, messages, questions, etc.)
Data about ecologically oriented investment, volunteers, charity projects and terms of joining
Information about the cooperation with non-governmental or private entities (e.g. medical, sports and recreation) and the conditions of inclusion
Information about a business plan of a region, including the protected area (main provisions, planned reforms, conditions and implementation mechanisms)
Invent information (hotels, recreation centers, public catering events, children's playgrounds, entertainment centers, equipping places for sports fishing, for practicing extreme sports, etc.)
Information about the social inclusion in the protected areas or adjacent territories (e.g. the presence of ramps, specially equipped places for the disabled, or people with special needs to rest)

Source: Own study.

The essence of an 'investment code of the protected areas' concept can be considered as:

- a digital tool for attracting potential investors to cooperate, that has an external expression as a quick access code (Figure 7);
- the information that ensures the formation of transparent and operational data about the needs, potential and development vectors of the protected areas; impartiality and relevance of information are the features of investment coding since investment codes will not be formed with consideration of the already existing investors, but as a database that may interest one or another entity in financial or investment cooperation;
- a complex coding system, i.e. an investment code will immediately contain information about the environmental restrictions of the territory, the prospects of economic and ecological development, the presence of ongoing projects of an innovative nature and public-private partnership agreements; the potential investors will see not only the prospects for the economic and ecological development, but also the existing vectors of a science-intensive or innovative direction, and the increasing prospects of cooperation with the local communities;
- according to the graphic content, potential investors have the opportunity to review the whole territory, including the existing level of economic and ecological development and environmental protection; graphic materials can be presented as a cybernetic model (Nikolaychuk, 2019) in a digital format, with corresponding video and photo materials of the protected area.

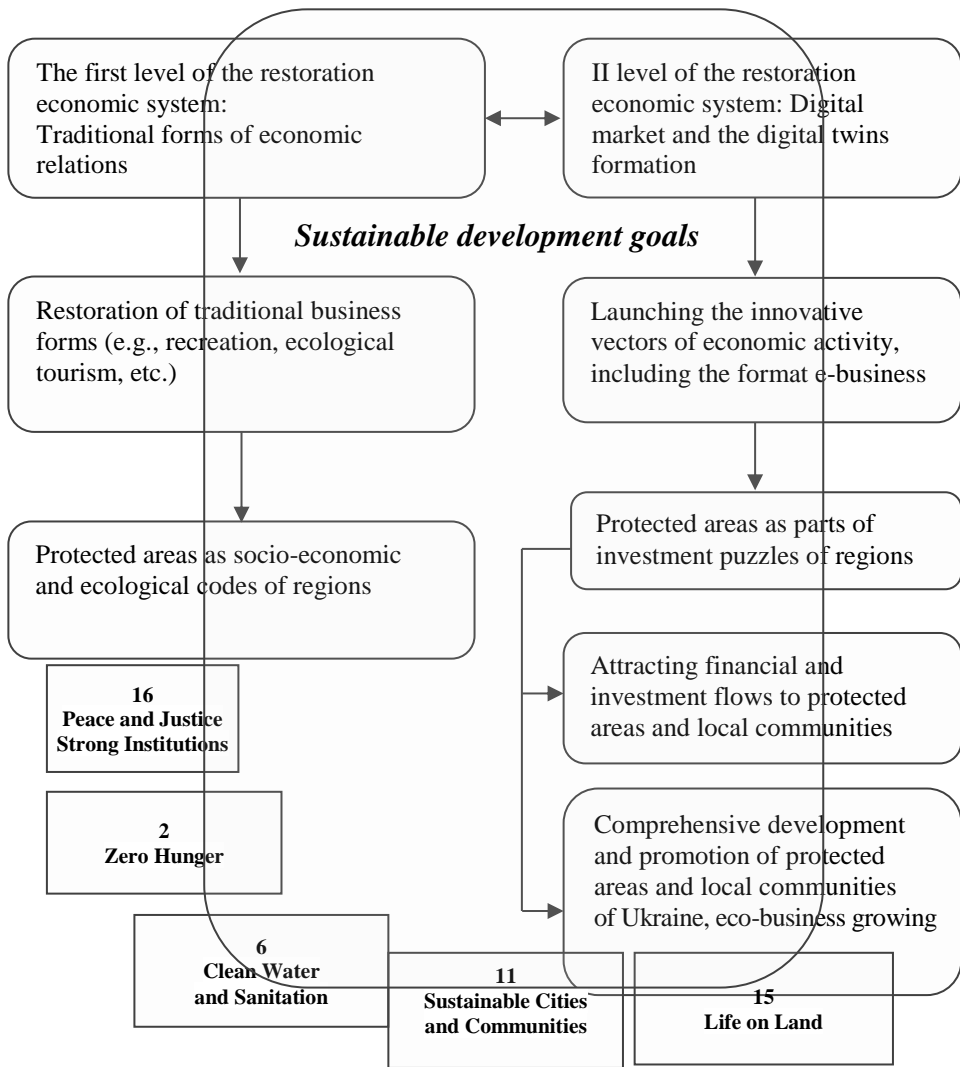


Figure 7. Basic prerequisites for investment coding

Source: Own study.

Graphic materials must be up-to-date and reliable (updated at least every 6 months), and complete, i.e. provide information on the actual condition of the territory and potential to investors from other regions and countries.

But why codes? In terms of the e-tools development and the launching of a digital twins' system, the protected areas of Ukraine can also be regarded as:

- valuable territories and objects that may have the economic and ecological potential for the development of regions and territorial communities in the post-war period;
- a virtual asset of the region which has a certain economic and financial equivalent and affects the overall potential of the local community (region) during the development of an ecologically oriented economic activity, the restoration logistics chains, help and encouragement of potential investors (Figure 8).



Figure 8. Protected areas: what capacity do they have? Mykolaiv Region, Ukraine 2021

Source: Photo by T. Nikolaychuk.

The investment codes can be considered from the socio-economic, legislative and ecological point of view. In accordance with the Law of Ukraine, the 'Geographical Names' (Geographical Names, 2005): the geographical objects are integral and relatively stable Earth formations of natural or anthropogenic origin that existed in the past and they are characterized by certain locations: orographic – continents, mountains, ridges, rocks, gorges, glaciers, plains, lowlands, ravines, gullies, islands, spits, volcanoes, caves, etc.; hydrographic – oceans, seas, bays, straits, estuaries, lakes, swamps, reservoirs, rivers, canals, etc.

When considering the ‘protected area’ category from an ecological point of view, it is advisable to describe the main geographical characteristics of this group.

The main elements of the protected area category from the geographical point of view are:

- determination of morphological features of the area and diagnosis of the boundaries of the protected body;
- determination of morphometric characteristics of this territory;
- analysis of the historical names of the ‘protected area’ in order to create a unified system of geographical terms;
- inclusion of the definition of the ‘protected area’ as a part of the conceptual and categorical apparatus of the industry.

When analyzing the ‘protected area category’ from the legislative point of view, it is necessary to distinguish between a legal term and a definition.

From the socio-economic point of view, the ‘protected area’ represents an economic category and a socio-economic phenomenon. An example of a socio-economic approach applies to the protected areas as a part of environmental management in order to meet the needs of the population and branches of the national economy for resources, conservation and reproduction (Figure 9).

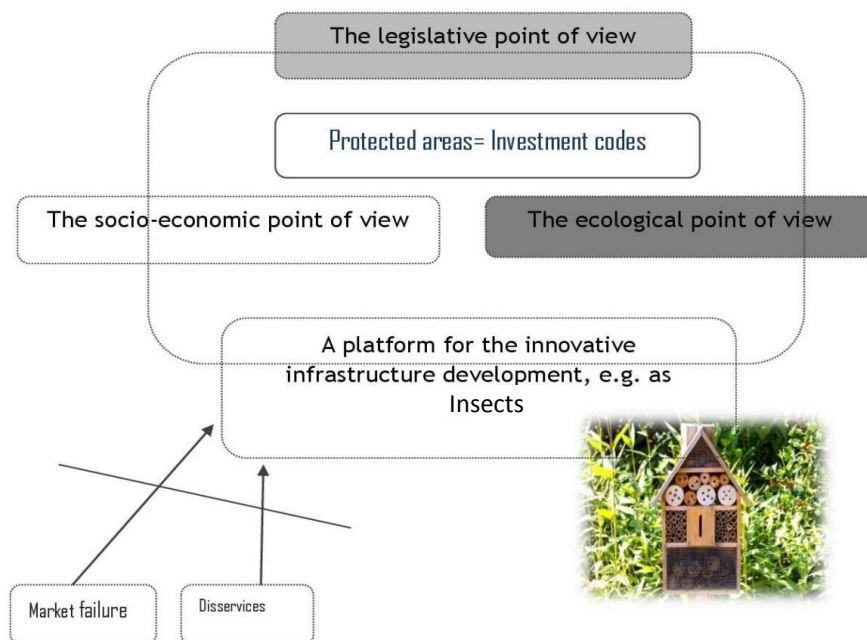


Figure 9. Lens of the protected areas

Source: Own study.

5. Discussion and conclusions

The military invasion of Russia in Ukraine has led to numerous transformations in the social, economic, political, ecological and regulatory fields. Attracting investment to the reserve affairs industry is currently an urgent issue as the facilities within the Nature Reserve Fund of Ukraine possess the significant economic and environmental potential for developing innovative forms of an economic activity.

Reserve areas cannot be considered only as preservation and conservation means of environmental resources as due to the use of ecologically oriented methods of management in the territories of the facilities of the Reserve Fund, an economic activity can be provided that will contribute to the economical and ecological development of the region, the formation of investment flows of the permanent nature, supporting the balance between bodies of state authority, local communities and representatives of private sector of economics.

The protected areas can be valuable assets for the post-war development of local communities as they often contain natural resources, biodiversity, and cultural heritage that can attract investment and tourism. By developing these areas in a sustainable and responsible manner, it is possible to create economic growth opportunities while preserving the ecological and cultural values of the region.

In the case of two or more protected areas located within one region, there is a possibility to create an investment puzzle as a comprehensive development system. That is why the financial and investment flows will be distributed according to the needs of every protected area as their unique character will be taken into account.

The investment puzzle is not only a collection of investment codes, but it is also the investment volume needed to achieve the sustainable development goals for each code (protected area).

Acknowledgements: Many people helped me to continue successfully this project. I would like to thank all those who have been involved in this project. I would like to express my sincere acknowledgement and gratitude to the University of Konstanz, especially the Zukunftskolleg, for their willingness to support me, for awarding me the Visiting Fellowship which provides me with the financial means to continue my research project.

Tetyana Nikolaychuk – PhD (Economics), Master of Law. Junior research Fellow at the Institute of Economic and Environmental Research of the National Academy of Sciences of Ukraine, Department of Economic Regulation and Management (Ukraine), Fellow at University Konstanz, Zukunftskolleg (Germany).

References

- Additional Measures for the Development of Nature Reserves in Ukraine. (2009). Decree of the President of Ukraine (August 14, 2009), 611/2009. Retrieved September 1, 2022 from <https://data.rada.gov.ua/laws/show/en/611/2009>
- Approval of National Classifiers, Changes to the State Classifier and Cancellation of State Classifiers. (2005). The Order of the State Committee of Ukraine on Technical Regulation and Consumer Policy No. 375. Retrieved September 1, 2022 from http://search.ligazakon.ua/l_doc2.nsf/link1/FIN18658.html
- Barnes, M.D., Craigie, I.D., Harrison, L.B., Geldmann, J., Collen, B., Whitmee, S., ... & Woodley, S. (2016). Wildlife population trends in protected areas predicted by national socio-economic metrics and body size. *Nature Communications*, 7(1), 1-9.
- Civil Code of Ukraine. (2003). *The Bulletin of the Verkhovna Rada of Ukraine*, 40-44(356). <http://zakon.rada.gov.ua>
- Coetzee, B.W. (2017). Evaluating the ecological performance of protected areas. *Biodiversity and Conservation*, 26(1), 231-236.
- Commercial Code of Ukraine. (2003, January). Retrieved from <https://zakon.rada.gov.ua/laws/show/436-15#Text>
- De Sardan, O., & Pierre, J. (1999). A moral economy of corruption in Africa? *Journal of Modern African Studies*, 37(1), 25-52. Retrieved September 20, 2022 from <https://www.jstor.org/stable/161467>
- Dow S. (2016). Codes of ethics for economists, pluralism, and the nature of economic knowledge. In: G.F. DeMartino & D. McCloskey (eds.), *Oxford Handbook on Professional Economic Ethics* (pp. 750-764). Oxford Handbooks. Oxford: Oxford University Press, Retrieved July 20, 2022 from <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780199766635.001.0001/oxfordhb-9780199766635-e-041?rskey=uN0sUN&result=2>
- Enker, R.A., & Morrison, G.M. (2020). The potential contribution of building codes to climate change response policies for the built environment. *Energy Efficiency*, 13, 789-807. <https://doi.org/10.1007/s12053-020-09871-7>
- Environmental Protection. (1991). The Law of Ukraine, 1264-XII. *The Bulletin of the Verkhovna Rada of Ukraine*, 41(546). Retrieved September 20, 2022 from <https://zakon.rada.gov.ua/laws/show/1264-12?>
- Ertner, D. & Ulyanova, O. (2019). Metaphorical codes in structuring national economic discourse. *Journal of Multicultural Discourses*, 14(3), 258-271. <https://doi.org/10.1080/17447143.2019.1672697>
- Geographical Names. (2005). Retrieved August 7, 2022 from *The Bulletin of the Verkhovna Rada*, 27(360). <https://zakon.rada.gov.ua/laws/show/2604-15#Text>

- Hajdas M., Radomska J., & Silva S. (2020). The cultural codes of retirement and their impact on brand associations. *Proceedings of the European Marketing Academy*, 49th, (63287), https://repositorio.ucp.pt/bitstream/10400.14/33079/1/A2020_63287.pdf
- Jürgensen, H., & Konstantinidis, S. (2013). *Codes*. In: G. Rozenberg & A. Salomaa (eds.), *Handbook of formal languages*. Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-59136-5_8
- Malloy, D.Cr., & Fennell, D.-A. (1998). Codes of ethics and tourism: An exploratory content analysis. *Tourism Management*, 19(5), 453-461. [https://doi.org/10.1016/S0261-5177\(98\)00042-9](https://doi.org/10.1016/S0261-5177(98)00042-9)
- Maymounkov, P. (2002). Online codes. Technical report, New York University. Retrieved May 12, 2022 from https://www.researchgate.net/profile/Petar-Maymounkov/publication/228909031_Online_codes/links/55c23c1a08aea2d9bdbfe430/Online-codes.pdf
- McKean, P.F. (1989). Towards a theoretical analysis of tourism: Economic dualism and cultural involution in Bali. *Cultural Anthropology*, 2, 119-138. Retrieved September 9, 2022 from <https://www.cabdirect.org/cabdirect/abstract/19891868911>
- Nikolaychuk, T. (2019). Development of the method of cybernetic planning as a tool for the modern development of protected affairs. *Science Rise*, 6(59), 13-18. <https://doi.org/10.15587/2313-8416.2019.172245>
- Nikolaychuk, T. (2021). Insurance of economic and environmental risks as an innovation and investment tool to support eco-entrepreneurs in the field of nature reserves of Ukraine. *Economic Innovations*, 23, 3(80), 245-268. [https://doi.org/10.31520/ei.2021.23.3\(80\).254](https://doi.org/10.31520/ei.2021.23.3(80).254)
- Nikolaychuk, T. (2022a). The main prerequisites for sectoral financial and credit cooperation between territorial communities, objects of the nature reserve fund of Ukraine, and environmental-oriented entrepreneurs: Theoretical aspects. *Scientific Bulletin of Mukachevo State University. Series Economics*, 9(3), 9-19.
- Nikolaychuk, T. (2022b). The post-war rebuilding system by chess-business modeling: first steps and no answers. *International Journal of Economics and Business Administration*, 20(2), 78-100. <https://doi.org/10.35808/ijeba/767>
- Nikolaychuk, T., Khumarova, N. (2019). Methodological principles of development of entrepreneurial activity of social and environmental direction on the basis of inclusive approach. *Economic Innovations*, 4(73), 125-137. [https://doi.org/10.31520/ei.2019.21.4\(73\).125-138](https://doi.org/10.31520/ei.2019.21.4(73).125-138)
- North, D.C. (2005). The contribution of the new institutional economics to an understanding of the transition problem. In: *Wider Perspectives on Global Development. Studies in Development Economics and Policy*. London: Palgrave Macmillan. https://doi.org/10.1057/9780230501850_1
- Schroeder, J.E. (2009). The cultural codes of branding. *Marketing Theory*, 9(1), 123-126. <https://doi.org/10.1177/1470593108100067>

-
- Shyr, H.J., Yu, S.S. (1990). Solid codes and disjunctive domains. *Semigroup Forum*, 41, 23-37. <https://doi.org/10.1007/BF02573375>
- State Secrets. (1994). The Law of Ukraine. *The Bulletin of the Verkhovna Rada of Ukraine*, 16(93). Retrieved August 7, 2022 from <https://zakon.rada.gov.ua/laws/show/3855-12#Text>
- Talen, E. (2021). The socio-economic context of form-based codes. *Landscape and Urban Planning*, 14(214). <https://doi.org/10.1016/j.landurbplan.2021.104182>
- Tax Code of Ukraine. (2010). The Bulletin of the Verkhovna Rada of Ukraine, 13-14, 15-16, 17(112). Retrieved September 20, 2022 from <https://zakon.rada.gov.ua/laws/show/2755-17#Text>
- Tenengolts, G. (1984). Nonbinary codes, correcting single deletion or insertion (Corresp.). *IEEE Transactions on Information Theory*, 30(5), 766-769. <https://doi.org/10.1109/TIT.1984.1056962>
- The Nature Reserve Fund of Ukraine. (1992). The Law of Ukraine, 2456-XII. *The Bulletin of the Verkhovna Rada of Ukraine*, 34(502). Retrieved August 7, 2022 from <https://zakon.rada.gov.ua/laws/show/2456-12>
- The Voluntary Association of Territorial Communities. (2015). The Law of Ukraine (February 5, 2015), 157-VIII. *The Bulletin of the Verkhovna Rada of Ukraine*, 13(91). Retrieved September 9, 2022 from <https://zakon.rada.gov.ua/laws/show/157-19#Text>
- Warszawski, A., Gluck, J., & Segal, D. (1996). Economic evaluation of design codes – Case of seismic design. *Journal of Structural Engineering*, 122(12), 1400-1408.
- Wikipedia. (2022). Code (disambiguation). Wikipedia – a free encyclopedia. Official web portal. Retrieved September 12, 2022 from <https://uk.wikipedia.org/wiki/Code> (www 1) <https://www.google.com.ua/search?q=новини+миколаєва&sxsrf=ALiCzsaAKuydJUIANohaWxn3kgMyw8mcRA%3A1658066948598&source=hp&ei=BbjUYs4IayBxc8PseKOMA&iflsuMpgBAKABAbABCg&sclient=gws-wiz> (accessed: 19.09.2022).