

MTMSD 2022

I International Conference «Modern Trends in Governance and Sustainable Development of Socio-economic Systems: from Regional Development to Global Economic Growth»

THE CONCEPT OF ECONOMIC ECOSYSTEMS AS SUSTAINABLE SOCIAL-ECONOMIC SYSTEM DEVELOPMENT DRIVERS

Elena S. Ratushnyak (a)*

*Corresponding author

(a) Department of Management, Marketing and Foreign Economic Activity Named After I.N. Gerchikova,
MGIMO University, Moscow, Russia, helenarat88@gmail.com

Abstract

Ensure sustainability and inclusive is current challenge of modern economic development. But different humanity attempts to be in balance with nature have failed. Besides, it has not been found any universal way to meet the environmental safe in industrial development. The paper addresses the concept of economic ecosystem and defines its role in developing economy on the way to its sustainability and inclusive, assessing the main components and the mechanism. The System Change Compass was used as a model proposed by SYSTEMIQ, the Club of Rome, and the Open Society European Policy Institute. Describing economic ecosystem was based on content analysis, including the use of some strategic concepts – an aim, directions, a mechanism of realization (operation), and levels of management. Structuring of the economy on the base of the economic ecosystem helps to highlight a clearer understanding of the connection between them. It helps to form the link between ecosystems to make governance decisions more effective on the way to the sustainability through the usage of industrial priorities. The mechanism of realization of the economic ecosystem, slashing environmental effects, realizes on the base of integrating industrial priorities into businesses, resulting in the development of Champion orientations – economic sub-ecosystems. Filling up a theoretical model of the economy on the ecosystem approach with additional ecosystems to complete according to the result of investigating the current economic situation in each individual country makes it a practical instrument.

2421-826X © 2024 Published by European Publisher.

Keywords: Economic ecosystem, economic model, environmental impacts, inclusive economy, transformation

1. Introduction

At the current stage, the world needs to recover from COVID-19 and to continue to act with acceptance the strong necessity to reach the Sustainable Development Targets. Nevertheless, now the humanity attempts to be in balance with nature is failed (Persson et al., 2022; Rockström et al., 2009).

To be effective the path to the sustainable development should cover all levels of economy management: supranational, national and individually business (Inclusive Prosperous Communities, 2020). At the moment many countries are looking for appropriate ways of sustainable policy implementation. The ways should cry out priorities on a systematic and holistic base in order to achieve sustainability on all levels. And such ways must combine societal needs and environmental aspects in short- and long time period. It is important from the view of meeting efforts could meet all societal needs as of this period and save our planet for future – achieve sustainability. But the mechanism of such collaboration has not been founded at the moment. At the same time only businesses are the main players of realizing the sustainability aims in its performance voluntarily.

Inclusion is another task of sustainable development. Traditionally inclusion is defined from two positions. The first one is that inclusion is environment for everyone to thrive. In addition, the other is that inclusion is access to the same quality of opportunities, funding, resources, and talent for all (Bowser & Ramsey, 2022; Government of the District of Columbia, Innovation Technology Inclusion Council. DMPED, Office of the Deputy Mayor for Planning and Economic Development, 2016). But there is no any universal way to achieve inclusion in the context of environment for everyone to thrive.

Both sustainable development and inclusion are not directly connected with ecosystem approach in literature, one of the main modern economic facts. The ecosystem approach is widespread in the context of business management under a digital transformation (Guirui et al., 2021; Karpinskaya, 2018; Ramenskaya, 2020; Tarasewicz & Jönsson, 2021).

Meanwhile, one of the most important features of modern economic development is widely spread using such form of organizing performance as an ecosystem. A term of ecosystem is used in different ways, for example, in assessing business models, in the context of analyzing of a government policy realization in different fields (educational, finance, cultural etc.). So that it seems necessary to clarify the content of ecosystem in the development of the economy that could give the opportunity to say about economic ecosystem. Besides, it is important to outline the relationship of ecosystem approach realization in the context of sustainable development. It is key-note to understand how an ecosystem approach can promote the balance between societal needs and environmental aspects. Besides it is necessary to clarify how ecosystem could promote inclusion in economic development, and the meaning of inclusion in this respect.

In this regard the aim of the paper is to formalize the concept of economic ecosystem and to point out its key aspects that could lead to achievement of sustainable development aims, promoting sustainable, inclusive economic development on a holistic base.

In this paper, there are the following research questions:

- i. What are the structural components of the economy based on the ecosystem approach?
- ii. What is the content of the economic ecosystem that leads to sustainability?

iii. What mechanisms of the ecosystem promote economic inclusive and sustainability?

So that, the answering the questions mentioned above will give the understanding the content and a role of the economic ecosystem as a new act of the modern economic development on the way to its sustainability.

2. Research Methods

In the paper, the System Change Compass, suggested by SYSTEMIQ, the Club of Rome, and the Open Society European Policy Institute (The Club of Rome, 2020) was used as the model of assessing the economy, developing on the ecosystem approach. It is a guide implementation of actions towards building sustainable economic development on system base included such a new unit as the economic ecosystem. Usage of the economic ecosystem supposed leading to the strategic sustainable development, founded on societal needs.

The economic ecosystem content analysis was based on using strategic concepts, such as the aim, directions, the mechanism of realization (operation), and levels of management. The assessing of the mechanism of the economic ecosystem realization used to highlight some possible ways to achieve sustainable development on its base. The assessment was realized by means of correlation of implementation methods with the appropriate levels of management in a system.

3. Results

The structural element of the economy based on the ecosystem approach is economic ecosystem. The main feature of each economic ecosystem could be characterized with two aspects. One of them is that economic ecosystem is designed to deliver specific resource-intensive society needs. The other is that economic ecosystem is designed to support that delivery (figure 1). So that its specific is that economic ecosystem is the resource of the sustainable inclusive economy and in equal measure the mechanism (the how) of realizing the sustainability and inclusive economy. So here it is that economic ecosystem as the structural element of the economy linked with the result of economic performance and the process of getting this result at the same time. The result appears in meeting needs all stake holders on an equal way, on the one hand, and coevally delivering possibilities for all stake holders as a process, on the other.

The economic ecosystems in a complex are interdependent, and overlap and interact through different feedback loops, form a unit.

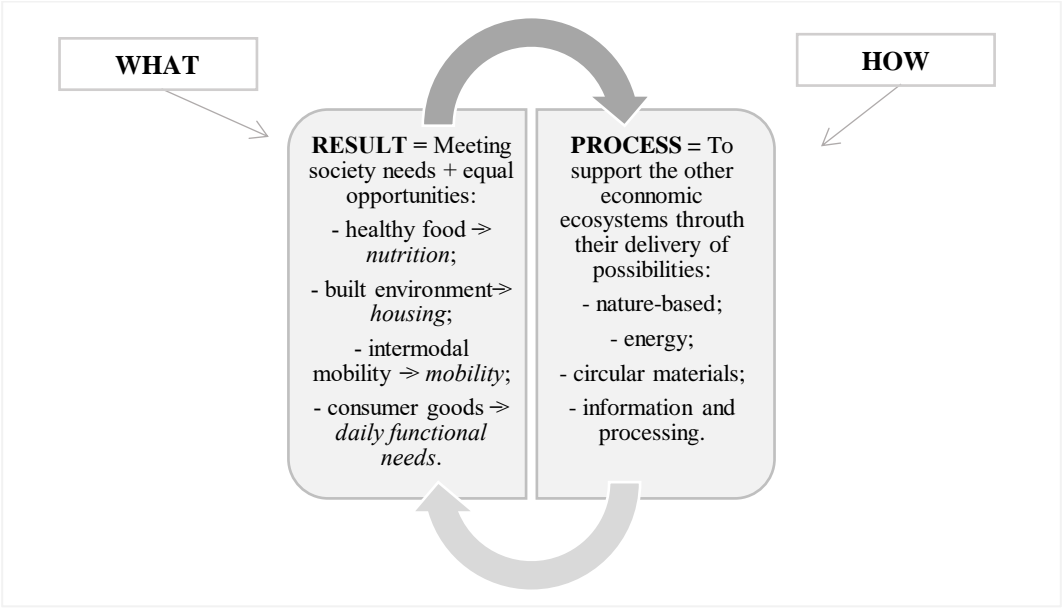


Figure 1. Two main aspects of inclusive economic development on the base of economic ecosystems

The specific of economic ecosystem mentioned above defines its realization – it requires adjustment of long-term system changes with short-term demands.

The economic development model based on the ecosystem approach opens up the opportunity to achieve the economic development on a new base. This new way is due to necessarily of sustainable inclusive development, redefining one of the conventional economic development pillars – progress essence. According to the idea of the sustainable development the progress means not growing economic activities and economic sectors, but focusing on societal needs that need to be fulfilled without any negative environmental impact. It means the main purpose of the sustainable, inclusive economic development – to achieve societal needs without any environmental effects. This point can be tabulated for clarity (table 1).

Table 1. Main pillars of sustainable, inclusive economy, based on ecosystem approach, and conventional view of economy

Main Pillars	Sustainable, inclusive economy, based on ecosystem approach	Conventional view of economy
Aim	Meeting society needs on equal way	Production growth
Factors	Integrated efforts of all stakeholders molding a key resource – knowledge. Ecosystem as an appropriate form of collaboration	Land, labor, capital and entrepreneurship
Principle	Qualitative economic development based on information and innovations – without negative environmental effects and inclusive framework	Quantitative economy expansion

Another economic ecosystem important tool is orientations, which are guidelines for policy makers. Figure 2 demonstrates main of them.

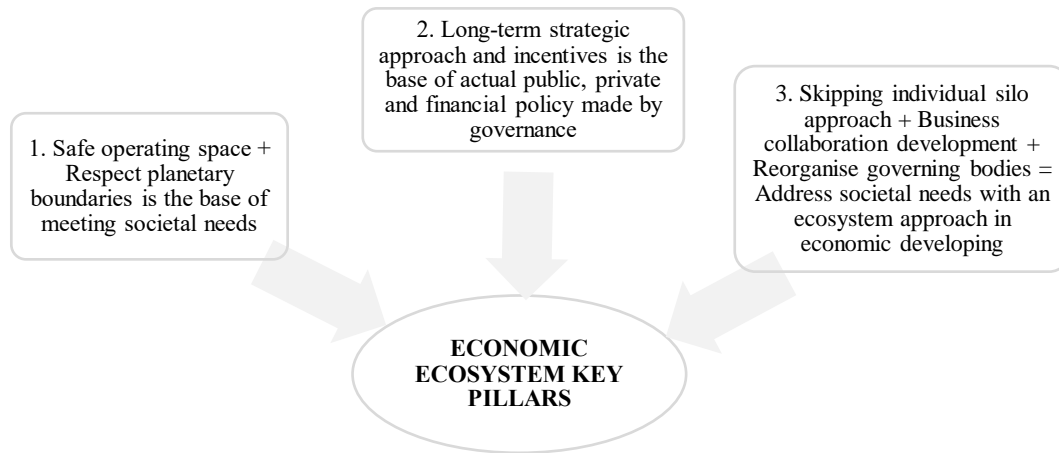


Figure 2. Economic ecosystem key pillars

The orientations as the key pillars are a set of the directions that need to be taken to achieve the aim of sustainable, inclusive economy, based on the ecosystem approach. It could be said that these orientations in a sense reflect the content of the economic ecosystem. This content will be different among countries because of its dependence on strategic views of each of them. At the same time, obviously, it could be pointed out that there are universal (unchangeable) components of the development of these key pillars. They are safe operating space, respect planetary boundaries, strategic approach in governance, and collaboration with business. It is expedient to designate these components as necessary effective tools (ways) for implementation the ecosystem approach in economic development.

There is a connection between societal needs and planetary boundaries. This relationship needs to be disclosed from a strategic management perspective, distinguishing short-term and long-term objectives. In this context, meeting all societal needs is short-term objective, while the avoiding overstep planetary boundaries is the long-term one. And the strategic aim as a whole is to ensure the achievement of both of them. And to prevent any shift in either of them.

So that all the societal needs are divided into primal (basic) ones and also supportive needs as target needs in sustainable, inclusive economy as a whole. The logic of dividing into primal and supportive ones is the meeting needs effects on the environment. Such four societal needs as healthy food, built environment, intermodal mobility, and consumer goods are the basic ones and have the highest rate of effects on the environment. Another, among them nature-based, circular materials, energy, and information and processing, support meeting of specific resource-intensive society needs (figure 3).

Organization of meeting these needs on the ecosystem approach is aimed to achieve sustainable, inclusive economic development. It is possible because structuring of the economy on the economic ecosystem gives policy makers the possibility to highlight a clearer view of the connection between them, leading to understanding how to create connection and avoid individual silo approach, and to formulate industrial priorities – «Champion orientations» in such ecosystem model.

The four economic ecosystems, delivering specific resource-intensive society needs

1. HEALTHY FOOD

- organic food and beverages
- regenerative agriculture
- sustainable aquaculture and fishing
- reduce and valorize food waste
- urban agriculture

- product reformulation for nutritious food
- alternative proteins

2. BUILT ENVIRONMENT

- smart urban planning
- rethink built environment ownership
- repurpose underused buildings
- retrofit existing buildings
- fluid and sufficiency-oriented space management
- circular and the net zero housing

3. INTERMODAL MOBILITY

- fast charging infrastructure
- high-speed railway infrastructure
- modal and adapted transit infrastructure
- car- and ride-sharing models
- end-of-life management for vehicles

- electric and autonomous vehicles
- infrastructure to improve traffic flow and AV adoption
- green aviation
- green shipping
- walking/cycling infrastructure

4. CONSUMER GOODS

- product-as-a-service models
- maintenance and value retention in products
- peer-to-peer product sharing platforms

The four economic ecosystems, supporting the delivering specific resource-intensive society needs

1. NATURE-BASED

- restoration of degraded land and coasts
- urban greening
- systems for paid ecosystem service
- seaweed
- marine and land-based environmental protection areas
- ecotourism
- smart forest management

2. CIRCULAR MATERIALS

- localized and distributed value chain systems
- asset recovery systems and reverse logistics
- markets for secondary materials
- high-value material recycling
- materials-as-a-service models
- new materials and high performing substitutes
- additive manufacturing

3. ENERGY

- renewable power generation
- energy storage
- hydrogen economy
- smart metering and (point-of use) energy management
- grid integration and technologies
- production of low-carbon gaseous and liquid fuels

- carbon capture infrastructure

4. INFORMATION AND PROCESSING

- distributed manufacturing
- high-speed digital infrastructure
- digital material information and tracking systems
- data generation, processing and protection
- artificial intelligence for societal challenges

Figure 3. The main economic ecosystems content, suggested by The Club of Rome, 2020

The economic ecosystem participants are businesses and entrepreneurs that act according to specific industrial priorities, formulated on the top-level – by governing bodies. They all are drivers of the sustainable, inclusive economic development boosting, because they integrate the industrial priority into operational business that could promote interconnected champions industries, or Champions through the ecosystem approach. In addition, the main idea is that they could develop differently, depending on the particular challenges and needs that will develop over time. But they will have one thing in common – organizing principle around the economic ecosystem and the ability to future-proof the economic development in line with environmental limitations.

Champion orientations are economic sub-ecosystems for which there is necessity to build the cutting-edge know-how, a sizable market and infrastructure, and an international competitive advantage to enable new business models and to scale solutions.

Hence, the economic ecosystem is used to structure the economy as a system and economic activities within it, based on the societal needs.

All the mentioned strategic tools in forming the new model of economic development give the general view of how to reconcile economic development with nature safe. Using the economic ecosystem is the base of the new economic model, giving an opportunity to meet all societal needs without crossing nature ceiling – lead to sustainable economic development.

4. Conclusion

The economic ecosystem is the new structure unit of the modern economy modelling. Collectively economic ecosystems are not isolate, but interdependent.

It was pointed out that economy as a system based on the ecosystem approach could be studied from the levels of management.

The top-level, the level of the system, was represented by the sustainable, inclusive economy based on the ecosystem approach, the main aim of the level was to meet society needs on equal way.

The middle level was represented by an assemblage of economic ecosystems, labeled on the basis of classifying of the societal needs in connection of the effects of meeting them on the environment.

And the lower level was represented by economic ecosystem participants, businesses and entrepreneurs that develop differently, but have one common aspect – organization with ecosystem approach and the future-proof economic development ability without ecological negative effects, based on environmental limitations.

The content of the economic ecosystem was disclosed through the orientations. The specific of the orientations was reflected by key pillars of forming governing decisions. The key pillars were different among government policies, but consisted of universal (unchangeable) components of the development of the directions.

From the point of view of appropriate effects of the sustainable, inclusive economic development it was pointed out the mechanism of economic ecosystem realization. It supposed dividing the societal needs into primal (basic) ones and supportive ones that led to reflect the connection between main industries to order priorities. For their part, ordering priorities led to achieve the sustainability through the integration many of them into business, making safe operational space and at the same time meeting the societal needs.

The economic modelling on the base of the economic ecosystem is the theoretical one. It could be base for reconsideration of the economic development on the way of its transformation under the current global challenges. Assessing this model from the management levels with appropriate applicable tools makes it universal for different economic systems in the world – not depending on the specific country. It is possible due to possibility to fill it up with additional ecosystems to complete according to the result of investigating current economic situation in each individual country.

It could be argued that such an interpretation economic development on the ecosystem approach expands the new economic model that looks like doughnut suggested by Kate Raworth (Ross, 2019). Author's model has two layers: inner and outer ones. The inner layer of the Doughnut circle represents general all social basic needs (like water, food and so on). The outer layer of the Doughnut circle represents ecological ceiling, that means planetary boundaries (like freshwater withdrawals, land conversion, etc.), represented by a group of scientists in 2009.

The further research could address such questions as how to realize pointed sub-ecosystems and could be it impact on business, giving more possibilities or risks in general and for some country.

References

- Bowser, M., & Ramsey, R. (2022). Expanding the district of Columbia's Tech and Innovation Ecosystem. <https://dmped.dc.gov/sites/default/files/dc/sites/dmped/publication/attachments/Pathways%20to%20Inclusion%20Report.pdf>
- Government of the District of Columbia, Innovation Technology Inclusion Council. DMPED, Office of the Deputy Mayor for Planning and Economic Development. (2016). *Pathways to Inclusion Report*.
- Guirui, Y., Shilong, P., Yangjian, Z., Lingli, L., Jian, P., & Shuli, N. (2021). Moving toward a new era of ecosystem science. *Geography and Sustainability*, 2(3), 151-162. <https://doi.org/10.1016/j.geosus.2021.06.004>
- Inclusive Prosperous Communities. (2020). Riyadh U20 Urban. *Inclusive Creative Economy and the Future of Work*. Retrieved on September 2, 2022 from <https://www.urban20.org/wp-content/uploads/2020/11/Inclusive-Creative-Economy-and-the-Future-of-Work.pdf>
- Karpinskaya, V. (2018). Ecosystem as a unit of economic analysis. *System Problems of the Domestic Meso-economics, Microeconomics, and Economics of Enterprises*. <https://doi.org/10.33276/978-5-8211-0769-5-125-141>
- Persson, L., Carney Almroth, B. M., Collins, C. D., Cornell, S., de Wit, C. A., Diamond, M. L., Fantke, P., Hassellöv, M., MacLeod, M., Ryberg, M. W., Sogaard Jørgensen, P., Villarrubia-Gómez, P., Wang, Z., & Hauschild, M. Z. (2022). Outside the Safe Operating Space of the Planetary Boundary for Novel Entities. *Environmental Science & Technology*, 56(3), 1510-1521. <https://doi.org/10.1021/acs.est.1c04158>
- Ramenskaya, L. (2020). The concept of ecosystem in economic and management studies. *Upravlenets*, 11(4), 16-28. <https://doi.org/10.29141/2218-5003-2020-11-4-2>
- Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, F. S. I., Lambin, E., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., ... Foley, J. (2009). Planetary Boundaries: Exploring the Safe Operating Space for Humanity. *Ecology and Society*, 14(2). <https://doi.org/10.5751/es-03180-140232>
- Ross, F. (2019). Kate Raworth - Doughnut Economics: Seven Ways to Think Like a 21st Century Economist (2017). *Regional and Business Studies*, 11(2). <https://doi.org/10.33568/rbs.2409>
- Tarasewicz, N. A., & Jönsson, A. M. (2021). An ecosystem model based composite indicator, representing sustainability aspects for comparison of forest management strategies. *Ecological Indicators*, 133, 108456. <https://doi.org/10.1016/j.ecolind.2021.108456>
- The Club of Rome. (2020). *System Change Compass – Implementing the European Green Deal in a time of recovery*. Retrieved on September 14, 2022 from <https://www.clubofrome.org/wp-content/uploads/2020/10/System-Change-Compass-Full-report-FINAL.pdf>