

## *Теория и практика устойчивого экономического развития*

УДК 338.2

DOI: 10.17277/voprosy.2017.01.pp.044-048

### **INTRODUCTION OF ECO-INNOVATION AS A PATH TO SUSTAINABLE ECONOMIC DEVELOPMENT AND IMPROVEMENT OF QUALITY OF LIFE**

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**Keywords:** ecology; eco-innovation; quality of life; sustainable development.

**Abstract:** The paper discusses a topical issue of environmental pollution caused by human impact in Russia. The connection between the economy of sustainable development and improvement of environmental situation and quality of life has been identified. The authors analyzed the data describing ecological conditions in some regions of the Russian Federation. It was proposed to introduce eco-innovation techniques as an effective way to improve the environmental situation.

Since the second half of the twentieth century the role of ecology has grown immensely; the primarily reason for this was background pollution by industrial emissions, waste products and agricultural chemistry [1]. Continuous industrial growth, uncontrolled use of natural resources and environmental pollution required the transition to a sustainable development model based on a combination of economic, environmental and social interests of society.

In the Russian Federation the idea of sustainable development found its reflection in the “Concept of long-term socio-economic development for the period up to 2020”, in the “Principles of State Policy in the field

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of environmental development of the Russian Federation for the period up to 2030” and in the state program “Energy and Development of Power Engineering”.

Sustainable development is inextricably linked to equality of opportunities, moral and legal issues of justice, as well as increased access to higher quality of life [2].

Quality of life is a complex characteristic, including a set of indicators that characterize the right of an individual to work in good conditions, have a decent standard of welfare, have education, receive high quality medical services, live in good housing conditions, breathe clean air and drink clean water, be able to access to cultural values, perform vital functions in safety and others [3].

Currently, special attention both in Russia and in the world is paid to the environmental components of this concept. To assess the quality of the ecological system, the following indicators: the level of air pollution; the level of pollution of water resources; the structure of pollutants; soil pollution [4].

The main environmental problems of the Russian Federation are caused by anthropogenic impact on the environment include pollution, degradation of forests, soil contamination, land disturbance by oil and gas development, land disturbance by mining, marine pollution, etc. [5].

In this regard, the strategic goal of “Environmental Policy of the Russian Federation” includes: conservation of natural ecosystems, maintenance of their integrity and life-supporting functions for the sustainable development of society, improvement of quality of life and health of the population, improvement of the demographic situation, and support of environmental security of the country [6]. In turn, the environmental safety means achieving sustainable development and creating a favorable environment and comfortable conditions for the life of the population [7].

In view of the inefficient use of natural resources and low energy efficiency, there has been developed a government program “Energy efficiency and energy development”, which states that the objective of energy policy is to maximize the efficient use of natural energy resources and increase the potential of the energy sector for economic growth and improve the quality of life of the population [8].

For the past three years “The rating agency RIA Rating” has been ranking the Russian regions on the quality of life, which is determined on the basis of the integral rating points calculated by aggregating the rating points of the regions of the Russian Federation and analyzed groups of indicators of the quality of life that characterize the basic aspects of living in the region, including income levels, environmental and climatic conditions, level of health care and education, economic development, etc.

Environmental and climatic conditions in the regions of the Russian Federation are assessed on the basis the following indicators:

- emissions of pollutants from stationary and mobile sources per unit area of human settlements;
- climatic conditions;
- supply of drinking water that meets safety requirements;
- expenses for environmental protection per unit area;
- expenses for environmental protection per capita [3].

Moscow is ranked the 1<sup>st</sup> among the regions of the Russian Federation, but it comes 55<sup>th</sup> in environmental situation, which is explained by air pollution caused by emissions from road transport. The Krasnodar region, which is considered an attractive and favorable place to live, is ranked the 5<sup>th</sup> in innovation. The Khanty-Mansi Autonomous District is ranked the 12<sup>th</sup>, which is explained by the fact that more than 50 % of Russian oil is pumped there. As for environmental situation it is ranked only the 69<sup>th</sup>, which is due to emissions from the burning of gas, refined products, pollution by exhaust gases. The Kursk region is ranked the 18<sup>th</sup> in the quality of life and the 1<sup>st</sup> in environmental situation. The Murmansk region is ranked the 51<sup>st</sup>. Although it has a high level of income, the environmental situation is not very good. This is explained by the fact the largest enterprises of the mining industry and ferrous metallurgy have led to a significant deterioration of the ecosystems of the northern part of the Kola Peninsula. In terms of “ecological and environmental conditions” the area is ranked the 78<sup>th</sup> out of 83 regions (Table 1).

It can be concluded that measures to protect the environment from pollution have not given significant results, which highlights the importance of the transition from energy and raw materials economy to innovative type of economy. Moreover, environmental innovation is becoming of particular importance.

Environmental innovation (or eco-innovation) includes new products, new technologies, new ways of organizing production and social programs to keep the balance between economic development and conservation of the environment, the movement of society and the principles of sustainable development [9]. Eco-innovation includes industrial solutions based on

Table 1

### Rating of regions of the Russian Federation

Ranking	RF region	General ranking	Income ranking	Social infrastructure and facilities	Environmental situation and climatic conditions	Health care and education	Economic development
1	Moscow	74.56	1	2	55	1	2
5	Krasnodar region	58.79	19	42		8	12
12	Khanty-Mansi Autonomous District	51.33	5	5	69	9	2
18	Kursk region	48.14	32	69	1	19	7
21	Tambov region	46.82	44	58	15	15	28
51	Murmansk region	40.44	11	33	78	21	60
83	Tyva Republic	18.49	82	80	53	81	82

advanced technologies in the field of reducing the consumption of raw natural resources (e.g. Bombardier burns less fuel than similar aircraft), recycling (e.g. AXION manufactures new light and durable building materials from recycled plastic), using “smart” technologies that can improve resource conservation and greater economic efficiency (e.g. E-streets as “smart” lighting in European cities), using alternative sources of energy (e.g. Energy Innovation – HCPV systems are more efficient and require minimal maintenance and optimal costs) [10].

Thus, for transition to sustainable development and the achievement of high quality of life it is necessary to improve the ecological situation in the country. This can be achieved by using a combination of technological, administrative, organizational, social and legal eco-innovation measures aimed at reducing the consumption of raw natural resources, the creation of energy-saving and waste-free technologies that allow for the efficient use of rich natural and human resources of the Russian Federation.

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### **Внедрение экоинноваций как путь к устойчивому развитию экономики и повышению качества жизни**

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**Ключевые слова:** качество жизни; устойчивое развитие; экология; эко-инновации.

**Аннотация:** Рассмотрена актуальная для Российской Федерации проблема загрязнения окружающей среды вследствие антропогенного воздействия. Установлена взаимосвязь между экономикой устойчивого развития, улучшением экологической ситуации и повышением качества жизни. Приведены рейтинговые данные, характеризующие экологическое состояние отдельных субъектов Российской Федерации. В качестве эффективного способа улучшения экологической ситуации предложено использование эко-инноваций.

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