

## Ecological problems and financing environmental protection actions

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### ABSTRACT

Favorable environment is one of the necessary basic elements for survival of mankind, its healthy growth and development. Pure air, clean water and soil are critical to the existence of flora and fauna of the Earth. However, by the development of society, by the advent of industrial revolution and the recognition of anthropocentric model of the world, man began to exploit the land and its resources without due regard to the consequences of adopting such behavior.

**Keywords:** Finances, Ecology, Budget, Regional policy, Protection of the nature.

**Article type:** Research Article.

### INTRODUCTION

Favorable environment is one of the necessary basic elements for survival of mankind, its healthy growth and development. Pure air, clean water and soil are critical to the existence of flora and fauna of the Earth on the whole. However, by the development of society, by the advent of industrial revolution and the recognition of anthropocentric model of the world, man began to exploit the land and its resources without due regard to the consequences of adopting such behavior. There are several studies about financing in environmental sectors around the worlds (Abdoli *et al.* 2010; Moosa Soroushi *et al.* 2016; Azidovich Tatuev *et al.* 2020). There is a large amount of objects that suffer or may suffer from economic activities of mankind. Therefore, in order to carry out record-keeping, to ensure the protection of these objects of ecology, it is necessary to determine which objects fall into the category of objects of environment preservation. At international scale there is no definite document, agreement, which would list all objects of environmental protection. Since the beginning of the 20<sup>th</sup> century, a large number of international agreements and other documents have been adopted, either way, pertaining to nature conservation, where each of them contains objects of environmental protection. Since 1958, about fifty conventions in the field of environmental protection have been ratified only within the UN. Each convention expresses terms, the fulfillment of which prevents any environmental non-compliance in a particular area, and more often - of a particular object of environmental protection. For example, in 1972, Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter the main object is the water resources of the planet, and the object of environmental protection in the 1992 Convention on Biological Diversity is biological resources<sup>1</sup>.

**Table 1.** Objects of environmental protection in accordance with Federal Law № 7 “On Environmental Protection”.

Objects of environmental protection		
Components of the environment	Natural objects	Natural systems
Land, earth resources, soils, surface and ground waters, natural air, plants and animals, and other organisms, as well as the ozone layer and near-Earth space, the totality of them ensuring favorable environment for the existence terrestrial life	natural ecological system, natural landscape and its constituent elements that have preserved their natural properties	A complex of functionally and naturally related natural objects, combined geographical and other corresponding features



The environmental sphere distinguishes the concepts of national and international objects of environmental protection. National objects include land, water, mineral resources, wild animals and other elements of the natural environment that are located on the territory of the state. National objects of the state are freely disposed of, protected and controlled on the basis of laws in the interests of its peoples

## MATERIALS AND METHODS

The study used a systematic approach, methods of analysis and synthesis to identify retrospective and prospective trends in the development of entrepreneurial structures and the factors that determine them.

## RESULTS

International objects of environmental protection are on the international territory. These include space, air, the world ocean and the Antarctic, or objects that move across the territory of different countries. An example of the latter would be migratory animals. These objects do not fall within the jurisdiction of states and are not anyone's national wealth. They are explored and protected on the basis of various treaties, conventions, protocols, reflecting the joint efforts of the international community. There is another category of international objects of the natural environment, which is protected and managed by states, but is taken for the international recording. These are firstly, natural objects of unique value which are put under international control (reserves, national parks, monuments of nature) and secondly, endangered and threatened animals and plants that are red-listed in the International Red Data Book of Threatened Species, and, thirdly shared natural resources, permanently or for a significant part of the year, managed by two or more states (the Danube River, the Baltic Sea, etc.). One of the main problems in the field of environmental protection today is global warming induced by emission of greenhouse gases into the air that cause the greenhouse effect. According to the World Bank, greenhouse-gas emissions have almost tripled for the period of 1960 - 2014. It has triggered an increase of ground temperature by 1.5 °C. Thus, 2016 was the warmest year since 1980<sup>1</sup>. In addition, noteworthy, the accumulation of greenhouse gases occurs at the poles of the Earth, where the vast ice reserves of the planet are concentrated. This brings on melting glaciers, which is accompanied by the sea level rise. According to the satellite data, which have been gathered since 1992, the level of the world ocean for the period of observation increased by 3.5 mm annually, which is 50% faster than it was in the 20<sup>th</sup> century<sup>1</sup>. The rapid sea level rise increases the probability that some countries will go completely under water. These include Nigeria, the Netherlands, some island states such as the Maldives and many other territories. One should keep a strong focus on the problem of the reduction of land dedicated to forest vegetation, which is also called the lungs of the planet. Over the past century, forest area has reduced from 5 to 2.9 billion hectares<sup>3</sup>. This indicator has decreased by 3% for the period from 1990 to 2016 and continue to decrease annually by **Error! Bookmark not defined.**%. Deforestation is exacerbating the situation associated with excessive emissions of greenhouse gases due to the vicious circle – the more the greenhouse effect is formed, the more the temperature on the ground rises, which can cause forest fires, due to which the forest area is reduced, followed by the reduction of forests, and, as a consequence, the loss of absorption of greenhouse gases, leading to an aggravation of the greenhouse effect. Besides, the problem of environmental protection is the problem of depletion of natural resources, in particular, fossil energy sources that exist on our planet in limited quantities – these are oil, gas, coal, uranium, etc. If we speak broadly on the Earth and its resources loading, then the current situation can be considered as critical. There is such a term as *ecological footprint*, which was introduced by Mathis Wackernagel and William Rees in the early 1990s as part of Wackernagel's doctoral research. A little later, in 2003, M Wackernagel initiated the Global Footprint Network, an independent think tank originally based in the United States, Belgium and Switzerland. This organization was created as a charitable NGO in each of these three countries. The Global Footprint Network develops and promotes sustainability tools, including footprint and bio-capacity that measure the amount of resources we use and their reproducibility. The Ecological Footprint is counted in hectares and shows the human “pressure” on the environment. Nowadays, humanity's ecological footprint is estimated at 1.5 planets. That is, we use such an amount of the Earth's resources in one year, the reproduction of which takes 1.5 year<sup>1</sup>. According to Article 42 of the Constitution of the Russian Federation, everyone has the right to a favorable environment. However, unfortunately, in our country a negative environmental background has been forming for several decades. So, according to the “Forecast of long-term socio-economic development of the Russian Federation for the period up to 2030”,

<sup>1</sup> Global footprint network [Electronic resource]. – Access mode: <https://www.footprintnetwork.org> (Accessed on June 20, 2020).



more than 54% of the urban population breathe polluted air in 40 regions of the country, the volume of polluted wastewater discharged into rivers remains at a high level, and there is a tendency towards deterioration of soils and lands.

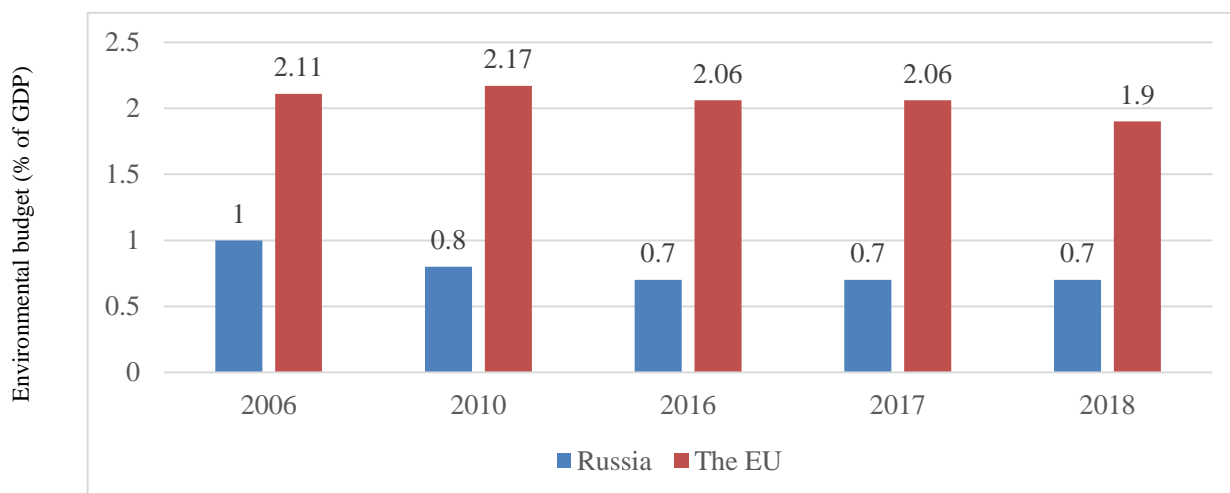
## DISCUSSION AND SUMMARY

Thus, the world community is trying to minimize environmental damage – agreements are signed, roadmaps are developed to minimize environmental damage. Russia is also not lagging behind in this direction. In particular, the Ministry of Environmental Development of the Russian Federation in the “Forecast of the long-term social and environmental development of the Russian Federation for the period up to 2030” has outlined the goals that need to be achieved by our country in the coming decades (see Table 2).

**Table 2.** Indicators of ecological advancement of Russian Federation<sup>1</sup>.

Indicator name	2013	2020	2030
The volume of discharges of pollutants from stationary sources per unit of GDP, ton/million rubles of GDP	0.38	0.3	0.22
Number of cities with high and very high levels of air pollution. units	126	50	34
The volume of generated waste of all hazard classes per unit of GDP. ton/million rubles of GDP	90	73.4	33.8
Investments in fixed assets aimed at environmental protection and harmonious exploitation of natural resources. % of the level of 2007	108	150	203
Greenhouse gas emissions. % of the level of 1990	70	75	70

Funds are needed to achieve these indicators, including enormous financial resources. In the Russian Federation, the total cost of environmental protection is less than 1% of GDP. The same indicator in the EU is more than twice as high as in Russia (see Fig. 1). Once comparing the amount of funding, we also take into account the volume of ecological problems and the area of our country. This indicator can be considered extremely scarce to ensure environmental safety throughout Russia.



**Fig. 1.** Total Expenditure Budget for Environmental Protection in Russia and the EU (% of GDP)<sup>2,3</sup>.

<sup>1</sup> Forecast of long-term socio-economic development of the Russian Federation for the period up to 2030 [Electronic resource]: compiled by MED of Russia – Access from the “Consultant Plus” legal system

<sup>2</sup> Compiled by the author on the basis on: Federal State Statistics Service [Electronic resource]: [Official site]. – Available at: <http://www.gks.ru>.

<sup>3</sup> Compiled by the author on the basis: Eurostat [Electronic resource]. – Access mode: <https://ec.europa.eu/eurostat/> (Accessed on June 20, 2020)

An important indicator in assessing the level and quality of financing environmental protection is also the volume of investments in fixed assets aimed at environmental protection. In 2018, in comparison with 2010, there was double increase in the volume of such investments. However, if we take 2014 as the comparison base, then there is a decrease in the volume of investment in fixed assets aimed at environmental protection and natural resources conservation (see Fig. 2).

A negative indicator is also an indicator of the share of such investments in the total investments in fixed capital assets. For example, in comparison with the countries such as France, Italy, South Korea and Mexico, where the share of investments in fixed capital assets aimed at environmental protection and natural resources conservation in the total investments amounted to over 2% in 2013. In the Russian Federation this indicator is less than 1 %.<sup>1</sup>

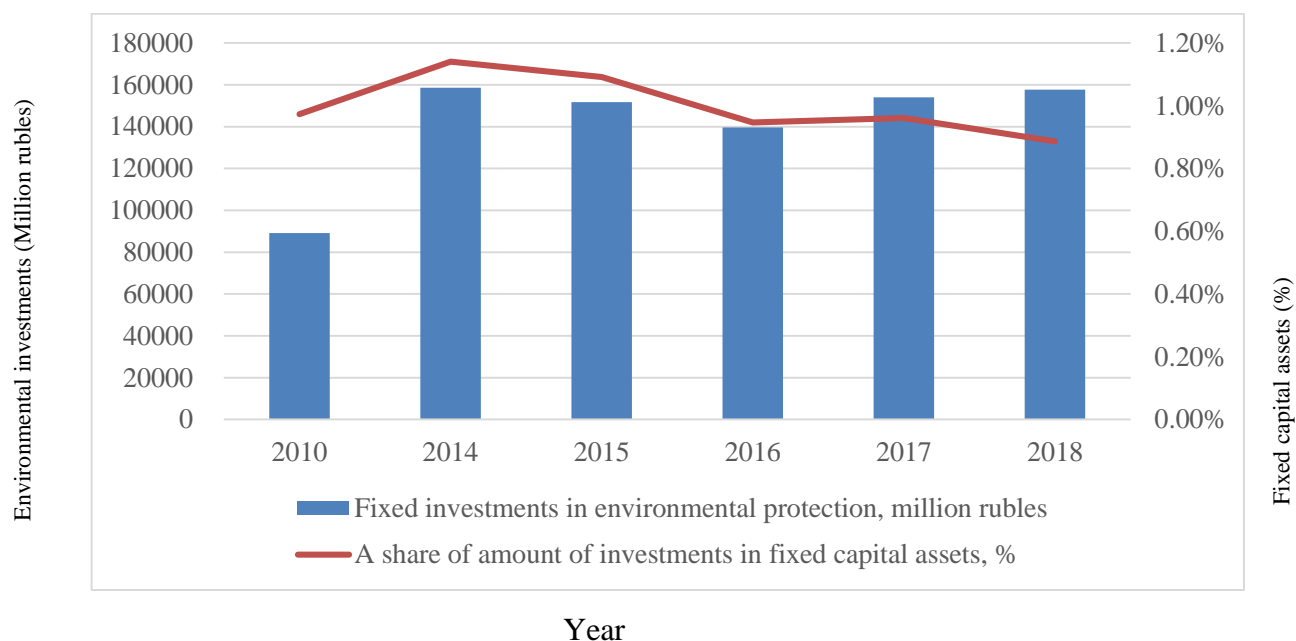


Fig. 2. Dynamics of Investments in Fixed Assets Aimed at Environmental protection and Natural Resources Conservation<sup>2</sup>.

Unfortunately, environmental protection is not very attractive to invest in, due to several factors. At first, low or even zero profitability, and secondly, a long payback period of investments. It is easier and cheaper for organizations and industrial enterprises that have a negative impact on the environment to pay fines for violating environmental legislation than to comply with it and spend their own or borrowed funds on the best available technology acceptance. In addition, many industrial enterprises need to incur costs to reduce damage from environmental pollution and bring it to the regulatory level of cleaning, which may pose a threat to their financial stability.

Traditionally, environmental financing is carried out at the expense of the public sector from the funds of the commercial sector, which includes industrial enterprises the activities of which afflict damage to the environment. It is customary in statistics to fall producers of specialized services for environmental protection into a separate group, which comprehends organizations that provide services for environmental protection.

As can be seen, the largest share in the total spending on environmental protection is occupied by the costs of the for-profit sector, which include annual operating costs aimed at maintaining fixed assets for environmental protection and costs of measures to reduce the negative impact on the environment and investments in fixed assets and others. Public sector expenditures on environmental protection follow closely behind those of the commercial sector. The sector of

<sup>1</sup> A share of "green" investments in Russia. Energy and Environment in Russia [Electronic Resource]: Energy and Environment in Russia – Available at: [https://kislodod.life/analitics/dolya\\_zelenykh\\_investitsiy\\_v\\_rossii\\_menee\\_1\\_v\\_obshchem\\_obeme\\_investitsiy\\_v\\_osnovnoy\\_kapital\\_/](https://kislodod.life/analitics/dolya_zelenykh_investitsiy_v_rossii_menee_1_v_obshchem_obeme_investitsiy_v_osnovnoy_kapital/) (Access date 06.20. 2020)

<sup>2</sup> Compiled by the author on the basis on: Federal State Statistics Service [Electronic resource]: [Official site]. – Available at: <http://www.gks.ru>.

specialized environmental service providers ranks third in terms of the share of environmental financing costs (see Fig. 3). Thus, the public sector, despite a relatively small share in the volume of expenditures on environmental protection makes an enormous difference in this area, spending budget funds to environmental protection measures. Investing in this area, the state fulfills not only its obligations to ensure environmental safety and welfare of the population, but also is a catalyst for investment from the private sector.

However, the possibilities for environmental investments from the state are limited by the amount of funds in the corresponding budgets of the budgetary system. The analysis presented in the article has illustrated the actuality of solution for the issue of funding sources for environmental protection measures, vertical and horizontal zones of responsibility within the framework of ecological problems of different countries of the world, the Russian Federation included.

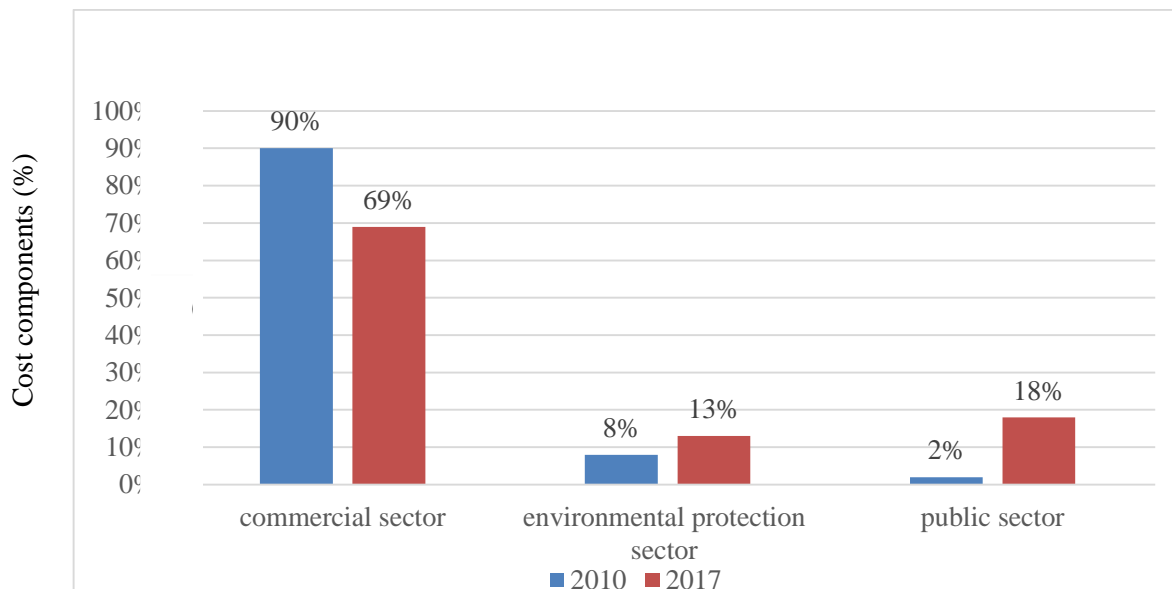


Fig. 3. Environmental cost components by sectors (%)<sup>1</sup>.

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